Inventory and Analysis Report

Florida International University Campus Master Plan Update 2020-2035

DLR Group

CONTENTS

1.0 ACADEMIC MISSION ELEMENT

(1) DATA REQUIREMENTS

a) Current FIU Mission Statement:

"Florida International University is an urban, multi-campus, public research university serving its students and the diverse population of South Florida. We are committed to high-quality teaching, state-of-the-art research and creative activity, and collaborative engagement with our local and global communities."

b) Description of University Service area:

1. Southeast Florida

c) Supplemental policies defining the University's mission:

a. FIU Next Horizon 2025 Strategic Plan Framework
   i. Amplify Learner Success and Institutional Affinity
      - Ensure timely graduation for all admitted students and provide exceptional, accessible, and personalized educational experiences at every level of the university
      - Align curriculum with career needs to ensure employment readiness, postgraduation success, and workforce and industry advancement
      - Connect with alumni and our communities (local, regional, national, global) through targeted marketing and communication campaigns, foster engagement opportunities for current students, and build corporate/business and philanthropic partnerships
   ii. Accelerate Preeminence and Research and Innovation Impact
      - Cultivate novel and interdisciplinary research, scholarship, and creative activities across all levels of the university
      - Support and continue to grow our preeminent programs
      - Amplify our culture of social innovation and entrepreneurship along with increased opportunities for technology transfer
      - Enhance FIU's national and global reputation among prioritized rankings, surveys, and metrics
   iii. Assure responsible stewardship
      - Establish a flexible workforce structure in support of efficiency, productivity, and retention
      - Ensure that all investments are in support of the university and its mission
      - Optimize operations and sustainability performance

b. FIU Next Horizon 2025 Strategic Plan Implementation Process
   i. Establishment of a standing Strategic Plan Steering Committee that meets every quarter to assess and review status reports and implementation budget plans from each implementation committees
   ii. Establish multiple implementation committees, co-chaired by academic and administrative leads, to collaboratively work together with the Steering Committee to prioritize implementation strategies and develop associated implementation budget plans
   iii. Identify source of funding needed to implement FIU Next Horizon through various incremental revenue options, including new state funding, new FIU

funding, and reallocation of FIU funds

iv. Aligning FIU Next Horizon 2025 with unit strategic plans
v. Aligning each FIU Next Horizon 2025 initiative with one or more of the accountability metrics
vi. Set specific annual targets to ensure progress towards meeting the established accountability metrics by 2025
vii. Communicate updates on the progress to the university community through the Communication Protocol for Accountability and Strategic Support (ComPASS)
viii. Call upon all university stakeholder, including faculty, staff, students, alumni, political leaders, Board of Governors, the business and philanthropic communities, and other to join in creating and implementing FIU Next Horizon 2025

(2) ANALYSIS REQUIREMENTS

a) Change in University's Mission Since Its Inception

In 1972, FIU opened its doors to 5,667 students enrolled in upper division undergraduate and graduate programs and began its mission:

"…. To serve the people of southeast Florida, the state, the nation and the international community by imparting knowledge through research and fostering creativity and its expression." Nine years later, in 1981, lower division classes for freshmen and sophomore level students were added to the university. Soon after this, doctoral level degree programs were added.

The mission of the University is reviewed every year following the "Florida International University internal planning process". As with other state universities, modifications of the University mission can be made every five years, following the process established by the State University System of Florida from the Board of Governors for the five-year planning process.

Since opening in 1972, the university has developed into a "comprehensive, multi- campus urban research institution. It provides programs for full and part time degree seeking students and addresses the needs of the lifelong learners, both by traditional and distance learning methods. This expansion of educational programs was a reflected in the University's previous mission statement approved by the Florida Board of Education in 2002:

"Florida International University is an urban, multi-campus, research university serving south Florida, the state, the nation, and the international community. It fulfills its mission by imparting knowledge through excellent teaching, promoting public service, discovering new knowledge, solving problems through research, and fostering creativity."

As Florida International University launches the FIU Next Horizon 2025 Strategic Plan the mission statement has been updated to address emerging goals for the 3rd decade of the 21st century. Through eleven colleges and schools, FIU offers more than 200 bachelor's, master's, and doctoral degree options and top-ranked online programs, including South Florida's only public colleges of law and medicine. Interdisciplinary centers and institutes conduct collaborative research to seek innovative solutions to economic, technological, and social problems. The Next Horizon Vision for FIU, approved by the Florida Board of education in April 2020, reads as follows:

"FIU will achieve exceptional student-centered learning and upward economic mobility, produce meaningful research and creative activities, and lead transformative innovations locally and globally, resulting in recognition as a Top-50 public university."

The new mission now embodies three specific initiatives to guide the University's pursuit to achieve its goals: Achieve enhanced student learning and academic excellence; Enhance the quality, quantity and impact of research and creative initiatives; Engage with the community in collaborative problem solving; the fourth initiative, Revitalize and expand FIU's infrastructure and financial base is not a part of the mission statement but is essential to fulfilling the University mission.

b) Change in the University's Mission Since the Last Master Plan was Prepared

The previous University mission, approved by the Florida Board of Education, Division of Colleges and Universities in 2015 read as follows:

FLORIDA INTERNATIONAL UNIVERSITY is an urban, multi-campus, public research university serving its students and the diverse population of South Florida. We are committed to high-quality teaching, state-of-the-art research and creative activity, and collaborative engagement with our local and global communities.

The current University mission, approved by the Florida Board of Education, Division of Colleges and Universities in the Summer of 2019, is focused on achieving exceptional student-centered learning and upward economic mobility, produce meaningful research and creative activities, and lead transformative innovations locally and globally, resulting in recognition as a Top-50 public university.

The new mission now embodies three specific initiatives to guide the University's pursuit to achieve its goals: Amplify learner success and institutional affinity; Accelerate preeminence and research and innovation impact; and assure responsible stewardship.

c) University Response to Roles Established by The Board of Governors for the State University System

FIU's rapid increases in research and academic programs are evidence that FIU aims to fulfill its role as a major, multi-campus, public university serving the diverse urban community of South Florida. Its current mission is committed to high-quality teaching, state-of-the-art research and creative activity, and collaborative engagement with our local and global communities.

Under the leadership of Dr. Mark B. Rosenberg since 2009, the University has been guided by the Florida Board of Education, Division of Colleges and Universities Master and Strategic Plans, the University Mission Statement and the FIU Next Horizon 2025 Strategic Plan, the University's strategic plan for the three decades of the twenty-first century. As a result, the University has grown at the lower division, the upper division and graduate level; academic programs have increased to meet the demands of this growth.

2.0 ACADEMIC PROGRAM ELEMENT

(1) DATA REQUIREMENTS

a) Headcount Enrollment, Undergraduate and Graduate, for Last Available Fall Term 2019, by Campus

Florida International University provides a vast and rapidly expanding array of educational opportunities for the 58,787 students enrolled in the fall 2019 academic degree programs. Most of these students take classes at Modesto A. Maidique Campus, though a large percentage of students take classes at more than one campus due to the availability of course offerings. This attendance at multiple campuses creates an exaggerated headcount found at each location (see Table 2.1).

In addition to the students found on-campus, there are a number of students who are enrolled in off-campus degree programs, either out of the country or on an independent basis. These students are currently a small percentage of the total University headcount. However, as technology continues to expand, more students are expected to enroll in these types of programs.

Figure 2.1 Student Enrollment (Fall 2019)

Overall Headcount and Full-Time Equivalent

		CURRENT (Fall 2019)		
Campus Location	Course Level	HC *	% of Total	FTES
Modesto A. Maidique Campus	Lower	10,674	0.182	7,380
	Upper	13,616	0.232	9,414
	Graduate I	3,247	0.055	2,245
	Graduate II	2,086	0.035	1,442
	MD	-	-	-
Modesto A. Maidique Campus Total		29,622		20,481
Biscayne Bay Campus	Lower	976	0.017	675
	Upper	2,070	0.035	1,431
	Graduate I	336	0.006	232
	Graduate II	36	0.001	25
Biscayne Bay Campus Total		3,418		2,363
Engineering Center	Lower	359	0.006	248
	Upper	1,504	0.026	1,040
	Graduate I	178	0.003	123
	Graduate II	175	0.003	121
Engineering Center Total		2,216		1,532
Online	Lower	3,645	0.062	2,520
	Upper	12,548	0.213	8,676
	Graduate I	2,424	0.041	1,676
	Graduate II	252	0.004	174
Online Total		18,869		13,046
Other	Lower	2,250	0.038	1,556
	Upper	930	0.016	643
	Graduate I	1,293	0.022	894
	Graduate II	189	0.003	131
Other Total		4,663		3,224
	Total Undergraduate	48,572		33,583
	Total Graduate	10,215		7,063
University Total		58,787	1.000	40,646

Source: FIU Office of Analysis and Information Management

b) FTE Enrollment, Undergraduate and Graduate, for Each College and By Campus (Fall 2019)

When evaluating student enrollment, it is necessary to make projections in terms of full time equivalent (FTE) student enrollment which takes the total University headcount enrollment and converts all the part-time and full-time students into full- time enrollment (see Table 2.2). This conversion factor and all enrollment projections have been calculated by the FIU Office of Institutional Research staff for the use of this Campus Master Plan.

Table 2.2 Full Time Equivalent (FTE) enrollment by College and Campus (Fall 2019)

Campus Location	Course Level	College of Arts, Sciences & Education	College of Business	School of Intern'l & Public Affairs	College of Comm, Arch & Arts	College of Engineering & Computing	College of Nursing & Health Sci	School of Hospitality & Tour. Mgmt	College of Pub Health & Soc Work	College of Law	Honors College	College of Medicine	Other
Modesto A. Maidique Campus	Lower	5,014	115	1,115	717	195		26	82		118		3
	Upper	3,779	2,029	1,529	695	696	237	15	247		189		8
	Graduate I	286	466	166	512	123	309	2	245	40		100	
	Graduate II	326	23	123	1	62	319		57	524		8	
	MD												
Modesto A. Maidique Campus Total		9,405	2,633	2,933	1,925	1,076	865	43	631	564	307	108	11
Biscayne Bay Campus	Lower	471		99	32	10		63					
	Upper	402	127	11	396		154	342					
	Graduate I	25			43		34	130					
	Graduate II	24						1					
Biscayne Bay Campus Total		922	127	110	471	10	188	536	-	-	-	-	-
Engineering Center	Lower	37				209					2		
	Upper					1,041							
	Graduate I					123							
	Graduate II					121							
Engineering Center Total		37	-	-	-	1,494	-	-	-	-	2	-	-
Online	Lower	962	51	708	332	350		61	58				
	Upper	2,033	2,082	1,840	1,157	739	441	287	52		50		
	Graduate I	252	720	176	86	139	148	72	96				
	Graduate II	8		11		3	144		5	4			
Online Total		3,255	2,853	2,735	1,575	1,231	733	420	211	4	50	-	-
Other	Lower	830	30	355	140	68		133					1
	Upper	78	102	96	8	7		346			2		4
	Graduate I	33	559	13	59	37		2				193	
	Graduate II	4	50				28						
Other Total		945	741	464	207	112	28	481	-	-	2	193	5
	Total Undergraduate	13,606	4,536	5,753	3,477	3,315	832	1,273	439	-	361	-	16
	Total Graduate	958	1,818	489	701	608	982	207	403	568	-	301	-
University Total		14,564	6,354	6,242	4,178	3,923	1,814	1,480	842	568	361	301	16

Source: FIU Office of Analysis and Informational Management, Tableau Course Enrollment Dashboard

c) Headcount Enrollment by Major, for Each College and Campus

The University is made up of nine colleges and two schools: College of Communication, Architecture & The Arts, College of Arts, Sciences & Education, College of Business, College of Engineering and Computing, Honors College, College of Law, Wertheim College of Medicine, Wertheim College of Nursing & Health Sciences, Stempel College of Public Health and Social Work, School of International & Public Affairs, Chaplin School of Hospitality and Tourism Management, and University Graduate School. The Honors College is a program and offers no major. Many courses in the Colleges of Arts, Sciences and Education and College of Engineering and Computing are duplicated at each campus. The Schools of Hospitality and Tourism Management conduct most of their concentration courses at the Biscayne Bay Campus.

Table 2.3 Headcount Enrollment and Projections by Colleges

Overall Headcount

	2019			2025			2035		
COLLEGE	Undergraduate	Graduate	Total	Undergraduate	Graduate	Total	Undergraduate	Graduate	Total
Chaplin School of Hospitality and Tourism Management	1,565	254	1,819	1,543	264	1,808	1,543	264	1,808
College of Arts, Sciences and Education	16,143	1,520	17,663	15,921	1,582	17,503	15,921	1,582	17,503
College of Business	7,867	2,133	10,000	7,759	2,220	9,979	7,759	2,220	9,979
College of Communication, Architecture and the Arts	3,457	538	3,995	3,409	560	3,969	3,409	560	3,969
College of Engineering & Computing	6,045	1,068	7,113	5,962	1,111	7,073	5,962	1,111	7,073
College of Law	516		516	537		537	537		537
Green School of International and Public Affairs	4,973	771	5,744	4,905	802	5,707	4,905	802	5,707
Stempel College of Public Health & Social Work	453	560	1,013	447	583	1,030	447	583	1,030
Wertheim College of Medicine	633		633	659		659	659		659
Wertheim College of Nursing & Health Sciences	1,292	1,005	2,297	1,274	1,046	2,320	1,274	1,046	2,320
Other	7,994		7,994	8,000		8,000	8,000		8,000
			58,787			58,584			58,584

Source: FIU Office Institutional Research 2019

d) Headcount in Non-Fundable Programs (E.G., Continuing Education)

No data was provided regarding enrollment information for non-fundable and fundable programs.

In accordance with the University mission, FIU has committed itself to providing a quality education to the South Florida area by offering programs at locations both on and off campus. University Outreach advances the mission of Florida International University by delivering quality lifelong learning programs. The Division offers academic credit, distance learning, and professional development and personal enrichment programs in partnership with FIU's academic units. Non-fundable programs are not funded by the state and do not generate FTEs (i.e., Sponsored Credit and Self-Supporting). These types of programs/courses are either paid by the students or by a sponsor.

e) Headcount Enrollment of All Other Activities Which Generate Facility Usage, By Campus and By College

This information does not exist currently. The University is in the process of conducting a study to assess other campus activities that generate facility usage.

f) Inventory of All Degree Programs by College (Fall 2019)

Within the University structure, there are 202 baccalaureate, master's, and doctoral majors and 277 academic degree programs. Majors are fields of study with areas of concentration, tracks, or sequences. Authorized degree programs may have more than one major in a degree program (see Table 2.4). The Honors College is a non-traditional program pursued in conjunction with a major area of study.

Table 2.4 Degree Programs by College (Fall 2019)

College	Major	Baccalaureate	Masters & Specialist	Doctorate	Law	Medicine
Chaplin School of Hospital..	Hospitality Administration/Mana..	BA BS	MS			
College of Arts, Sciences and Education	Adult & Continuing Teacher Ed		MS	EDD		
	Applied Math/Math Sciences		MS	PhD		
	Biochemistry	BA BS		PhD		
	Biology, General	BA BS	MS	PhD		
	Chemistry	BA BS	MS	PhD		
	Counselor Ed./Student Counselin..		MS			
	Creative Writing		MFA			
	Curriculum & Instruction		EDS MS	EDD PhD		
	Ed. Admin/Leadership, General		EDS MS	EDD		
	Elementary Teacher Ed	BA BS				
	English Teacher Ed	BA				
	English, General	BA	MA			
	Environmental Studies	BA BS	MS			
	Exercise Sci/Physiol/Mvmnt Studi..		MS			
	Foreign Languages Teacher Ed		MS			
	Forensic Science		MS PSM			
	Geology	BA BS	MS	PhD		
	Higher Ed. Administration		MS	EDD PhD		
	Independent/Interdisc./Comparat..	BA				
	Interdisc. Biological & Physical Sci..	BA				
	International & Comparative Ed		MS			
	Liberal Arts & Sciences	BA	MA			
	Linguistics		MA			
	Marine/Aquatic Biology	BA BS				
	Mathematics, General	BA BS				
	Multi-/Interdisciplinary Studies, ..	BA				
	Natural Resources Management a..		PSM			
	Philosophy	BA				
	Physical Ed. Teaching & Coaching	BA BS	MS			

	Physics	BA BS	MS	PhD
	Physiological Psychology/Psycho..	BA BS		
	Pre-Elem/Early Childhood Teacher..	BA BS	MS	
	Psychology, General	BA	MS	PhD
	Reading Teacher Ed		MS	
	Recreation, Leisure Studies	BA BS	MS	
	School Psychology		EDS	
	Special Ed, General	BA BS	MS	EDD
	Statistics	BS	MS	
	Sustainability Studies	BA		
	Urban Education and Leadership		MS	
	Women's Studies	BA		
College of Business	Accounting	BA BACC	MACC	
	Business Administration and Man..	BA BBA	MBA	DBA PhD
	Business Marketing Management	BA BBA	MS	
	Computer Systems Analysis/Anal..		MS	
	Finance, General	BA BBA	MSF	
	Human Resources Management	BA BBA	MS	
	Information Resources Managem..		MS	
	International Business Managem..	BA BBA	MIB	
	International Real Estate		MS	
	Logistics & Materials Mgt	BA BBA	MS	
	Management Science	BA BBA		
	Medical Informatics		MS	
	MGMT Info Systems/Busi Data Pr..	BA BBA		
	Real Estate	BA BBA		
College of Communication, Architecture and the Arts	Architectural and Building Scienc..		MARCH	DDES
	Architecture		MA MARCH	
	Art History & Appreciation	BA		
	Art Teacher Ed	BA BS	MAT MS	
	Communication (Mass)	BA BS	MS	
	Digital Arts	BA BFA		
	Dramatic Arts	BA BFA		
	Interior Architecture		MA MIA	
	Landscape Architecture		MA MLA	

	Multimedia Studies	BA BS			
	Music Teacher Ed		MS		
	Music, General	BA BM	MM		
	Organizational Communication, G..	BA MARCH			
	Public Relations, Advertising, and..	BA BS			
	Studio/Fine Art	BA BFA	MFA		
	Visual Art, General	BA			
College of Engineering & Computing	Biomedical Engineering	BA BS	MS	PhD	
	Civil Engineering	BA BS	MS	PhD	
	Computational Science		MS		
	Computer & Information Science	BA BS	MS	PhD	
	Computer and Information Scienc..		MS		
	Computer and Information Syste..	BA BS	MS		
	Computer Engineering	BA BS	MS		
	Construction/Building Tech	BA BS	MS		
	Electrical, Electronics Engin	BA BS	MS	PhD	
	Engineering and Computing Educ..	BS		PhD	
	Engineering Management		MS		
	Engineering Related Technol./Tec..	BA BS			
	Engineering, General	BA BS			
	Engineering/Industrial Managem..		MS		
	Environmental Health Engin	BA BS	MS		
	Industrial & Systems Engin		MS		
	Information Technology	BA BS	MS		
	Materials Engineering		MS	PhD	
	Mechanical Engineering	BA BS	MS	PhD	
	Telecommunications Engineering		MS		
College of Law	Advanced Legal Research/Studies..		JMAST		
	American Law for Foreign Lawyers		LL.M.		
	Law				JD
Green School of International and Public Affairs	African-American (Black) Studies		MA		
	Asian Studies	BA	MA		
	Criminal Justice Studies	BA BS	MS	PhD	
	Criminalistics and Criminal Science	BA BS			
	Economics	BA BS	MA	PhD	

	French	BA			
	Geography	BA			
	History	BA	MA	PhD	
	International Relations	BA	MA	PhD	
	International/Global Studies	BA	MA	PhD	
	Latin American and Caribbean Stu..	BA			
	Latin American Studies		MA		
	Political Science & Government	BA	MA	PhD	
	Portuguese	BA			
	Public Administration	BA BPA BPPS	MPA	PhD	
	Religious Studies	BA	MA		
	Sociology	BA	MA		
	Spanish	BA	MA	PhD	
Stempel College of Public Health & Social Work	Clinical/Medical Social Work		MSW		
	Crisis/Emergency/Disaster Mana..	BA	MA		
	Dietetics/Nutritional Services	BA BS	MS	PhD	
	Public Health		MPH	PhD	
	Social Work, General	BA BS		PhD	
Wertheim College of Medicine	Biomedical Sciences			PhD	
	Medicine (M.D.)				M.D.
	Physician Assistant		MPAS		
Wertheim College of Nursing & Health Sciences	Adult Health Nurse/Nursing		MSN		
	Athletic Training		MS	DAT	
	Family Health		MSN		
	Health Services Administration	BA BHSA	MHSA		
	Nurse Anesthetist		MSN		
	Nursing Practice			DNP	
	Nursing Science Research			PhD	
	Nursing/Registered Nurse	BA BSN	MSN		
	Occupational Therapy		MS		
	Pediatric Nurse/Nursing		MSN		
	Physical Therapy			DPT	
	Psychiatric/Mental Health Nurse/..		MSN		
	Speech Pathology and Audiology		MS		

Source: State University System of Florida, Degree Programs Inventory 2020

g) Distribution of Faculty and Staff (Fall 2019)

Table 2.5 Distribution of Total Headcount of Faculty and Staff by Campus (2019)

Campus Location		CURRENT (Fall 2019) HC	CURRENT (Fall 2019) FTES
Modesto A. Maidique Campus		**7,668**	**7,171**
	Faculty	3,198	3,070
	Staff	4,470	4,101
Biscayne Bay Campus		**338**	**326**
	Faculty	87	85
	Staff	251	241
Engineering Center		**143**	**140**
	Faculty	78	77
	Staff	65	63
University Total		**8,149**	**7,637**

Source: FIU Division of Human Resources

Table 2.6 a-c Distribution of Total Headcount of Faculty and Staff by College and by Campus (Fall 2019)

Table 2.6a Modesto A. Maidique Campus Faculty and Staff Headcount by College

Modesto A. Maidique Campus		CURRENT (Fall 2019) HC	CURRENT (Fall 2019) FTES
College of Arts, Sciences & Education		1,502	1,309
	Faculty	709	694
	Staff	793	615
College of Business		331	325
	Faculty	137	133
	Staff	194	192
School of Intern'l & Public Affairs		383	368
	Faculty	264	256
	Staff	119	112
College of Comm, Arch & Arts		224	214
	Faculty	141	136
	Staff	83	78
College of Engineering & Computing		312	277
	Faculty	186	177
	Staff	126	100
College of Nursing & Health Sci		174	168
	Faculty	101	99
	Staff	73	69
School of Hospitality & Tour. Mgmt		-	7
	Faculty	-	7
	Staff	-	-
College of Pub Health & Soc Work		231	203
	Faculty	106	100
	Staff	125	103
College of Law		99	92
	Faculty	43	39
	Staff	56	53
Honors College		22	22
	Faculty	6	6
	Staff	16	16
College of Medicine		1,673	1,582
	Faculty	1,354	1,288
	Staff	319	294
Other		2,717	2,604
	Faculty	151	135
	Staff	2,566	2,469
Campus Total		**7,668**	**7,171**

Table 2.6b Biscayne Bay Campus Faculty and Staff Headcount by College

Biscayne Bay Campus		CURRENT (Fall 2019) HC	CURRENT (Fall 2019) FTES
College of Arts, Sciences & Education		53	52
	Faculty	16	16
	Staff	37	36
College of Comm, Arch & Arts		44	43
	Faculty	21	20
	Staff	23	23
College of Nursing & Health Sci		3	3
	Faculty		
	Staff	3	3
School of Hospitality & Tour. Mgmt		89	87
	Faculty	48	48
	Staff	41	39
College of Pub Health & Soc Work		1	1
	Faculty	1	1
	Staff		
Other		148	141
	Faculty	1	1
	Staff	147	140
Campus Total		**338**	**327**

Table 2.6c Engineering Center Campus Faculty and Staff Headcount by College

Engineering Center		CURRENT (Fall 2019) HC	CURRENT (Fall 2019) FTES
College of Engineering & Computing		117	115
	Faculty	71	70
	Staff	46	45
Other		26	25
	Faculty	7	7
	Staff	19	18
Campus Total		**143**	**140**

Source: FIU Office of Institutional Research-Fall 2019

(2) ANALYSIS REQUIREMENTS

a) Projections of Anticipated Academic Degree Programs for Year 2035

The 2020 Accountability Plan included several anticipated academic degree programs. See below.

Table 2.7 New Programs for Consideration by Institution

PROGRAM	Area of Strategic Emphasis
Undergraduate	
Engineering Management	STEM
Global Sustainable Tourism	STEM
Music Education	Education
Public Health	Health
Master's, Specialist and Other Advanced Master's Programs	
Business Analytics	STEM
Cognitive Neuroscience	STEM
Health Science	Health
Genetic Counseling	Health
Marine Affairs	STEM
Molecular and Biomedical Sciences	STEM
Doctoral Programs	
Cognitive Neuroscience	STEM
Counseling and School Psychology	Education
Digital Communication and Media	STEM
Linguistics	Global

Source: FIU 2020 Accountability Plan

b) Distribution of Projected FTE Enrollment by Campus, Undergraduate and Graduate for 2025, 2035 & Long-term

Table 2.8 Projections for Future Student FTE Enrollment

		2019	2025	2035
Campus Location	Course Level	FTES	FTES	FTES
Modesto A. Maidique Campus	Undergraduate	16,794	16,794	16,794
	Graduate	3,687	3,687	3,687
	MD	-	-	-
Modesto A. Maidique Campus Total		20,481	20,481	20,481
Biscayne Bay Campus	Undergraduate	2,106	2,106	2,106
	Graduate	257	257	257
Biscayne Bay Campus Total		22,844	22,844	22,844
Engineering Center	Undergraduate	1,288	1,288	1,288
	Graduate	244	244	244
Engineering Center Total		24,376	24,376	24,376
Online	Undergraduate	11,196	11,196	11,196
	Graduate	1,850	1,850	1,850
Online Total		37,422	37,422	37,422
Other	Undergraduate	2,199	2,199	2,199
	Graduate	1,025	1,025	1,025
Other Total		40,646	40,646	40,646
	Total Undergraduate	33,583	33,583	33,583
	Total Graduate	7,063	7,063	7,063
University Total		40,646	40,646	40,646

Source: FIU Office of Analysis and Information Management, Tableau Course Enrollment Dashboard

c) Anticipated Student Headcount Distributed by Campus for Year 2025, 2035 & Long-term of the Planning Time Frame

Table 2.9 Projections for Future Student Headcount Enrollment

		2019	2025	2035
Campus Location	Course Level	HC	HC	HC
Modesto A. Maidique Campus	Undergraduate	24,289	24,289	24,289
	Graduate	5,333	5,333	5,333
	MD	-	-	-
Modesto A. Maidique Campus Total		29,622	29,622	29,622
Biscayne Bay Campus	Undergraduate	3,046	3,046	3,046
	Graduate	372	372	372
Biscayne Bay Campus Total		3,418	3,418	3,418
Engineering Center	Undergraduate	1,863	1,863	1,863
	Graduate	353	353	353
Engineering Center Total		2,216	2,216	2,216
Online	Undergraduate	16,193	16,193	16,193
	Graduate	2,676	2,676	2,676
Online Total		18,869	18,869	18,869
Other	Undergraduate	3,180	3,180	3,180
	Graduate	1,482	1,482	1,482
Other Total		4,662	4,662	4,662
	Total Undergraduate	48,571	48,571	48,571
	Total Graduate	10,216	10,216	10,216
University Total		58,787	58,787	58,787

d) From this projected headcount enrollment in Year 2035, estimate the proportion of enrollment represented by:

On-campus resident students, off-campus students residing within mile of campus and all other off-campus students.

This information does not exist currently. A special study will be required to obtain this data.

3.0 URBAN DESIGN ELEMENT

PURPOSE

The purpose of this element is to develop an understanding of the overall physical form of the development within the University and its relationship to the surrounding community. Organizational principles are provided for the future development of the campus based on this understanding.

The Urban Design Element is divided into the following sections:

- Data gathering: An assessment of current conditions of the campus, improvements made since the completion of the previous master plan and projects currently under development or design development
- Analysis Requirements A review of the historical development patterns of the campus with areas of future design emphasis or improvement.

(1) DATA REQUIREMENTS. THIS ELEMENT SHALL BE BASED, AT A MINIMUM, ON THE FOLLOWING DATA AND/OR INFORMATION:

a) A description of the spatial form of existing development on the campus and in the context area.

1. Campus open spaces character—a qualitative description of the existing spatial organization, enclosure, activity, and symbolic associations.

MODESTO MAIDIQUE CAMPUS

The Modesto Maidique Campus is located in suburban Miami-Dade County, at the intersection of Homestead Extension of Florida's Turnpike (S.R. 821) and Tamiami Trail (SW 8th Street/U.S. 41). The 342.2-acre campus is bound by the Turnpike and major arterial roads to the west, north and east. Tamiami Park creates a soft edge to the campus to the south. The area around the campus is characterized by 1960s-70s single family residential development in a rectilinear grid, with traditional strip commercial, multifamily homes and apartments along the arterial roads facing the campus. The community of Sweetwater, immediately north of the campus across Tamiami Canal, includes single-family residential with some multi-family homes and apartments and traditional strip commercial along SW 107th Avenue and West Flagler Street.

Within its boundaries, the campus has a typical suburban campus layout featuring a winding loop road around a pedestrianized campus core. The Campus Greenbelt loop road is offset between 500 to 850 feet from the arterial roads to the north and east. A secondary loop gives access to the campus support complex located between the campus core and the Turnpike. Campus buildings housing academic and academic support functions, and most of the on-campus student housing is located inside the campus loop road. The area between the loop road and the arterial roads contains recreational and support facilities, the Performing Arts Center, graduate apartments, and natural areas. Structured parking and surface parking areas are located both inside and outside the Greenbelt.

Modesto A. Maidique Campus has two main entrances, from SW 8th Street at SW 112th Avenue and from SW 107th Street at SW 16th Street. Four secondary entrances feed into the Greenbelt, including two new entrances constructed since 2012. Two additional entrances are located along SW 117th Avenue but is limited access to Carlos Finlay Elementary School and FIU Campus Support Complex.

The guiding urban design principles of the Modesto A. Maidique Campus are:

- Axial planning
- Open space development
- Continuity of design associations / campus and architectural character

The formation of these elements allows for a denser urban pattern to evolve within the campus core without compromising the collegiate character of the campus.

Axial planning: Axial planning is visible from the bird's-eyes view of the campus, with the opportunity to create strong pedestrian vistas and the ability to assist in wayfinding and ADA improvement. All encompassed within the main campus roadway circulation, reassessing accessibility and pedestrian circulation will be vital to future campus planning.

The buildings within the campus core are organized along two major axes:

- Extends east from the Ocean Bank Convocation Center to the Green Library, continuing along the Graham Center to the University Apartments
- Extends diagonally (northeast) from the residential housing district, including Panther Residence Hall / Everglades Hall / Parkview I & II, to the emerging Academic Health Center complex, continuing to the intersection of SW 8th Street and SW 107th Avenue

The two main campus entrances also intersect with the major axes:

- <u>SW 112th Avenue Entrance (at SW 8th Street)</u>: This entrance has a double-arched gateway structure leading into the "Mall" planted with Royal Palms. The mall terminates at the Ryder Business Administration Building
- <u>16th Street Entrance (at SW 107th Avenue)</u>: This entrance is flanked by curved symmetrical walls and towers, leading into a wide boulevard lined with Royal Palms. The view terminates on a large modern sculpture placed in a roundabout, Alexander Liberman's 'Argosy' (1980), beyond which the boulevard leads to the Management and Research Center

Quadrangles: Quadrangles are primarily enclosed areas defined by the buildings that surround them. They serve to focus attention on the major facades, direct movement toward entrances and serve as a foreground for buildings. Six quadrangles can be identified: The initial "quad" at Modesto A. Maidique Campus, which is referred to as "Foundation Court", is located at the center of the campus core and is surrounded by four buildings, Charles Perry building (Primera Casa), Graham Center, Green Library and Deuxieme Maison. An irregular defined quad is framed by the Graham Center, the Green Library, Owa Ehan, Chemistry & Physics buildings, and with the newly development Health buildings. An additional quad at the Panther and Everglades Housing defines the end of this axis. Another important quad is the one surrounded by the Green Library, Engineering & Computer Science building, Viertes Haus and Owa Ehan buildings, a lake occupies the east half of the space determining circulation. Additional quads occur adjacent to Rafael Diaz-Balart Hall, Ryder Business building and School of International and Public Affairs and adjacent to the PG1/Gold and PG2/Blue Parking Decks. These spaces have developed overtime varying levels of area, scale of buildings and landscape design.

Courtyards: Another prominent design feature that accentuates the importance of outdoor spaces at Modesto A. Maidique Campus is its building courtyards. Building concepts are often organized around courtyards, and the courtyards express the personality of the facilities. Two courtyards can be found at the Rafael Diaz-Balart Hall completely enclosed by the building as well as the Ziff Education and Owa Ehan buildings. The College of Business courtyard is defined by two 'L' shape buildings leaving open access and creating diagonal circulation. The Architecture School courtyard is contained within four buildings and the covered walkways that connect them. The ECS courtyard is defined by an 'H' shape building and an elevated walkway that encloses the south space. The CSC courtyard has two distinct spaces separated by a covered walkway, to the east a more traditional courtyard design with walkways in a cross shape and to the west a radial design that starts at a fountain.

Form, Pattern, Materials, Texture, and Color: The continuity of design associations is an important unifying element for campus development at Modesto A. Maidique Campus. A consistency in form, pattern, materials, texture, and color connects individual architectural and landscape architectural elements to form an overall fabric. Established themes on campus such as arched colonnades, Oolitic Limestone (Keystone) finishes with tan, cream and pastel coral finishes, architectural accents of keystone coral, consistent site furnishings and lighting, and repetition of landscape patterns all contribute to the overall integrity of the campus.

Most of the walkways and plazas on campus are concrete; recently brick pavers are being used to define special gathering and circulation areas such as the Green Library breezeway and within the Foundation Court.

Figure 3.1 Axial Planning – MODESTO A. MAIDIQUE CAMPUS

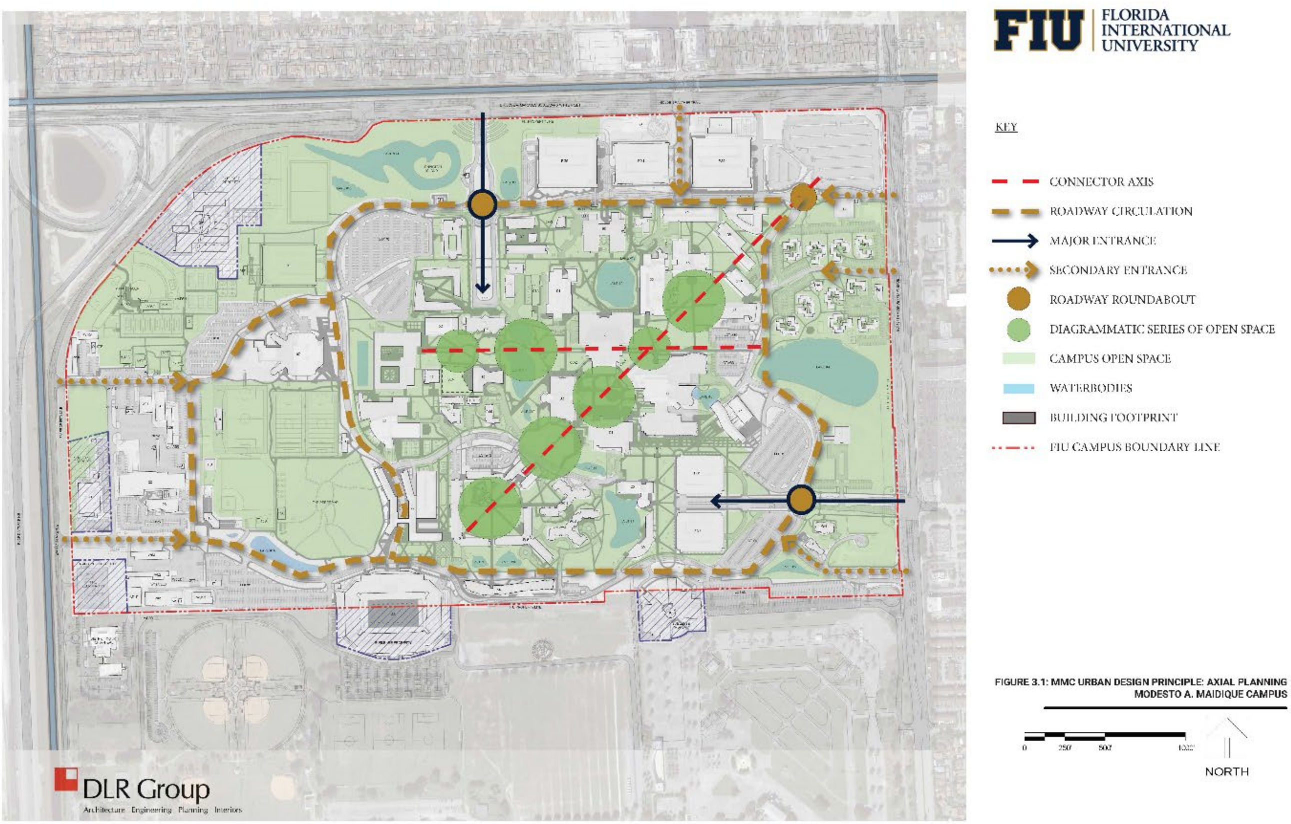
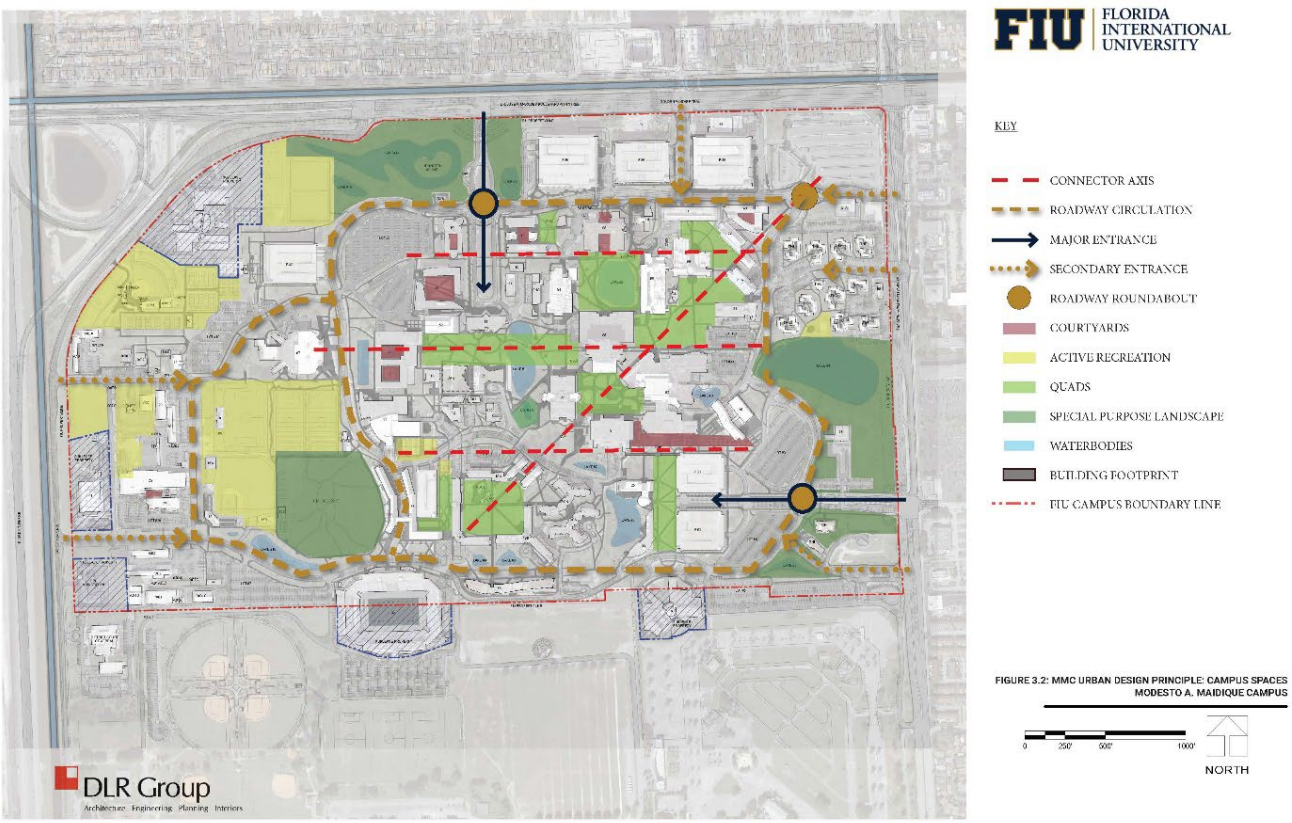


Figure 3.2 Campus Spaces – MODESTO A. MAIDIQUE CAMPUS



ENGINEERING CENTER

A previous office park, the campus is primarily defined by its surface parking lots and remaining open space. It is bounded by West Flagler Avenue to the south, NW 10th Avenue to the west, existing residential to the north and a public park to the east. The campus has two campus entry points that are a part of a simple automobile circulation. The campus has an opportunity to improve spatial organization and open space amenities.

The guiding principles for urban design at Engineering Center is the development of axial planning, the development of defined open spaces such as quadrangles and courtyards, along with the development of design associations developed at Modesto Maidique Campus. Additionally, creating a connection to the surrounding community through development or public parks should be explored to strengthen the appeal of the campus and integrate into the area.

Quadrangles & Courtyards: There are no existing quads on campus. The existing internal greenspace is bordered by parking with minimal tree cover. Utilizing the open space between the solar carports is an opportunity to provide a future campus quad or courtyard.

Form, Pattern, Materials, Texture, and Color: The existing form at Engineering Center is that of a traditional office building. Future building placement is imperative in creating a “campus like” environment. "Re- skinning" of the existing office building should be considered to develop a similar design association and unifying elements similar to that of the Modesto A. Maidique Campus to conceptually link the campuses but should be weighed against potential environmental and cost impacts.

Figure 3.3 Axial Planning – ENGINEERING CENTER

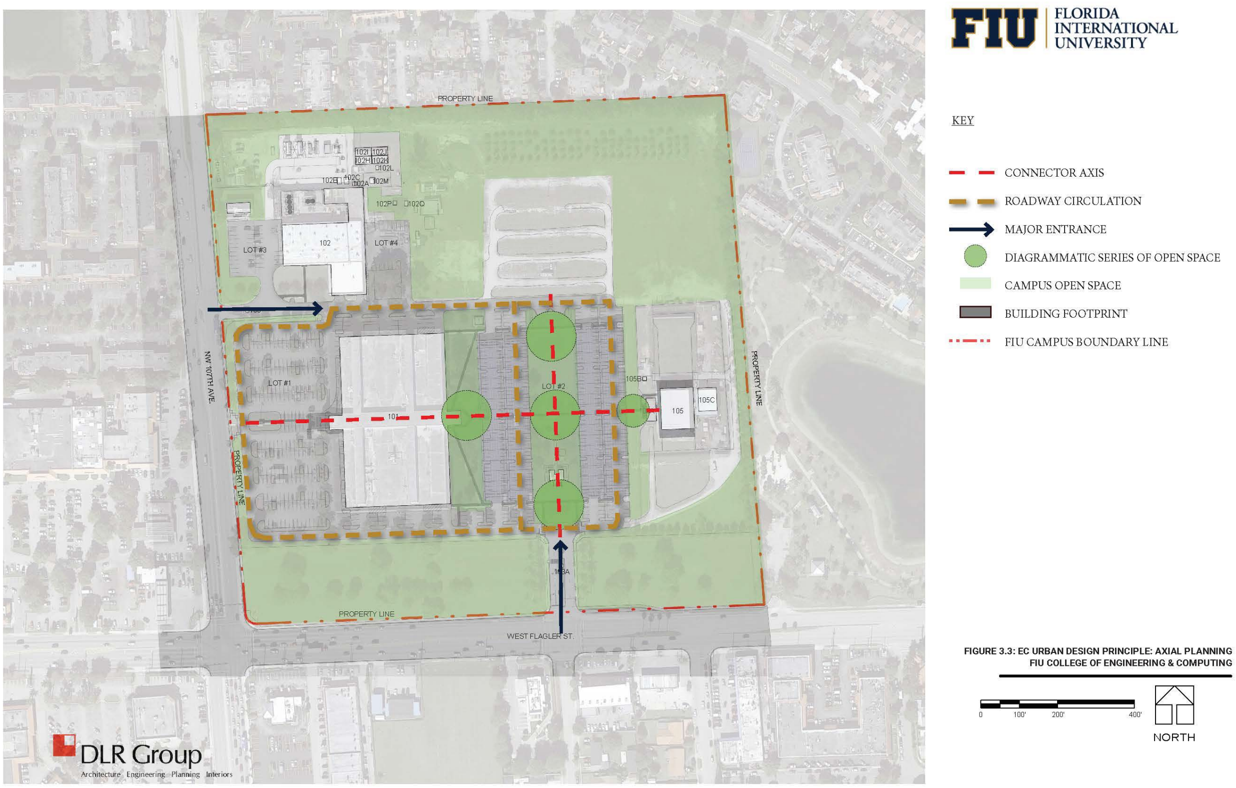
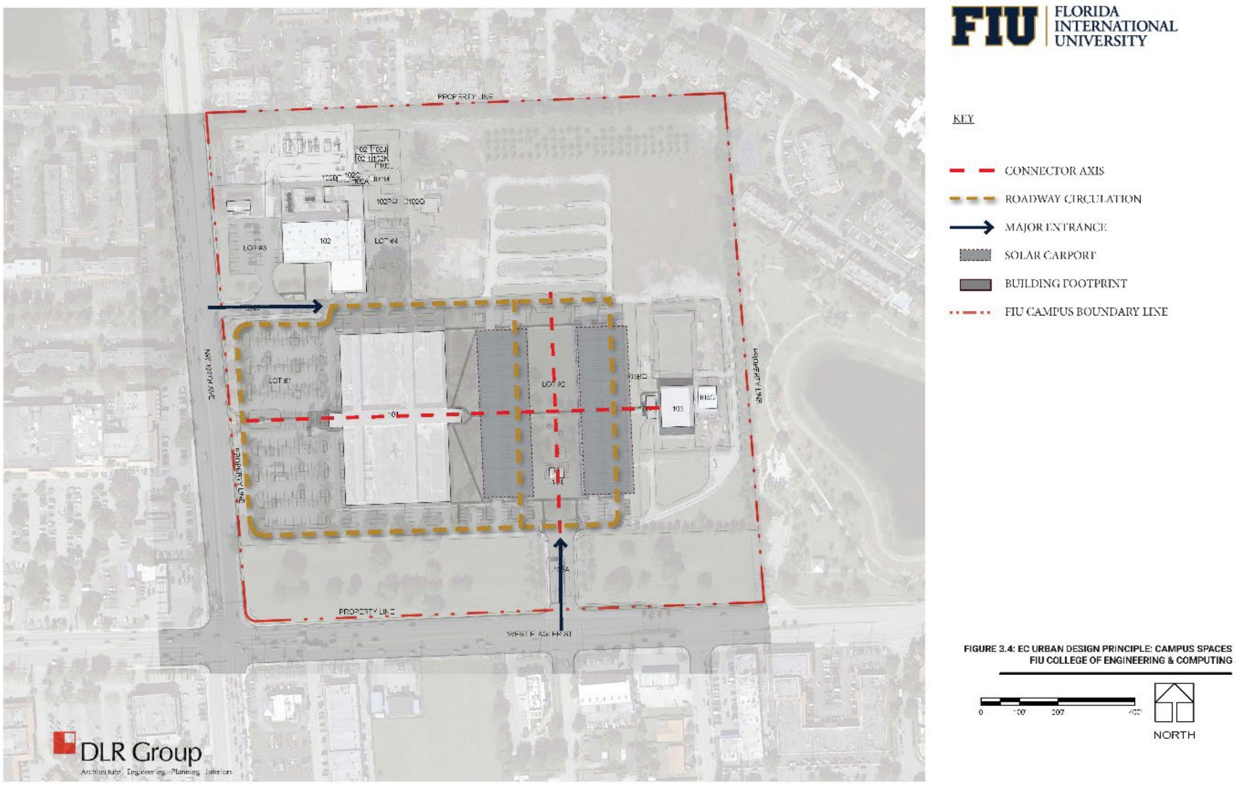


Figure 3.4 Campus Spaces – ENGINEERING CENTER



BISCAYNE BAY CAMPUS

Biscayne Bay Campus is in a unique location, making it an untraditional campus. Located on the shores of Biscayne Bay, the campus has access to the intra-coastal and is surrounded by Oleta River State Park and a natural preserve.

The core of the campus includes:

- The Hubert Library
- Academic One
- Academic Two
- Gregory B. Wolfe University Center
- Hospitality Management
- Marine Science Building

The area between these buildings is the only defined outdoor space on campus.

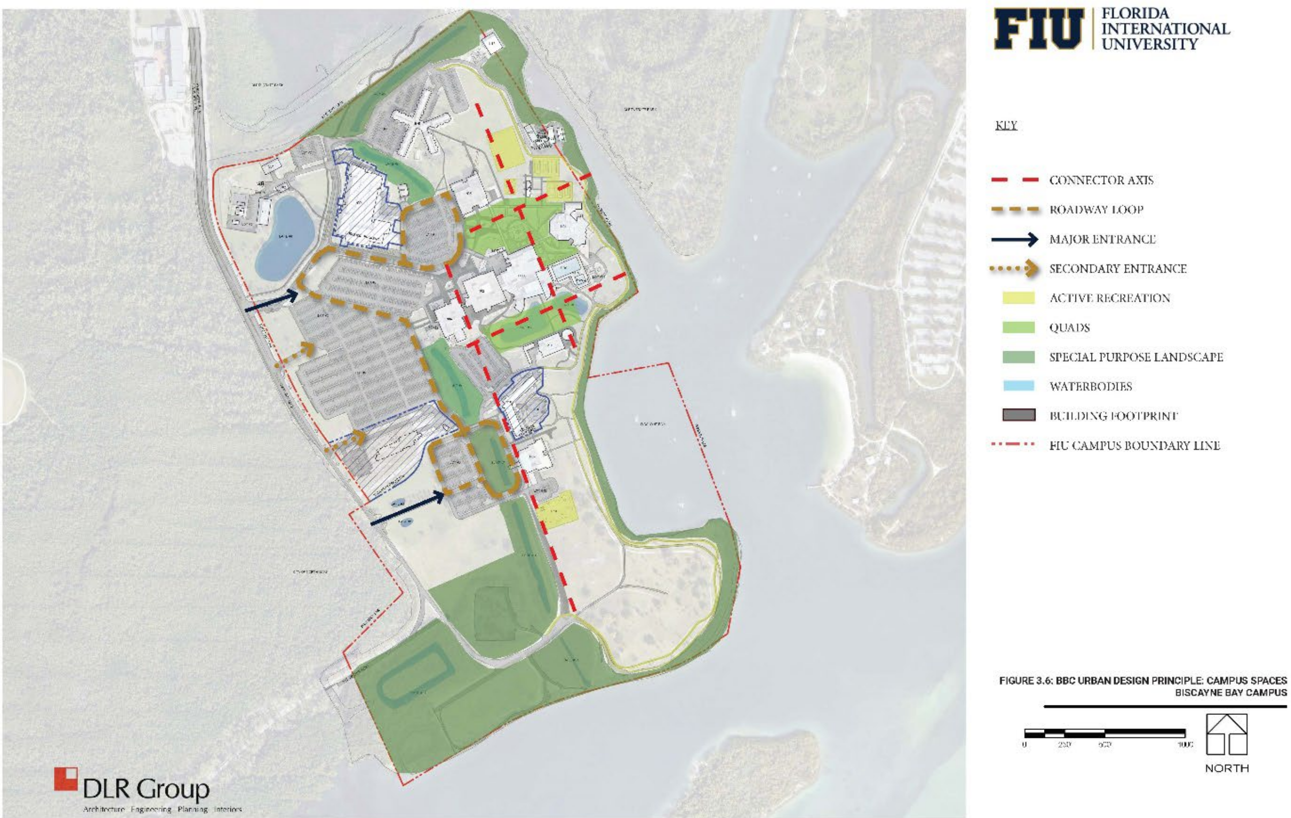
Quadrangles: There is a loosely formed Quadrangle formed by the core academic buildings and the covered walkway between the Hospitality Management building and the Hubert Library. Three distinct spaces can be identified, east of the elevated walkway defined by the Wolfe University Center, Hospitality Management and covered walkways contains mature vegetation around a circular pathway that gives the space a relaxing character. West of the elevated walkway the entrance to the loading dock divides the space in two areas, south of the library, the quad has wide walkways with sparse vegetation making it a circulation space with a small gathering area on the edge of the building heavily vegetated. The remaining area north of Academic One and Academic Two serves as an arrival plaza as well as a waiting area for public transportation.

Design and Scale: Architecturally, there is a consistency of scale on the campus. Buildings are typically no higher than three stories and constructed of masonry with tan, gray or cream stucco finishes. Outside the core academic areas, architectural styles reflect the time period that buildings were constructed. The buildings orientations are generally external, vaguely fronting the adjacent Biscayne Bay rather than to internally to the campus.

Although separated from the core of the campus and different architectural style, the Kovens Center is a prominent architectural structure on campus.

Figure 3.5 Axial Planning – BISCAYNE BAY CAMPUS

Figure 3.6 Campus Spaces – BISCAYNE BAY CAMPUS



2. **Campus visual structure - a qualitative identification of existing visual landmarks, edge conditions, entrances, building location and orientation, mass and scale, landscape character, ground level functional character, etc.**

MODESTO MAIDIQUE CAMPUS

Visual Edge: The perimeter of the Modesto A. Maidique Campus is characterized by several different conditions that exist outside the campus. On the west and northwest of the campus, the Florida Turnpike and entrance/exit ramps at SW 8th Street creates a defined visual edge to the campus. The campus is bounded on the north by SW 8th Street, an arterial street. Since residential development along this street is north of a canal running parallel to the road, this corridor has much more open character than other urban arterial streets in the area. SW 107th Avenue, which is a six-lane divided arterial running along the eastern side of the campus, is lined with traditional strip commercial development.

Tamiami Park and the adjacent Fair & Expo, both Miami-Dade County property, are situated immediately south of the campus. Since the previous campus master plan, there has been the development of Parkview 2 Housing to the east of the FIU Riccardo Silva Stadium and west of Herbert & Nicole Wertheim Performing Arts Center, creating an established defined edge of the campus separate from the county-owned property. This includes a roadway realignment along SW 17th Street that will improve one of the primary arterial roadways.

Building Location and Orientation: One of the significant features of the Modesto A. Maidique Campus itself is the large land area on the western side and northern perimeter of campus. Much of the area is designated for recreational fields and parking, but there are several prominent campus buildings such as Ocean Bank Convocation Center, Campus Support Complex, NOAA National Hurricane Center, the Carlos Finlay Elementary School, and the PG3/Panther Parking Garage. Since the last campus master plan, the additional of several recreational fields and the expansion of the Wellness and Recreation Center has added several new recreation facilities to the campus, include a football practice field, a basketball gymnasium, and new state-of-the-art fitness space and strength room. However, in terms of the overall spatial organization of the campus, these buildings and facilities lack connectivity from the rest of the campus, so there’s an opportunity to improve pedestrian capabilities, especially in route from on-campus housing.

The northeastern area of the campus is beginning to develop in accordance with Academic Health Sciences strategic plan. The addition of the Nursing & Health Sciences buildings, Academic Health Center Building #4 and #5, the PG4/Red Parking Garage, and the PG5/Market Station Parking Garage have transformed the existing edge of surface parking lots into an academic and research district. The future development of the new Engineering Building on the corner of SW 107th Avenue and SW 8th Street will continue to enhance ongoing and future collaborations between the College of Engineering and Computing and the health sciences colleges of medicine, nursing, and public health. Many of the most significant breakthroughs in health sciences will increasingly be at the interface between these disciplines and engineering and computer science.

While the vision of the eastern perimeter of the campus has yet to be defined, the pattern established by the Wertheim Performing Arts Center, Student Academic Success Center (SASC), PG1/Gold and PG2/Blue Parking Garages, the expansion of Graham Center, and the reconfigurations of the former Phi Gamma Delta and Pi Kappa Phi Fraternity House, and the future development of the Trish and Dan Bell Chapel will provide prominent campus destinations. Even with the East Loop Road realignment, most of the open space in place will remain in place, including the large open space surrounding the Ronald W. Reagan Presidential House, continuing to provide an attractive and distinctive edge to the campus.

Entrances and Landscape Features: The peripheral open spaces around the academic core are also distinguished in several locations by distinctive landscape features. On the northern perimeter of campus, the formal colonnaded and enhanced landscape entrance from SW 8th Street provides the framework for a dramatic arrival to the Modesto A. Maidique Campus. This dramatic, formal boulevard surrounded by a double row of mature royal palms frames a vista that connects to the heart of the campus. Adjacent to this ceremonial campus entranceway, an informal planting of canopy trees and flowering trees to the east and the Henington Island ecosystem and masses of palms to the west provide a visual buffer from SW 8th Street.

Many of the predominant design elements in the SW 8th Street entry zone are repeated in the other primary campus entrance for the Modesto A. Maidique Campus off of SW 107th Avenue. Two arched entry towers are constructed of stucco with sidewalks leading through the arches at the base of the towers and an alley of Royal Palms create a formal vista into the campus.

Pedestrian Entrances and Walkways: While there are numerous pedestrian "entrances" to the central academic core, two are more clearly defined. The pedestrian plaza located between the Graham Center and Charles Perry Building serves as a pedestrian entrance from PG1/Gold and PG2/Blue Parking Garages and eastern parking surface areas. This exterior plaza is characterized by large, paved areas, which direct movement toward the central courtyard between the Perry Building and Green Library. The open space between the PG1 and Graham Center is comprised of lawn areas and broad walkways interspersed with planting areas.

On the western edge of the Perry Building, a pedestrian entryway, provides access to the central academic courtyard from the residential district comprised of Panther, Everglade, Lakeview halls and University Tower and parking areas to the south. The Avenue extends northeasterly to the existing surface parking lots provided direct access to commuters. Pedestrian access to the campus core east of the Green Library from the University Apartments is indirect due to the development of the Health and Life sciences buildings. On the western side of the Green Library an additional pedestrian entrance connects the campus core to Ocean Bank Convocation Center and the western parking areas.

Scheduled to be complete in 2024, one additional pedestrian entrance to be added to Modesto A. Maidique will be the pedestrian bridge being built across Tamiami Trail (SW 8th Street, near the corner of East Campus Circle. Working with the Florida Department of Transportation, this bridge will connect the campus with the City of Sweetwater, including several off-campus housing developments. In cohesion with the pedestrian bridge will be the University City Prosperity Project, which will include a Complete Street project and several pedestrian-oriented transit access improvements along SW 109th Avenue between SW 6th Street within the City of Sweetwater at the northern terminus and the Green Library at the southern terminus within FIU.

Landscape Character: The campus landscape is a mixture of formally planted trees along roadways and axes and informal plantings of canopy trees, flowering trees and palms at campus perimeters, entry zones and open spaces. Detailed plantings are associated with building courtyards and some quadrangles. Some natural vegetation on campus is located on an eight-acre area located immediately east of the Baseball Stadium.

Landscape character in quads consists of canopy tree and palms along walkways with minimal to no under-story plantings near building foundations. Most understory plantings are associated with exterior plazas. Palms are used to indicate important access locations to buildings.

ENGINEERING CENTER

Visual Edge: The perimeter of Engineering Center is characterized by open space along West Flagler Street, a six-lane arterial street with palms and some landscaping along SW 107th Avenue a six-lane arterial street with a median divide. Both streets are traditional commercial corridors with varying forms and ages of retail. One of the main entries onto the Engineering Center location, off West Flagler Street, is lined with palm trees with views of the solar canopies. The existing multi-family to the north of the campus is apartments of three stories and medium density. To the east is a public park (Women’s Park), with some landscaping along its edges.

Building Location and Orientation: The large existing building is located internal to the parcel. It is surrounded by surface parking on two sides. Two support facilities are also located on site but not grouped nor linked to one another. The Wall of Wind is adjacent to the Woman’s Park and centered to the east-west campus axis. As part of the continued partnership with Florida Power and Light Company (FPL), Engineering Center has a large-scale energy storage renewable resource system on campus. This includes a battery storage system in the north-east corner and more than 5,700 solar panels on 23 canopy-like structures that are built on top of the parking lot.

Entrances and Landscape Features: The existing entry from West Flagler is a divided median entrance with minimal landscape plantings including rows of palms on both sides. The existing entry from NW 107th Ave is a two-lane condition with minimal landscape features. Landscape enhancements have been completed at the west entrance to the main building.

Pedestrian Entrances and Walkways: There are few pedestrian connections on-campus. The West Flagler entry provides for a pedestrian connection to the campus from the community.

Landscape Character: There is no existing landscape character on-campus as the site is predominately lawn. The site does contain some good-sized hardwood trees along the boundary of West Flagler St and the western surface parking lot. Future development should minimize impact to these trees when possible.

BISCAYNE BAY CAMPUS

Visual Edge: A distinctive feature of the Biscayne Bay Campus is that it’s bounded on three sides by undeveloped land. Biscayne Bay borders the remainder of the campus edge. These campus perimeters provide the campus with a uniquely isolated setting even though it is in an area that is otherwise fully developed. A second significant feature of the campus is its orientation. Unlike the Modesto A. Maidique Campus, that is bounded on all sides by urban conditions, the Biscayne Bay Campus has a distinct linear orientation that is the result of the Biscayne Bay waterfront on the east, and forested land on the west. Buildings, in general, have been placed near the Bay rather than centralized within the campus.

Entrances and Landscape Features: The vehicular entrances to the campus parking areas are located off Bay Vista Boulevard. Two public schools are located along Bay Vista Blvd prior to the campus entrance: The Alonzo and Tracy Mourning Senior High and The David Lawrence Jr. K-8 Center. In addition, along Bay Vista Boulevard is a 183-acre master-planned community called SoLē Mia. In North Miami, the site has been proposed has one of the largest development projects in South Florida and is aimed at transforming the long-vacant site of a former superfund landfill at 15045 Biscayne Blvd into a community with residential towers, upscale retail, and commercial space.

As for the campus, the interior pedestrian "street" that links the Wolfe University Center, Academic One and Academic Two buildings run perpendicular to the bay front. Consequently, one is not fully aware of the extensive shoreline of the campus until having walked through or beyond the academic buildings within the campus core. Along the water's edge, mangroves limit visibility to the bay from ground level. Natural vegetation areas form a linear spine parallel to Biscayne Bay dividing the southern portion of the campus in two.

Building Location and Orientation: Development on the Biscayne Bay Campus is concentrated in a relatively compact area near the northern limits of the property. The Marine Biology building to the south of the Wolfe University Center is oriented perpendicular to the Bay. The newest student resident building, Bayview, is located southwest of the Marine Biology building. They are separated from the core of the campus by two water bodies. The location of the campus core has maintained the waterfront views on the campus, but with the height of Bayview housing, it is somewhat limited. Continuing to utilize the edge of campus strategically for any future development will be important to the future of the Biscayne Bay campus.

The Kovens Conference Center is located south of the campus and does not have a direct internal pedestrian connection to the academic core. Similar to the other buildings on campus, the building is oriented perpendicular to the Bay.

In 2015, FIU and Royal Caribbean Cruise Ltd. developed a state-of-the-art rehearsal and production studio. Located on the northwest corner of the Biscayne Bay campus, the RCCL building acts as one of the first buildings someone might notice when driving onto campus, especially from one of the main entries at NW 145th Street. Their partnership also includes the utilization of the former Bay Vista student housing, now known as RCL Entertainment Suites.

Marine Academy of Science and Technology (MAST) is developing a campus on-site along Bay Vista Boulevard. This top rated, public, magnet school is the only public high school in Florida that enjoys a collaborative partnership with a public university and students will have access to certain amenities at the campus.

Visual Landmarks: The obvious visual landmark for the campus is the Biscayne Bay. The extensive shoreline and minimal development are unparalleled in Miami. Internal to the campus, the Biscayne Bay Campus has three lakes that are distinctive visual amenities. The two lakes situated south of the academic buildings visually extends the waters' edge from the bay perimeter into the central portion of the site. The lake at the northwest edge of campus with its fountain and backdrop of Coconut Palms creates a striking entry feature.

The campus quad between the Hubert Library and Wolfe University Center are the primary hubs of activity on campus. New building additions and uses to the southern facade of the Wolfe University Center has increased activity along the lake edges.

b) An inventory of existing building service areas, service entrances, trash collection points, etc. (refer to building plans for specific service area locations).

MODESTO A. MAIDIQUE CAMPUS

In general, service areas in the campus core normally have an outward orientation from pedestrian activity zones and towards the existing loop road. As the campus continues to densify, this will become more of a challenge. Several existing buildings, such as the Green Library service court, creates a non-desired edge condition to the central quad. SW 14th Street provides service to the Charles Perry and Management & Advanced Research buildings, dividing the campus core, delineating between the academic areas and the primary residential district. As the Greenbelt evolves and more buildings are built outside the central core, future service / loading areas will need to adapt to a more urban condition and be screened from public view.

ENGINEERING CENTER

The existing building sits on a pedestal or podium with parking underneath.Service can be accessed from any side of the building.

BISCAYNE BAY CAMPUS

The primary service area for the campus core is screened from public view by a sodded berm located near Central Utilities. The location of the Marine Biology Building Hospitality and Tourism Building requires a circuitous route along between the Kovens Center and then along the Bay in order not to encroach into the pedestrian quad. While this preserves the quad for pedestrians it places service areas between the quad and the Bay.

c) An identification of existing high activity buildings and spaces.

MODESTO A. MAIDIQUE CAMPUS

The activity "center" of the Modesto A. Maidique Campus includes a cluster of four buildings initially constructed on the campus core:

- The Charles Perry Building is the focus of administration functions
- The Ernest R. Graham Center is the student activity center
- The Green Library is the focus of research
- Deuxieme Maison has a large concentration of faculty offices

The importance of the plaza between these buildings as a pedestrian activity area is reflected in the location of building service areas at the outside edges of structures enclosing space and programmed nature of the hardscape with various pedestrian level features. This quad has both through pedestrian traffic and concentrated activity on the gathering areas.

A secondary activity node occurs in the buildings located north of the library. The focus in this area is academic activity centered around the following buildings:

- Owa Ehan
- C.A.S.E. Building
- Viertes Haus
- Paul Cejas Architecture
- The Chemistry and Physics Building

Activity on the quad north of the Green Library occurs on the edges of the building itself through a colonnade along its northern facade and through a pedestrian walkway connecting the quad south of the Engineering and Computer Sciences building. The activity is mainly pedestrian circulation coming from the PG3/Panther Parking Garage and parking lot 9 moving into the OE building and Chemistry and Physics building. The quad formed by these two buildings and the developing Academic Health buildings has activity moving on a diagonal axis that is the Avenue of the Sciences directed towards the Graham Center and Green Library.

The Green Library breezeway is an important activity corridor that ultimately connects pedestrian traffic to the Rafael Diaz-Balart Hall and the Ocean Bank Convocation Center.

A third activity node occurs to the west of the Green Library, intersecting several student housing buildings and recreational/athletic facilities. The focus is on campus amenities including dining, health, and recreational facilities.

- School of International and Public Affairs II (SIPA-2)
- Management and New Growth Opportunity (MANGO) Building
- Wellness and Recreation Center
- Student Health Center

Several additional activity nodes occur throughout the campus. At the housing complex south of the campus core, activity occurs on a diagonal axis directed to the campus core. These buildings include:

- Lakeview Residence Hall
- Panther Residence Hall
- University Towers
- Everglades Residence Hall

An evolving activity node centers on the ground floor retail of the PG5/Market Station Parking Deck. This is due to high volumes of foot traffic associated with parking and several new buildings. This will continue to evolve with the completion of the new Engineering Building on the northeast corner of campus. These buildings include:

- PG5/Market Station Parking Deck
- PG6
- Academic Health Center #3
- Academic Health Center #4
- Academic Health Center #5

The pedestrian traffic coming from the parking lots adjacent to the Performing Arts Center, Patricia and Philip Frost Art Museum, and the PG1/Gold and PG2/Blue Parking Garages, provides activity that is concentrated at the plaza south of the Graham Center, which includes several prominent art sculptures.

ENGINEERING CENTER

There is no area of activity on-campus. Activity happens on the ground level of the main building at the building entrance.

BISCAYNE BAY CAMPUS

The Hubert Library, Wolfe University Center and Academic One are the primary focus of activity at this campus, with a high concentration of students at the library. The plaza in front of the Academic One building is also an important activity node since it has traffic of students coming from the parking lots into the buildings and students waiting for public transportation.

The Kovens Center attracts activity from conferences, trainings, and events. The complex is nestled into its site, positioned towards the bay. The landscape blends well with a mangrove-lined canal at the building’s entry. Building orientation and design accentuates views of Biscayne Bay.

Also, of interest at this campus is the location of the Aquatic Center. Placed adjacent to the Wolfe University Center and Hospitality Management, this facility faces the waterfront and provides views out across the bay from the pool deck. Across the quad the Aquatic center is the campus’s outdoor recreation facilities.

There is minimum activity coming from the housing building at the north end of the campus.

d) An identification of existing functional linkages, i.e., major pedestrian, auto or other linkages.

MODESTO A. MAIDIQUE CAMPUS

The campus core functions are an inwardly oriented free-standing buildings linked by a pedestrian circulation system that connects the core activities to the perimeter parking areas. A large concentration of pedestrian activity, walking and gathering, between the Graham Center, Green Library and Perry Building is reflected by the amount of paved pedestrian walkways in the south - central portion of the campus.

Pedestrian movements are organized along four main spines which are continuous, but not clearly defined, across the campus:

- Extends east from the Ocean Bank Convocation Center to the Green Library, continuing along the Graham Center to the University Apartments
- Extends diagonally (northeast) from the residential housing district, including Panther Residence Hall / Everglades Hall / Parkview I & II, to the emerging Academic Health Center complex, continuing to the intersection of SW 8th Street and SW 107th Avenue

Pedestrian Circulation: The central campus is the differentiation of the pedestrian circulation pattern between the northern and southern portions of the core. The southern portion of the campus core, generally situated between Green Library and Perry Building, has pedestrian movement facilities and patterns that extend through the campus. The northern portion of the central campus, generally located between Green Library and Engineering and Computer Science, is characterized by pedestrian movement facilities that are organized around the perimeter of the space. In this part of the campus, pedestrian movement is also accommodated within the buildings or in covered outdoor walkways such as in Owa Ehan.

Another feature of pedestrian circulation pattern is found in its walkways linking parking to the central academic core and its surroundings. The parking lots and south of the central campus have pedestrian walkways connecting them directly with the main campus activity centers (Green Library, Graham Center and Perry Building). The PG1/Gold Parking Garage has a colonnaded covered walkway that connects it to the campus core. The PG5/Market Station Parking Garage includes an elevated sidewalk separating pedestrians from vehicular traffic.

There is an important pedestrian connection between the parking lots, parking garages and bus station at the southeast of the campus and the campus core. The PG1/Gold and PG2/Blue Parking Garages have a colonnade that provides a covered pedestrian circulation route, and a covered walkway extends from the PG1 to the Charles Perry Building.

Pedestrians coming from the parking garages located at the northeast corner of the campus use sidewalks on the edges of the buildings on the south portion of the Greenbelt or go through the buildings to get to the campus core. There is connected pedestrian pathways between Academic Health Center 1, 2, 3, 4 and 5, as well as the Chemistry and Physics Building. Pedestrians also use the service drive for Owa Ehan to connect with the parking garages.

Most of the pedestrian circulation on the west side of campus is directed towards the east. Pedestrian traffic coming from the Parking Lots 10 & 11 use the sidewalk along the north side of 11th Street to move east of the campus; those heading to the Ziff Education Building use a sidewalk that runs through the center of the Parking Lot 9 and those heading to the Recreation Center use the sidewalk parallel to 13th Ave.

In many areas of the campus, pedestrian circulation is in immediate need of improvement. Many connections are often disjointed and indirect adding time and distances between facilities. Creating directional and accessible circulation spines will enhance the overall appearance of the campus as well as address critical connections. Accessible (ADA) design standards need to be considered for all future campus design and construction process.

Vehicular Circulation: The primary vehicular circulation route within the Modesto A. Maidique Campus is a loop road that encircles most of the campus. The roadway circulation provides access to perimeter parking decks and lots as well as connections to secondary roads and service drives within the campus. The road was reconfigured to south of the residential villages with the development of the PG1/Gold and PG2/Blue Parking Garages. This allowed for unimpeded pedestrian circulation from the parking garages and adjacent parking lots to the campus core.

SW 14th Street is an internal service street that provides access to various residential buildings and service areas such as the Charles Perry building and Management and Advanced Research buildings.

The connection to the campus roadway loop and the surrounding community occurs through two main entrances and six secondary entrances. The roadway alignment along SW 17th Street with the development of the new Parkview 2 housing project will provide a distinctive southern edge to campus, bordering Tamiami Park.

Primary Entrances:

- SW 112th Avenue at SW 8th Street
- SW 16th Street at SW 107th Avenue
- SW 109th Avenue (East Campus Circle) at SW 8th Street

Secondary Entrances:

- SW 11th Street at SW 117th Avenue
- SW 17th Street at SW 117th Avenue
- University Drive at SW 107th Avenue
- SW 11th Street at SW 107th Avenue
- SW 16th Street at SW 107th Avenue

Figure 3.7 Walkability (Existing) – MODESTO A. MAIDIQUE CAMPUS

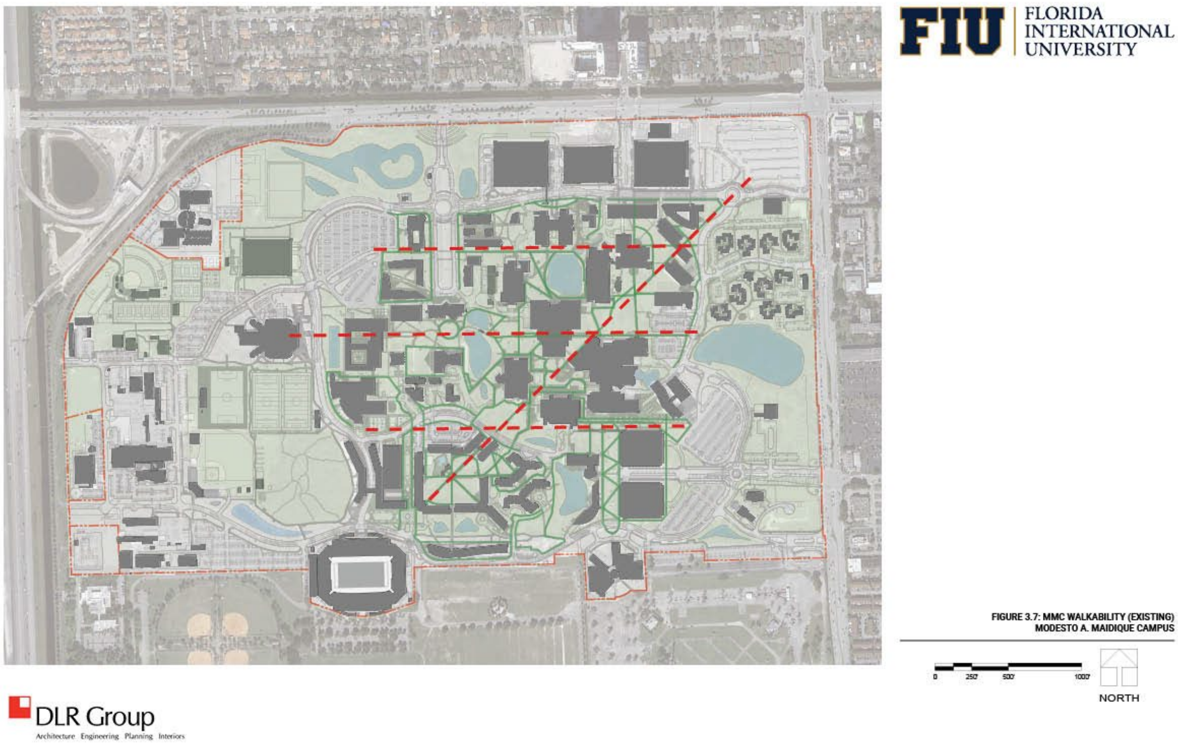
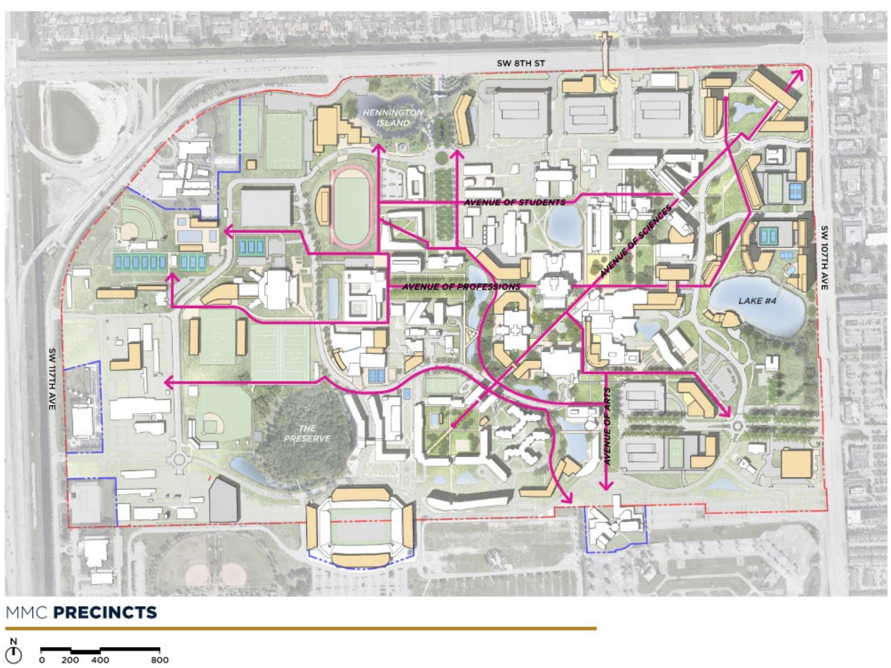


Figure 3.8 Walkability (Opportunities) – MODESTO A. MAIDIQUE CAMPUS



ENGINEERING CENTER

Pedestrian Circulation: Pedestrian circulation is limited to movement from the eastern and western parking lots to the main building.

Vehicular Circulation: Vehicular circulation is primarily through the existing parking lots. Entrances exist off West Flagler Street to the south and NW 107th Avenue to the east. Additionally, the University has established a shuttle service with the City of Sweetwater connecting the center to the Modesto Maidique Campus.

Figure 3.9 Walkability (Existing) – ENGINEERING CENTER

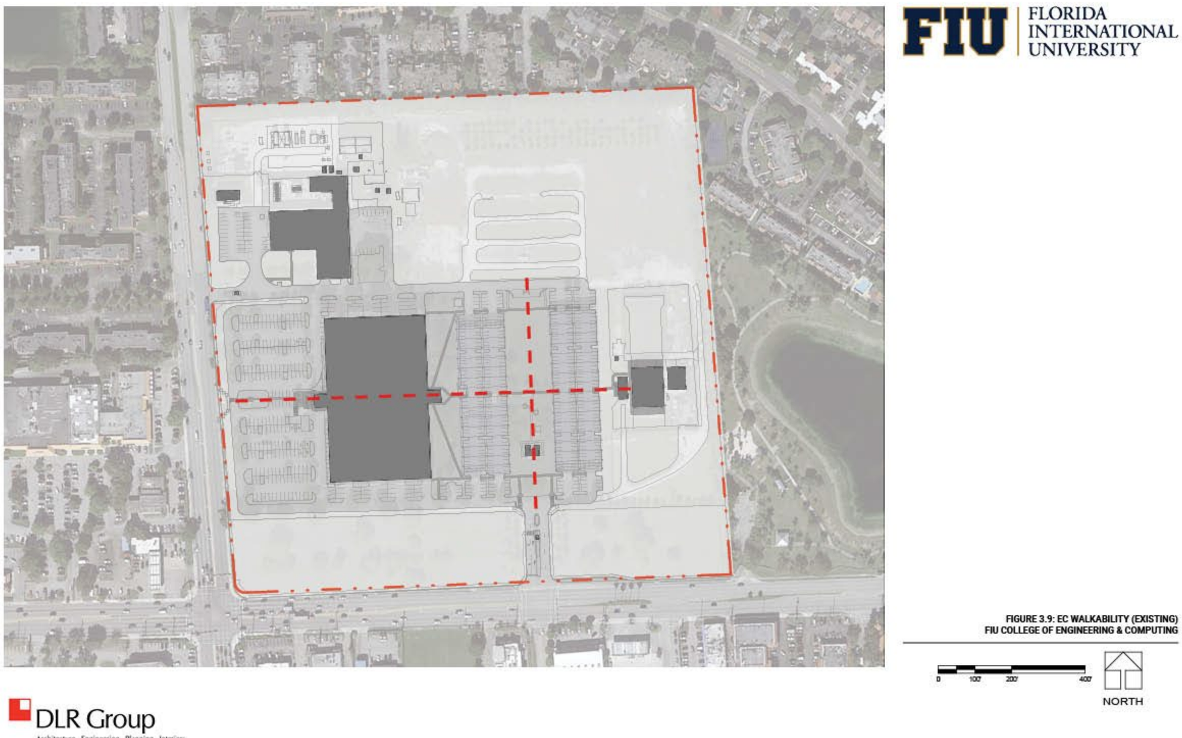
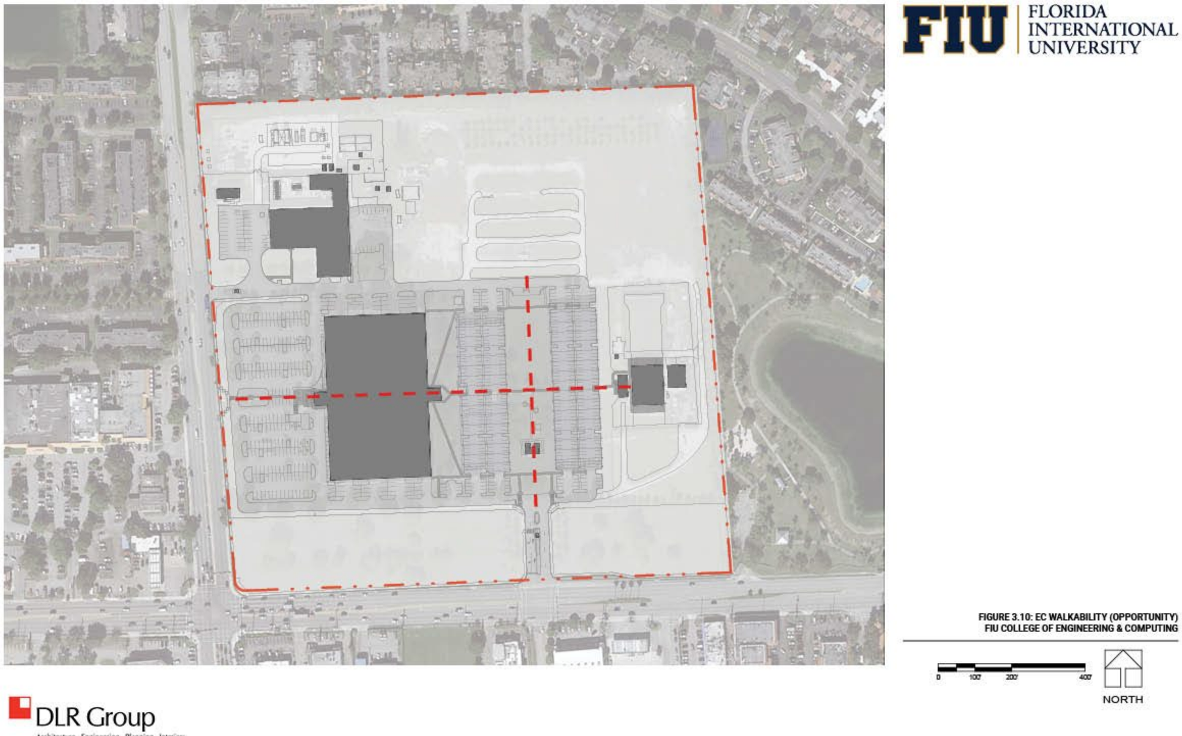


Figure 3.10 Walkability (Opportunities) – ENGINEERING CENTER



BISCAYNE BAY CAMPUS

Pedestrian Circulation: Due to the compact form of development at Biscayne Bay Campus, the major pedestrian activity is concentrated in a relatively small area focused between the Hubert Library on the northern edge of the quad and the Wolfe University Center on the southern edge of the quad. One of the important distinguishing features of this campus is that the Wolfe University Center, Academic One and Academic Two are closely linked by an interior pedestrian “street” which provides a continuous covered connection among these buildings.

Although the library is located approximately three hundred feet from Wolfe University Center, it is provided with a two-level pedestrian walkway offering a covered link between those two buildings. The library is also linked by a ground-level covered walkway to Hospitality Management.

Another distinctive feature of Biscayne Bay Campus is the large hardscaped entrance plazas located between the parking lots and Academic One and Academic Two buildings. These areas with modest landscape "islands" give this area a very urban character. The urban character of this space contrasts with the informally laid out pedestrian walkways that extend south from the main academic buildings and along the bay.

Pedestrian linkages between parking and the academic core of the campus exist in varying degrees. The parking lot located just west of Academic Two has pedestrian walks that provide clear connections to that building. The parking lot west of The Library does not have a separate sidewalk connection to the campus core, resulting in pedestrians walking along the parking lot driveways toward the library.

Two walkways connect the housing building with the academic core; the main one connects with the library and the outdoor recreation facilities. The second walkway connects to the parking lot on the west side of the library. These walks have minimal shading from palm trees. A generous walkway starts at the northeast end of the housing building parking lot runs parallel to Biscayne Bay all the way to the south portion of the campus.

Figure 3.11 Walkability (Existing) – BISCAYNE BAY CAMPUS

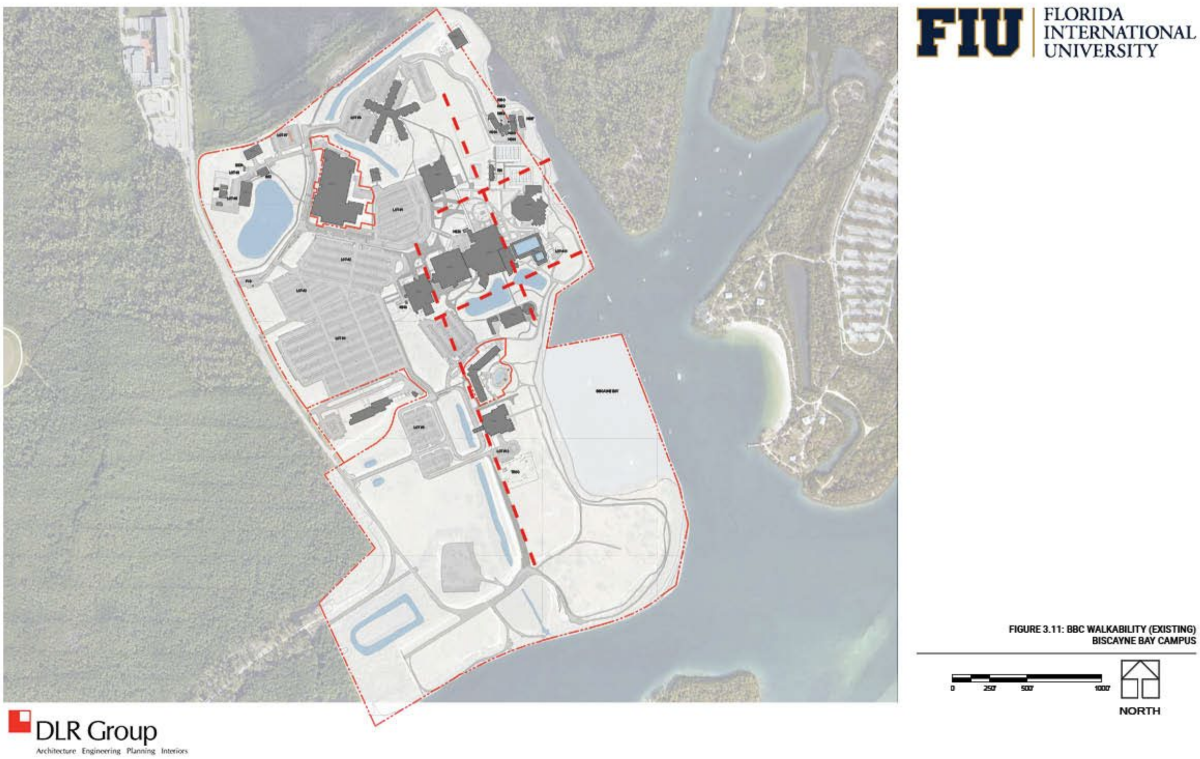
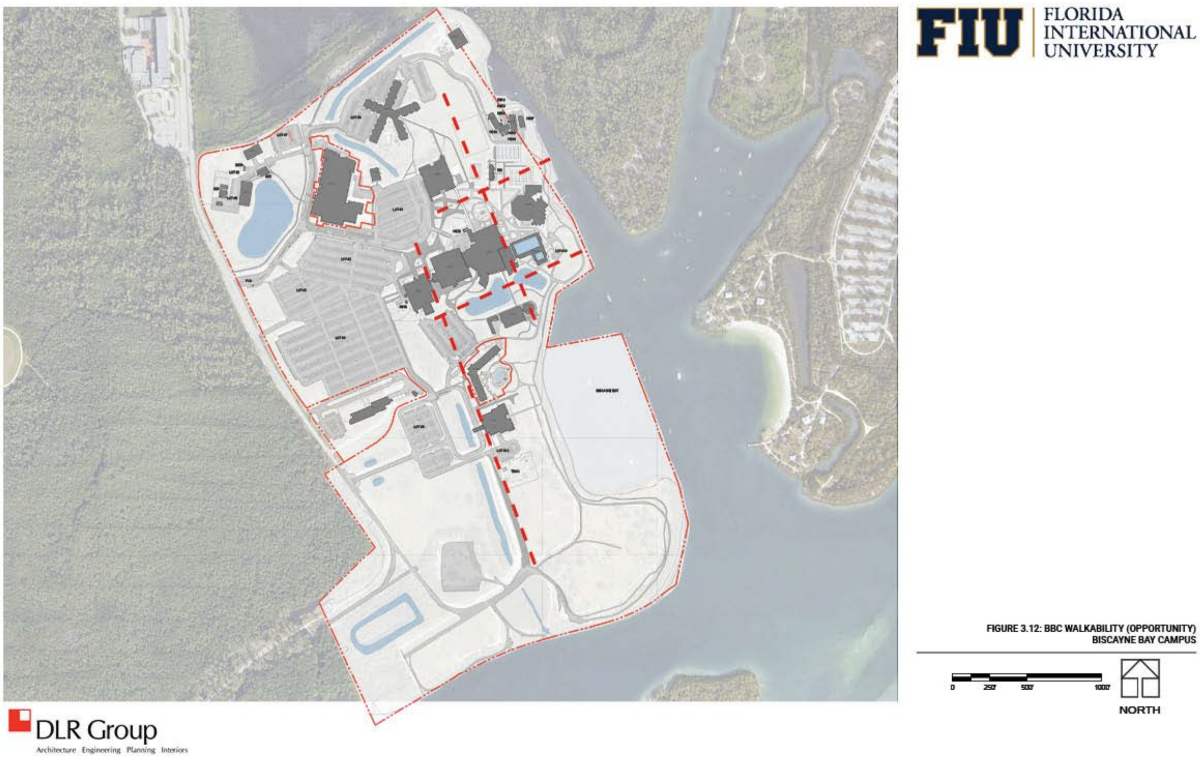


Figure 3.12 Walkability (Opportunities) – BISCAYNE BAY CAMPUS



e) A description of the character of existing buildings and open spaces within the context area.

MODESTO A. MAIDIQUE CAMPUS

The Modesto A. Maidique Campus context area is a completely urbanized, developed area. The campus is landlocked and bordered with SW 8th Street to the north, SW 107th Avenue to the east, SW 117th Avenue to the west and Tamiami Park to the south. Development consists primarily of single and multi- family residential uses along with traditional strip commercial development along major road corridors. All development within the context area is low-rise construction.

Tamiami Park, immediately south of the campus is the largest park/open space in the context area and is a facility that hosts activities of regional significance. Miami-Dade County Fair and Exposition abuts the southern perimeter of the campus along SW 107th Avenue.

The perception of the area, to a large extent, can be described in terms of the character of development along the major roadways. SW 8th Street, SW 107th Avenue and SW 24th Street are the major through-streets in the context area. North of SW 8th Street in the City of Sweetwater, the land use predominantly consists of residential housing. While SW 8th Street and SW 24th Street are characterized primarily by residential development with some commercial uses. SW 107th Avenue is characterized by commercial development along the east side of the campus.

ENGINEERING CENTER

The surrounding buildings to Engineering Center are traditional retail stores to the south and west of the site with surface parking lots between the street and the building entrances. Garden style apartments are located to the northof the campus. The Woman's Park, a passive recreation space, is located along the eastern boundary of the campus.

BISCAYNE BAY CAMPUS

Although Biscayne Bay Campus is in a region of Miami-Dade County that is completely urbanized, the lands immediately adjacent to the campus remain open and undeveloped. This is in part the result of environmental constraints to development and zoning in which portions of these lands are designated for parks and recreation use.

The Alonzo and Tracy Mourning Senior High School and The David Lawrence Jr K-8 Center are located at the northwest and southwest corner of NE 151st Street near the entrance to Biscayne Bay Campus.

Although there are two entrance roads into the campus, only the northern road is operable. As a result, the vehicular entrance to the campus exists at US 1 (Biscayne Boulevard) located approximately three-quarters of a mile west of the campus. US 1 in this portion of the county is characterized by nearly continuous commercial development. Solé Mia, a 183-acre tract located on the western edge of Oleta Annex State Park, is currently proposed as a large retail center with residential uses. Other portions of the context area are characterized primarily by single family residential development. Generally, the residential areas are organized on the grid street system typical of older areas of the county.

(2) ANALYSIS REQUIREMENTS. THIS ELEMENT SHALL PROVIDE, AT A MINIMUM, THE FOLLOWING ANALYSES:

a) An analysis of the evolution of the development pattern of university buildings and open spaces.

MODESTO A. MAIDIQUE CAMPUS

The first increment of development at the Modesto A. Maidique Campus occurred in the period 1972-75, with the construction of five major buildings: Primera Casa (which has been renamed Charles Perry Building), Deuxieme Maison, Viertes Haus, the Green Library and the Graham Center. These structures were grouped in the south-central section of the campus property and formed a compact campus core with a central pedestrian courtyard called Foundation Court.

The construction of Viertes Haus to the north of Green Library established a northerly direction for future growth. The construction of Owa Ehan in the period 1976-85, followed by the construction of Chemistry and Physics and Engineering and Computer Science in the period 1986-93, created, and completed a second campus "quadrangle". Also, in the period 1976-85 student housing was constructed east of the academic core along the edge of the campus, as was Ocean Bank Convocation Center, located in the west central part of the campus, away from the existing academic buildings.

In 1992, the Ryder Business Administration was completed. Located between the previously constructed academic buildings to the east, and Ocean Bank Convocation Center to the west, this structure occupies the southern end of the formal vehicular entrance from SW 8th Street. This entrance established the “mall” as a new organizing element for the campus, apart from the "quadrangles" and courtyards established in earlier development.

From 1994 to 2000, development moved toward the southern and western edges of the campus. Three athletic facilities have been constructed, the Baseball Stadium, FIU Community Stadium and the Athletic Academics Fitness Center. Additional construction along the southern edge of the campus includes two residential facilities, Panther Residence Hall and University Towers. Wertheim Performing Arts Center was completed in 1996. This facility is located along the southern perimeter of the FIU campus adjacent to the Miami-Dade County Fair and Exposition. Wertheim Performing Arts Center and the FIU Community Stadium each straddle the Modesto A. Maidique Campus's southern property line and are each joint–use facilities. The FIU Community Stadium is shared with Tamiami Park, and Wertheim Performing Arts Center is shared with the Miami-Dade County Fair and Exposition.

From 2000 to 2010, there was several projects constructed that were located adjacent to the emerging Academic Health Science District. Those new buildings included the College of Architecture, Management and Advanced Research Center, Rafael Diaz-Balart Hall, Chemistry and Physics Building, Recreation Center, and the first two buildings of the Academic Health Science District: Academic Health Center #1 and #2.

Since the previous campus master plan update, between 2010 and 2015, several projects were completed at various locations on campus. This includes the completion of the School of International and Public Affairs building in 2011, the PG5/Market Station parking garage at SW 109th Avenue, and the improvements of the FIU Community Stadium. To support the development of the Academic Health Sciences District, and the Satellite Chiller Plant completed in 2013.

During the last five years, there has been several buildings developed on campus, including the significant Academic Health Science District in the northeast corner of campus, which includes the construction of Academic Health Center #4 and #5, and several new housing and recreational facilities. Parkview II housing with the East Loop Road Alignment and the School of International and Public Affairs (SIPA-2) are nearing the end of construction. The Engineering Building and the UniversityCity Prosperity Project with pedestrian bridge is in design phase.

ENGINEERING CENTER

The Engineering Center is a former office, laboratory and manufacturing building built in 1980 by the Cordis Corporation. Additional parking was added to the east side of the main building in 2001. The Wall of Wind, located on the eastern portion of the campus, was developed in 2007.

As part of the continued partnership with Florida Power and Light Company (FPL), Engineering Center has a large-scale energy storage renewable resource system on campus. This includes a battery storage system in the north-east corner and solar panels that are built on top of the parking lot, all completed in 2016. The 1.4-megawatt solar array is comprised of more than 4,400 solar panels on canopy-like structures that provide clean electricity to FPL's grid and shade for about 400 parking spaces.

BISCAYNE BAY CAMPUS

Biscayne Bay Campus retains a more compact physical form than the Modesto Maidique Campus. Development of the campus began in the late 1970's with construction of the Wolfe University Center, the Academic One and Academic Two buildings. Hospitality Management was an existing building on the property that was taken over by the University along with the campus site.

Unlike the first increment of development at the Modesto A. Maidique Campus, in which buildings were organized around a central circulation courtyard, the first buildings at Biscayne Bay Campus were organized around an internal circulation linkage concept. Consequently, the Wolfe University Center, Academic One and Academic Two buildings were built close to one another, and linked by covered walkways and pedestrian bridges, giving the complex the appearance of one large structure.

The Hubert Library and student housing built in subsequent years during the 1980's broke the pattern of the closely spaced buildings of earlier phases and extended the campus development toward the north. Although the Library is separated from the other structures it is physically connected to them with a second level pedestrian walkway and a surface pedestrian plaza.

During the 1990's, buildings constructed on campus included the Student Health and Wellness Center (1995) and the Kovens Center (1996). Kovens Center is located well to the south of the other existing structures. This remote location allows room for future expansion of academic, research, or support facilities between the conference center and Academic Two. The Student Health and Wellness Center is located west of The Library. By 2004, that's when the Marine Sciences Building was constructed, located south of the Wolfe University Center.

Since 2015, several buildings have been added to the campus to provide a different variety of amenities, including the RCCL Training Center, Bayview Housing, and several Ecology lab facilities. Aside from the Ecology lab facilities, the remainder of the buildings are currently subleased. The Bayview student housing, as the tallest building on the Biscayne Bay campus, is located to the southwest of the Marine Sciences building and north of the Kovens Center. The RCCL Training Center, a partnership with Royal Caribbean Cruise Lines, is located at the northern side of the campus, east of the physical plant facilities.

b) An identification of and assessment of the advantages and disadvantages of alternative spatial configurations by which future development on the campus may be organized. This analysis shall include consideration of methods to improve energy efficiency and alternatives for coordinating the pattern of buildings and spaces along the University/community boundary.

MODESTO A. MAIDIQUE CAMPUS

The siting of new facilities should continue to fulfill the historical FIU traditions of forming campus spaces and providing focal elements, such as the main entry to Rafael Diaz-Balart Hall, at the terminus of axes. Future campus growth consists of increasing density and height while preserving open space for circulation and recreation. The "front door" of each facility may occur on multiple façades, providing open and inviting circulation around and within campus. This alternative building pattern is most effective near campus entrances or major intersections that provide an opportunity for redevelopment from the private sector to complement the university's efforts in creating a sense of place.

Another critical strategy for future growth involves replacing existing surface parking with buildings of mixed uses, including structured parking, particularly around the campus perimeter. Parking garages though not as economical as surface parking, are necessary on campuses with a scarcity of developable land. This transition strategy encourages density, creating shorter more pedestrian friendly connections between facilities and preservation of critical open space.

An additional pattern of campus planning at the Modesto A. Maidique Campus consists of orienting structures along interior pedestrian axes. This strategy of design expands the campus core outward to the Campus Greenbelt, increasing pedestrian passages featuring overhead protection from weather as much as possible. An important element in the success of this concept will require that building exposures oriented toward open space foster active use of the campus on the interior and exterior. This will enhance the pedestrian experience critical in creating a comfortable campus environment. The architectural edges of such buildings oriented to the campus core will begin to define new quads that surround open spaces. This planning alternative is quite effective when used in conjunction with the construction of perimeter parking garages to define the space and activate the streetscape.

Another creative concept for future campus organization proposes mixed uses for future buildings. This concept has been utilized in the PG1/Gold Parking Garage, which has office space on the first floor and the PG5/Market Station Garage which incorporates ground floor retail uses. The Parkview Housing development incorporates this approach with ground floor multi-purpose rooms with residential above.

While many of the new buildings and subsequent open spaces have contributed positively to the campus, in many cases design decisions differ from the existing master plan and guidelines, potentially impacting future development patterns. A need for a clear and transparent design review process that utilizes the master plan and design elements as the foundation for future projects is needed. This process will ensure that future projects adhere to the master plan or if variations from the master plan must be made, there is a forum to discuss those challenges.

ENGINEERING CENTER

Due to its small site and surrounding urban context, it will be important to develop a research campus with open spaces and a sense of either separation from its surroundings or integrating with the surrounding community. Separation could be obtained enhancing the campus edges from the surrounding context through attractive landscaping and decorative fencing. Along the southern border of the campus, South Flagler Street, either preserving the existing open space as a community amenity or the placement of buildings close to the street in a more urban condition are two appropriate approaches. While one concept presents a sense of a traditional college campus with large open spaces the other integrates the campus visually and functionally to the community.

BISCAYNE BAY CAMPUS

One of the primary issues that should be considered in campus growth is ensuring that orientation of planned facilities maximize views to Biscayne Bay, an unequaled amenity. A significant campus entrance that directs the visual focal point to the bay rather than toward the buildings should be developed. Additional axes and focal points on campus should direct and preserve view corridors to the bay. Vehicular circulation and parking areas should be reconfigured to provide direct and distinct connections to the academic, convention and residential districts and ultimately to the bay.

Future facilities should be planned in a manner to maximize the integration of campus activities with Biscayne Bay. The existing campus is detached from its surrounding uses requiring students and faculty to leave the campus for non- academic activities. New student services and residential buildings should be integrated and located within proximity of the academic core creating a more viable walking district. The services should include more traditional retail and restaurant opportunities to allow students to stay on-campus and create a more truly sustainable campus while developing an activity node.

c) An identification and assessment of alternative future activity location and linkage concepts for the campus and the context area.

MODESTO A. MAIDIQUE CAMPUS

As discussed in this element and in the previous campus master plan update, the majority of the Modesto A. Maidique Campus has been developed. Physical expansion will continue outward and upward from the present campus core, as well as with future renovations and additions. The University will need to continue its facility expansion through consolidation and densification to increase efficiency within the developable area. Due to the scarcity of available land for expansion on campus, it will be imperative to wisely use the remaining land, maintaining a balance between development and open space. This will require an increase in density and increase in structured parking options.

It is extremely important that the Modesto A. Maidique Campus foster its relationship with its host community. To maximize the remaining resources of the campus it may be necessary to pursue partnering opportunities within the context area for certain university functions. Consideration should be given to how the Modesto A. Maidique Campus can influence the planning of physical spaces around the host community and encourage more public/private partnerships. The

Academic Health Sciences District with the new addition of the Engineering Building and the future pedestrian bridge across SW 8th Street connecting to UniversityCity will create bold visibility and sense of place to northern and eastern edge of the campus and a welcoming edge to the community, breaking down some of the perceived barriers between the campus and the hosting community.

ENGINEERING CENTER

Developing the campus as a part of the community is vital in improving the perception of the campus. The existing configuration and character of the campus isolates it from the surrounding context. Pedestrian linkage to the surrounding commercial corridors is difficult and access to the campus is vehicular oriented. Due to its smaller footprint and to create a viable and attractive campus for future student and faculty, the campus must develop a sense of a traditional campus through enhanced open space and new buildings, but it must also engage the local community. The campus is not large enough to be "self-sufficient". Utilizing the surrounding resources, improving the aesthetic edge conditions and providing pedestrian access to the surrounding businesses and public park will help create a sense of place within the community. Public – private partnerships that bring services to the campus that not only serve the University staff and students as well as the community should be considered. Consideration of developing along the edges of the campus should be considered. While the preservation of open space is often a critical element in urban locations, creating a connection to the Sweetwater community will create a vibrant activity node where the University and community engage. While it could be enhanced to create better connections, the existing open space (and extensive surface parking areas) creates a barrier between the host community and the campus.

BISCAYNE BAY CAMPUS

Due to the isolated location of the Biscayne Bay Campus, continuing to improve the perception of the University within the host community is a necessity in “bridging” the gap between the community and the campus. Although significantly separated in distance and adjacent to natural resources, improved physical connections to the community should be considered. The campus offers a unique connection to the Bay. Enhancing the pedestrian walkways and bike paths from the host community to the campus and access to the bay would increase connectivity and provide a special amenity to the community. The development of the campus as a sustainable campus, with minimized building footprints, restored Mangrove vegetation stands and preserved open space should be highlighted. The natural resources of the campus should be leveraged as a teaching mechanism unique to the campus.

4.0 FUTURE LAND USE ELEMENT

(1) DATA AND ANALYSIS REQUIREMENTS

a) Inventory and Assessment of existing and projected space and building needs, existing land uses and developments on university property, and land use as defined by the University's own land use categories, inventory approximate acreage and general range of uses of structures.

EXISTING & PROJECTED FUTURE SPACE AND BUILDING NEEDS ON THE MODESTO A. MAIDIQUE CAMPUS (MMC), ENGINEERING CENTER (EC), AND BISCAYNE BAY CAMPUS (BBC)

Projections for future net academic/research space, support space and building area needs for each campus location are depicted in Table 4.1-4.3 (Attached large format). Projections represent university wide calculated deficiencies or surpluses, determined through analysis using the State of Florida Space Use Standards (national standards used where State of Florida standards do not exist) and enrollment projections provided by FIU. See Chapter 2, Table 2.3, Table 2.8 and Table 2.9 for Full Time Equivalent (FTE) and Headcount (HC) projections. The analysis identifies total deficiency and surplus space required to meet the projected enrollment growth for the years 2025 and 2035. In addition to building needs, this analysis will be used to develop an understanding for future land required to accommodate growth in student enrollment.

Translating Future Net and Gross Building Area Requirements into Building "Increments"

Tables 4.1, 4.2 and 4.3 are representative of the overall campus space needs projected for 2025 and 2035. These were determined by the campus-level Space Needs Analysis.

Facility planning modules are organized around the following uses. Modules may be stacked and/or integrated to create a compact campus core, preserve limited open space, strengthen campus walkability, and reinforce sustainability concepts:

- Academic: 75 feet wide; six stories
- Research: 85 feet wide; six stories
- Clinical: 85 feet wide; three stories
- Support: sized per specific use; three stories
- Housing: 60 feet – six stories on MMC, 100+ feet – 10 to 12 stories on BBC
- Sports & Recreation: sized per NCAA and NIRSA standards

To develop these modules, the needed assignable square footage per campus space type has been multiplied by an appropriate grossing factor that meets university standards and best national higher education practices. The scale of these modules reflects the most efficient use of internal space - with appropriate floor widths and lengths for student-centered learning environments – as well as sustainable design criteria for each type of building use classification.

Although the facility planning modules are colored to reflect their primary use as each facility construction project is further defined, it will encompass a variety of functions in addition to its primary use. The proposed scale and massing flexibly incorporate multi-purpose facilities and changed building usage over time.

EXISTING LAND USES AND DEVELOPMENTS ON UNIVERSITY PROPERTY

MODESTO A. MAIDIQUE CAMPUS

During World War II, Miami-Dade County purchased a 640-acre parcel located some 11 miles west of the City of Miami limits for the development of an airport intended for student instruction and general (non-commercial carrier) aviation. The airport was built with three runways in 1947 and by 1958 there were 1,100 to 1,300 flight operations per day requiring the placement of a control tower, which was relocated from Miami International Airport and placed in service in 1959. By 1960, Tamiami Airport ranked as the third busiest in the nation, behind O'Hare and Miami International. This very high level of, mostly student pilot, flight activity coupled with conflicts with Miami International air traffic led to the closure of the airport and the construction of the New Tamiami Airport in Southwest Miami-Dade County. After its closure, 342.2 acres of the site were donated to the State of Florida for the construction of FIU. The remaining 300 acres were retained for development of Tamiami Park and the Miami-Dade County Fair and Exposition.

Since it opened its doors to the public, the name of the campus has changed several times. Below is a list of the various names:

- South Campus
- University Park
- Modesto A. Maidique

BISCAYNE BAY CAMPUS

Biscayne Bay Campus was also part of a scheme to build an airport during World War II. In 1945, the 1,707-acre Graves Tract was purchased for the construction of a major metropolitan airport. The airport plans subsequently shifted to the Pan American Airways field for development of what is now Miami International Airport. A large portion of the Graves tract was sold in 1951 to the Interama Authority for the creation of the world's first permanent international trade and cultural exposition center. Clearing, dredging, and filling of this environmentally sensitive site continued into the 1960's, but by the end of the decade the project was abandoned. The only remnant of the project, other than hundreds of acres of filled bayfront wetlands, is the original Trade Center facility that is now Hospitality Management at Biscayne Bay campus. The property was divided between the City of North Miami, Miami-Dade County for a regional park and the State of Florida for the creation of Oleta River State Recreation Area and for a north (Bay Vista) campus of FIU. In 1975, FIU opened the Biscayne Bay Campus, then named the “Bay Vista” Campus, and development proceeded rapidly over the next 18 years.

Since 1975, the name of the campus has changed several times. Below is the list with the various names:

- Bay Vista Campus
- North Miami Campus
- North Campus
- Biscayne Bay Campus

ENGINEERING CENTER (EC)

The Engineering Center (EC) is located on 36 acres approximately one mile from Modesto A. Maidique Campus. The site is located at the northeast intersection of West Flagler Street and SW 107th Avenue, accommodating engineering students and faculty. The campus facility resides in 3 buildings including a 245,000 square foot building that houses research centers, teaching laboratories, faculty offices, study areas, computing facilities and research laboratories. The second building is the construction lab which is adjacent to the central plant. The third building is the “Wall of wind” wind lab building on the east side of the site. All primary buildings and site were purchased from biomedical company Cordis in 1997. The Construction Lab was a later addition to the original Operations and Utility (OU) building.

This facility has had several names over the years. Below is the list of the various names:

- Center for Engineering and Applied Science (CEAS)
- Engineering Center

Table 4.1 Modesto Maidique overall Inventory and projected space analysis

Modesto A. Maidique Campus (MMC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	24,012 HC	20,993 FTES
Graduate (In-Person)	5,622 HC	4,915 FTES
E-Learning Students	15,830 HC	13,839 FTES
Total FTE Students	45,464 HC	39,747 FTES

Faculty and Staff Summary:

Faculty	3,198	3,070 FTES
Staff	4,470	4,101 FTES
Student Empls	3,291	1,379 FTES
Total FTE Staff	10,959 HC	8,550 FTES

		BOG FACTORS		RECOMMENDATIONS		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	233,172	10.00 ASF per In-Person FTES	259,080	6.83 ASF per In-Person FTES	176,893	78,253	(3,934)
Teaching Labs	210,215	11.25 ASF per Total FTES	447,154	11.25 ASF per In-Person FTES	291,465	5.55 ASF per In-Person FTES	143,705	56,533	(91,227)
Open Labs	220,225			3.70 ASF per Total FTES	147,065	2.88 ASF per Total FTES	114,539		(32,526)
Research Labs	250,255,257	18.75 ASF per Total FTES	745,256	18.75 ASF per In-Person FTES	485,775	7.04 ASF per In-Person FTES	182,296	60,592	(242,887)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	894,308	142.80 ASF per FTE Staff*	785,345	103.02 ASF per FTE Staff	566,629	147,646	(71,070)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	536,585	13.50 ASF per Total FTES	536,588	4.66 ASF per Total FTES	185,198	131,559	(219,831)
Subtotal ASF		71.87 ASF per Total FTES	2,856,474	63.03 ASF per Total FTES	2,505,318	34.45 ASF per Total FTES	1,369,260	474,583	(661,475)
Offices (Non E & G Funded)	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	305,412	105.04 ASF per FTE Staff	225,841	16,292	(63,279)
Athletics	520,523,525	4.50 ASF per Total FTES	178,862	7.00 ASF per Total FTES	278,208	3.48 ASF per Total FTES	138,208	0	(140,000)
Instructional media	530	3.00 ASF per Total FTES	119,241	3.00 ASF per Total FTES	119,242	0.35 ASF per Total FTES	14,022	0	(105,220)
Clinic	542,547			0.40 ASF per Total FTES	15,899	0.19 ASF per Total FTES	7,560	0	(8,339)
Special use	550,555,570,575,580,585,590			2.60 ASF per Total FTES	103,343	0.88 ASF per Total FTES	34,782	41,412	(27,149)
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	89,431	2.25 ASF per Total FTES	89,431	1.77 ASF per Total FTES	70,524	26,678	7,771
Food Service	630,631,635			2.19 ASF per Total FTES	87,008	1.35 ASF per Total FTES	53,518	0	(33,490)
General Use	650,655,660,665,680,682,685			5.07 ASF per Total FTES	201,711	3.59 ASF per Total FTES	142,499	0	(59,212)
Recreation	670,675			17.49 ASF per In-Person FTES	453,185	2.05 ASF per Total FTES	81,286	0	(371,899)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	174,887	4.24 ASF per Total FTES	168,528	1.53 ASF per Total FTES	60,616	37,702	(70,210)
Health Care	810,815,830,835,840,845,850,855,870,880			0.31 ASF per Total FTES	12,445	0.42 ASF per Total FTES	16,513	0	4,068
Total ASF		86.02 ASF per Total FTES	3,418,894	109.18 ASF per Total FTES	4,339,729	55.72 ASF per Total FTES	2,214,629	596,667	(1,528,433)

*The total need for additional staff and faculty space has been distributed across campuses proportionate to student enrollment.

Table 4.2 Engineering Center overall Inventory and projected space analysis

Engineering Center (EC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	1,842 HC	1,610 FTES
Graduate (In-Person)	372 HC	325 FTES
E-Learning Students	1,182 HC	1,034 FTES
Total FTE Students	3,396 HC	2,969 FTES

Faculty and Staff Summary:

Faculty	78	77 FTES
Staff	65	63 FTES
Student Empls	69	32 FTES
Total FTE Staff	212 HC	172 FTES

Space Use Category	Room Use Codes (FICM)	BOG FACTORS: NASF per FTE	BOG FACTORS: Total ASF	RECOMMENDED: Space Factor	RECOMMENDED: Total ASF	EXISTING INVENTORY: Space Factor	EXISTING INVENTORY: Total ASF	PLANNED PROJECTS: ASSIGNABLE SQUARE FEET	SURPLUS / (DEFICIT): ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	17,415	10.00 ASF per In-Person FTES	19,350	6.78 ASF per In-Person FTES	13,124	0	(6,226)
Teaching Labs	210,215	11.25 ASF per Total FTES	33,401	11.25 ASF per In-Person FTES	21,769	12.36 ASF per In-Person FTES	23,913	0	2,144
Open Labs	220,225			3.70 ASF per Total FTES	10,984	1.50 ASF per Total FTES	4,455	0	(6,529)
Research Labs	250,255,257	18.75 ASF per Total FTES	55,669	18.75 ASF per In-Person FTES	36,281	42.10 ASF per In-Person FTES	81,471	0	45,190
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	66,803	142.80 ASF per FTE Staff*	77,403	115.50 ASF per FTE Staff*	62,596	0	(14,807)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	40,082	13.50 ASF per Total FTES	40,076	0.96 ASF per Total FTES	2,848	0	(37,228)
Subtotal ASF		71.87 ASF per Total FTES	213,369	69.34 ASF per Total FTES	205,863	63.46 ASF per Total FTES	188,407	0	(17,456)
Offices (Non E & G Funded)	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	4,074	107.80 ASF per FTE Staff*	3,125		(949)
Athletics	520,523,525	4.50 ASF per Total FTES	13,361	0.00 ASF per Total FTES	0	0.00 ASF per Total FTES	0	0	0
Instructional media	530	3.00 ASF per Total FTES	8,907	3.00 ASF per Total FTES	8,906	0.00 ASF per Total FTES	0	0	(8,906)
Clinic	542,547			0.40 ASF per Total FTES	1,187	0.00 ASF per Total FTES	0	0	(1,187)
Special use	550,555,570,575,580,585,590			0.00 ASF per Total FTES	0	0.00 ASF per Total FTES	0	0	0
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	6,680	2.25 ASF per Total FTES	6,679	0.00 ASF per Total FTES	0	0	(6,679)
Food Service	630,631,635			1.79 ASF per Total FTES	5,318	0.58 ASF per Total FTES	1,725	0	(3,593)
General Use	650,655,660,665,680,682,685			8.01 ASF per Total FTES	23,773	2.10 ASF per Total FTES	6,232	0	(17,541)
Recreation	670,675			1.69 ASF per In-Person FTES	43,751	0.00 ASF per Total FTES	0	0	(43,751)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	13,064	4.24 ASF per Total FTES	12,587	3.83 ASF per Total FTES	11,381	0	(1,206)
Health Care	810,815,830,835,840,845,850,855,870,880			0.42 ASF per Total FTES	1,244	0.00 ASF per Total FTES	0	0	(1,244)
Total ASF		86.02 ASF per Total FTES	255,380	105.55 ASF per Total FTES	313,382	71.02 ASF per Total FTES	210,870	0	(102,512)

*The total need for additional staff and faculty space has been distributed across campuses proportionate to student enrollment.

Table 4.3 Biscayne Bay overall Inventory and projected space analysis

Biscayne Bay Campus (BBC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	3,012 HC	2,633 FTES
Graduate (In-Person)	391 HC	342 FTES
E-Learning Students	1,818 HC	1,589 FTES
Total FTE Students	5,221 HC	4,564 FTES

Faculty and Staff Summary:

Faculty	87	86
Staff	251	241
Student Empls	87	38
Total FTE Staff	425 HC	364 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	NASF per FTE	Total ASF	NASF per FTE	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	26,775	10.00 ASF per In-Person FTES	29,750	10.37 ASF per In-Person FTES	30,859	900	2,009
Teaching Labs	210,215	11.25 ASF per Total FTES	51,345	11.25 ASF per In-Person FTES	33,469	9.17 ASF per In-Person FTES	27,278	1,200	(4,991)
Open Labs	220,225			3.70 ASF per Total FTES	16,887	5.61 ASF per Total FTES	25,597		8,710
Research Labs	250,255,257	18.75 ASF per Total FTES	85,575	18.75 ASF per In-Person FTES	55,781	12.05 ASF per In-Person FTES	35,862		(19,919)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	102,690	142.80 ASF per FTE Staff*	93,936	64.50 ASF per FTE Staff*	82,911	150	(10,875)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	61,614	13.50 ASF per Total FTES	61,616	9.31 ASF per Total FTES	42,504		(19,112)
	Subtotal ASF	71.87 ASF per Total FTES	327,999	63.86 ASF per Total FTES	291,439	53.68 ASF per Total FTES	245,011	2,250	(44,178)
Offices (Non E & G Funde	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	31,312	124.70 ASF per FTE Staff*	27,320		(3,992)
Athletics	520,523,525	4.50 ASF per Total FTES	20,538	4.50 ASF per Total FTES	20,539	2.16 ASF per Total FTES	9,861		(10,678)
Instructional media	530	3.00 ASF per Total FTES	13,692	3.00 ASF per Total FTES	13,692	0.32 ASF per Total FTES	1,479		(12,213)
Clinic	542,547			0.40 ASF per Total FTES	1,826	0.01 ASF per Total FTES	25		(1,801)
Special use	550,555,570,575,580,585,590			0.00 ASF per Total FTES	0	0.01 ASF per Total FTES	49		49
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	10,269	2.25 ASF per Total FTES	10,269	4.22 ASF per Total FTES	19,282		9,013
Food Service	630,631,635			1.82 ASF per Total FTES	8,305	3.24 ASF per Total FTES	14,773		6,468
General Use	650,655,660,665,680,682,685			8.01 ASF per Total FTES	36,550	15.02 ASF per Total FTES	68,532		31,982
Recreation	670,675			2.60 ASF per In-Person FTES	67,262	0.37 ASF per Total FTES	1,667		(65,595)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	20,082	4.24 ASF per Total FTES	19,352	5.53 ASF per Total FTES	25,251	620	6,519
Health Care	810,815,830,835,840,845,850,855,870,880			0.34 ASF per Total FTES	1,571	0.27 ASF per Total FTES	1,211		(360)
Total ASF		86.02 ASF per Total FTES	392,580	110.02 ASF per Total FTES	502,117	90.81 ASF per Total FTES	414,461	2,870	(84,786)

*The total need for additional staff and faculty space has been distributed across campuses proportionate to student enrollment.

LAND USE AS DEFINED BY THE UNIVERSITY'S OWN LAND USE CATEGORIES

The following land use categories will apply to all FIU campuses. The designations are based on topography, soil conditions, adjacent land uses, existing space utilization and utility locations, proximity to existing and planned multimodal transportation systems, and existing development patterns:

ACADEMIC AND RESEARCH USE

This land use designation identifies areas on each campus which include buildings with classrooms, faculty and departmental offices, assembly space, exhibit spaces, and library spaces, where academic activities take place.

Indoor Research: This refers to existing areas on the campus designated for research, including laboratories, offices, assembly spaces, exhibit spaces, and library spaces.

Outdoor Research: This land use designation identifies existing outdoor areas onthe campus that are used for environmental studies and any research related to outdoor plant and wildlife.

MODESTO A. MAIDIQUE

There are sixteen facilities that serve academic functions (see Figure 4.1:Campus Land Use Map):

1. Academic Health Science Center 2
2. Academic Health Science Center 3
3. Building Ten
4. Business Building
5. College of Business Complex
6. MANGO
7. College of Law
8. Computing, Arts, Sciences and Education (C.A.S.E.)
9. Green Library
10. Paul Cejas School of Architecture
11. Rafael Diaz-Balart Hall
12. Ryder Business Building
13. Sanford and Dolores Ziff Education Building
14. SIPA I & SIPA II
15. Wertheim Conservatory
16. Ziff Family Education Building

Indoor Research Facilities:

- Academic Health Science Center 1
- Academic Health Science Center 4
- Academic Health Science Center 5
- Chemistry & Physics
- Computing, Arts, Sciences & Education (C.A.S.E.)
- Owa Ehan
- Viertes Haus

Outdoor Research Use

- Natural Preserve: Environmental Studies has a continuing conservation project at the preserve.
- Henington Island: Lake on the northwestern quadrant of the campus has a small island used for environmental studies

ENGINEERING CENTER (EC)

This is a facility with some academic use (see Figure 4.2:Campus Land Use Map):

- Grounds
- Central Receiving
- Student Health Services
- Physical Plant
- Plant Support

Indoor Research: This mixed-use facility includes research use.

Outdoor Research: Construction experiment space east of Operation Utilities

BISCAYNE BAY CAMPUS

There are five major academic facilities and four trailers that serve academic functions (See Figure 4.3: Campus Land Use Map):

- Academic Two
- Batchelor Environmental Center
- Hospitality Management
- Hubert Library
- Marine Biology Research Center

Indoor Research Facilities:

- Ecotoxicology and Risk Assessment Lab
- Marine Sciences Building

Outdoor Research Use

- Mangrove habitat restoration areas

SUPPORT USE

This land use designation identifies existing areas on the campus where non- academic administrative offices, student services, and physical plant spaces are concentrated.

MODESTO A. MAIDIQUE

Support facilities include:

- Campus Support Complex-Administration
- Campus Support Complex-Shops
- Central Utilities/ Chillers
- Children's Creative Learning Center
- Deuxieme Maison
- Frost Museum
- Graham Center
- Labor Center
- Management and Advanced Research Center (MARC)
- Primera Casa
- Student Academic Success Center
- The University Health Service Complex
- Tower (original Tamiami Airport Control Tower) – Veteran's Center
- UP Information Center

ENGINEERING CENTER (EC)

There is one two story building at the site serving as a support function.

- Operations and Utility (OC) building

BISCAYNE BAY CAMPUS

Support facilities include:

- Public Safety
- Grounds
- Central Receiving

HOUSING USE

This land use designation identifies existing areas on the campus that include student housing and other housing facilities.

MODESTO A. MAIDIQUE

Facilities designated for housing include:

- Parkview Housing: a housing and parking complex, at 6 stories and with 4-bedroom (single occupancy) units.
- University Park Apartments/Student Housing: an apartment complex of ten buildings located along the eastern perimeter of Modesto A. Maidique Campus.
- Panther Residence Hall: a four-story state of the art building.
- University Towers: This six-story facility is comprised of three sections, North Tower, South Tower, and the West Wing; clustered along the southern edge of campus.
- Everglades Residence Hall: This facility is comprised of three wings.
- Lakeview Residence Hall: Completed in 2006, this two-building facility provides housing and residential life functions.
- Tamiami Hall

ENGINEERING CENTER (EC)

There is no residential housing provided at this site.

BISCAYNE BAY CAMPUS

Facilities designated for housing include:

- Bayview Housing: Nine-story apartment style privatized student housing with two- and four-bedroom layouts
- Bay Vista Housing: Four-story apartment style housing with five wings, located on the northeastern corner of the campus, that is currently being used by Royal Caribbean Cruise Line (RCCL) employees in partnership with FIU

ATHLETICS / RECREATION AND OPEN SPACE USES

This land use designation identifies existing areas on the campus that are adequate for active and passive recreation. Active recreation includes sports, athletics, organized sporting events, gymnasiums, and workout facilities. Passive recreation refers to plazas, courtyards, pedestrian malls, and other open areas for the passive enjoyment of nature.

MODESTO A. MAIDIQUE

Recreational and open space is primarily found in buffer areas along the northern and western edges of Modesto A. Maidique Campus. Major recreational facilities include:

- Ocean Bank Convocation Center (OBCC)
- Baseball Stadium
- Softball Stadium
- Ricardo Silva Stadium
- R. Kirk Landon Field House
- Athletics Tennis Center
- Beach Volleyball Courts
- Golf Short Game Pitching and Putting Practice Area
- Track Throws Cage
- Recreation Fields (north, south, and east turf fields, basketball courts, and additional tennis courts)

ENGINEERING CENTER (EC)

The site offers no organized recreational facilities. The site consists approximately 10 acres of open space for potential use as recreation and open space.

BISCAYNE BAY CAMPUS

Recreational and open space is primarily found along the perimeters of developed areas for Biscayne Bay Campus. They are located north and south of the campus academic core along the Oleta River and Biscayne Bay shoreline and include:

- Aquatics Center
- Outdoor Recreation Facilities: Basketball courts, basketball court, soccer field, sand volleyball court, and tennis courts
- TRAC Ropes Course

UTILITIES

Utilities is not a land use category on all three campuses. Utility provisions at Modesto A. Maidique Campus, Biscayne Bay Campus, and the Engineering Center are accounted for under the Support Facilities land use designations. Refer to 9.0 General Infrastructure Element and 10.0 Utilities Element for further discussion of campus utilities.

MODESTO A. MAIDIQUE

Utilities Facilities within the campus include:

- Physical Plant
- Plant Support
- Central Utilities

PARKING

Parking is not a land use category. Existing parking structures at Modesto A. Maidique Campus are accounted for within the Mixed-Use category. Surface parking at all three campuses is accounted for amongst other land use categories.

MODESTO A. MAIDIQUE

Existing parking facilities include surface parking areas and seven parking garages:

- Gold Parking Garage (PG-1)
- Blue Parking Garage (PG-2)
- Panther Parking Garage (PG-3)
- Red Parking Garage (PG-4)
- Market Station (PG-5)

- Tech Station (PG-6)
- Parkview Parking Garage (resident-only parking)

Surface parking is primarily located along the northern and western edges of the campus core and along the southern perimeter adjacent to Tamiami Park and Miami-Dade Youth Fair and Exposition. Two parking garages (Gold and Blue) and two additional surface parking lots are in the southeastern quadrant of the campus.

ENGINEERING CENTER (EC)

Surface parking is provided at the western and eastern portions of the site as well as the north gravel lot.

BISCAYNE BAY CAMPUS

Parking facilities are comprised of existing surface parking areas west of the academic zone of the campus. Additional surface parking is associated with Kovens Center located south of the campus core.

CONSERVATION AREAS

Conservation is not a current land use category, and is accounted for under Element 13.0.

COMMUNITY INTERFACE USE

This land use designation identifies those areas within the campus that are operated by non-FIU organizations.

MODESTO A. MAIDIQUE

Existing land use areas designated as Other Public Facilities for Modesto A. Maidique Campus include:

- The Hurricane Center (NOAA)
- Dr. Carlos J. Finlay Elementary School
- Frost Art Museum
- The Herbert and Nicole Wertheim Performing Arts Center

ENGINEERING CENTER (EC)

No land use areas have been designated as Other Public facilities at this site.

BISCAYNE BAY CAMPUS

Existing land use areas designated as Other Public Facilities for Biscayne Bay Campus include:

- Bay Vista Housing
- Royal Caribbean Cruise Ltd. Studio (RCCL)
- Marine Academy of Science and Technology (MAST)

MULTI-PURPOSE

Multi-use has been added as a land use designation. This category identifies precincts within the campus that incorporate multiple facility types as well as facilities that include more than one use. Examples include facilities and districts that mix academic, research and support space; housing neighborhoods that include support facilities; sports districts that include academics and housing; structured parking with retail and other occupied spaces; and open space with ancillary functions.

Nationally and locally, these types of facilities and campus precincts are used to both provide opportunities for partnerships as well as meet multiple needs within an era of constrained public funding. They are a hallmark of urbanizing campuses - where developable land has a premium value and facilities are developed to a higher density and taller massing. FIU anticipates that the "multi-purpose" designation will be used increasingly as a designation at each campus.

(2) INVENTORY OF APPROXIMATE ACREAGE AND GENERAL RANGE OF USES OF STRUCTURES

The approximate acreage for each existing designated land use for university-owned property for Modesto A. Maidique and Biscayne Bay Campus is shown in Table 4.4.

Table 4.4 Associated Land Use Acreage by Campus

MODESTO A. MAIDIQUE

NAME	Acre	% of Total Acres
Academic + Research	59.6	18%
Multi-Purpose	112.52	34%
Recreation and Open Space	83.25	25%
Housing	38.1	12%
Support	25.18	8%
Community Interface	9.12	3%
TOTAL	**327.77**	**100%**

ENGINEERING CENTER

NAME	Acre	% of Total Acres
Academic + Research	15.43	43%
Multi-Purpose	12.09	34%
Recreation and Open Space	6.08	17%
Housing	0	0%
Support	2.39	6%
TOTAL	**36**	**100%**

BISCAYNE BAY CAMPUS

NAME	ACRE	% OF TOTAL ACRES
Academic + Research	49.57	31%
Multi-Purpose	38.63	24%
Recreation and Open Space	48.37	30%
Housing	12.49	8%
Support	10.27	7%
TOTAL	**159.33**	**100%**

b) Inventory and Assessment of Existing and Projected Vacant, Open or Underdeveloped University Controlled Lands to determine potential opportunities for meeting the needs show above. Existing Plans for the redevelopment of underutilized or inconsistent character, density, or future land use goals of the university. Existing plans for the release of surplus lands

ASSESSMENT/ SUITABILITY OF EXISTING AND PROJECTED VACANT, OPEN OR UNDERDEVELOPED UNIVERSITY CONTROLLED LANDS

MODESTO A. MAIDIQUE

Campus development will need to occur within existing surface parking areas and by intensification of the campus core. Refer to 13.0 Conservation Element for further information concerning the suitability of existing vacant land.

Future campus expansion will not be adversely impacted by existing soils, topography natural resources and historic and archaeological resources.

At the Modesto A. Maidique Campus a need for redevelopment is anticipated during this planning period. Places to be considered for redevelopment at MMC are in existing parking and open space uses as well as sites where buildings have outlived their usefulness.

ENGINEERING CENTER

At the Engineering Center, there is room for further expansion in the open space that surrounds the site.

BISCAYNE BAY CAMPUS

Gross vacant and undeveloped land at Biscayne Bay Campus is approximately 40.5 acres. Refer to 13.0 Conservation Element for further information concerning the suitability of undeveloped land.

Future campus expansion campus will not be adversely impacted by existing soils, topography, and historic and archaeological resources. There is an environmental impact buffer along Biscayne Bay, an enhanced mangrove wetland area in front of Kovens Center a mitigation zone at the southwest corner of the property that are not available for campus expansion.

At Biscayne Bay there are some opportunities for campus expansion within the open space between the campus core and the Kovens Center, north of the existing academic buildings and west of Academic Two and the Kovens Center.

LAND REQUIRED TO ACCOMMODATE PLANNED FUTURE ENROLLMENT

MODESTO A. MAIDIQUE

The categories of land use and the estimated gross acreage for each category are shown in Table 4.5.

Table 4.5 Projected Land Requirements 2020– MODESTO A. MAIDIQUE

MODESTO A. MAIDIQUE

NAME	ACRE	% OF TOTAL ACRES
Academic & Research	62	18%
Community Interface	9	3%
Multi-Purpose	69	20%
Recreation and Open Space	115	34%
Housing	31	9%
Support	57	17%
TOTAL	**343**	**100%**

ENGINEERING CENTER

The categories of land use and the estimated gross acreage for each category are shown in Table 4.6.

Table 4.6 Projected Land Requirements 2020 – ENGINEERING CENTER

ENGINEERING CENTER

NAME	ACRE	% OF TOTAL ACRES
Academic & Research	16	39%
Community Interface	0	0%
Multi-Purpose	12	29%
Recreation and Open Space	11.5	28%
Housing	0	0%
Support	1.5	4%
TOTAL	**41**	**100%**

BISCAYNE BAY CAMPUS

The categories of land use and the estimated gross acreage for each category are shown in Table 4.6.

Table 4.7 Projected Land Requirements 2020– BISCAYNE BAY CAMPUS

NAME	ACRE	% OF TOTAL ACRES
Academic & Research	20	11%
Community Interface	11.5	6%
Multi-Purpose	46.5	26%
Recreation and Open Space*	77.5	43%
Residential	13.5	7%
Support	13	7%
TOTAL	**182**	**100%**

*Includes Conservation

ASSESSMENT OF SURPLUS UNIVERSITY PROPERTY

Due to limited land resources, it is not recommended that any portion of property at MMC, BBC and EC be declared surplus for release as surplus by FIU or the Florida Board of Education, Division of Colleges and Universities.

c) Properties within Study Area where Title Interest is Held

A legal description and title search of FIU properties can be found on file at the Facilities Management office.

d) Properties within the Planning Study Area which may Meet Existing and Future Needs

Due to limited land resources FIU may need to look outside their land holdings to find land that could meet existing and future needs.

e) Existing Natural, Archeological and Historic Resources within the Planning Study Area

MODESTO A. MAIDIQUE

Modesto A. Maidique Campus is in close proximity to sites that have natural, archaeological or historic resources on them:

- Tamiami Park and Miami-Dade County Fair and Exposition (located immediately south of Modesto A. Maidique)
- Three canals (bordering Modesto A. Maidique, Tamiami Park and Miami-Dade County Fair and Exposition to the north, west and south)

According to FIU and other applicable agencies this campus is not within an aquatic preserve nor is it designated or under consideration for designation as an area under critical state concern.

Modesto A. Maidique contains relatively few naturally vegetated areas. The Natural Preserve represents the most valuable natural feature of Modesto A. Maidique with its botanicals. However, as part of a previous campus master plan update, an inspection revealed that there were no threatened or endangered fauna or nests in the Preserve. Given these findings, future campus expansion will consider retention of the most sensitive portions of the preserve for conservation and botanical study.

Potential impacts for surface waters, wildlife habitat, utility requirements and easements and stormwater management all must be considered for all future campus expansion, but at this time there appears to be no major constraints that would limit future land use development. There are no areas on university-controlled land identified by the host community comprehensive plan to be developed for a particular land use.

There are relatively few wetland areas on site. Potential wetland areas include lake littoral zones, and a portion of the preserve. There are no floodplains on campus or within the context area.

ENGINEERING CENTER (EC)

The Engineering Center (EC) is not in close proximity to sites that may have natural, archaeological or historic resources on them.

According to FIU and other applicable agencies this campus is not within an aquatic preserve nor is it designated or under consideration for designation as an area under critical state concern.

BISCAYNE BAY CAMPUS

Biscayne Bay Campus is in close proximity to sites that may have natural, archaeological or historic resources on them:

- Oleta River State Recreation Area (Borders the campus to the east and north. (This 1,048-acre park is one of Florida's significant urban waterfront parks. The campus shoreline has an unobstructed view to the state recreational area.)
- Biscayne Bay Estuary and the Florida Intercoastal Waterway

Biscayne Bay Campus is in an aquatic preserve and has a designated area of state concern. The following provides a description:

Biscayne Bay and all-natural waterways (including the Oleta River and the estuary at the north end of the Biscayne Bay Campus) tidally connect to Biscayne Bay and are designated as the Biscayne Bay Aquatic Preserve, a Miami-Dade County preserve. Biscayne Bay Campus is bordered to the north and east by Oleta River State Recreation Area and adjacent to Biscayne Bay along the southern edge of the campus. The most environmentally sensitive site on Biscayne Bay Campus consists of mangrove lined shores along Oleta River and Biscayne Bay. The mangrove management plan is a high priority, and the Department of Environmental Resources Management prescribes maintenance standards. To compensate for the construction of an access road in a mangrove-dominated canal and mangrove trimming in front of Kovens Center, mangrove mitigation projects have been constructed near the impacted area and at the southwestern end of campus.

There are several areas with sensitive vegetation that must not be disturbed by planned campus expansion. The mangrove forests on Biscayne Bay Campus are classified as jurisdictional wetlands. An environmentally sensitive site with mangroves exists along the shores of the Oleta River and Biscayne Bay. In addition, a mangrove mitigation site has been planted at the southern portion of the campus. An additional existing enhanced mangrove area is located immediately west of Kovens Center.

The principal concern regarding potential surface water and development conflicts involves the need to ensure that development of the campus does not negatively impact the habitat of wildlife on site. The entire Biscayne Bay Campus is within the 100- year flood plain and is characterized as a special flood hazard area. Potential conflicts regarding floodplains are primarily concerned with flooding of the campus and flood protection for buildings and structures. Building design should respond to state-of- the-art data and modeling, not to out-of-date studies.

Potential impacts wildlife habitat, utility requirements and easements and stormwater management all must be considered for all future campus expansion, but at this time there appears to be no major constraints that would limit future land use development. There are no areas on campus identified by the host community comprehensive plan to be developed for a particular land use.

f) Facilities on University-Controlled Lands not Under Jurisdiction or Operation of the State University System

MODESTO A. MAIDIQUE

- Herbert and Nicole Wertheim Performing Arts Center
- Hurricane Center (NOAA)
- Carlos Finlay Elementary School
- Patricia and Phillip Frost Museum
- Richard Silva Stadium

The stadium, located partially on FIU property and partially on Tamiami Park property, was originally built as a joint venture between FIU, Miami-Dade County Public Schools, Miami- Dade Parks, and the Miami-Dade County Youth Fair.

BISCAYNE BAY CAMPUS

The Munisport Landfill is an inactive landfill site located in the City of North Miami, adjacent to Biscayne Bay Campus, the Oleta River Recreational Area and Biscayne Bay. Operations were halted in 1981 after evidence of leachates and contamination was discovered in the soil, sediments, ground water, and Biscayne Bay. The Munisport Landfill site was categorized as an indeterminate public health hazard. Though it posed no threat to human health, it did pose a significant threat to aquatic organisms in the adjacent wetlands. Based on these findings, EPA and the City of North Miami entered a Consent Decree for the cleanup in 1992. Mitigation included groundwater remediation, wetland restoration, and landfill closure and capping. As a result of these actions, the site was removed from EPA's National Priorities List in September 1999 and regulatory authority for the landfill closure was transferred to the state and county.

Under the approval of Environmental Protection Act (EPA) and Miami-Dade County, the City of North Miami is currently in the process of transforming 193 acres of the former landfill into a mixed-use development project, known as Sole Mia Project. The proposed reuse project will include a mix of residential, commercial, retail and recreation facilities, —with full build-out projected by 2025. The developers of the project, Turnberry and LeFrak, are responsible for the site’s agreement with the City of North Miami.

g) Existing and Projected Land Uses, Goals, Objectives, Policies and Zoning as Defined in the Local Governments Comprehensive Plan

MODESTO A. MAIDIQUE

The principal land uses adjacent to the campus and extending out a mile radius is primarily low density, single family residential development, much of which occurred in the 1960's and 1970's. Suburban character strip commercial development as well as higher density multifamily residential is clustered along portions of the main roadway arterials in the vicinity of the campus. Arterial streets adjacent to Modesto A. Maidique Campus include Tamiami Trail (SW 8th Street) to the north, SW 107th Avenue to the east and Coral Way (SW 24th Street) and Bird Road (SW 40th Street) to the south. High density student housing has been built in Sweetwater since rezoning changes occurred in the past 5+ years.

ENGINEERING CENTER (EC)

The principal land uses adjacent to the site and extending out a mile radius is primarily low density, single family residential development to the south and commercial and industrial use to the north. Strip commercial development and higher density multifamily residential is clustered along SW 107th Avenue and West Flagler Street.

BISCAYNE BAY CAMPUS

The principal land use type in the context area immediately surrounding Biscayne Bay is open space categorized as Parks and Recreation (Oleta River State Recreation Area) and environmentally protected parks. The latter category includes the extensive wetland area of Oleta River and Biscayne Bay shoreline. In addition, there are substantial public facilities that exist nearby, including two schools directly adjacent to the Biscayne Bay property and a high school on campus, a City of North Miami sewage treatment plant and portions of the Munisport landfill area that are currently closed. Approximately 193 acres of the former landfill site has been designated for mixed-use development by the City of North Miami. The proposed reuse project, known as Sole Mia Project, will include a mix of residential, commercial, retail and recreation facilities.

Beyond the zone of public open space, extensive single-family residential development extends to the south and west. Strip commercial development and multifamily development occurs along the two principal arterials in the context area, Federal Highway and Sunny Isles Boulevard. To the east, across Biscayne Bay, a major regional activity generator, Haulover Park and Marina; as well as the Sunny Isles hotel/motel corridor lines the beachfront.

Figure 4.1 Campus Land Use (Existing) – MODESTO A. MAIDIQUE CAMPUS

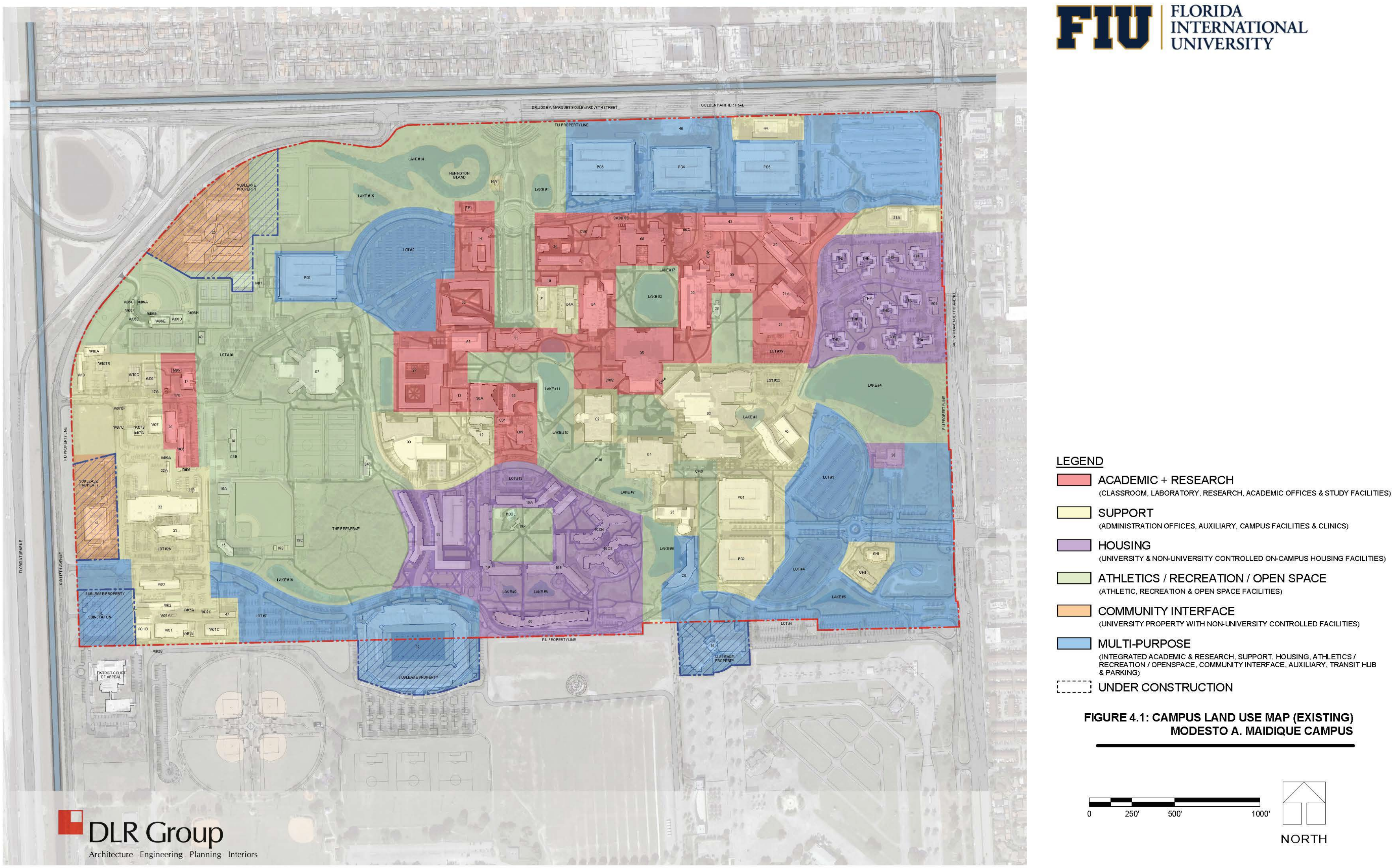


Figure 4.2 Campus Land Use (Existing) – ENGINEERING CENTER

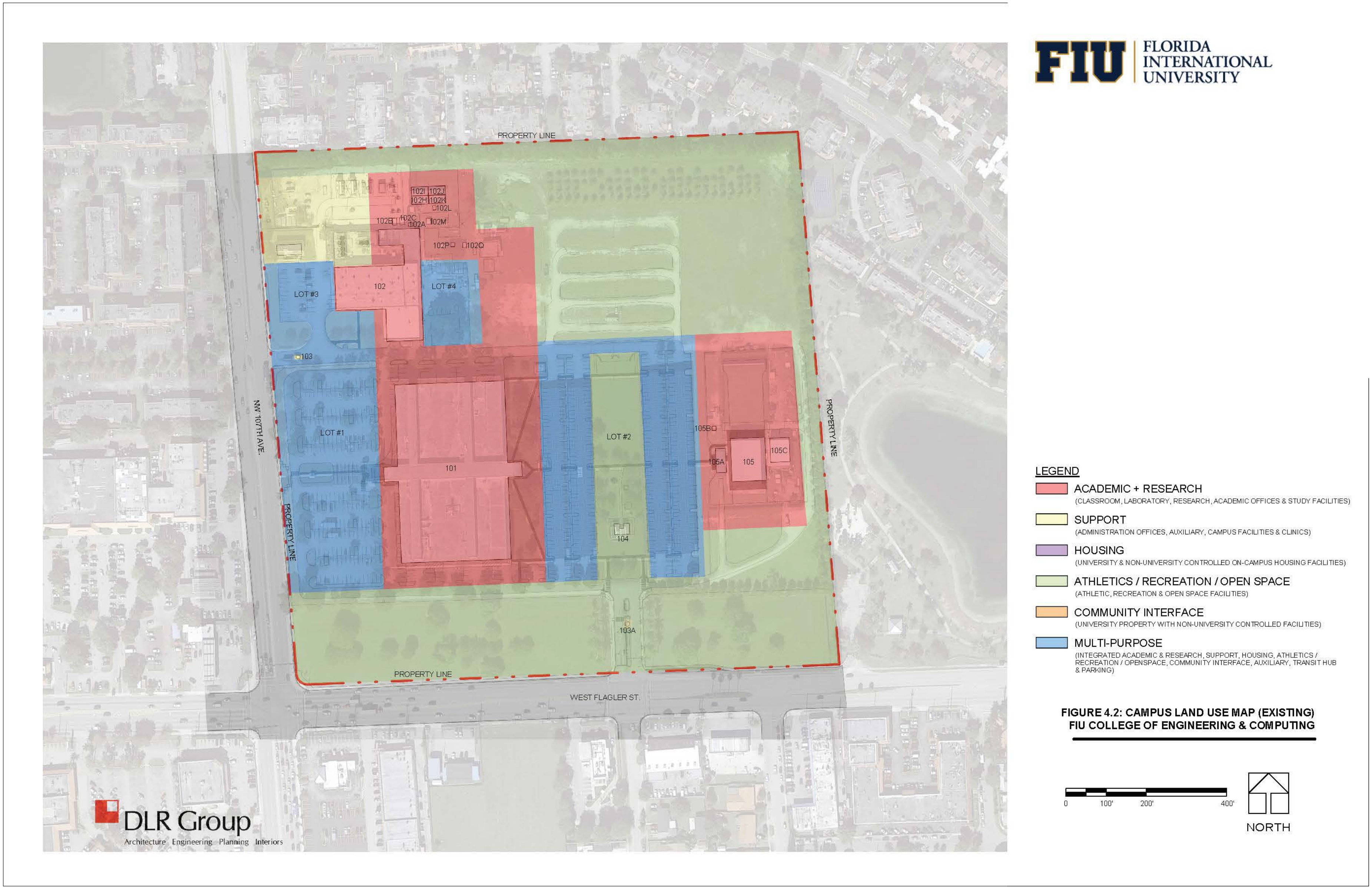
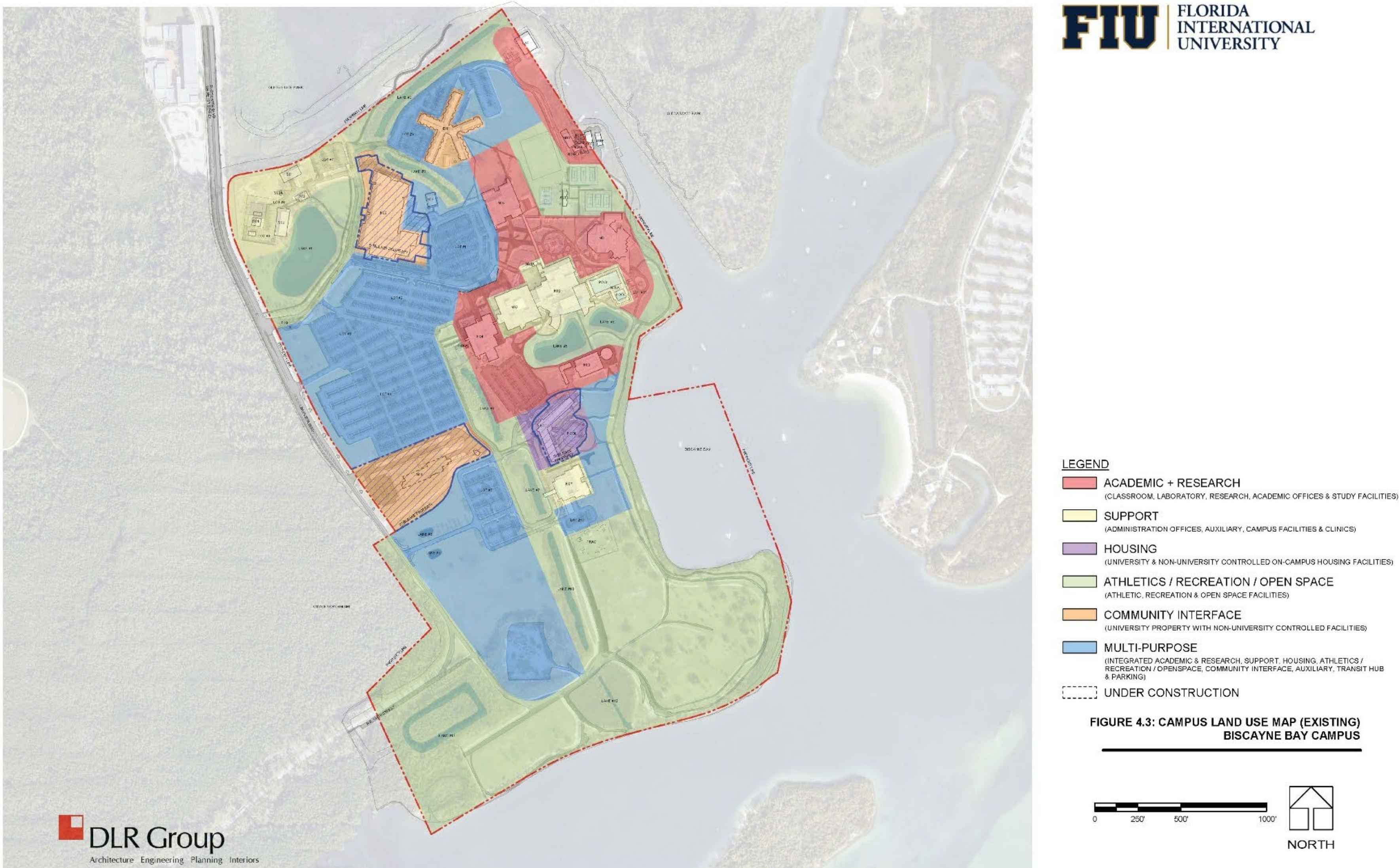


Figure 4.3 Campus Land Use (Existing) – BISCAYNE BAY CAMPUS



5.0 ACADEMIC AND RESEARCH FACILITIES ELEMENT

(1) DATA REQUIREMENTS

a) Existing Building Spaces Inventory

Academic and Research Spaces are defined by their FICM categories as described below. The 100 Series are the classroom spaces; these include rooms used for scheduled classes that are not limited in their use to a specific subject or discipline, by instructional aids or equipment, or room configuration. The 110 category spaces are university controlled by the office of classroom management. The 115 category spaces are college or departmentally controlled and are not scheduled by the office of classroom management. Included in these classifications are general purpose classrooms, lecture halls and seminar rooms and include support spaces.

The 200 series are the Laboratory spaces; these include classroom Laboratories, Open laboratories, and Research/ Non-class laboratory spaces. Class Laboratories (210) are used primarily for scheduled instruction. Class laboratories (215) are used as service space for the 210 instructional spaces. Open laboratories (220) are not generally formally scheduled, with open space laboratories service space (225) as added space. Studio and practice space (318) is also included in the research laboratory facilities.

Outside of the academic laboratory space, research laboratories (250) are used for research, experimentation or creative activity and are not scheduled. Those spaces include research laboratories service (255) and core service space (257). Additional research space includes research office (312) and the research office service (317) space. All additional study (400) space is also included within the academic and research facilities.

The 400 series are the study spaces; those include study rooms (410), computer study (412), computer study room service (415), stack (420), open stack study room (430), processing room (440), and study service (455).

The 500 Series are Special Use Academic and Research Facilities and clinical room codes that are sufficiently specialized in their primary activity or function to merit their own room use code. They often provide a service to other room types and typically serve only a small number of people. Spaces included media production (530), media production service (535), demonstration (550), demonstration service (555), animal quarters (570), animal quarters service (575), greenhouse (580), greenhouse service (585), and other (590) room types used as additional academic and research space. This also includes clinical research (542), clinic service (545), and clinical research service (547) space.

<u>Assumptions</u>

Space utilization analysis and space needs projections were performed based on Florida Board of Governors document titled, ‘Space Standards for Fixed Capital Outlay Needs Generation Formula’. Where no Florida standard existed, Council of Educational Facility Planners International (CEFPI) guidelines were utilized.

Florida International University provided actual head count (HC) and full time equivalent (FTE) projections from which the growth rate is flat from 2020 until 2035. These numbers will be used as the basis of enrollment projections and resultant modeling of space needs for both target dates.

Tables, 5.1, 5.2 and 5.3: Show an inventory of existing academic spaces at Modesto A. Maidique, Engineering Center, and Biscayne Bay Campuses.

Table 5.1 Modesto A Maidique Existing Academic Space Inventory

Modesto A. Maidique Campus (MMC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	24,012 HC	20,993 FTES
Graduate (In-Person)	5,622 HC	4,915 FTES
E-Learning Students	15,830 HC	13,839 FTES
Total FTE Students	45,464 HC	39,747 FTES

Faculty and Staff Summary:

Faculty	3,198	3,070 FTES
Staff	4,470	4,101 FTES
Student Empls	3,291	1,379 FTES
Total FTE Staff	10,959 HC	8,550 FTES

		BOG FACTORS		RECOMMENDATIONS		EXISTING INVENTORY	
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF
Classrooms	110,115	9.00 ASF per In-Person FTES	233,172	10.00 ASF per In-Person FTES	259,080	6.83 ASF per In-Person FTES	176,893
Teaching Labs	210,215	11.25 ASF per Total FTES	447,154	11.25 ASF per In-Person FTES	291,465	5.55 ASF per In-Person FTES	143,705
Open Labs	220,225			3.70 ASF per Total FTES	147,065	2.88 ASF per Total FTES	114,539
Research Labs	250,255,257	18.75 ASF per Total FTES	745,256	18.75 ASF per In-Person FTES	485,775	7.04 ASF per In-Person FTES	182,296
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	894,308	142.80 ASF per FTE Staff*	785,345	103.02 ASF per FTE Staff	566,629
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	536,585	13.50 ASF per Total FTES	536,588	4.66 ASF per Total FTES	185,198
	Subtotal ASF	71.87 ASF per Total FTES	2,856,474	63.03 ASF per Total FTES	2,505,318	34.45 ASF per Total FTES	1,369,260

Table 5.2 Engineering Center Existing Academic Space Inventory

Engineering Center (EC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	1,842 HC	1,610 FTES
Graduate (In-Person)	372 HC	325 FTES
E-Learning Students	1,182 HC	1,034 FTES
Total FTE Students	3,396 HC	2,969 FTES

Faculty and Staff Summary:

Faculty	78	77 FTES
Staff	65	63 FTES
Student Empls	69	32 FTES
Total FTE Staff	212 HC	172 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY	
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF
Classrooms	110,115	9.00 ASF per In-Person FTES	17,415	10.00 ASF per In-Person FTES	19,350	6.78 ASF per In-Person FTES	13,124
Teaching Labs	210,215	11.25 ASF per Total FTES	33,401	11.25 ASF per In-Person FTES	21,769	12.36 ASF per In-Person FTES	23,913
Open Labs	220,225			3.70 ASF per Total FTES	10,984	1.50 ASF per Total FTES	4,455
Research Labs	250,255,257	18.75 ASF per Total FTES	55,669	18.75 ASF per In-Person FTES	36,281	42.10 ASF per In-Person FTES	81,471
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	66,803	142.80 ASF per FTE Staff*	77,403	115.50 ASF per FTE Staff*	62,596
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	40,082	13.50 ASF per Total FTES	40,076	0.96 ASF per Total FTES	2,848
	Subtotal ASF	71.87 ASF per Total FTES	213,369	69.34 ASF per Total FTES	205,863	63.46 ASF per Total FTES	188,407

Table 5.3 Biscayne Bay Existing Academic Space Inventory

Biscayne Bay Campus (BBC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	3,012 HC	2,633 FTES
Graduate (In-Person)	391 HC	342 FTES
E-Learning Students	1,818 HC	1,589 FTES
Total FTE Students	5,221 HC	4,564 FTES

Faculty and Staff Summary:

Faculty	87	85
Staff	251	241
Student Empls	87	38
Total FTE Staff	425 HC	364 FTES

FIU Cats

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY	
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	NASF per FTE	Total ASF	NASF per FTE	Total ASF
Classrooms	110,115	9.00 ASF per In-Person FTES	26,775	10.00 ASF per In-Person FTES	29,750	10.37 ASF per In-Person FTES	30,859
Teaching Labs	210,215	11.25 ASF per Total FTES	51,345	11.25 ASF per In-Person FTES	33,469	9.17 ASF per In-Person FTES	27,278
Open Labs	220,225			3.70 ASF per Total FTES	16,887	5.61 ASF per Total FTES	25,597
Research Labs	250,255,257	18.75 ASF per Total FTES	85,575	18.75 ASF per In-Person FTES	55,781	12.05 ASF per In-Person FTES	35,862
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	102,690	142.80 ASF per FTE Staff*	93,936	64.50 ASF per FTE Staff*	82,911
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	61,614	13.50 ASF per Total FTES	61,616	9.31 ASF per Total FTES	42,504
Subtotal ASF		71.87 ASF per Total FTES	327,999	63.86 ASF per Total FTES	291,439	53.68 ASF per Total FTES	245,011

b) Existing Space Utilization

Classroom Weekly Room Use (WRU), Seat Utilization Rate (SUR) and Classroom capacity vs. enrollment capacity were analyzed for all classrooms on each campus. Weekly Room use reviews the number of hours classrooms are being utilized vs. the number of hours available for use during a typical week.

Seat Utilization Rate creates a percentage of utilization by comparing the number of seats available in a class to the number of seats being used by a student.

The Classroom Capacity vs. Enrollment looks at the number of classrooms available by size (number of seats) as compared with the number of students enrolled.

Table 5.4a-c Modesto A Maidique Campus Existing Classroom Space Utilization

Figure 5.4a WRU- Weekly Room use

Modesto A Maidique Campus: General Classroom Weekly Room Use

Maximum Number of Hours Per Week: 50
FIU Hours Per Week Goal: 40
Average Number of Hours Per Week Per Classroom: 32.1

Room Size	Rooms	Hours	Average
5 - 20	5	68.7	13.7
21 - 30	23	760.6	33.1
31 - 40	20	604.1	30.2
41 - 50	25	819.2	32.8
51 - 60	19	646.8	34.0
61 - 70	8	281.1	35.1
71 - 80	8	233.3	29.2
81 - 90	8	299.2	37.4
91 - 140	10	357.2	35.7
141 - 200	6	205.5	34.3
201 - 400	6	180	30.0
400 +	2	33	16.5
	140	4488.7	32.1

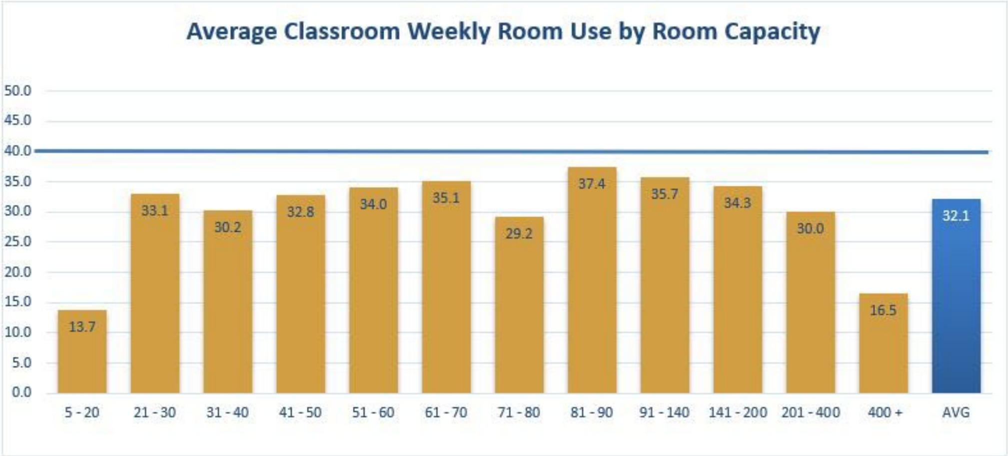


Figure 5.4b SUR- Station Utilization Rate

Modesto A Maidique Campus: General Classroom Station Utilization

FIU Station Utilization Goal: 60 percent
Average Classroom Station Utilization: 63.7

Room Size	Rooms	Stations	Avg Utilization
5 - 20	5	91	64.4%
21 - 30	23	625	66.5%
31 - 40	20	711	64.7%
41 - 50	25	1166	72.2%
51 - 60	19	1104	62.2%
61 - 70	8	512	69.3%
71 - 80	8	622	66.9%
81 - 90	8	689	50.8%
91 - 140	10	1078	56.2%
141 - 200	6	1013	56.6%
201 - 400	6	1685	49.4%
400 +	2	952	34.7%
	140	10248	63.7%

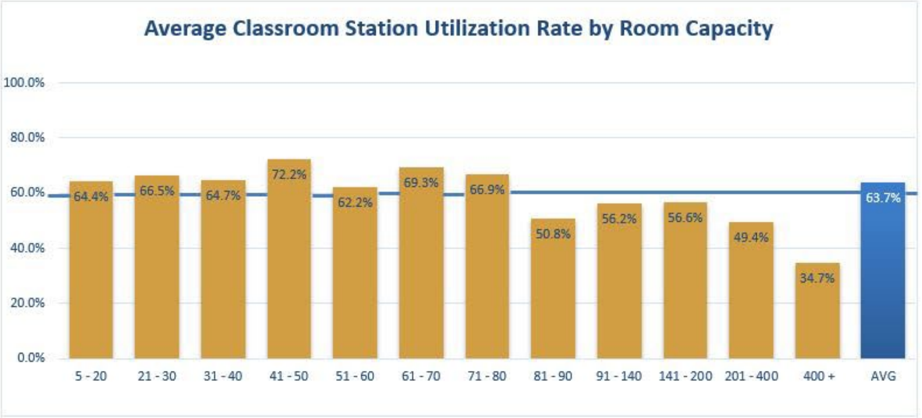


Figure 5.4c Classroom Capacity vs. Enrollment Capacity

Modesto A Maidique Campus: Weekly Student Contact Hours, Actual vs. Target Based on Room Use Goal and Station Utilization Goal

1 Weekly Student Contact Hour (WSCH) equals 1 station used for 1 hour of instruction per week. A Room Use Goal of 40 hours per week and a Station Utilization Goal of 60 percent equates to a goal of 24 WSCH per station.

Room Size	Rooms	Current WSCH	WSCH Goal
5 - 20	5	795	2,232
21 - 30	23	13,519	15,000
31 - 40	20	14,088	17,064
41 - 50	25	26,965	27,984
51 - 60	19	22,536	26,496
61 - 70	8	11,896	12,288
71 - 80	8	11,199	14,928
81 - 90	8	13,309	16,536
91 - 140	10	22,526	25,872
141 - 200	6	21,444	24,312
201 - 400	6	27,014	40,440
400 +	2	5,966	22,848
	140	191,256	246,000

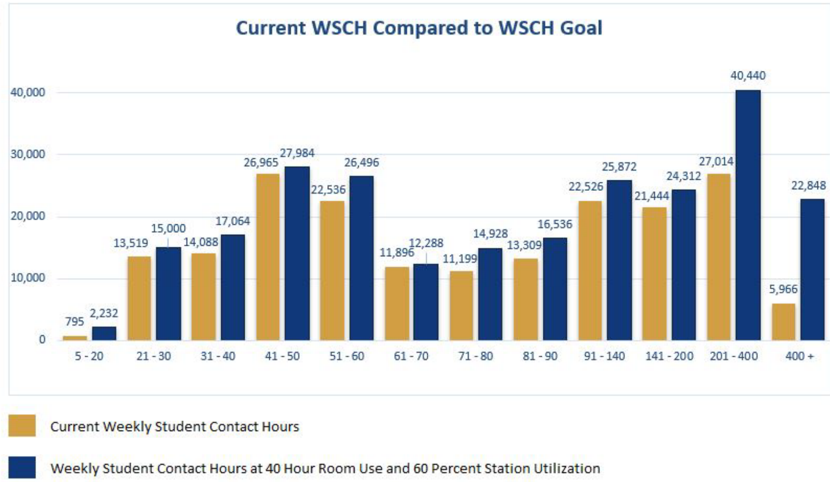


Table 5.5a-c Engineering Center Campus Existing Classroom Space Utilization

Figure 5.5a WRU- Weekly Room use

Engineering Center: General Classroom Weekly Room Use

Maximum Number of Hours Per Week: 50
FIU Hours Per Week Goal: 40
Average Number of Hours Per Week Per Classroom: 24.8

Room Size	Rooms	Hours	Average
5 - 20	0	0	0.0
21 - 30	0	0	0.0
31 - 40	1	16.5	16.5
41 - 50	8	192.1	24.0
51 - 60	3	76.3	25.4
61 - 70	0	0	0.0
71 - 80	0	0	0.0
81 - 90	1	45	45.0
91 - 140	1	41.5	41.5
141 - 200	0	0	0.0
201 - 400	0	0	0.0
400 +	0	0	0.0
	14	371.4	24.8

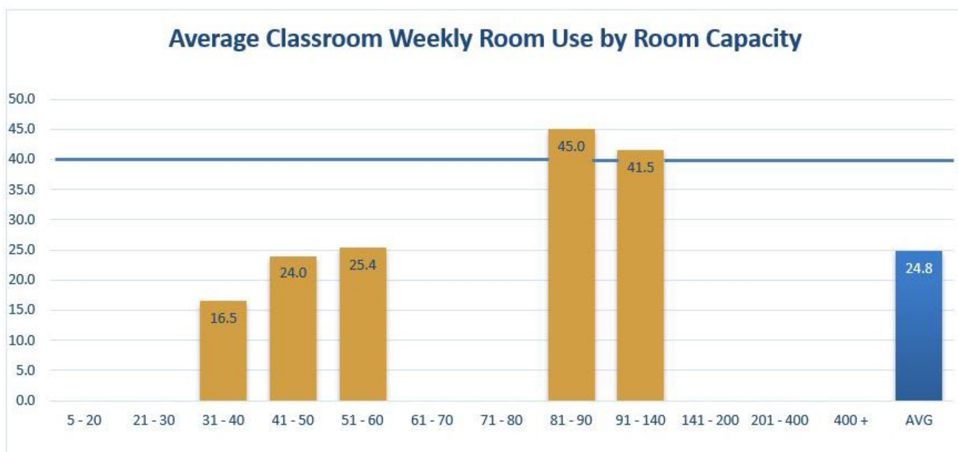


Figure 5.5b SUR- Station Utilization Rate

Engineering Center: General Classroom Station Utilization

FIU Station Utilization Goal: 60 percent

Average Classroom Station Utilization: 61.5

Room Size	Rooms	Stations	Avg Utilization
5 - 20	0	0	0.0%
21 - 30	0	0	0.0%
31 - 40	1	39	36.4%
41 - 50	8	347	58.9%
51 - 60	3	168	68.9%
61 - 70	0	0	0.0%
71 - 80	0	0	0.0%
81 - 90	1	83	76.6%
91 - 140	1	116	57.5%
141 - 200	0	0	0.0%
201 - 400	0	0	0.0%
400 +	0	0	0.0%
	14	753	61.5%

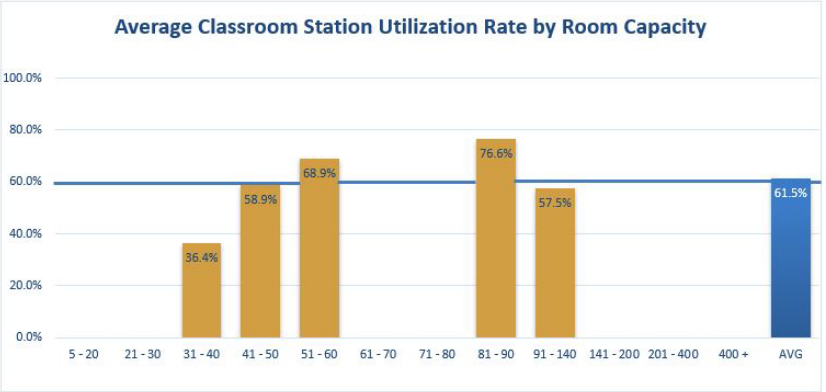


Figure 5.5c Classroom Capacity vs. Enrollment Capacity

Engineering Center: Weekly Student Contact Hours, Actual vs. Target Based on Room Use Goal and Station Utilization Goal

1 Weekly Student Contact Hour (WSCH) equals 1 station used for 1 hour of instruction per week. A Room Use Goal of 40 hours per week and a Station Utilization Goal of 60 percent equates to a goal of 24 WSCH per station.

Room Size	Rooms	Current WSCH	WSCH Goal
5 - 20	0	0	0
21 - 30	0	0	0
31 - 40	1	328	936
41 - 50	8	4,834	8,232
51 - 60	3	3,053	4,032
61 - 70	0	0	0
71 - 80	0	0	0
81 - 90	1	2,996	1,992
91 - 140	1	2,724	2,784
141 - 200	0	0	0
201 - 400	0	0	0
400 +	0	0	0
	14	13,935	17,976

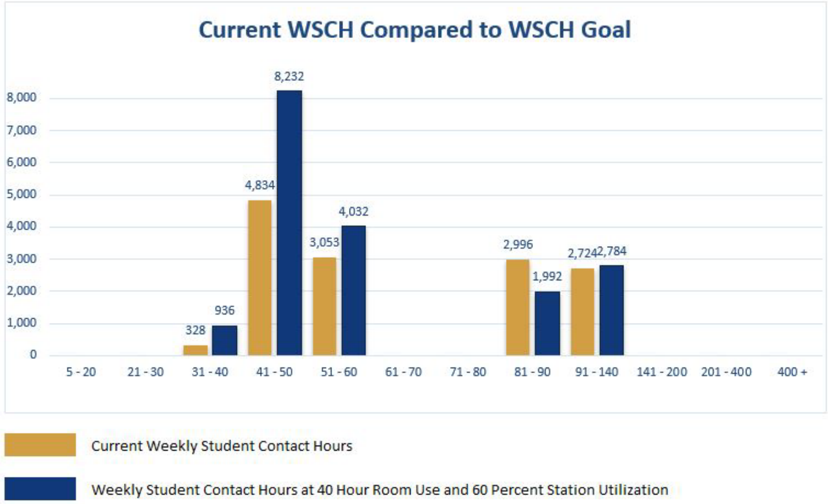


Table 5.6a-c Biscayne Bay Campus Existing Space Utilization

Figure 5.6a WRU- Weekly Room use

Biscayne Bay: General Classroom Weekly Room Use

Maximum Number of Hours Per Week: 50
FIU Hours Per Week Goal: 40
Average Number of Hours Per Week Per Classroom: 18.1

Room Size	Rooms	Hours	Average
5 - 20	1	26	26.0
21 - 30	1	14	24.0
31 - 40	5	58.5	11.7
41 - 50	6	89.5	14.9
51 - 60	3	83	27.7
61 - 70	2	43	21.5
71 - 80	2	51.7	25.9
81 - 90	2	27	13.5
91 - 140	5	103.8	20.8
141 - 200	0	0	0.0
201 - 400	1	10	10.0
400 +	0	0	0.0
	28	506.5	18.1

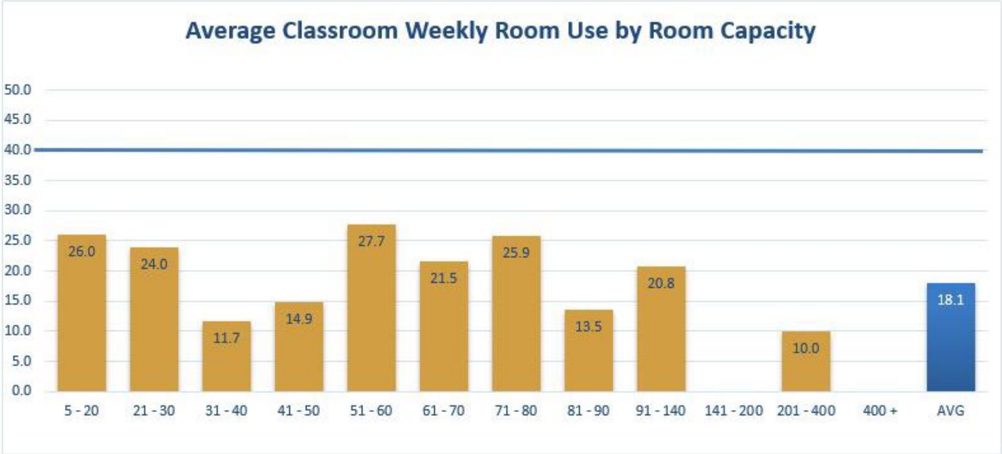


Figure 5.6b SUR- Station Utilization Rate

Biscayne Bay: General Classroom Station Utilization

FIU Station Utilization Goal: 60 percent
Average Classroom Station Utilization: 53

Room Size	Rooms	Stations	Avg Utilization
5 - 20	1	20	55.0%
21 - 30	1	29	58.6%
31 - 40	5	176	61.3%
41 - 50	6	282	56.7%
51 - 60	3	172	50.5%
61 - 70	2	127	52.7%
71 - 80	2	154	56.7%
81 - 90	2	180	47.3%
91 - 140	5	560	42.5%
141 - 200	0	0	0.0%
201 - 400	1	238	57.0%
400 +	0	0	0.0%
	28	1938	53.0%

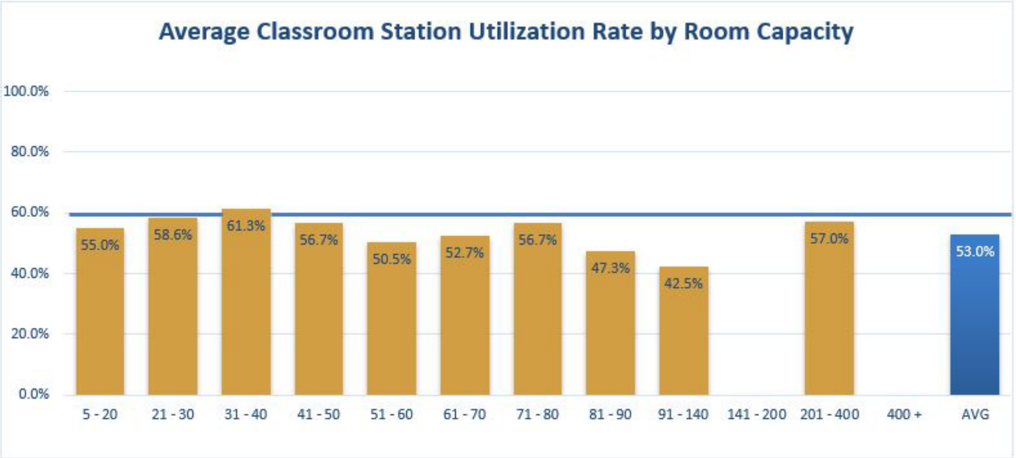
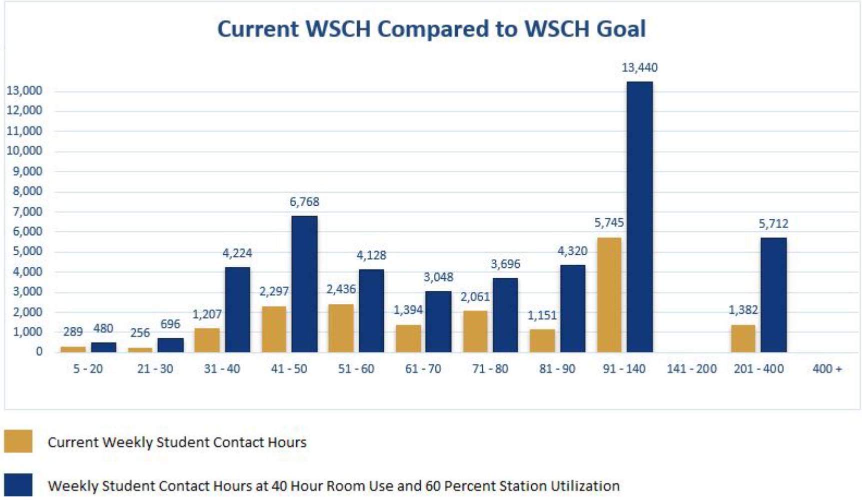


Figure 5.6c Classroom Capacity vs. Enrollment Capacity

Biscayne Bay: Weekly Student Contact Hours, Actual vs. Target Based on Room Use Goal and Station Utilization Goal

1 Weekly Student Contact Hour (WSCH) equals 1 station used for 1 hour of instruction per week. A Room Use Goal of 40 hours per week and a Station Utilization Goal of 60 percent equates to a goal of 24 WSCH per station.

Room Size	Rooms	Current WSCH	WSCH Goal
5 - 20	1	289	480
21 - 30	1	256	696
31 - 40	5	1,207	4,224
41 - 50	6	2,297	6,768
51 - 60	3	2,436	4,128
61 - 70	2	1,394	3,048
71 - 80	2	2,061	3,696
81 - 90	2	1,151	4,320
91 - 140	5	5,745	13,440
141 - 200	0	0	0
201 - 400	1	1,382	5,712
400 +	0	0	0
	28	18,218	46,512



c) SUS -Space Use Standards

Table 5.7a MMC Campus Use Standards for Academic Space Type

FIU Space Standards for MMC			
FICM NO	**FICM NAME**	**BOG Factor NASF/ FTE**	**Recommended NASF/FTE**
110, 115	Classrooms	9.00	10.00
210, 215	Teaching Laboratory	11.25	11.25
220, 225	Open Labs		3.70
250, 255, 257	Research Laboratory	18.75	18.75
310, 312, 315, 317, 318, 350, 355	Office (E&G Funded)	22.50	142.80
410,412,415,420,430,440,455	Study/Library	13.50	142.80
310,312,315,317,318,350,355	Office (Non-E&G)		13.50
520,523,525	Athletics	4.50	7.00
530	Instructional Media	3.00	3.00
542, 547	Clinic		0.40
550,555,570,575,580,585,590	Special Use		2.60
610,611,615,620,625,694	Assembly and Exhibition	2.25	2.25
630, 631, 635	Food Service		2.19
650,655,660,665,680,682,685	General Use (Normally Day Care)		5.07
650, 655	Lounge (Added to Gen Use)		
660, 665	Merchandising (Added to Gen Use)		
670, 675	Recreation		17.49
680, 685	Meeting Room (Added to Gen Use)		
710,715,720,725,730,735,750,760,765	Support	4.40	4.24
810,815,830,835,840,845,850,855,870,880	Health Care		0.31

Table 5.8b EC Campus Use Standards for Academic Space Type

FIU Space Standards for EC			
FICM NO	**FICM NAME**	**BOG Factor NASF/ FTE**	**Recommended NASF/FTE**
110, 115	Classrooms	9.00	10.00
210, 215	Teaching Laboratory	11.25	11.25
220, 225	Open Labs		3.70
250, 255, 257	Research Laboratory	18.75	18.75
310, 312, 315, 317, 318, 350, 355	Office (E&G Funded)	22.50	142.80
410,412,415,420,430,440,455	Study/Library	13.50	13.50
310,312,315,317,318,350,355	Office (Non-E&G)		142.80
520,523,525	Athletics	4.50	0.00

530	Instructional Media	3.00	3.00
542, 547	Clinic		0.40
550,555,570,575,580,585,590	Special Use		0.00
610,611,615,620,625,694	Assembly and Exhibition	2.25	2.25
630, 631, 635	Food Service		1.79
650,655,660,665,680,682,685	General Use (Normally Day Care)		8.01
650, 655	Lounge (Added to Gen Use)		
660, 665	Merchandising (Added to Gen Use)		
670, 675	Recreation		1.69
680, 685	Meeting Room (Added to Gen Use)		
710,715,720,725,730,735,750,760,765	Support	4.40	4.24
810,815,830,835,840,845,850,855,870,880	Health Care		0.31

Table 5.9c BBC Campus Use Standards for Academic Space Type

FIU	Space Standards for BBC		
FICM NO	**FICM NAME**	**BOG Factor NASF/ FTE**	**Recommended NASF/FTE**
110, 115	Classrooms	9.00	10.00
210, 215	Teaching Laboratory	11.25	11.25
220, 225	Open Labs		3.70
250, 255, 257	Research Laboratory	18.75	18.75
310, 312, 315, 317, 318, 350, 355	Office (E&G Funded)	22.50	142.80
410,412,415,420,430,440,455	Study/Library	13.50	13.50
310,312,315,317,318,350,355	Office (Non-E&G)		142.80
520,523,525	Athletics	4.50	4.50
530	Instructional Media	3.00	3.00
542, 547	Clinic		0.40
550,555,570,575,580,585,590	Special Use		0.00
610,611,615,620,625,694	Assembly and Exhibition	2.25	2.25
630, 631, 635	Food Service		1.82
650,655,660,665,680,682,685	General Use (Normally Day Care)		8.01
650, 655	Lounge (Added to Gen Use)		
660, 665	Merchandising (Added to Gen Use)		
670, 675	Recreation		2.60
680, 685	Meeting Room (Added to Gen Use)		
710,715,720,725,730,735,750,760,765	Support	4.40	4.24
810,815,830,835,840,845,850,855,870,880	Health Care		0.34

Notes:

1) All space categories include supporting service space
2) Space Standards Per Florida Board of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"
3) Space Standards not listed by Florida Bd of Governors used a hybrid of CEFPI Standards and DLR Group benchmark data

d) Existing Total Credit Hours total academic year 2019-2020

Table 5.10 Actual Student Credit Hours (SCH) for Each Campus and Campus Wide

Campus Location	STUDENT CREDIT HOURS
Modesto A. Maidique Campus	667,041
Biscayne Bay Campus	73,101
Engineering Center	52,424
Online	542,856
Other	98,940
University Total	**1,434,362**

Source: FIU Division of Human Resources

(2) ANALYSIS REQUIREMENTS

a) Future Student Credit Hours Projection-

This data is unavailable and will not be used in methods to develop space needs projections for 2025 and 2035.

b) Future Weekly Student Contact Hours (WSCH) Projection

This data is unavailable and will not be used in methods to develop space needs projections for 2025 and 2035.

c) Future Space Utilization Assumptions

Table 5.11 Future Space Utilization Assumptions and Goals

Space Type	Room Hours	Station Utilization
General Classrooms	40	60%
Teaching Labs	20	80%
Research Labs	100% Utilized	
Study / Library Spaces	100% Utilized	

d) Future net academic space needs based on future projections of FTE by campus

The following tables show the projected space requirements for the target years of 2025 and 2035 The base and target years include the following components: existing baseline square footage, square footage added due to projects in design or construction, Capital Improvement Plan (CIP), reduction of square footage due to demolished facilities, and square footage need per student enrollment.

The projected need or surplus of assignable square footage are shown by campus for 2025 (Blue Column) and 2020 (Pink Column), in Tables 5.8 – 5.10.

Academic Space is directly analyzed in the following rows:

- FICM numbers 110, 115 are classroom space
- FICM numbers 210, 220 are Teaching and Open Labs
- FICM number 250 are Research Labs
- FICM number 410, 412, 420, 430 are Library, Computer Labs and Study Spaces

These projection tables use a Space Standards per Florida Board of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula”. For Space Standards not listed by Florida Board of Governors a hybrid of CEFPI Standards and DLR Group benchmark data was used. (See tables 5.4 and 5.5 above).

Table 5.12 Modesto Maidique Campus-Future Projected Net Academic Space Needs

Modesto A. Maidique Campus (MMC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	24,012 HC	20,993 FTES
Graduate (In-Person)	5,622 HC	4,915 FTES
E-Learning Students	15,830 HC	13,839 FTES
Total FTE Students	45,464 HC	39,747 FTES

Faculty and Staff Summary:

Faculty	3,198	3,070 FTES
Staff	4,470	4,101 FTES
Student Empls	3,291	1,379 FTES
Total FTE Staff	10,959 HC	8,550 FTES

		BOG FACTORS		RECOMMENDATIONS		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	233,172	10.00 ASF per In-Person FTES	259,080	6.83 ASF per In-Person FTES	176,893	78,253	(3,934)
Teaching Labs	210,215	11.25 ASF per Total FTES	447,154	11.25 ASF per In-Person FTES	291,465	5.55 ASF per In-Person FTES	143,705	56,533	(91,227)
Open Labs	220,225			3.70 ASF per Total FTES	147,065	2.88 ASF per Total FTES	114,539		(32,526)
Research Labs	250,255,257	18.75 ASF per Total FTES	745,256	18.75 ASF per In-Person FTES	485,775	7.04 ASF per In-Person FTES	182,296	60,592	(242,887)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	894,308	142.80 ASF per FTE Staff*	785,345	103.02 ASF per FTE Staff	566,629	147,646	(71,070)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	536,585	13.50 ASF per Total FTES	536,588	4.66 ASF per Total FTES	185,198	131,559	(219,831)
	Subtotal ASF	71.87 ASF per Total FTES	2,856,474	63.03 ASF per Total FTES	2,505,318	34.45 ASF per Total FTES	1,369,260	474,583	(661,475)

NOTES:

1) Projections based on 2019 FTE and FIU FTE projections for Years 2025 and 2035
2) Space Standards Per Florida Bd of Governors
3) All space categories include supporting service space
4) Existing ASF per FIU building inventory document
5) Proposed CIP projects source: 2019 CIP Plan

Table 5.13 Engineering Center-Future Projected Net Academic Space Needs

Engineering Center (EC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	1,842 HC	1,610 FTES
Graduate (In-Person)	372 HC	325 FTES
E-Learning Students	1,182 HC	1,034 FTES
Total FTE Students	3,396 HC	2,969 FTES

Faculty and Staff Summary:

Faculty	78	77 FTES
Staff	65	63 FTES
Student Empls	69	32 FTES
Total FTE Staff	212 HC	172 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	17,415	10.00 ASF per In-Person FTES	19,350	6.78 ASF per In-Person FTES	13,124	0	(6,226)
Teaching Labs	210,215	11.25 ASF per Total FTES	33,401	11.25 ASF per In-Person FTES	21,769	12.36 ASF per In-Person FTES	23,913	0	2,144
Open Labs	220,225			3.70 ASF per Total FTES	10,984	1.50 ASF per Total FTES	4,455	0	(6,529)
Research Labs	250,255,257	18.75 ASF per Total FTES	55,669	18.75 ASF per In-Person FTES	36,281	42.10 ASF per In-Person FTES	81,471	0	45,190
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	66,803	142.80 ASF per FTE Staff*	77,403	115.50 ASF per FTE Staff*	62,596	0	(14,807)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	40,082	13.50 ASF per Total FTES	40,076	0.96 ASF per Total FTES	2,848	0	(37,228)
	Subtotal ASF	71.87 ASF per Total FTES	213,369	69.34 ASF per Total FTES	205,863	63.46 ASF per Total FTES	188,407	0	(17,456)

NOTES:

1) Projections based on 2019 FTE and FIU FTE projections for Years 2025 and 2035
2) Space Standards Per Florida Bd of Governors
3) All space categories include supporting service space
4) Existing ASF per FIU building inventory document
5) Proposed CIP projects source: 2019 CIP Plan

Table 5.14 Biscayne Bay Campus-Future Projected Net Academic Space Needs

Biscayne Bay Campus (BBC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	3,012 HC	2,633 FTES
Graduate (In-Person)	391 HC	342 FTES
E-Learning Students	1,818 HC	1,589 FTES
Total FTE Students	5,221 HC	4,564 FTES

Faculty and Staff Summary:

Faculty	87	85
Staff	251	241
Student Empls	87	38
Total FTE Staff	425 HC	364 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	NASF per FTE	Total ASF	NASF per FTE	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	26,775	10.00 ASF per In-Person FTES	29,750	10.37 ASF per In-Person FTES	30,859	900	2,009
Teaching Labs	210,215	11.25 ASF per Total FTES	51,345	11.25 ASF per In-Person FTES	33,469	9.17 ASF per In-Person FTES	27,278	1,200	(4,991)
Open Labs	220,225			3.70 ASF per Total FTES	16,887	5.61 ASF per Total FTES	25,597		8,710
Research Labs	250,255,257	18.75 ASF per Total FTES	85,575	18.75 ASF per In-Person FTES	55,781	12.05 ASF per In-Person FTES	35,862		(19,919)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	102,690	142.80 ASF per FTE Staff*	93,936	64.50 ASF per FTE Staff*	82,911	150	(10,875)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	61,614	13.50 ASF per Total FTES	61,616	9.31 ASF per Total FTES	42,504		(19,112)
	Subtotal ASF	71.87 ASF per Total FTES	327,999	63.86 ASF per Total FTES	291,439	53.68 ASF per Total FTES	245,011	2,250	(44,178)

NOTES:
1) Projections based on 2019 FTE and FIU FTE projections for Years 2025 and 2035
2) Space Standards Per Florida Bd of Governors
3) All space categories include supporting service space
4) Existing ASF per FIU building inventory document
5) Proposed CIP projects source: 2019 CIP Plan

e) Future Gross Area Academic Space Need Projection

The grossing factors used to calculate future gross square footages for the academic spaces for each space category is shown in tables 5.11-13. The NASF for each FICM category is divided by these factors to create specific overall building need gross square footages (GSF) Tables 5.11-5.13 Show future Gross SF for FIU by campus.

Table 5.15 Modesto A. Maidique Campus--Future Projected GSF Academic Space Needs

Modesto A. Maidique Campus (MMC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	24,012 HC	20,993 FTES
Graduate (In-Person)	5,622 HC	4,915 FTES
E-Learning Students	15,830 HC	13,839 FTES
Total FTE Students	45,464 HC	39,747 FTES

Faculty and Staff Summary:

Faculty	3,198	3,070 FTES
Staff	4,470	4,101 FTES
Student Empls	3,291	1,379 FTES
Total FTE Staff	10,959 HC	8,550 FTES

		BOG FACTORS		RECOMMENDATIONS		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET	ESTIMATED GROSS SQUARE FOOTAGE
Classrooms	110,115	9.00 ASF per In-Person FTES	233,172	10.00 ASF per In-Person FTES	259,080	6.83 ASF per In-Person FTES	176,893	78,253	(3,934)	(6,557)
Teaching Labs	210,215	11.25 ASF per Total FTES	447,154	11.25 ASF per In-Person FTES	291,465	5.55 ASF per In-Person FTES	143,705	56,533	(91,227)	(152,045)
Open Labs	220,225			3.70 ASF per Total FTES	147,065	2.88 ASF per Total FTES	114,539		(32,526)	(54,210)
Research Labs	250,255,257	18.75 ASF per Total FTES	745,256	18.75 ASF per In-Person FTES	485,775	7.04 ASF per In-Person FTES	182,296	60,592	(242,887)	(404,812)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	894,308	142.80 ASF per FTE Staff*	785,345	103.02 ASF per FTE Staff	566,629	147,646	(71,070)	(118,450)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	536,585	13.50 ASF per Total FTES	536,588	4.66 ASF per Total FTES	185,198	131,559	(219,831)	(366,385)
	Subtotal ASF	71.87 ASF per Total FTES	2,856,474	63.03 ASF per Total FTES	2,505,318	34.45 ASF per Total FTES	1,369,260	474,583	(661,475)	(1,102,458)

Table 5.16 Engineering Center Campus- Future projected GSF academic space needs

Engineering Center (EC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	1,842 HC	1,610 FTES
Graduate (In-Person)	372 HC	325 FTES
E-Learning Students	1,182 HC	1,034 FTES
Total FTE Students	3,396 HC	2,969 FTES

Faculty and Staff Summary:

Faculty	78	77 FTES
Staff	65	63 FTES
Student Empls	69	32 FTES
Total FTE Staff	212 HC	172 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET	ESTIMATED GROSS SQUARE FOOTAGE
Classrooms	110,115	9.00 ASF per In-Person FTES	17,415	10.00 ASF per In-Person FTES	19,350	6.78 ASF per In-Person FTES	13,124	0	(6,226)	(10,377)
Teaching Labs	210,215	11.25 ASF per Total FTES	33,401	11.25 ASF per In-Person FTES	21,769	12.36 ASF per In-Person FTES	23,913	0	2,144	3,574
Open Labs	220,225			3.70 ASF per Total FTES	10,984	1.50 ASF per Total FTES	4,455	0	(6,529)	(10,881)
Research Labs	250,255,257	18.75 ASF per Total FTES	55,669	18.75 ASF per In-Person FTES	36,281	42.10 ASF per In-Person FTES	81,471	0	45,190	75,317
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	66,803	142.80 ASF per FTE Staff*	77,403	115.50 ASF per FTE Staff*	62,596	0	(14,807)	(24,678)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	40,082	13.50 ASF per Total FTES	40,076	0.96 ASF per Total FTES	2,848	0	(37,228)	(62,047)
	Subtotal ASF	71.87 ASF per Total FTES	213,369	69.34 ASF per Total FTES	205,863	63.46 ASF per Total FTES	188,407	0	(17,456)	(29,093)

Table 5.17 Biscayne Bay Campus Future Projected GSF Academic Space Needs

Biscayne Bay Campus (BBC)

Fall 2019 Enrollment Summary:		
Undergraduate (In-person)	3,012 HC	2,633 FTES
Graduate (In-Person)	391 HC	342 FTES
E-Learning Students	1,818 HC	1,589 FTES
Total FTE Students	5,221 HC	4,564 FTES

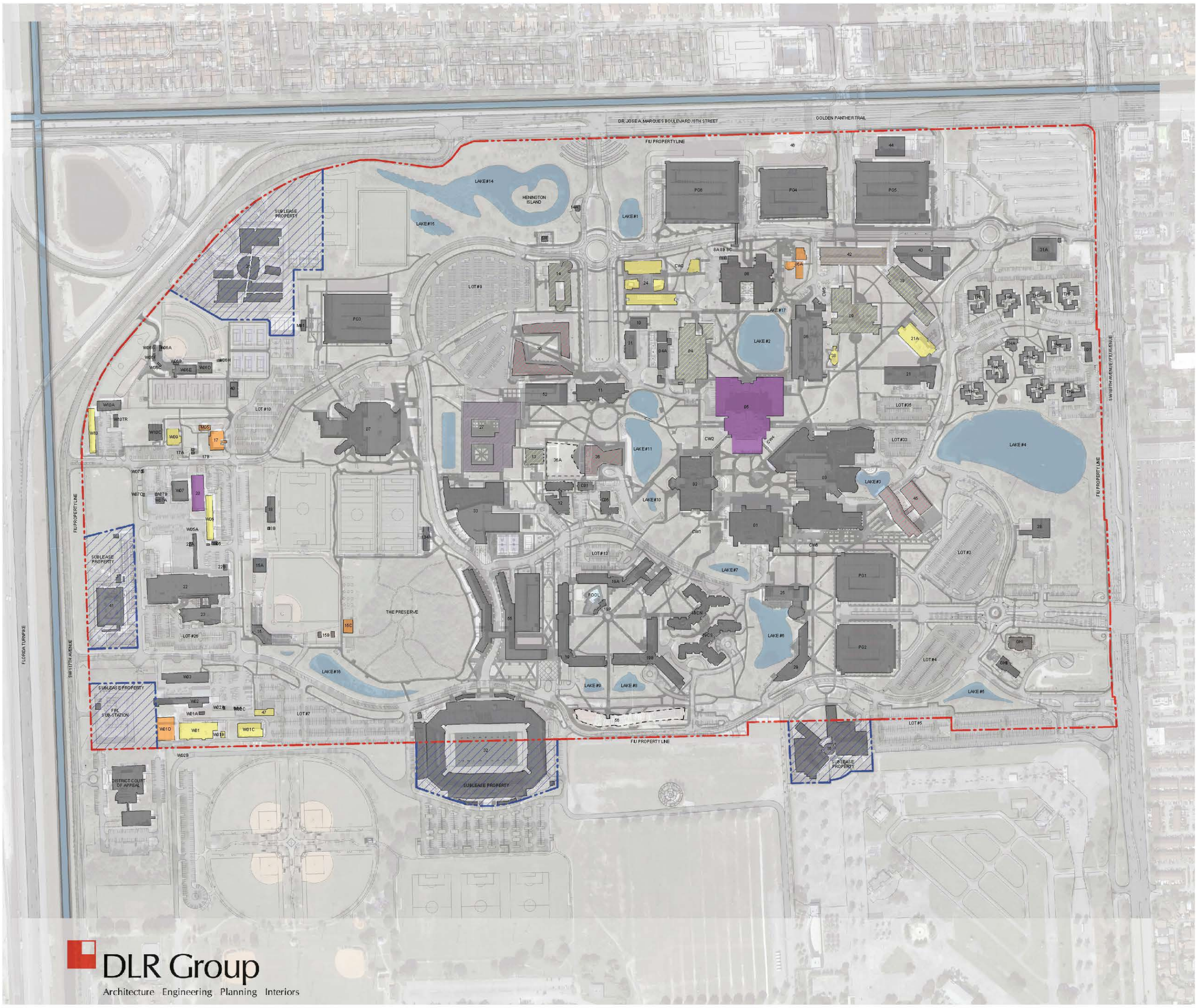
Faculty and Staff Summary:		
Faculty	87	85
Staff	251	241
Student Empls	87	38
Total FTE Staff	425 HC	364 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)	SURPLUS / (DEFICIT)
Space Use Category	Room Use Codes (FICM)	NASF per FTE	Total ASF	NASF per FTE	Total ASF	NASF per FTE	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET	ESTIMATED GROSS SQUARE FOOTAGE
Classrooms	110,115	9.00 ASF per In-Person FTES	26,775	10.00 ASF per In-Person FTES	29,750	10.37 ASF per In-Person FTES	30,859	900	2,009	3,348
Teaching Labs	210,215	11.25 ASF per Total FTES	51,345	11.25 ASF per In-Person FTES	33,469	9.17 ASF per In-Person FTES	27,278	1,200	(4,991)	(8,318)
Open Labs	220,225			3.70 ASF per Total FTES	16,887	5.61 ASF per Total FTES	25,597		8,710	14,516
Research Labs	250,255,257	18.75 ASF per Total FTES	85,575	18.75 ASF per In-Person FTES	55,781	12.05 ASF per In-Person FTES	35,862		(19,919)	(33,198)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	102,690	142.80 ASF per FTE Staff*	93,936	64.50 ASF per FTE Staff*	82,911	150	(10,875)	(18,125)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	61,614	13.50 ASF per Total FTES	61,616	9.31 ASF per Total FTES	42,504		(19,112)	(31,853)
	Subtotal ASF	71.87 ASF per Total FTES	327,999	63.86 ASF per Total FTES	291,439	53.68 ASF per Total FTES	245,011	2,250	(44,178)	(73,630)

f) Translation of future net and gross building area requirements into building "increments"

See Element 4 .1(a) under Existing Land Uses and Developments on University Property for a description of how building area requirements were translated into building modules.

Figure 5.1A Academic Facilities (Existing) – MODESTO A. MAIDIQUE CAMPUS



FLORIDA INTERNATIONAL UNIVERSITY

KEY

4	VIERTES HAUS
5	STEVEN & DOROTHEA GREEN LIBRARY
06A	WERTHEIM CONSERVATORY
9	CHEMISTRY & PHYSICS
13	LABOR CENTER
14	SANFORD L. ZIFF FAMILY EDUCATION
15C	NATURE PRESERVE - GREEN HOUSE
17	CHILDREN'S CREATIVE LEARNING
20	STUDENT ATHLETIC ACADEMIC CTR.
21A	ACADEMIC HEALTH CENTER 2
24	PAUL CEJAS ARCHITECTURE
27	RAFAEL DIAZ-BALART HALL
30	COLLEGE OF BUSINESS COMPLEX
36	SCHOOL INTER. & PUBLIC AFFAIRS
38	STOCKER ASTROSCIENCE CENTER
39	ACADEMIC HEALTH CENTER 3
42	ACADEMIC HEALTH CENTER 4
45	STUDENT ACADEMIC SUCCESS CENTER
47	DIGITAL ART STUDIOS
M05	CCLC TRAILER
W01	WEST 1 - SCULPTURE + ART FOUNDATION
W01B	WEST 1B CANOPY
W01C	WEST 01C – CERAMICS
W01D	GREEN HOUSE
W06	WEST 6
W09	WEST 09 – PAINTING
W10	WEST 10 - DRAWING + MFA STUDIOS
W10R	ROTC TRAILER
W10T	WEST 10 TRAILER

LEGEND

- CLASSROOM (FICM 100)
- CLASSROOM LABORATORY (FICM 200)
- STUDY (FICM 400)
- SPECIAL USE ACADEMIC (FICM 500)
- MULTI-PURPOSE
- UNDER CONSTRUCTION

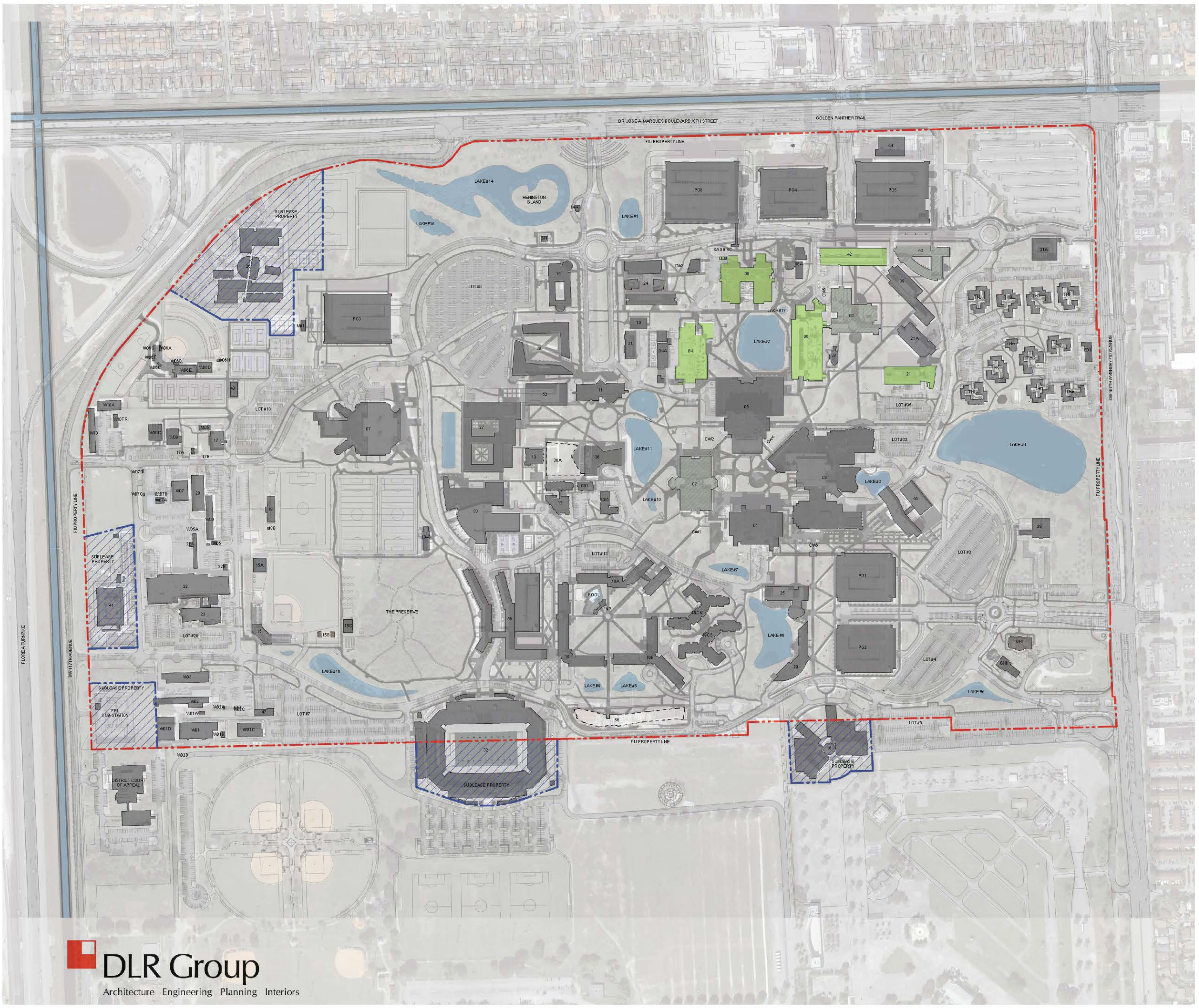
HATCHED BUILDINGS REPRESENT ACADEMIC FUNCTIONS THAT OCCUPY LESS THAN HALF OF THE BUILDING

FIGURE 5.1A: ACADEMIC FACILITIES MAP (EXISTING)
MODESTO A. MAIDIQUE CAMPUS

0 250' 500' 1000'

NORTH

Figure 5.1B Research Facilities (Existing) – MODESTO A. MAIDIQUE CAMPUS



KEY

2	DEUXIEME MAISON
4	VIERTES HAUS
6	OWA EHAN
8	COMPUTING,ARTS,SCIENCES & EDUCATION
8A	CASE STORAGE SHED
8B	CASE STORAGE SHED
9	CHEMISTRY & PHYSICS
21	ACADEMIC HEALTH CENTER 1
42	ACADEMIC HEALTH CENTER 4
43	ACADEMIC HEALTH CENTER 5

LEGEND

- RESEARCH LABORATORY (FICM 200)
- CLINICAL (FICM 500)
- UNDER CONSTRUCTION

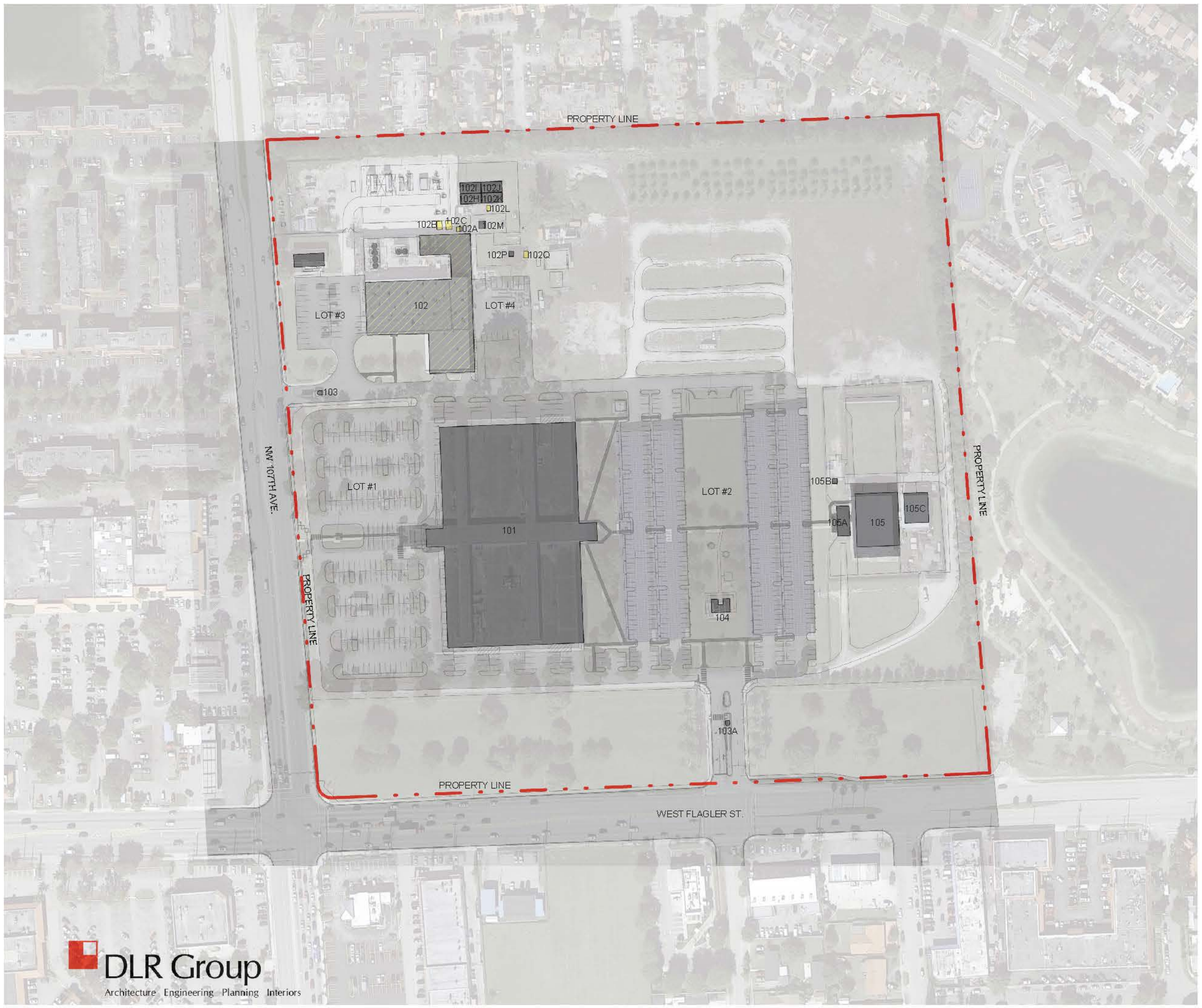
HATCHED BUILDINGS REPRESENT ACADEMIC FUNCTIONS THAT OCCUPY LESS THAN HALF OF THE BUILDING

**FIGURE 5.1B: RESEARCH FACILITIES MAP (EXISTING)
MODESTO A. MAIDIQUE CAMPUS**

0 250' 500' 1000'

NORTH

Figure 5.2A Academic Facilities (Existing) – ENGINEERING CENTER



FIU FLORIDA INTERNATIONAL UNIVERSITY

KEY

102A	EC WOOD STORAGE SHED
102B	EC STORAGE SHED 2
102C	EC STORAGE SHED 3
102L	EC STORAGE SHED 4
102Q	STORAGE

LEGEND

- CLASSROOM (FICM 100)
- CLASSROOM LABORATORY (FICM 200)
- STUDY (FICM 400)
- SPECIAL USE ACADEMIC (FICM 500)
- MULTI-PURPOSE

HATCHED BUILDINGS REPRESENT ACADEMIC FUNCTIONS THAT OCCUPY LESS THAN HALF OF THE BUILDING

FIGURE 5.2A: ACADEMIC FACILITIES MAP (EXISTING)
FIU COLLEGE OF ENGINEERING & COMPUTING

0 100' 200' 400'

NORTH

Figure 5.2B Research Facilities (Existing) – ENGINEERING CENTER

FLORIDA INTERNATIONAL UNIVERSITY

KEY

101	ENGINEERING CENTER
102	OPERATIONS/UTILITY
102H	ARC RESEARCH LAB #1
102J	ARC RESEARCH LAB #3
102M	STORAGE
102P	STORAGE
105	WALL OF WIND RESEARCH FACILITY
105A	WALL OF WIND TRAILER
105B	WOW SHED
105C	WALL OF WIND SHOP

LEGEND

RESEARCH LABORATORY (FICM 200)

CLINICAL (FICM 500)

HATCHED BUILDINGS REPRESENT ACADEMIC FUNCTIONS THAT OCCUPY LESS THAN HALF OF THE BUILDING

FIGURE 5.2B: RESEARCH FACILITIES MAP (EXISTING)
FIU COLLEGE OF ENGINEERING & COMPUTING

0 100' 200' 400'

NORTH

Figure 5.3A Academic Facilities (Existing) – BISCAYNE BAY CAMPUS

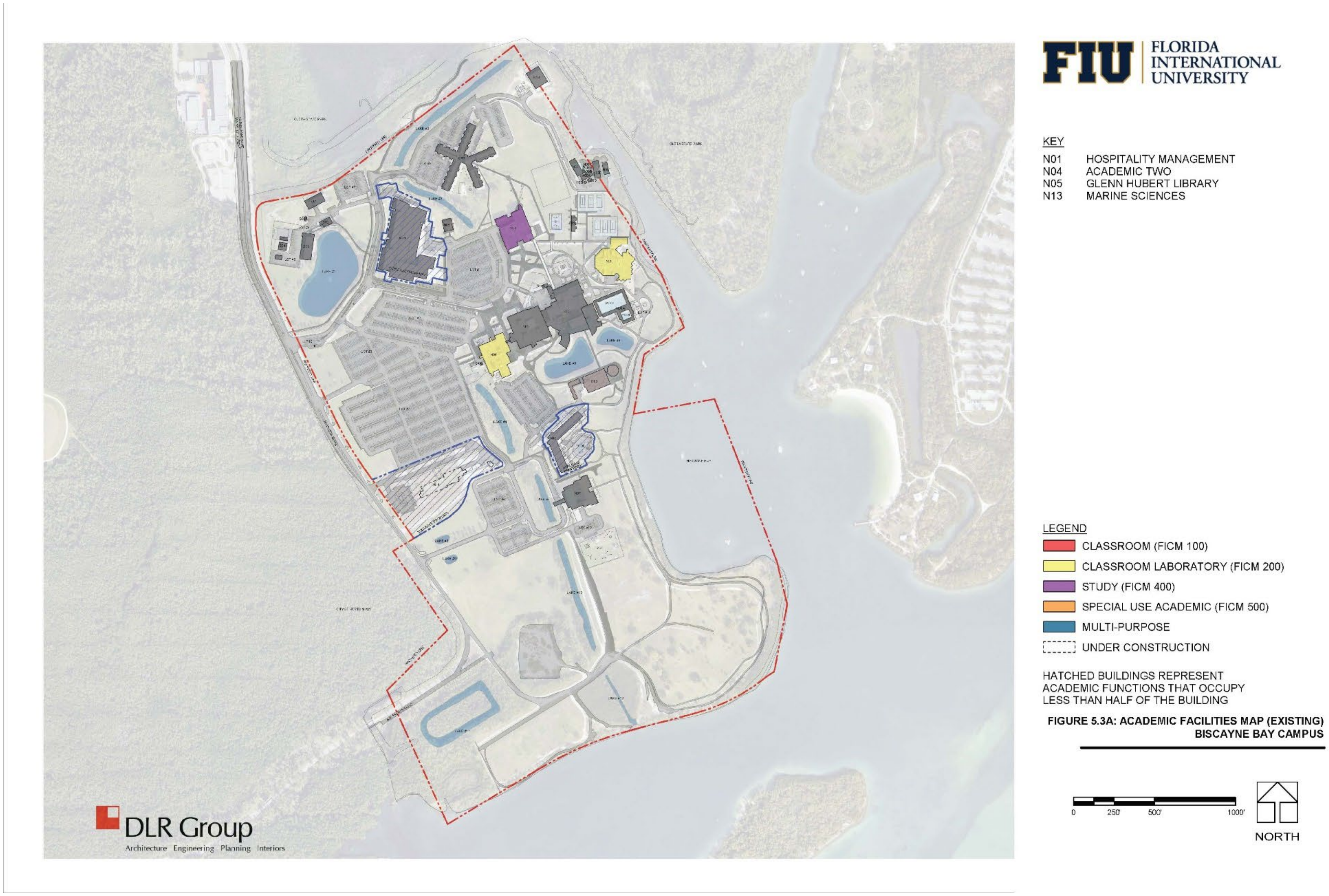
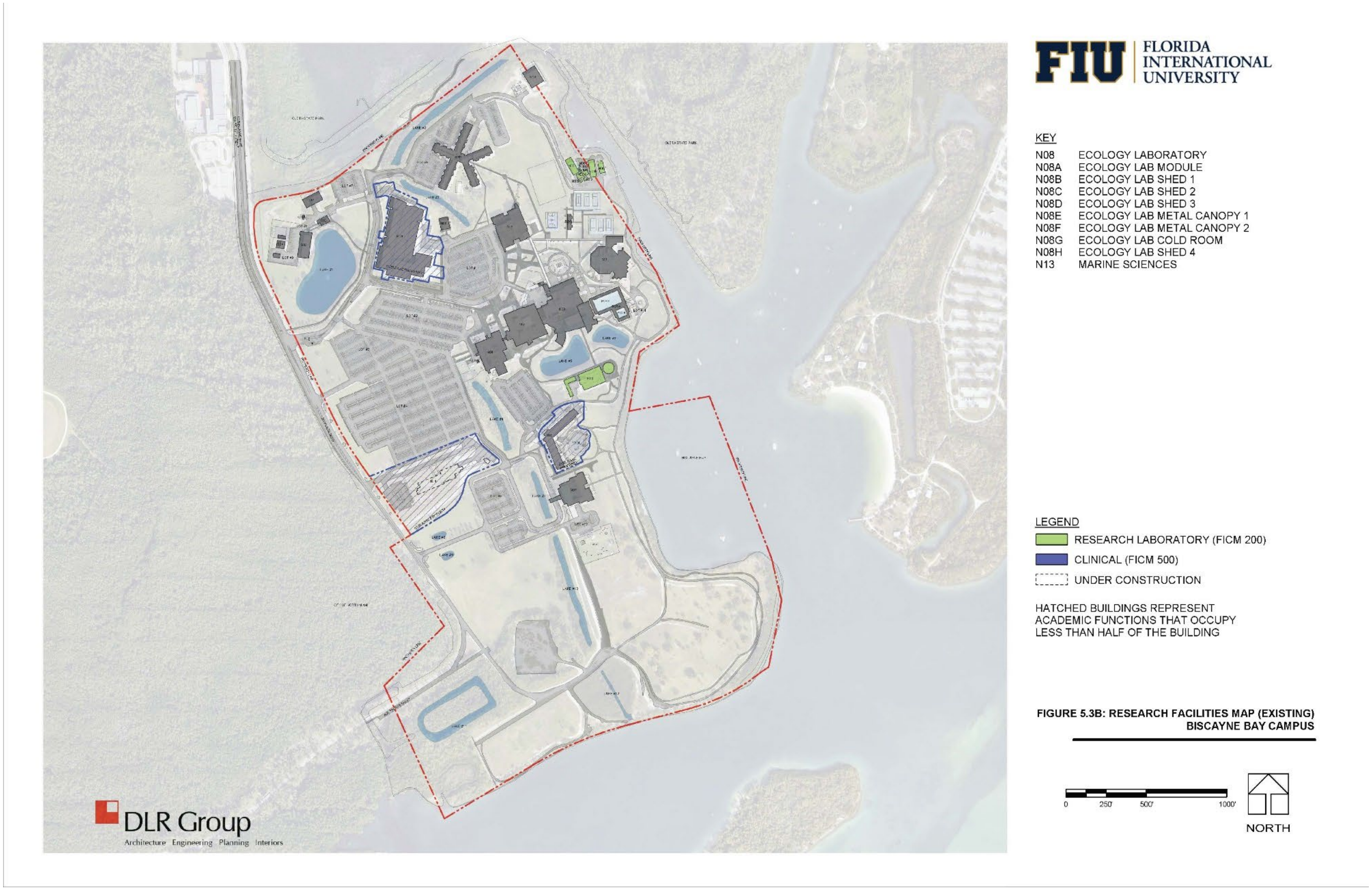


Figure 5.3B Research Facilities (Existing) – BISCAYNE BAY CAMPUS



6.0 SUPPORT FACILITIES ELEMENT

(1) DATA REQUIREMENTS

a) Inventory of Existing Building Spaces for Support Facilities.

Support Facility Spaces are defined by their FICM categories as described below.

The 300 Series are the Office Facilities; these include individual office (310) or service space for research offices (315), specifically assigned to a person in the various functional areas of an institution. These office spaces require service and support spaces including allowances for reception, waiting, storage, work and copy rooms, internal lounges, conference rooms (350), and conference room service space (355). This also includes studio and practice space (318).

The 600 Series are the General Use Support Facilities; these facilities provide a general service to the institution as a whole and to the greater community. Spaces included in the 600 series would be Assembly (610, 611, and 615), Exhibition (620 and 625), Food service (630 and 635), Dining (631), Student Lounge (650 and 655), Merchandising (660 and 665), Recreation (670 and 675), Multipurpose Rooms (682), Ballrooms (694), and Meeting Rooms (680 and 685).

The 700 Series are Facilities Support Spaces; these spaces provide continuous indirect services to the institution and its community from a centralized location. Examples of support facilities include central computer rooms (710, 715), shop space (720, 725), central storage (730, 735), central service (750), and hazardous material storage.

Lastly, the 800 series is focused on clinical and patient care space, which includes patient bedroom (810) and service space (815), nurse station (830) and service space (835), surgery (840) and service space (845), treatment/examination (850) and service space (855), central supplies (870), and public waiting (880).

For all inventory and analysis sections for university owned or managed intercollegiate athletic facilities, intramural athletic facilities, and recreation facilities, including FICM Sections 520, 523 and 525- Physical Education and Section 670- Recreation refer to Element 8.

Figures 6.1, 6.2 and 6.3: Support Facilities depict typical support facilities at Modesto A. Maidique Campus, the Engineering Center and Biscayne Bay Campus and contain an inventory of existing support spaces by function for each campus.

Table 6.1 Modesto A Maidique Inventory of Existing and Projected Need for Support Facilities (in ASF- Assignable Square Feet)

Modesto A. Maidique Campus (MMC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	24,012 HC	20,993 FTES
Graduate (In-Person)	5,622 HC	4,915 FTES
E-Learning Students	15,830 HC	13,839 FTES
Total FTE Students	45,464 HC	39,747 FTES

Faculty and Staff Summary:

Faculty	3,198	3,070 FTES
Staff	4,470	4,101 FTES
Student Empls	3,291	1,379 FTES
Total FTE Staff	10,959 HC	8,550 FTES

		BOG FACTORS		RECOMMENDATIONS		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	Room Use Codes (FICM)	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Offices (Non E & G Funded)	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	305,412	105.04 ASF per FTE Staff	225,841	16,292	(63,279)
Instructional media	530	3.00 ASF per Total FTES	119,241	3.00 ASF per Total FTES	119,242	0.35 ASF per Total FTES	14,022	0	(105,220)
Clinic	542,547			0.40 ASF per Total FTES	15,899	0.19 ASF per Total FTES	7,560	0	(8,339)
Special use	550,555,570,575,580,585,590			2.60 ASF per Total FTES	103,343	0.88 ASF per Total FTES	34,782	41,412	(27,149)
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	89,431	2.25 ASF per Total FTES	89,431	1.77 ASF per Total FTES	70,524	26,678	7,771
Food Service	630,631,635			2.19 ASF per Total FTES	87,008	1.35 ASF per Total FTES	53,518	0	(33,490)
General Use	650,655,660,665,680,682,685			5.07 ASF per Total FTES	201,711	3.59 ASF per Total FTES	142,499	0	(59,212)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	174,887	4.24 ASF per Total FTES	168,528	1.53 ASF per Total FTES	60,616	37,702	(70,210)
Health Care	810,815,830,835,840,845,850,855,870,880			0.31 ASF per Total FTES	12,445	0.42 ASF per Total FTES	16,513	0	4,068
Total ASF		86.02 ASF per Total FTES	3,418,894	109.18 ASF per Total FTES	4,339,729	55.72 ASF per Total FTES	2,214,629	596,667	(1,528,433)

Table 6.2 Engineering Center Inventory of Existing and Projected Need for Support Facilities (in ASF-Assignable Square Feet)

Engineering Center (EC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	1,842 HC	1,610 FTES
Graduate (In-Person)	372 HC	325 FTES
E-Learning Students	1,182 HC	1,034 FTES
Total FTE Students	3,396 HC	2,969 FTES

Faculty and Staff Summary:

Faculty	78	77 FTES
Staff	65	63 FTES
Student Empls	69	32 FTES
Total FTE Staff	212 HC	172 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Offices (Non E & G Funded)	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	4,074	107.80 ASF per FTE Staff*	3,125		(949)
Instructional media	530	3.00 ASF per Total FTES	8,907	3.00 ASF per Total FTES	8,906	0.00 ASF per Total FTES	0	0	(8,906)
Clinic	542,547			0.40 ASF per Total FTES	1,187	0.00 ASF per Total FTES	0	0	(1,187)
Special use	550,555,570,575,580,585,590			0.00 ASF per Total FTES	0	0.00 ASF per Total FTES	0	0	0
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	6,680	2.25 ASF per Total FTES	6,679	0.00 ASF per Total FTES	0	0	(6,679)
Food Service	630,631,635			1.79 ASF per Total FTES	5,318	0.58 ASF per Total FTES	1,725	0	(3,593)
General Use	650,655,660,665,680,682,685			8.01 ASF per Total FTES	23,773	2.10 ASF per Total FTES	6,232	0	(17,541)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	13,064	4.24 ASF per Total FTES	12,587	3.83 ASF per Total FTES	11,381	0	(1,206)
Health Care	810,815,830,835,840,845,850,855,870,880			0.42 ASF per Total FTES	1,244	0.00 ASF per Total FTES	0	0	(1,244)
Total ASF		86.02 ASF per Total FTES	255,380	105.55 ASF per Total FTES	313,382	71.02 ASF per Total FTES	210,870	0	(102,512)

Table 6.3 Biscayne Bay Inventory of Existing and Projected Need for Support Facilities (in ASF- Assignable Square Feet)

Biscayne Bay Campus (BBC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	3,012 HC	2,633 FTES
Graduate (In-Person)	391 HC	342 FTES
E-Learning Students	1,818 HC	1,589 FTES
Total FTE Students	5,221 HC	4,564 FTES

Faculty and Staff Summary:

Faculty	87	85
Staff	251	241
Student Empls	87	38
Total FTE Staff	425 HC	364 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	NASF per FTE	Total ASF	NASF per FTE	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Offices (Non E & G Funde	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	31,312	124.70 ASF per FTE Staff*	27,320		(3,992)
Instructional media	530	3.00 ASF per Total FTES	13,692	3.00 ASF per Total FTES	13,692	0.32 ASF per Total FTES	1,479		(12,213)
Clinic	542,547			0.40 ASF per Total FTES	1,826	0.01 ASF per Total FTES	25		(1,801)
Special use	550,555,570,575,580,585,590			0.00 ASF per Total FTES	0	0.01 ASF per Total FTES	49		49
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	10,269	2.25 ASF per Total FTES	10,269	4.22 ASF per Total FTES	19,282		9,013
Food Service	630,631,635			1.82 ASF per Total FTES	8,305	3.24 ASF per Total FTES	14,773		6,468
General Use	650,655,660,665,680,682,685			8.01 ASF per Total FTES	36,550	15.02 ASF per Total FTES	68,532		31,982
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	20,082	4.24 ASF per Total FTES	19,352	5.53 ASF per Total FTES	25,251	620	6,519
Health Care	810,815,830,835,840,845,850,855,870,880			0.34 ASF per Total FTES	1,571	0.27 ASF per Total FTES	1,211		(360)
Total ASF		86.02 ASF per Total FTES	392,580	110.02 ASF per Total FTES	502,117	90.81 ASF per Total FTES	414,461	2,870	(84,786)

Inventory of all University-owned Athletic Facilities

This data has been moved to Element 8 - Recreation and Open space.

Projections for Future Student FTE Enrollment

Table 6.4 Projections of Future FTE Enrollment (duplicate of table 2.9 in chapter 2.2.b)

Campus Location	Course Level	2019 HC	2025 HC	2035 HC
Modesto A. Maidique Campus	Undergraduate	24,289	24,289	24,289
	Graduate	5,333	5,333	5,333
	MD	-	-	-
	Modesto A. Maidique Campus Total	29,622	29,622	29,622
Biscayne Bay Campus	Undergraduate	3,046	3,046	3,046
	Graduate	372	372	372
	Biscayne Bay Campus Total	3,418	3,418	3,418
Engineering Center	Undergraduate	1,863	1,863	1,863
	Graduate	353	353	353
	Engineering Center Total	2,216	2,216	2,216
Online	Undergraduate	16,193	16,193	16,193
	Graduate	2,676	2,676	2,676
	Online Total	18,869	18,869	18,869
Other	Undergraduate	3,180	3,180	3,180
	Graduate	1,482	1,482	1,482
	Other Total	4,662	4,662	4,662
	Total Undergraduate	48,571	48,571	48,571
	Total Graduate	10,216	10,216	10,216
	University Total	58,787	58,787	58,787

Space Use Standards for Support Facilities

Table 6.5 Florida Board of Education Space Use Standards for Support Facilities

SPACE TYPE BY CATEGORY	SPACE STANDARD	RESULTING NASF/FTE
MODESTO A. MAIDIQUE & ENGINEERING CENTER		
Offices/Computer	145.00 ASF per FTE position	36.88
	Actual Benchmark from national trends being used for projections	29
(Faculty/Staff Lounge Space)	3.00 ASF per FTE position	
Campus Support Services	5 percent of total ASF generated by formula plus 5 percent of other existing space requiring support services	7.08
Student Academic Support	0.60 ASF per FTE	0.6

SPACE TYPE BY CATEGORY	SPACE STANDARD	RESULTING NASF/FTE
BISCAYNE BAY CAMPUS		
Offices/Computer	145.00 ASF per FTE position	29.08
	Actual Benchmark from national trends being used for projections	26
(Faculty/Staff Lounge Space)	3.00 ASF per FTE position	
Campus Support Services	5 percent of total ASF generated by formula plus 5 percent of other existing space requiring support services	7.08
Student Academic Support	0.60ASF per FTE	0.6

Source: 2020 Educational Plant Survey

Existing Space Utilization for Support Facilities

Table 6.6 Existing Space Utilization for Support Facilities

Office Facilities	40 HPW
Special Use Support Facilities	100% Utilized
General Use Support Facilities	100% Utilized
Facilities Support Spaces	100% Utilized

(2) ANALYSIS REQUIREMENTS

a) Projection of Future Support Service Activities

As the academic and research programs of the University grow, FIU must provide sufficient support facilities to maximize capacity needs for students and staff. Critical needs for support facilities include office space, special use support (including support spaces to address the growing e-learning programs) and general use support spaces.

b) Future Needs of the Athletic Department for intercollegiate athletic facilities, intramural, and casual-use facilities.

This data has been moved to Element 8 - Recreation and Open space.

c) A projection or assumption about the future space utilization, for the space types identified in the DATA REQUIREMENTS section of this element.

Future space utilization needs will be based on enrollment projections (both HC and FTE basis) from data provided by FIU. The support space will consider the primary space use it is supporting. Many space guidelines (individual universities, CEFPI and other independent guidelines) already include additional support ASF within the Space Category Type but should still be reviewed for appropriateness of use for the primary space it supports.

Table 6.7 Future Space Utilization for Support Facilities

Office Facilities	40 HPW
Special Use Support Facilities	100% Utilized
General Use Support Facilities	100% Utilized
Facilities Support Spaces	100% Utilized

d) Projection of Future Net Support Space Needs Distributed to the Campus or Satellite Facility

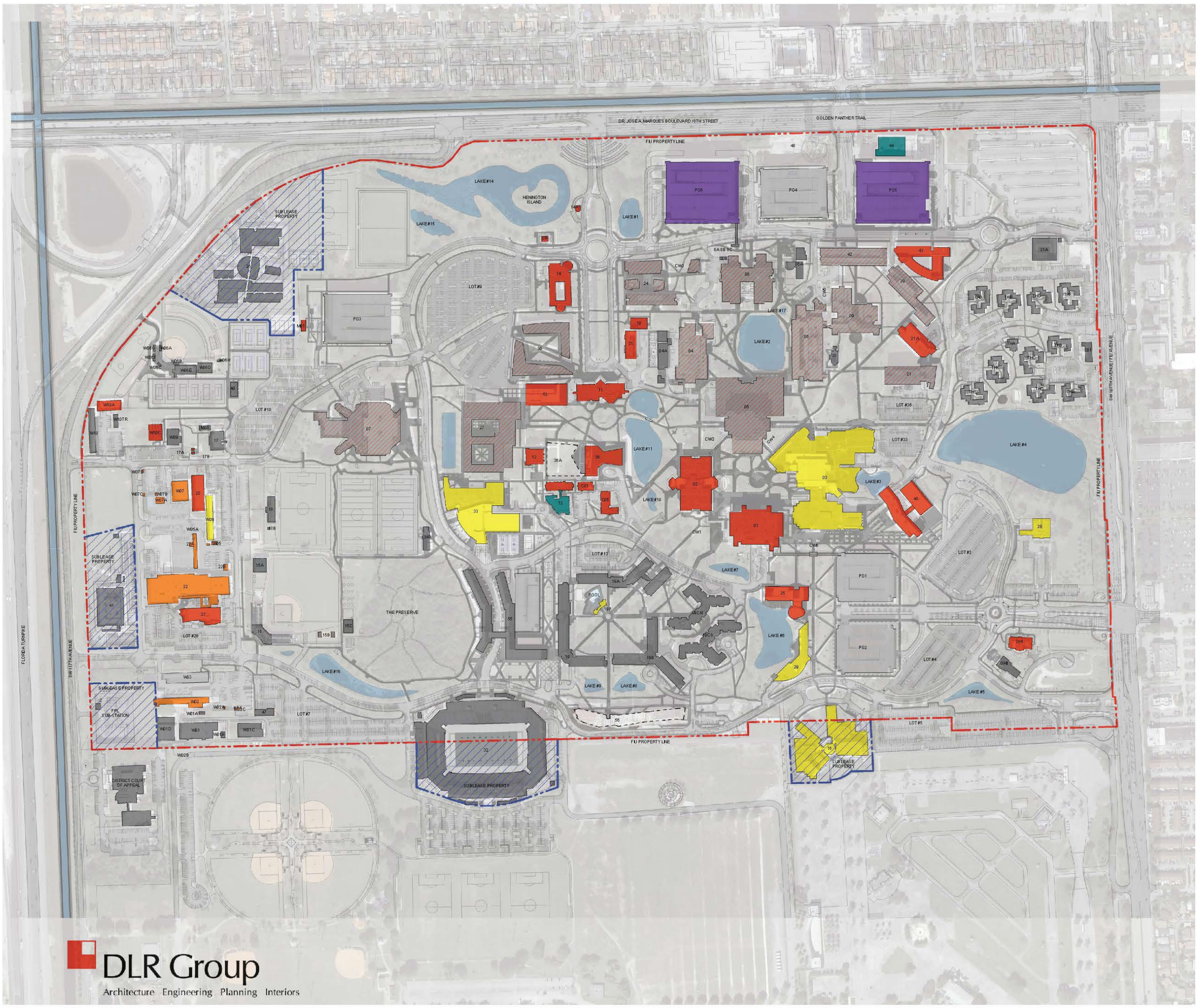
Assumptions

- Space needs projections were performed based on Florida Board of Governors document titled, 'Space Standards for Fixed Capital Outlay Needs Generation Formula'. Where no Florida standard existed, Council of Educational Facility Planners International (CEFPI) guidelines were utilized.
- Florida International University declared that a flat growth rate FROM 2020-2035 be used as the basis of enrollment projections and resultant modeling of space needs for both target dates. FIU Human Resources provided actual headcount and full time equivalent (FTE) projections for the years 2025 and 2035.
- Space needs for Food Service Support space used actual Head Count Numbers vs. an FTE equivalent in calculation of needed space.
- Clinical Space Projections Assumptions are as follows:
    - This is an Academic faculty practice or Resident Clinic program.
    - This is an Outpatient Clinic service line tied to a School of Nursing, School of Public Health, and a College of Medicine.
    - There will be no inpatient services
    - The number of projected visits and FTE Physicians & Staff was provided to P+W
    - There is no historical data available as this is a new program
    - Service line will be both primary and specialty care.
    - Projected visits per physician falls at the low end of benchmark numbers but consistent with academic practices and a first-time practice.
    - Productivity gains could be factored in later years once administrative processes and care models are refined and mature.

Projected Future Land Area Requirement for Athletic Facilities

This data has been moved to Element 8 - Recreation and Open space.

Figure 6.1 Support Facilities (Existing) – MODESTO A. MAIDIQUE CAMPUS



FIU FLORIDA INTERNATIONAL UNIVERSITY

KEY

1	CHARLES E. PERRY PRIMERA CASA
2	DEUXIEME MAISON
3	ERNEST R. GRAHAM UNIV. CENTER
4	VIERTES HAUS
5	STEVEN & DOROTHEA GREEN LIBRARY
6	OWA EHAN
7	OCEAN BANK CONVOCATION CENTER
8	COMPUTING,ARTS,SCIENCES & EDUCATION
9	CHEMISTRY & PHYSICS
10	BUILDING TEN
11	RYDER BUSINESS BUILDING
12	STUDENT HEALTH CENTER
14	SANFORD L. ZIFF FAMILY EDUCATION
16	HERBERT & NICOLE WERTHEIM CENTER
20	STUDENT ATHLETIC ACADEMIC CENTER
21	ACADEMIC HEALTH CENTER 1
21A	ACADEMIC HEALTH CENTER 2
24	PAUL CEJAS ARCHITECTURE
27	RAFAEL DIAZ-BALART HALL
28	RONALD W. REGAN PRES. HOUSE
29	PATRICIA&PHILLIP FROST MUSEUM
30	COLLEGE OF BUSINESS COMPLEX
33	WELLNESS AND RECREATION CENTER
36	SCHOOL INTER. & PUBLIC AFFAIRS
39	ACADEMIC HEALTH CENTER 3
42	ACADEMIC HEALTH CENTER 4
43	ACADEMIC HEALTH CENTER 5
44	AMBULATORY CARE CENTER
45	STUDENT ACADEMIC SUCCESS CENTER

LEGEND

- OFFICES (FICM 300)
- GENERAL USE / AUXILIARY (FICM 600)
- CAMPUS FACILITY SUPPORT (FICM 700)
- HEALTHCARE FACILITIES (FICM 800)
- 1ST FLOOR MULTI-PURPOSE
- PARKING GARAGES
- UNDER CONSTRUCTION

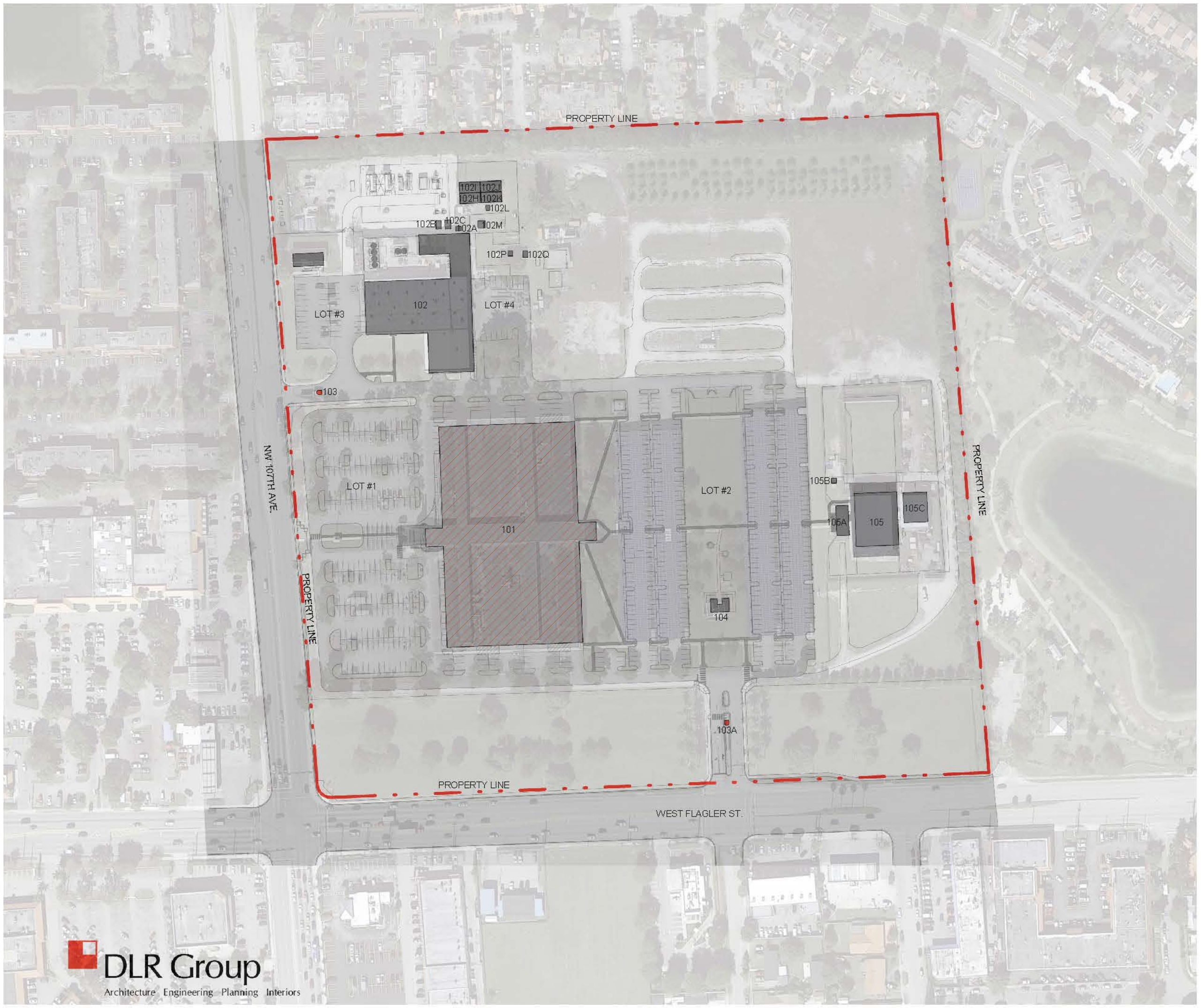
HATCHED BUILDINGS REPRESENT ACADEMIC FUNCTIONS THAT OCCUPY LESS THAN HALF OF THE BUILDING

FIGURE 6.1: SUPPORT FACILITIES MAP (EXISTING)
MODESTO A. MAIDIQUE CAMPUS

0 250' 500' 1000'

NORTH

Figure 6.2 Support Facilities (Existing) – ENGINEERING CENTER



FIU FLORIDA INTERNATIONAL UNIVERSITY

KEY

101	ENGINEERING CENTER
103	INFORMATION BOOTH 1
103A	INFORMATION BOOTH 2
104	SOLAR DECATHLON HOUSE

LEGEND

- OFFICES (FICM 300)
- GENERAL USE / AUXILIARY (FICM 600)
- CAMPUS FACILITY SUPPORT (FICM 700)
- STUDENT HEALTHCARE FACILITIES (FICM 800)
- 1ST FLOOR MULTI-PURPOSE
- PARKING GARAGES

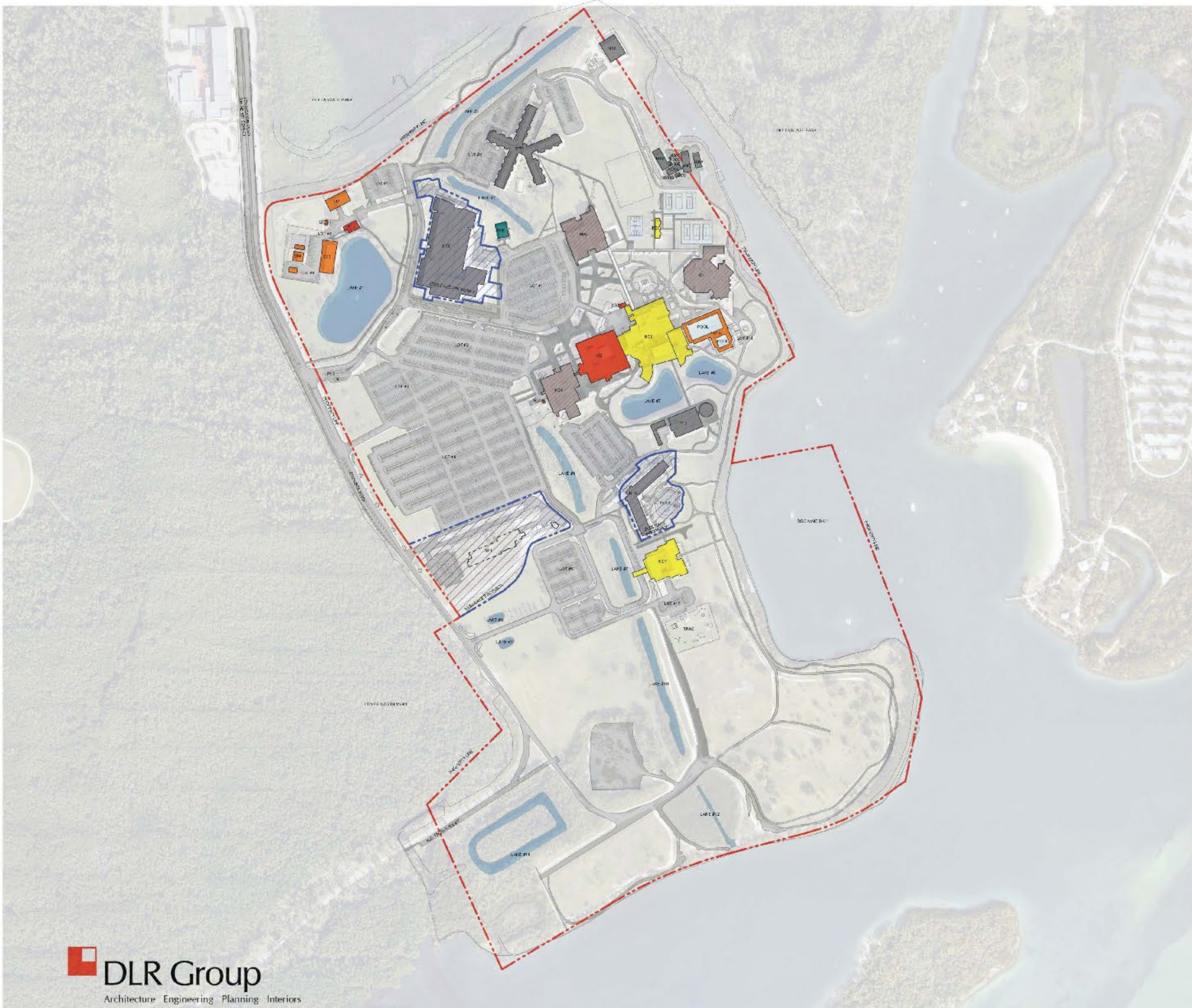
HATCHED BUILDINGS REPRESENT ACADEMIC FUNCTIONS THAT OCCUPY LESS THAN HALF OF THE BUILDING

FIGURE 6.2: SUPPORT FACILITIES MAP (EXISTING)
FIU COLLEGE OF ENGINEERING & COMPUTING

0 100' 200' 400'

NORTH

Figure 6.3 Support Facilities (Existing) – BISCAYNE BAY CAMPUS



FLORIDA INTERNATIONAL UNIVERSITY

KEY

N01	HOSPITALITY MANAGEMENT
N01A	AQUATIC COMPLEX
N02	ACADEMIC ONE
N02A	BBC CENTRAL UTILITIES
N03	GREGORY B. WOLFE UNIV. CTR
N04	ACADEMIC TWO
N04A	ACADEMIC 2 STORAGE
N05	GLENN HUBERT LIBRARY
N06	STUDENT HEALTH SERVICES
N07	ROZ&CAL KOVENS CONFERENCE CTR.
P10	BBC INFORMATION CENTER
R01	OUTDOOR RECREATION
S01	CENTRAL RECEIVING
S02	UNIVERSITY POLICE
S03	PHYSICAL PLANT
S03A	PLANT SUPPORT
S04	GROUNDS

LEGEND

- OFFICES (FICM 300)
- GENERAL USE / AUXILIARY (FICM 600)
- CAMPUS FACILITY SUPPORT (FICM 700)
- HEALTHCARE FACILITIES (FICM 800)
- 1ST FLOOR MULTI-PURPOSE
- PARKING GARAGES
- UNDER CONSTRUCTION

HATCHED BUILDINGS REPRESENT ACADEMIC FUNCTIONS THAT OCCUPY LESS THAN HALF OF THE BUILDING

FIGURE 6.3: SUPPORT FACILITIES MAP (EXISTING) BISCAYNE BAY CAMPUS

0 250' 500' 1000'

NORTH

7.0 HOUSING ELEMENT

(1) DATA REQUIREMENTS

a) Inventory and assessment of Existing and Projected Bed Counts in University Controlled-On Campus facilities

INVENTORY

MODESTO A. MAIDIQUE

As indicated in Table 7.1a, the current total number of bed spaces at Modesto A. Maidique equates to three thousand nine hundred thirteen (3,913). This includes the 676 beds currently under construction at Tamiami Hall. Table 7.1b indicates future housing bed counts to year 2035.

See Figure 7.1: Housing Facilities for the location of housing.

Table 7.1a-b Modesto A. Maidique On-Campus University Controlled Housing Current and Future Bed Counts

Table 7.1a Existing Modesto A. Maidique On-campus University Controlled Housing Bed Counts

Location	Existing Total	Type of Student
University Park Towers	**481**	**Undergraduate (Freshman, Soph, Junior, Senior), Graduate**
4-Bedroom Single	*456*	
2-Bedroom Single	*16*	
Studio Single	*9*	
Handicap Accessible units	20	*Number included in room type counts*
Panther Hall	**392**	**Freshman**
2-Bedroom Double	*392*	
Handicap Accessible units	4	*Number included in room type counts*
Lakeview Hall North	**360**	**Freshman, Sophomore**
2-Bedroom Double	*92*	
4-Bedroom Single	*268*	
Handicap Accessible units	5	*Number included in room type counts*
Lakeview Hall South	**440**	**Undergraduate (Freshman, Soph, Junior, Senior)**
2-Bedroom Double	*112*	
4-Bedroom Single	*328*	
Handicap Accessible units	6	*Number included in room type counts*
Everglades Hall	**386**	**Undergraduate (Freshman, Soph, Junior, Senior)**
3-Bedroom Single	*386*	
Handicap Accessible units	*6*	*Number included in room type counts*
University Apartments	**582**	**Undergraduate, Graduate, Professional Students**
Studio Single	*134*	
1-Bedroom Double	*94*	
2-Bedroom Quad Double	*276*	
4-Bedroom Single	*36*	
2-Bedroom Triple Single	*14*	
2-Bedroom Triple Double	*28*	
Handicap Accessible units	*27*	*Number included in room type counts*
Parkview Housing	**596**	**Undergraduate, Graduate, Professional Students**
Studio Single	*4*	
3-Bedroom Single	*592*	
Handicap Accessible Units	*11*	*Number included in room type counts*
Tamiami Hall (under construction)	**676**	
Single Studio	*16*	
3-Bedroom Single	*660*	
Handicap Accessible Units	*TBD*	

Table 7.1b Future -Modesto A. Maidique On-campus University Controlled Housing -Bed Counts

	2025 Bed Counts	2035 Bed Counts
First Year	1,059	N/A
Second Year	879	N/A
Third Year	818	N/A
Fourth Year	359	N/A
Graduate	155	N/A
Married	NA	N/A
Professional Students	21	N/A
Other*	63	
Total	3,913	TBD

*Includes rooms provided by FIU for the Dan Marino Foundation in partnership wtih FIU Embrace
Source: FIU Housing Fall Occupancy Report 05-05-2023

BISCAYNE BAY CAMPUS

As indicated on Table 7.2, the current total number of bed spaces at Biscayne Bay Campus equates to four hundred eight (408). See Figure 7.2: Housing Facilities for the location of housing.

Table 7.2a-b Biscayne Bay On-Campus University Controlled Housing Current and Future Bed Counts

Table 7.2a Existing -Biscayne Bay On-campus University Controlled Housing -Bed Counts

Location	Existing Total	Type of Student
Bayview @ BBC	**408**	Undergraduate, Graduate
Studio Single	*24*	
2-Bedroom Single	*128*	
4-Bedroom Single	*256*	
Handicap Accessible units	*23*	*Number included in room type counts*
Bay Vista Housing	**272**	**RCCL Partnership**
Studio Single		
1-Bedroom Single (P)		
Efficiency Single (S)		
1-Bedroom Single(S)		
2-Bedroom Single (S)		

Table 7.2b Future Biscayne Bay On-campus University Controlled Housing - Bed Counts

	2025 Bed Counts	2035 Bed Counts
First Year	N/A	N/A
Second Year	N/A	N/A
Third Year	N/A	N/A
Fourth Year	N/A	N/A
Graduate	N/A	N/A
Married	N/A	N/A
Total	408	408
Total Existing	408	408

Source: FIU Housing Fall Occupancy Report 05-05-2023

ENGINEERING CENTER (EC)

There is currently no housing available at this site.

ASSESSMENT

All housing units are suite style with private bathrooms and kitchens. Bedrooms are furnished with a bed, desk, chair, and dresser. Additional services include basic cable television in each bedroom, local telephone service and unlimited internet access via an Ethernet or Wi-Fi connection. Other common areas include a study lounge, laundry room, and computer lab. Below is a description of the housing facilities for each campus.

MODESTO A. MAIDIQUE

On-campus housing includes University Park Apartments, an apartment complex of ten (10) buildings; Panther Residence Hall, a four-story residence hall consisting of three (3) separate buildings around a central courtyard; University Park Towers, comprised of three (3) sections: North Tower, South Tower, and West Wing; Everglades Hall, a six-story residence hall located on a central courtyard; and Lakeview Hall, a six-story residence hall consisting of two buildings, Lakeview North and Lakeview South. Below is a list of the types of units by housing facility. Three of the residence communities, Panther, Everglades, and University Towers, are located around a central courtyard that contains a sand volleyball court and swimming pool.

University Park Apartments offers a variety of unit types including studio and efficiency privates, two-bedroom privates, four-bedroom privates, one-bedroom doubles, two-bedroom double and two-bedroom quads. All units are apartment style with private bathrooms and kitchens. Each building contains a laundry room and common area courtyard. All rooms open to the courtyard area. Available recreational facilities available to students include a gazebo with a barbecue pit, sand volleyball court and basketball court. All residents have access to a central complex building housing the complex office, television lounge, computer lab and game room.

Panther Hall residence is a four-story residence hall. Each suite offers double accommodation with private bedrooms and contains a full-size refrigerator and microwave. The first floor contains one wing of students, the office complex, Central Housing Office, and several common areas including a computer lab, laundry facilities, and common area kitchens. The remaining three floors each contain three wings of approximately forty (40) students each. One wing is designated for students in the First Year Residents Succeeding Together program. Another wing houses the Honors/Scholars program students.

This facility is more economical than University Towers and is best suited for traditional lower division students. This traditional residence hall is appropriate space for summer conference housing. The size of the building footprint, one hundred twenty (120) students per floor, is considered excessive to achieve a sense of community. Though Panther Hall lacks some of the amenities of the newer University Towers it is a quality housing facility in excellent condition.

University Park Towers offers four-bedroom apartment suites. Each suite contains two private bathrooms, a fully equipped kitchen, and a furnished living room. Bedrooms are furnished with a bed, desk, chair, and dresser. Additional services include basic cable television in each bedroom and the living room, and each bedroom is equipped with a fast internet connection.

The building footprint for University Towers is limited to forty (40) students per floor. This smaller building footprint fosters a more intimate environment than that of Panther Hall. There have been concerns expressed about the height of the residential towers. Various members of the faculty and administration have indicated that both visual scale and cost considerations should be evaluated prior to constructing additional high-rises at Modesto A. Maidique. Modesto A. Maidique has done a commendable job developing green spaces associated with each of the residential facilities. A central courtyard between Panther Hall, Everglades Hall and University Towers affords opportunity for limited recreational activities and social interaction, where students can informally gather. Attention has been given to assure that interior courtyards are secure, protected areas. There are limited unstructured recreational facilities associated with existing housing. Thought should be given to offering additional recreational facilities for residential occupants.

Lakeview Hall is comprised of two buildings: Lakeview North, a sophomore and upper classmen residence hall, and Lakeview South, a freshman residence hall. Both buildings offer 2-bedroom and 4- bedroom residence suites, fully furnished and air-conditioned. The suites also contain a shared bathroom, refrigerator, high-speed Internet access and cable TV service. Overall residence hall amenities include academic advising and free tutoring, study/multi- purpose lounges, seminar rooms, mailboxes, and laundry.

Everglades Hall offers apartment style housing with private bedrooms. Two wings of the building define the southeast corner of the residential central courtyard. Each apartment suite contains three bedrooms, a shared bathroom, and full kitchen. Additional services for each apartment include high-speed Internet access and cable TV service. The first level of the building includes lounges, classroom, computer lab, academic advising, front desk and housing. Levels two through six contain resident housing.

University Apartments, the original Modesto A. Maidique on-campus housing, includes an apartment complex of ten detached two-story buildings. This housing is presently utilized for both undergraduate and graduate students. Its village concept of clustered low-rise buildings suggest appropriate housing uses might be limited to housing for upper classroom and graduated students. This village- style housing offers lower densities and greater privacy, however, provides fewer environmental controls to ensure a safe and secure environment. Unlike high-rise residential buildings, the clustered apartments fail to maximize the use of the land.

Historically the greatest percentages of students living on-campus were juniors, due primarily to the large amount of junior transfer students entering Modesto A. Maidique. However, in recent years the number of freshmen and sophomores has increased significantly. The diverse student population at Modesto A. Maidique, offers a unique residential experience to live with people from other countries and cultures. In additional to traditional living arrangements, there are a number of special living options including rooms available for graduate and married students. Other special living options include a residential program for first year residents and a program for students in the Honors College.

Handicapped Housing

Modesto A. Maidique housing is almost one hundred percent accessible to persons with disabilities. Currently, forty-one (41) units are adapted for use by handicapped students that meet current ADA standards. FIU policy states that five percent of suites for new property shall be available for ADA purposes.

BISCAYNE BAY CAMPUS

The nature of student population at this campus has limited demand for on-campus housing. Historically, Biscayne Bay Campus has beenconsidered primarily a commuter college. Many of the students at thiscampus are considered non-traditional students that are employed in the day and attend college in the evenings.

Bayview Apartments is currently the only housing currently provided at Biscayne Bay Campus for FIU students.

The Bay Vista Housing facility is a four-story apartment-style building of five wings that is currently being used by the Royal Caribbean Cruise Line Studios in partnership with FIU so the residential rooms are not available to students. Prior to the agreement, the housing facility was used primarily by international residents, with several special living options including rooms available for graduate and married students.

Bay Vista Housing consists of a four-story apartment style building containing student apartments and common area spaces.

The first floor contains student apartments, the front desk complex office, and a community room. Student apartments are located on the remaining three floors. Unit types available are one person privates, two-bedroom privates. All units are apartment style, with private or shared bathrooms and kitchens. A community room on the first floor serves as a television and game room. Other common areas include a study lounge, laundry room, and computer lab. An outdoor courtyard area contains barbecue pits and a sand volleyball court.

Handicapped Housing

Biscayne Bay Campus housing is almost one hundred percent accessible to persons with disabilities. Thirteen (13) units are adapted for use by handicapped students that meet current ADA standards. FIU policy states that five percent of suites for new property shall be available for ADA purposes.

Existing University Goal Regarding the Percentage of Students for Which On-Campus Housing is provided

MODESTO A. MAIDIQUE

FIU aspires to achieve a goal of ten and one half (10.5) percent of the total headcount (HC) of student enrollment housed in on-campus housing. This includes the Headcount for the Engineering center as well as the MMC campus since no housing exists on the EC property. Currently only six-point four (6.4) percent or Two thousand five hundred and eight six (2,586) students are housed in on-campus residences. The 10.5% goal would equate to three thousand seven hundred and forty-seven (3747) beds for the current HC enrollment. This goal is considered according to Modesto A. Maidique housing personnel as aggressive but achievable. By the year 2020 FIU projects housing four thousand two hundred seventy-five (4275) students on campus to meet the 10.5% goal.

BISCAYNE BAY CAMPUS

FIU aspires to achieve a goal of eight (8) percent of the total headcount (HC) of student enrollment housed in on-campus housing. Currently only three-point seven (3.7) percent or two hundred seventy-one (271) of HC students are housed in on-campus residences. The eight percent goal would equate to five hundred and eighty-two (582) beds for the current HC enrollment. Based on the percentage of current students housed on-campus and considering the demographics of the student population, typically an older working student; the current goal of eight percent may be aggressive. By theyear 2020 FIU projects housing at Biscayne Bay at seven hundred twenty-five (725) students on campus to meet the 8% goal.

b) Inventory and assessment of Existing and Projected Bed Counts in University Controlled- Off Campus facilities

MODESTO A. MAIDIQUE

Due to the abundance of rental units available in Miami-Dade County, Modesto A. Maidique Campus does not provide any off-campus housing.

BISCAYNE BAY CAMPUS

Due to the abundance of rental units available in Miami-Dade County, Biscayne Bay Campus does not provide any off-campus housing.

c) Inventory and assessment of Existing and Projected Bed counts in Non- university Controlled On- Campus Facilities (fraternities, sororities, etc.)

MODESTO A. MAIDIQUE

There are currently two fraternity houses at Modesto A. Maidique Campus: Phi Gamma Delta and Pi Kappa Alpha. The houses are located near the entrance of 107th Ave and 16th Street. Each house has 35 beds for a total of 70 beds. Three additional houses are being planned which will house an additional 80 students for a total of 150.

BISCAYNE BAY CAMPUS

No specific beds or apartments are set aside for fraternities and sororities.

No facilities are currently contemplated for fraternity/sorority housing.

d) Estimates of Full-Time Students Housed Off Campus in Non-university Controlled Off-Campus Facilities (Rental Housing)

MODESTO A. MAIDIQUE

The urban community, in which Modesto A. Maidique is located, enables students to easily find some type of off-campus housing. According to a recent report on Housing in Miami-Dade County prepared by Miami-Dade County Planning Department, Miami-Dade County has the largest rental stock in South Florida. Unincorporated Dade County has the largest number of vacant-for-rent units and the highest number of vacant-for-sale units. Because of the abundance of rental units available in Miami-Dade County, Modesto A. Maidique does not provide any off-campus housing.

According to data provided by the FIU Office Institutional Research, 2011, there are fifty-seven thousand nine hundred twenty-six (57,926) students by Head Count (HC) or twenty-nine thousand three hundred fifty-two (29,352) full-time equivalent (FTE) students. (See table 2.1 in Chapter 2.1.a) Since practically all of the students that will be housed on campus are full-time status (by 2013 Three thousand one hundred eight six -3,186 students on Modesto Maidique, two hundred seventy-one 271 on Biscayne Bay for a total of three thousand four hundred and fifty-seven-3457at FIU overall), the remainder live in some type of off-campus housing.

Because there is no data available concerning the number of students living off-campus at home, the following assumptions have been made for off- campus projection purposes.

Approximately ninety-four (94) percent of the total student headcount are considered to live in some type of off-campus facility.

More than half of FTE students enrolled at FIU live at home with family.

e) Inventory of Historically Significant Housing

MODESTO A. MAIDIQUE

Modesto A. Maidique Campus neither maintains nor owns any historically significant housing, either on or off campus.

BISCAYNE BAY CAMPUS

Biscayne Bay Campus neither maintains nor owns any historically significant housing, either on or off campus.

f) Assessment of potential on-campus sites where additional housing facilities may be created

MODESTO A. MAIDIQUE

There has been discussion about mixing residential and academic land uses for a future housing site. Another potential goal for future housing sites would consider relating housing to a new recreational center and unstructured open spaces. Another potential residential project envisions a satellite cafeteria associated with the existing residential near the Lake View housing project.

BISCAYNE BAY CAMPUS

Any potential development adjacent to the bay must be cognizant of the need to preserve views of the bay as well as the tidal affects and potential weather issues. There are multiple sites available on the Biscayne Bay campus. This scenic location, oriented towards the waterfront, might potentially serve some Modesto A. Maidique housing demands. The southern “peninsular” location could be an excellent recruiting mechanism for both faculty and students.

Figure 7.1 Housing Facilities (Existing) – MODESTO A. MAIDIQUE

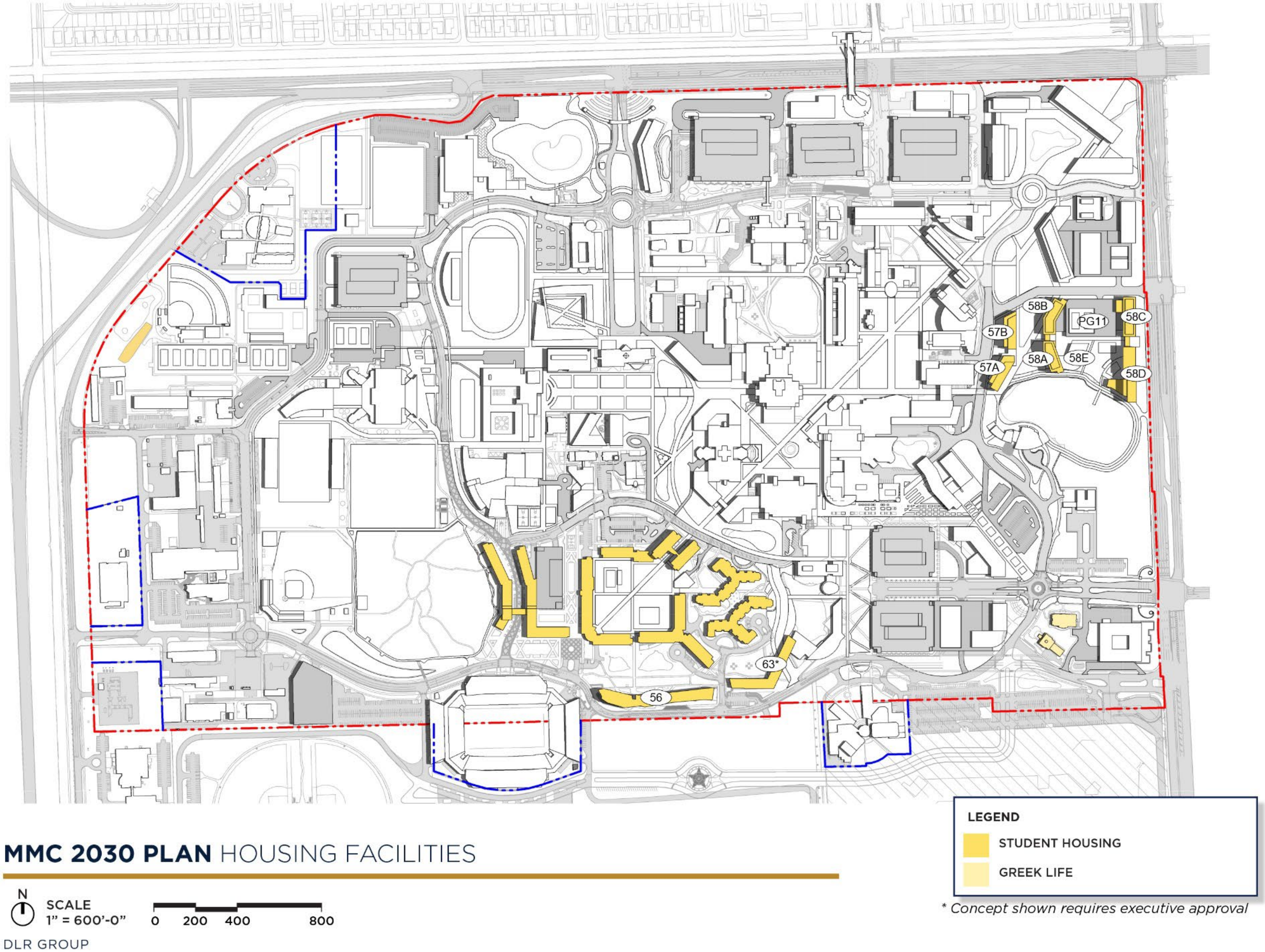
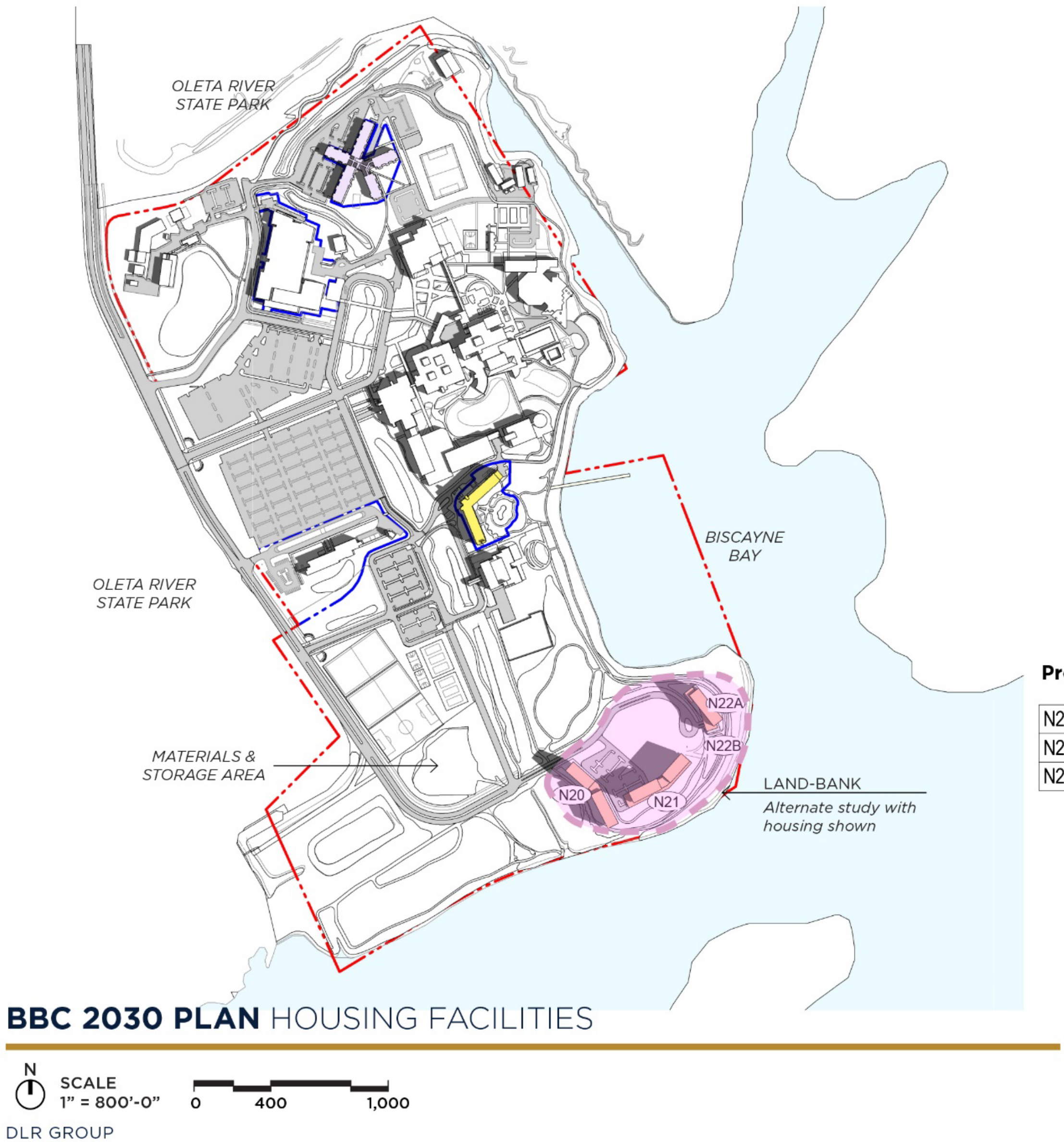


Figure 7.2 Housing Facilities (Existing) – BISCAYNE BAY CAMPUS



Biscayne Bay Campus
Student housing at Biscayne Bay Campus is located along the north-south central spine, adjacent to the academic quadrangles.

The addition of housing must consider the impact to the city and traffic access. For the purposes of this master plan, additional housing is shown as an alternate study.

Contingent on demand, a total of 1,530 on-campus housing beds will be provided by 2035, distributed generally as follows:

	Bed Count
Existing (Fall 2019)	680
New Faculty Housing	850

Projects Summary

			FLOORS
N20A	FACULTY HOUSING	247,815 SF	11
N21A	FACULTY HOUSING	224,525 SF	11
N22A	FACULTY HOUSING	164,954 SF	11
		637,293 SF	

LEGEND
- UNDERGRADUATE HOUSING
- FACULTY HOUSING
- PARTNERSHIP HOUSING

8.0 RECREATION AND OPEN SPACE ELEMENT

(1) DATA AND ANALYSIS REQUIREMENTS

a) Inventory and Assessment of All University-Owned or Managed Recreational Sites (Open Spaces, Incidental Recreation Facilities, Parks, Lakes, Forests, Reservations, Freshwater or Saltwater Beaches)

INVENTORY& PROJECTIONS

Support Facility Spaces, which fall under the category of the recreation and open space element, are defined by their FICM categories as described below.

The Special Use Support Facilities FICM category 520- Teaching Gymnasium is defined as a space which is used for athletic or physical education but can also be used for recreation. Specific room types include athletic and physical education indoor spaces (520), athletic indoor seating (523), and athletic and physical education indoor service (525). Typical Spaces included in this category are courts for basketball, squash, racquetball, handball, and similar activities; wrestling rooms; indoor swimming pools, indoor track, and weight training rooms.

The General Use Support Facilities FICM category 670- Recreation space is defined as billiard rooms, bowling alleys, game and arcade rooms, table game rooms, common area lounges within housing, general exercise and fitness areas, and TV and music listening rooms if not part of an instructional program.

MODESTO A. MAIDIQUE

<u>INVENTORY AND NEEDS PROJECTIONS OF UNVERSITY OWNED RECREATIONAL FACILITIES</u>

Table 8.1 Modesto Maidique Inventory of Existing and Projected Need for Recreation Facilities (in ASF)

Modesto A. Maidique Campus (MMC)

Fall 2019 Enrollment Summary:		
Undergraduate (In-person)	24,012 HC	20,993 FTES
Graduate (In-Person)	5,622 HC	4,915 FTES
E-Learning Students	15,830 HC	13,839 FTES
Total FTE Students	45,464 HC	39,747 FTES

Faculty and Staff Summary:		
Faculty	3,198	3,070 FTES
Staff	4,470	4,101 FTES
Student Empls	3,291	1,379 FTES
Total FTE Staff	10,959 HC	8,550 FTES

		BOG FACTORS	FIU Cats	RECOMMENDATIONS		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	Room Use Codes (FICM)	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Athletics	520,523,525	4.50 ASF per Total FTES	178,862	7.00 ASF per Total FTES	278,208	3.48 ASF per Total FTES	138,208	0	(140,000)
Recreation	670,675			17.49 ASF per In-Person FTES	453,185	2.05 ASF per Total FTES	81,286	0	(371,899)
Total ASF		86.02 ASF per Total FTES	3,418,894	109.18 ASF per Total FTES	4,339,729	55.72 ASF per Total FTES	2,214,629	596,667	(1,528,433)

INVENTORY OF UNVERSITY OWNED RECREATIONAL SITES

Table 8.2 Inventory of University-owned Recreational and Athletic Facilities – Modesto Maidique Campus

MODESTO A. MAIDIQUE	Number of Facilities	Estimated FIU Usage	Estimated Community Usage	Total Square Footage (SF) and/or Acreage
RECREATION FACILITIES				
Indoor				
Fitness Spaces	1	153,545	N/A	135,843 SF
Basketball Courts	5		N/A	
Racquetball Courts	2		N/A	
Multipurpose Fitness Rooms	3		N/A	
Outdoor				
North Turf Field	1	22,400	N/A	79,778 SF
South Turf Field	1	8,400	N/A	52,256 SF
East Turf	1	560	N/A	3,179 SF
Basketball Courts	4	23,504	N/A	17,000 SF
Sand Volleyball Court	1	2,000	N/A	4,284 SF
Pool **	1	1,957	267	10,017 SF
Tennis Courts	6	496	N/A	43,200 SF
ATHLETIC FACILITIES				
Ocean Bank Convocation Center (OBCC)	1	150,000	?	121,000 SF (website says 94,000 SF)
Soccer Stadium	1	20,000	?	142,183 SF
Baseball Stadium	1	20,000	?	183,800 SF OR 4.6
Ricardo Silva Stadium (Football stadium) *	1	250,000	?	339,490 SF OR 9.4
R. Kirk Landon Football Fieldhouse	1	X	?	50,000 SF OR
Softball Stadium	1	X	?	X
Athletics Tennis Center		X	?	X
Tennis Courts	12	X	?	X
Beach Volleyball Courts	6	X	?	X
Golf Short Game Pitching and Putting Practice Area	1	X	?	X
Track Throws Cage	1	X	?	X
OPEN SPACE AND LAKES				
Open Space				
Lakes	14 Lakes			

*Football Stadium is shared with Miami FC Soccer
**In addition to the Panther Hall pool, FIU has access to the Tamiami Park pool adjacent to Modesto A. Maidique.
Field shared with the elementary school on the northwest corner of campus.
SOURCE: FIU, 2021

Table 8.3 Assessment of University-owned Passive Recreational Open Space Sites

Chart below lists the passive open spaces on the Modesto Maidique Campus. The analysis for these open spaces includes identifying the type by size (quad, or courtyard), the size (acres), the type by design geometry (formal, or informal), the degree of flexibility for different event, the primary and secondary activity taking place, and descriptive attributes of the space.

ID	NAME	TYPE	CAMPUS	SIZE					TYPE	DEFINED	FLEXIBLE	PRIMARY ACTIVITY	SECONDARY ACTIVITY	ATTRIBUTES
M1	Education	Courtyard	MMC	+/-	3,900	sf	0.1	ac	Formal	Yes	Low	Gathering		Sparse
M2	Business	Quad	MMC	+/-	143,000	sf	3.3	ac	Formal	Yes	Low	Circulation		Open. Rigid. Ceremonial. Palms
M3	Architecture	Courtyard	MMC	+/-	6,700	sf	0.2	ac	Formal	Yes	Medium	Gathering		Sparse
M4	Engineering & Computer Science	Courtyard	MMC	+/-	7,000	sf	0.2	ac	Informal	Yes	Low	Gathering	Circulation	
M5	Business	Courtyard	MMC	+/-	23,800	sf	0.5	ac	Informal	Yes	Yes	Gathering	Circulation	Programmed. Movement
M6	Lake #2	Quad	MMC	+/-	142,000	sf	3.3	ac	Informal	Yes	No	Gathering		Aesthetic. Collection. Significant. Passive. Palms
M7	Science	Quad	MMC	+/-	239,700	sf	5.5	ac	Formal	No	Yes	Circulation		Meandering. Active. Uneventful. Sparse. Emerging
M8	Balart Hall - North	Courtyard	MMC	+/-	11,700	sf	0.3		Formal	Yes	No	Gathering		Sparse
M9	Balart Hall - South	Courtyard	MMC	+/-	11,500	sf	0.3		Formal	Yes	No	Gathering		Shaded
M10	Main	Quad	MMC	+/-	102,800	sf	2.4	ac	Informal	No	Yes	Gathering	Circulation	Flexible. Heart. Tree cover.
M11	Central Courtyard	Courtyard	MMC	+/-	183,000	sf	4.2	ac	Informal	Yes	Yes	Gathering		Active. Vegetation. Hardscape. Rigid. Flexible.
M12	Graham Promenade	Courtyard	MMC	+/-	36,000	sf	0.8		Formal	Yes		Circulation	Gathering	
M13	Panther Village / Housing	Quad	MMC	+/-	159,200	sf	3.7	ac	Formal	Yes		Gathering		Open. Flexible
M14	Arts	Quad	MMC	+/-	123,200	sf	2.8	ac	Formal	Yes		Circulation		Sculpture. Flexible. Movement

BISCAYNE BAY CAMPUS

<u>INVENTORY AND NEEDS PROJECTIONS OF UNVERSITY OWNED RECREATIONAL FACILITIES</u>

Table 8.4 Biscayne Bay Inventory of Existing and Projected Need for Recreation Facilities (in ASF)

Biscayne Bay Campus (BBC)

Fall 2019 Enrollment Summary:		
Undergraduate (In-person)	3,012 HC	2,633 FTES
Graduate (In-Person)	391 HC	342 FTES
E-Learning Students	1,818 HC	1,589 FTES
Total FTE Students	5,221 HC	4,564 FTES

Faculty and Staff Summary:		
Faculty	87	85
Staff	251	241
Student Empls	87	38
Total FTE Staff	425 HC	364 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	Room Use Codes (FICM)	NASF per FTE	Total ASF	NASF per FTE	Total ASF	NASF per FTE	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Athletics	520,523,525	4.50 ASF per Total FTES	20,538	4.50 ASF per Total FTES	20,539	2.16 ASF per Total FTES	9,861		(10,678)
Recreation	670,675			2.60 ASF per In-Person FTES	67,262	0.37 ASF per Total FTES	1,667		(65,595)
Total ASF		86.02 ASF per Total FTES	392,580	110.02 ASF per Total FTES	502,117	90.81 ASF per Total FTES	414,461	2,870	(84,786)

The chart below lists the passive open spaces on the Biscayne Bay Campus. The analysis for these open spaces includes identifying the type by size (quad, or courtyard), the size (acres), the type by design geometry (formal, or informal), the degree of flexibility for different event, the primary and secondary activity taking place, and descriptive attributes of the space.

ID	NAME	TYPE	CAMPUS		SIZE				TYPE	DEFINED	FLEXIBLE	PRIMARY ACTIVITY	SECONDARY ACTIVITY	ATTRIBUTES
B1	Main	Quad	BBC	+/-	142,500	sf	3.3	ac	Informal	Yes		Gathering		Shaded. Under-utilized
B2	Academic One	Courtyard	BBC	+/-	15,000	sf	0.3	ac	Formal	Yes		Gathering	Circulation	Shaded. Movement. Meeting. Pleasing. Simple
B3	Hospitality Management	Courtyard	BBC	+/-	7,500	sf	0.2	ac	Formal	Yes		Gathering		Open.

INVENTORY OF UNIVERSITY OWNED RECREATIONAL SITES

Table 8.5 Inventory of University-owned Recreational and Athletic Facilities – Biscayne Bay Campus

BISCAYNE BAY CAMPUS	Number of Facilities	Estimated FIU Usage	Estimated Community Usage	Total Square Footage (SF) and/or Acreage
RECREATION FACILITIES				
Indoor				
Fitness Spaces	1	11,109	1,000	9,428 SF
Multipurpose Fitness Rooms	1			
Aquatics Center	1			56,350 SF
Outdoor Recreation Building	1	N/A	N/A	1,700 SF
Outdoor				
Basketball Court	1	15,360	8,960	7,000 SF and 0.3
Soccer Field	1	8,960	8,960	42,770 SF
Tennis Courts (3/3), 20,400 sq per set of three courts	1	8,960	8,960	40,800 SF and 1.4
TRAC Ropes Course	1	200	900	46,800 SF
Sand Volleyball Court	1	N/A	N/A	3,525 SF
ATHLETIC FACILITIES				
Aquatics Center*	1			
OPEN SPACE AND LAKES				
Open Space				
Lakes	5 Lakes			

*Swimming and diving practice daily at the Tamiami Park Aquatics Center but compete at this BBC athletic facility

ENGINEERING CENTER (EC)

INVENTORY AND NEEDS PROJECTIONS OF UNVERSITY OWNED RECREATIONAL FACILITIES

The Engineering Center does not have any active recreation space as categorized in the 520 or 670 FICM categories. There are passive green spaces with outdoor seating just east of the main building.

Table 8.6 Engineering Center Projected Need of Spaces for Recreation Facilities (in ASF)

Engineering Center (EC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	1,842 HC	1,610 FTES
Graduate (In-Person)	372 HC	325 FTES
E-Learning Students	1,182 HC	1,034 FTES
Total FTE Students	3,396 HC	2,969 FTES

Faculty and Staff Summary:

Faculty	78	77 FTES
Staff	65	63 FTES
Student Empls	69	32 FTES
Total FTE Staff	212 HC	172 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	Room Use Codes (FICM)	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Athletics	520,523,525	4.50 ASF per Total FTES	13,361	0.00 ASF per Total FTES	0	0.00 ASF per Total FTES	0	0	0
Recreation	670,675			1.69 ASF per In-Person FTES	43,751	0.00 ASF per Total FTES	0	0	(43,751)
Total ASF		86.02 ASF per Total FTES	255,380	105.55 ASF per Total FTES	313,382	71.02 ASF per Total FTES	210,870	0	(102,512)

ESTABLISHED LEVELS FOR SERVICE STANDARDS FOR PLAY/ OPEN SPACE

The table below provides the minimum level of service standard for recreation and open space for each of the host communities where FIU has a site.

Table 8.7 Level of Service Standards of Host Communities

FIU Campus	Host Communities	Level of Service Standard
Modesto A. Maidique	Miami-Dade County City of Sweetwater	2.75 acres per 1000 permanent residents 1.45 acres per 1000 permanent residents
Biscayne Bay Campus	Miami-Dade County City of North Miami	2.75 acres per 1000 permanent residents 2.75 acres per 1000 permanent residents
Engineering Center	Miami-Dade County City of Sweetwater	2.75 acres per 1000 permanent residents 1.45 acres per 1000 permanent resident

Source: Comprehensive Plans for Miami-Dade County, the City of North Miami, and the City of Sweetwater.

Table 8.8 Recreation and Open Space Facilities Level of Service Standard

Year	Student Residents	Acres	LOS Provided
University Wide			
CURRENT	4,321	168.1	2.75 acres/1000 students
2025	4,321	168.1	5.0 acres/1000 students
2035	4,321	168.1	3.1 acres/1000 students
Modesto A. Maidique			
CURRENT	3,913	102	26.1 acres/1000 students
2025	3,913	102	26.1 acres/1000 students
2035	3,913	102	26.1 acres/1000 students
Engineering Center			
CURRENT	0	6.1	N/A acres/1000 students

2025	0	0	N/A acres/1000 students
2035	0	0	N/A acres/1000 students
Biscayne Bay Campus			
CURRENT	408	60	147.1 acres/1000 students
2025	408	60	147.1 acres/1000 students
2035	408	60	147.1 acres/1000 students
Recommended LOS			147.1 acres/1000 students

Student headcount numbers is based on students housed on campus
Source: FIU Institutional Research (See tables 2.1 and 2.10 in Element 2)

The recommended level of service standard for FIU is 2.75 acres per 1000 students. This LOS is consistent with the standards of the host communities. As can be seen from the table above, the recommended LOS will enable FIU to meet the current needs of the university.

In addition to the park service areas, the Miami-Dade County Parks, Recreation and Open Spaces Department strives to provide equitable access to all residents of the County to provide the opportunity to participate in at-will and/or programmed physical activities. The criteria established in the Equity Access Criteria Chart is developed to make Miami-Dade County a more livable and sustainable community where residents should have access to parks within their neighborhood and be able to walk or bike to a park within ½ mile from their home.

b) Inventory of all existing privately-owned, state-owned, or local government-owned recreational facilities and open spaces within the context area

MODESTO A. MAIDIQUE

In addition to the 102 acres of recreation area on the Modesto A. Maidique campus, there are many public and private park and recreation areas within the context area. They are listed in Table 8.9. Within the Modesto A. Maidique planning study area, there are 600 acres of park and recreation space providing a variety of athlete facilities, many of which can be found at Tamiami Park adjacent to Modesto A. Maidique. Most of these facilities are owned and operated by Miami-Dade County; however, there are a few privately owned recreational areas.

The recreation facilities located at each FIU campus are owned by the Florida Division of State Lands and are completely maintained by the University. These facilities include a football stadium, completed in 1998, and subsequently renovated in 2009, 2012, and 2017. The stadium serves the University, Miami FC soccer team. The stadium is owned by FIU but is physically located between Tamiami Park and the Modesto A. Maidique Campus property line--dividing the stadium in half.

Table 8.9 Recreational Facilities within the FIU Service Areas – MODESTO A. MAIDIQUE

PARK FACILITIES	TYPES OF USES PROVIDED	TYPES OF RECREATIONFACILITIES	TOTAL ACREAGE
Carlow Park	Activity	Recreation Center (1), Play Equipment (1), Basketball (2), Tennis (2)	2
Concord Park	Activity	Baseball (1), Basketball (2), Multi-purpose field (1), Play Equipment (1)	10
International Gardens Park	Activity/Resource	Softball (1), Open Space, Multi-purpose field (2)	Not Available
Southern Estates Park	Activity	Softball (1), Multi-purpose Field (2) Tennis (2)	16
Sweetwater Youth Center	Activity	Multi-purpose Field (1), Recreation Center (1), Baseball (1), Softball (1), Tennis (2)	5

Tamiami Park	Activity	Recreation Center (1), Pool(1), Basketball (1), Baseball (2), Softball/Baseball (4), Tennis (6), Volleyball (6), Multi-purpose (12), Football Stadium (1)	241.8

Source: Miami-Dade County Parks, Recreation and Open Spaces, 2012

BISCAYNE BAY CAMPUS

In addition to the 60 acres of recreation area on the Biscayne Bay Campus, there are many public and private park and recreation areas within the one-mile context area of Biscayne Bay Campus. These are listed in Table 8.10. The local park and recreation areas total over 1,000 acres and contain a wide variety of facilities, including, a golf course, camp sites, horse stables and boat launches, multipurpose fields, and basketball courts.

The recreation facilities located at each FIU campus are owned by the Florida Division of State Lands and are completely maintained by the University.

The facilities that are included in the Miami-Dade County Parks, Recreation and Open Spaces inventory are listed in the following table.

Table 8.10 Recreational Facilities within the FIU Service Areas – BISCAYNE BAY CAMPUS

PARK FACILITIES	TYPES OF USES PROVIDED	TYPES OF RECREATION FACILITIES	TOTAL ACREAGE
Aqua Bowl Park	Activity	Community center (1), Play equipment (1), Multi-purpose field (1)	20
Arch Creek Park	Resource	Nature Center (1)	9
East Greynolds Park	Activity/Resource	Picnic (1), Basketball (1), Nature center (1), Boat launch (1)	56
Haulover Beach Park	Resource	Picnic (2), Tennis (6) Beach (1), Boat launch(11)	177
Highland Village Park	Activity	Picnic (1), Baseball (1), Multi-purpose field (2), Basketball (1), Volleyball (1)	5
Oleta River State Rec. Area	Resource	Swimming, Fishing, Picnic, Mountain biking	1,048

Source: Miami-Dade County Parks, Recreation and Open Spaces, 2012

Planned Future Recreation and Open Space Facilities within the Planning Study Area

<u>Future Needs of the Athletic Department for intercollegiate athletic facilities, intramural and casual-use facilities.</u>

Based on the NIRSA Standards for Recreational Spaces the University currently does not have a sufficient amount of recreation and open space to serve the students at each campus. As FIU continues its enrollment and increases the number of students living on campus, additional informal recreation space will be needed to support the increased number of on-campus residents.

MODESTO A. MAIDIQUE

Currently, Category 520, Teaching Gymnasium, is identified as having a deficit of 14,334 ASF. This shortage will continue to grow over the years to a significant level until space is added. For category 670, recreation the analysis currently shows a small surplus of space but as the enrollment grows this existing space will be size appropriately for the number of students on campus.

Future development of athletic, recreational, or casual-use facilities at Modesto A. Maidique Campus should remain limited to the western and southern edges of the campus adjacent to existing athletic facilities and should be incorporated into future housing development on the east. Open space development should be formalized and unified throughout the academic core.

ENGINEERING CENTER

Engineering Center Campus currently houses no athletic, intramural, or casual use recreation facilities. Note that FIU's document titled "Educational Plant Survey," page 45 declares no generation of teaching gymnasium for branch campuses. For category 670, recreation, Engineering Center campus currently shows no existing indoor recreation, and as the enrollment grows, the need for category 670, recreation space, will continue to grow.

BISCAYNE BAY CAMPUS

Biscayne Bay Campus recreation includes tennis courts, a gymnasium and general non-competitive recreation facilities. There has also been discussion to further develop the existing rowing and water related activities. Note that FIU's document titled "Educational Plant Survey," page 45 declares no generation of teaching gymnasium for branch campuses. Since Biscayne Bay Campus already has 8,887 ASF of category 520, teaching gymnasium, the existing 8,887 ASF is used as the guideline and no new category 520 space is planned.

For category 670, recreation, the analysis currently shows a shortage of indoor recreation space, and as the enrollment grows, this need will continue to grow.

Existing athletic, recreational or casual-use facilities recreation space at Biscayne Bay Campus is located on the eastern edge of the campus close to the water's edge. Fields in this area do not obstruct the views of Biscayne Bay; however, fenced facilities such as tennis courts and above ground level structures such as the campus aquatic center do obstruct the views that are unique to this campus. Future recreation development will most likely serve the on-campus residents and should be in close proximity to the housing area.

Assessment of planned future recreation and open space facilities, and assessment of the adequacy of the existing intercollegiate, intramural, and casual use athletic facilities to meet the future needs.

Intercollegiate athletic needs are generally tied to NCAA standards (Tier 1, 2, 3, etc.) and the school's desire to support its selected intercollegiate programs at the level it wants to compete in.

Internal intramural and casual athletic facilities ASF needs are typically determined by the "NIRSA Standards for Recreational Spaces" as well as calculations figuring space needed for academically dedicated Category 520 Teaching Gymnasium. This space, when it is not in use by an academic endeavor, can be used for recreation purposes. As more pressure is put on the Gymnasium for teaching activities, less and less time for intramural and casual athletic use is available. At that point, the University needs to decide how much of that extracurricular ASF is needed and what funds are available. This is where the NIRSA standards can be used to determine need for dedicated recreational space. It can affect recruitment, retention, personal well-being, recreation, etc.

MODESTO A. MAIDIQUE

Based on calculations from the NIRSA Standards, additional recreational fields will be needed. Open space development should be formalized and unified throughout the academic core.

Table 8.11 NIRSA Standards Calculations – MODESTO MAIDIQUE CAMPUS

FACILITY TYPE	Number students in 1000's (in 2020)	NIRSA MULTIPLIER	FACILITIES GUIDELINE	OUTDOOR FACILITIES shown currently	OUTDOOR FACILITIES needed
BASKETBALL COURTS	32	0.15	4	5	0
FLAG FOOTBALL FIELD	32	0.25	7	4	3
				Same Field as Soccer	
SOCCER FIELD	32	0.25	7	4	3
				Same Field as Flag Football	
SOFTBALL FIELD	32	0.2	5	1	3
				Includes 2 fields just south of campus	verify south fields will be available
TENNIS COURT	32	0.5	13	6	7
VOLLEYBALL COURT	32	0.15	4	5	0

*Modesto Maidique NIRSA calculations include students from the Engineering Center

As the demand for recreation facilities increases beyond that which is planned on- site, the University may need to look off campus for additional space. This would include developing an inter-local agreement with Miami-Dade County for joint use of their facilities.

The following is a list of the recreation needs at Modesto A. Maidique:

Recreation Fields: New recreation fields are needed to support fieldsports and intramural /club sport activities, specifically a dedicated soccer field, with ability to support 7v7 games. Currently the University has four fields, in addition to the tennis courts, baseball stadium andfootball stadium. As the University continues to grow, the available land on campus will be developed to support academic, research andsupport functions. The University should explore additional recreation opportunities at Tamiami Park.

Track: The existing track was removed as part of the stadium expansion. The University has identified a site for a new track near/ around the existing Soccer Stadium.

General Renovations and Upgrades of Existing Facilities: Existing facilities, such as the Ocean Bank Convocation Center, need to be improved. Additional storage space and office space for staff is needed. There is also a need to renovate bathrooms.

BISCAYNE BAY CAMPUS

Additional recreational space will also be needed at the Biscayne Bay Campus based on the NIRSA Standards.

Table 8.12 NIRSA Standards Calculations – BISCAYNE BAY CAMPUS

BISCAYNE BAY CAMPUS NIRSA RECREATION SPACE REQUIREMENTS					
FACILITY TYPE	Number students in 1000's (in 2020)	NIRSA MULTIPLIER	FACILITIES GUIDELINE	OUTDOOR FACILITIES shown currently	OUTDOOR FACILITIES needed
BASKETBALL COURT	4	0.15	1	1	0
FLAG FOOTBALL FIELD	4	0.25	1	2	(1)
				Same Field as Soccer (Includes 1 field at Mouring High School)	
SOCCER FIELD	4	0.25	1	2	(1)
				Same Field as Flag Football (Includes 1 field at Mouring High School)	
SOFTBALL FIELD	4	0.2	1	0	1
TENNIS COURT	4	0.5	2	6	(4)
VOLLEYBALL COURT	4	0.15	1	1	0

Recreation space at Biscayne Bay Campus is located on the eastern edge of the campus close to the water's edge. Fields in this area do not obstruct the views of Biscayne Bay; however, fenced facilities, such as tennis courts and above ground level structures such as the campus aquatic center, do obstruct the views that are unique to this campus. Future recreation development will serve the on-campus residents and should be in close proximity to the housing area.

There are two new Division I program proposed for Biscayne Bay Campus, Women's Swimming and Women's Rowing. Facilities are adequate to initiate these programs; however, improvements in the aquatics center will be required to support the swimming program and an upgraded boat launch/practice area required for the rowing program.

There is also a need to replace the two recreation fields at Biscayne Bay Campus.

There are over 1,000 acres of parks and open space in the context area of Biscayne Bay Campus (See Table 8.9). These parks adequately meet the open space and recreation needs of the host communities and FIU.

ENGINEERING CENTER (EC)

Currently, the Engineering Center does not have any recreation facilities; however, the site has sufficient open space for potential passive recreation areas.

Host Communities

There are no University-owned recreational facilities or open spaces incorporated into the comprehensive plan of any of the following host communities:

University Site	Host Community
Modesto A. Maidique Campus	Miami-Dade County City of Sweetwater
Biscayne Bay Campus	Miami-Dade County City of North Miami
Engineering Center (EC)	Miami-Dade County City of Sweetwater

MODESTO A. MAIDIQUE CAMPUS

Space reserved for recreational use has slowly been encumbered by new academic and support facilities. Because of this, FIU may need to look off campus to support some of its future recreation needs for Modesto A. Maidique.

In addition to the Comprehensive Plan Amendment, the County is proposing capital improvements at Tamiami Park.

BISCAYNE BAY CAMPUS

Recreation facilities provided by the Master Plan will support planned expansion of the campus. The southern portion of campus includes a substantial amount of land to accommodate any additional recreational needs.

The amount of land that is available for large-scale development in Miami-Dade County is rapidly decreasing. Information provided by the Planning Division of the Department of Regulatory and Economic Resources, estimates that by the year 2035 Miami-Dade will be built out depending on the type of land use. As a result, parks and open spaces that are underutilized may become vulnerable to the demand for land—particularly since the County has a surplus of parks. Privately owned facilities, such as golf courses, are also likely to be targeted for land use changes that would allow development. This is evident in the Fontainebleau Country Club that was replaced by multi-family residential use. Within the next ten years, the need to meet the parks and open space LOS will become more challenging as land becomes scarce. This is an issue for FIU and for the general community.

Below is a brief summary of some of the recreation and open space plans adopted by the host communities that may have an impact on the FIU campuses.

Miami-Dade County is planning to improve Greynolds Park through upgrades tothe facilities.

ENGINEERING CENTER (EC)

During the next five years, the City of Sweetwater plans to construct an additional park to meet its Parks and Open Space LOS. At this time, it is uncertain, where the park facility will be located, but it is likely to be in close proximity to the Engineering Campus.

Figure 8.1 Recreation and Open Space (Existing) – MODESTO A. MAIDIQUE

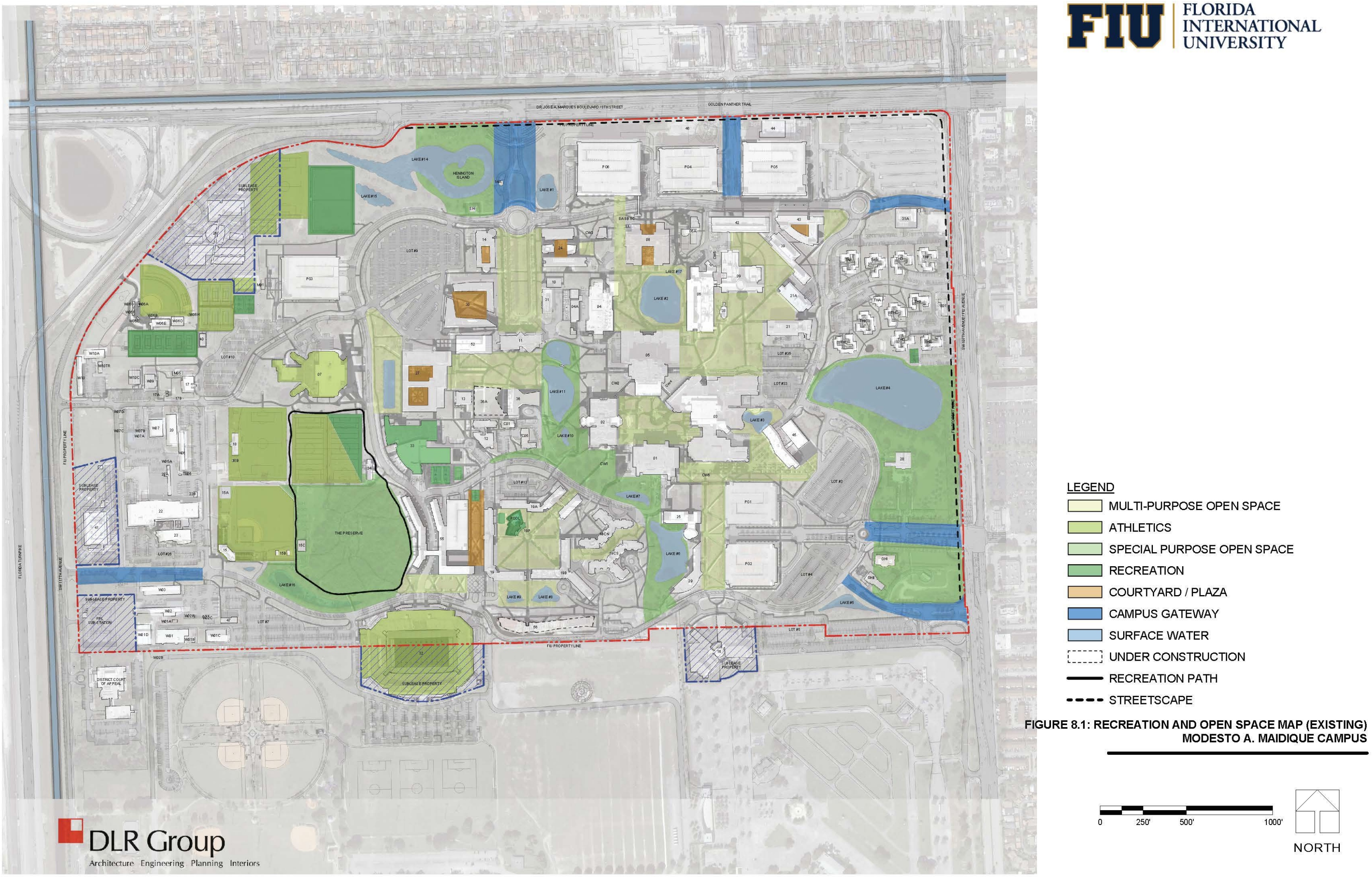


FIGURE 8.1: RECREATION AND OPEN SPACE MAP (EXISTING)
MODESTO A. MAIDIQUE CAMPUS

Figure 8.2 Recreation and Open Space (Existing) – ENGINEERING CENTER

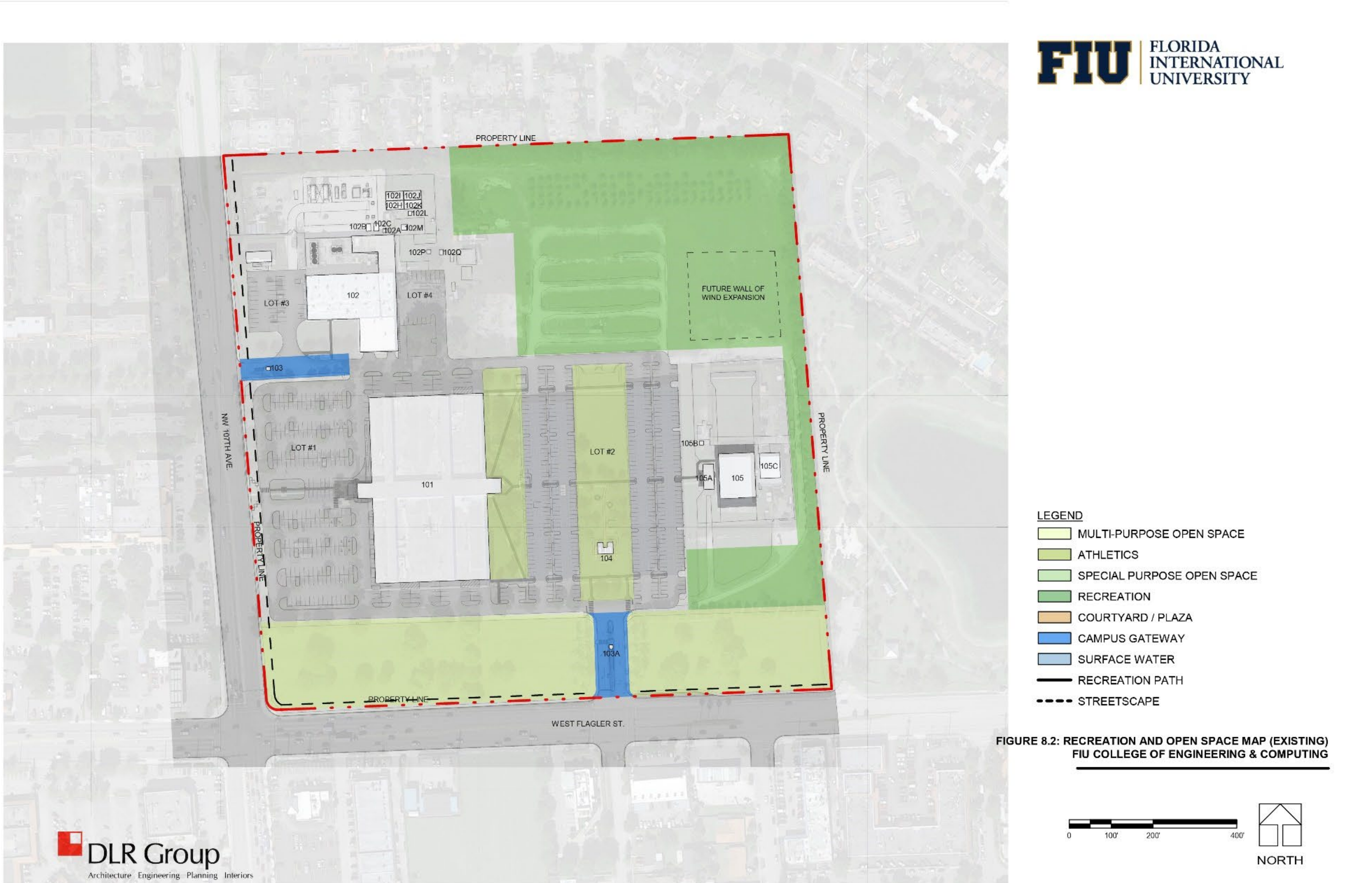
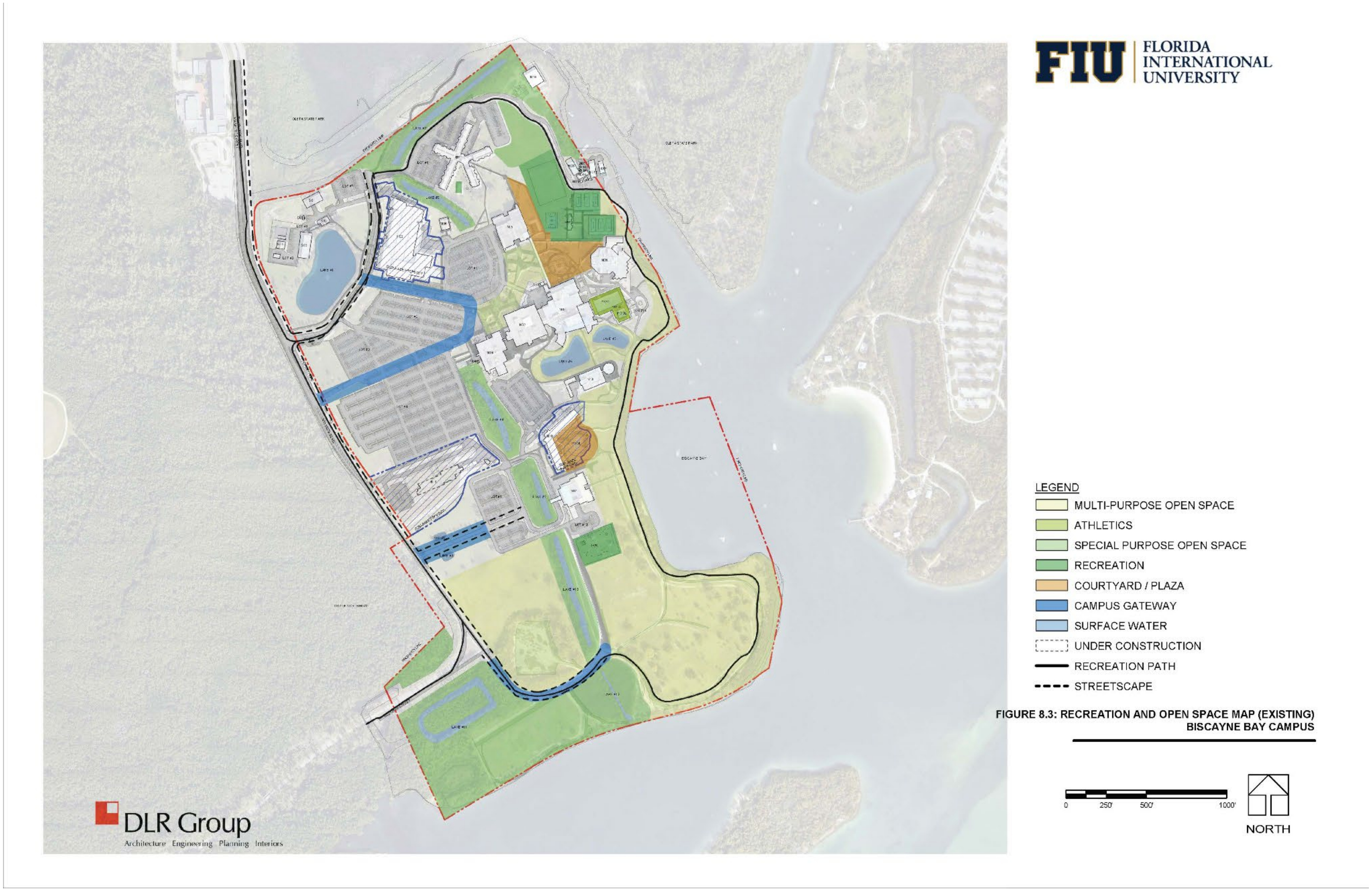


Figure 8.3 Recreation and Open Space (Existing) – BISCAYNE BAY CAMPUS



9.0 GENERAL INFRASTRUCTURE ELEMENT

(1) STORMWATER MANAGEMENT DATA AND ANALYSIS REQUIREMENTS

a) Stormwater Management System Inventory

MODESTO A. MAIDIQUE CAMPUS

The Modesto A. Maidique Campus (MMC) covers approximately three hundred and fifty-three (353.5) acres, located in unincorporated Miami-Dade County. The stormwater management plan for Modesto A. Maidique Campus is a combination of percolation, overland flow, exfiltration systems and positive drainage systems with outfalls to onsite lakes. There are no offsite discharge connections as all rainfall is contained onsite. Per Figure 9.1a – MMC Drainage System Map, the breakdown of these methodologies is as follows:

Percolation and exfiltration trench systems:

- The Student Housing Area
- Portions of the roadway system
- Parking Garage 6 (PG6), adjacent streets
- Portion of SW 10th Street from 109th Ave passed the roundabout on 112th Avenue
- Part of the parking lot northwest of the College of Business Complex (CBC)
- Some of the parking lots in the physical plant building area.
- Areas East & West of the Market Station (PG5)
- Portions of SW 10th Street and SW 108th Avenue
- Panther Stadium
- The expansion of the Rec Center
- Parkview Housing Phase 1
- Parkview Housing Phase 2
- Portion of SW 17th Street from the Stadium to Frost Museum
- Parking Garage 3 (PG3) west exit drive

The positive drainage systems with an outfall to a water body include:

- Parking lots south of the Primera Casa building,
- Roof runoff and plaza drainage in the core building area,
- Ocean Bank Convocation Center, and
- Practice Fields with overflow into preserve

The balance of the site, which is recreation or undeveloped open space, relies on swale drainage, sheet flow to low lying areas, and percolation through the soil.

Based on the Miami-Dade County Flood Criteria Map, the minimum allowable elevations of the ground surface and crown of roads is 7.5 ft. NGVD. For exfiltration trench design, the groundwater elevation ranges from 4.0 to 4.2 from east to west across the campus. From the Federal Emergency Management Agency (FEMA), Flood Map Service Center Map Numbers 12086C0288L and 12086C0269L (with effective date of September 11, 2009, with revision dated May 25, 2011 with no change in elevations), the campus lies within Zone AH (Base Flood Elevation at 8.0 feet) which is a Special Flood Hazard Area (SFHA), with a portion of the campus lying within the Zone AE with a Base Flood Elevation of 8.0 feet as well. In accordance with FEMA the flood risk for ZONE AH is moderate to high flooding risk. Areas with a 1% annual chance of shallow flooding (100-year flood), with an average depth ranging from 1 to 3 feet. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones. This is the flood insurance rate zone that corresponds to areas of shallow flooding with average depths between one and three feet. Mandatory flood insurance purchase requirements apply. In accordance with FEMA the flood risk for ZONE AE (Moderate to High Flooding Risk) This is the flood insurance rate zone that corresponds with flood depths greater than three feet. Mandatory flood insurance purchase requirements apply. All new construction must abide by hazard mitigation standards.

ENGINEERING CENTER

The Engineering Center (EC) site is thirty-six (36.6) acres located one mile north of Modesto A. Maidique Campus in unincorporated Miami-Dade County. At this site, water management drainage systems are designed to handle all major stormwater rainfall events on site. Currently, the stormwater runoff generated by these developments are conveyed to existing exfiltration trenches, on site dry retention areas, drainage swales, overland flow, and positive drainage pipe system. It appears that these stormwater drainage systems were not designed for any future developments. Therefore, any new development must meet all of the drainage requirements to obtain surface water permits (see Figure 9.2a – EC Drainage Map).

Based on the Miami-Dade County Flood Criteria Map, the minimum allowable elevations of the ground surface and crown of roads is 7.5 ft NGVD. For exfiltration trench design, the groundwater elevation is approximately 3.75 ft across the campus. From the Federal Emergency Management Agency (FEMA), Flood Map Service Center Map Number 12086C0288L (with effective date of September 11, 2009, and revision dated May 25, 2011, with no change in elevation), the campus mostly lies within Zone AE (Base Flood Elevation at 8.0 feet), which is a Special Flood Hazard Area (SFHA) subject to inundation by the 1% Annual Chance Flood (100-year flood). As with the Modesto A. Maidique Campus in accordance with FEMA the flood risk for ZONE AH is moderate to high flooding risk. Areas with a 1% annual chance of shallow flooding (100-year flood), with an average depth ranging from 1 to 3 feet. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones. This is the flood insurance rate zone that corresponds to areas of shallow flooding with average depths between one and three feet. Mandatory flood insurance purchase requirements apply. In accordance with FEMA the flood risk for ZONE AE (Moderate to High Flooding Risk) This is the flood insurance rate zone that corresponds with flood depths greater than three feet. Mandatory flood insurance purchase requirements apply. All new construction must abide by hazard mitigation standards.

BISCAYNE BAY CAMPUS

The Biscayne Bay Campus (BBC) property covers approximately one hundred and ninety-eight (198.6) acres, located in the City of North Miami within Miami-Dade County. The stormwater management plan for Biscayne Bay Campus is a combination of percolation, overland flow, exfiltration systems and positive drainage systems with outfalls to onsite lakes. Currently, this stormwater drainage system has four (4) outfalls located on the north and east sides of the site. The north outfall system consists of a 42-inch culvert, and two 36-inch culverts. The east outfall consists of an 8"x 12" culvert.

<u>On Site Lakes and Exfiltration Trench Drainage System:</u>

As shown on Figure 9.3a – BBC Drainage System Map, Biscayne Bay Campus has a canal running along the North and East property lines, which separates the campus from the mangroves of Oleta State Park. Also, on the East and South lies the Biscayne Bay. A mangrove preserve and landfill lie west of the campus. There are three (3) major onsite lakes: two (2) are located South of the Wolfe University Center (WUC) and one (1) is located East of the Physical Plant (S03) Building. Runoff from roofs and most parking areas is collected and discharged into the above-mentioned onsite lakes. Parking Lots No. 6 and 7 use exfiltration trench drainage systems.

Based on the Miami-Dade County Flood Criteria Map, the minimum allowable elevations of the ground surface and crown of roads is 5.5 ft. NGVD. The Biscayne Bay is a tidal water body which affects the groundwater elevations on adjacent properties. The nearest average October groundwater level contour with elevation 2.0 feet is located near US1. From the Federal Emergency Management Agency (FEMA), Flood Map Service Center Map Number 12086C0142L (with effective date of September 11, 2009, and revision dated February 15, 2019), the campus mostly lies within Zone AE (Base Flood Elevation at 9.0 feet), which is a Special Flood Hazard Area (SFHA) subject to inundation by the 1% Annual Chance Flood (100-year flood). A very small portion along the southern edge of the campus is Zone AE (Base Flood Elevation at 10.0 feet) and Zone VE (Base Flood Elevation at 10.0 feet). Zone VE is a Special Flood Hazard Area (SFHA), characterized as a coastal flood zone, subject to inundation by the 1% Annual Chance Flood (100-year flood) with an additional velocity hazard (wave action). All new construction must abide by hazard mitigation standards.

1. Existing Facility Capacity Analysis

The capacities of the existing stormwater systems at each of the FIU sites are sufficient for present development.

MODESTO A. MAIDIQUE CAMPUS

The positive drainage systems with lake outfalls rely on storage of the runoff within the lake banks until infiltration into the groundwater or evaporation return the water levels to normal levels. These systems require a difference of elevation between the drainage area and the lake water surface to drain the runoff through the pipes. In addition, per Section 24-42(3) DISCHARGES AFFECTING WATER QUALITY AND PROHIBITION OF POSITIVE DRAINAGE of the Miami-Dade County Code of Ordinances, stormwater discharge must be pretreated by exfiltration trench or dry retention ponds prior to discharging into lakes or wet retention areas.

All the water bodies on the campus are not interconnected. This does not allow the drainage subbasins to compensate each other for inconsistencies in rainfall and runoff areas. As a result, some areas within the campus have drainage problems.

BISCAYNE BAY CAMPUS

The existing development is concentrated in the northern portion of the campus. Only the primary systems of the water and sanitary sewer infrastructure have been constructed in the southern portion. A master drainage plan was not available. The volume of runoff is handled by the existing lakes, exfiltration trenches, outfall structures and ponding in the low-lying, undeveloped areas. As is the case with Modesto A. Maidique Campus, the water bodies on the campus are not interconnected. This does not allow the drainage subbasins to compensate each other for inconsistencies in rainfall and runoff areas.

Projected Facility Demand and Capacity Analysis

The planning time frame extends to 2035. Based on projected student populations and demand, it is estimated that future development will require further exfiltration trench and/or a lake outfall system at Modesto A. Maidique Campus, Biscayne Bay Campus, and the Engineering Center. The sites appear to have sufficient area to provide additional lake area and/or exfiltration trench for future development. Implementation of any drainage improvements associated with future build-out should be ahead of development to ensure appropriate flood control.

It should be noted that the lakes at Modesto A. Maidique Campus are not interconnected which causes each area to operate as an individual subbasin. Once these subbasins are connected, some compensation on runoff exceedances can be distributed. The impact on flood protection by the removal of open space will be minimized by the implementation of a master drainage plan. A master drainage plan would enable the completion of stormwater management improvements prior to proposed development to ensure appropriate flood control.

Best Management Practices (BMP) should be incorporated into the drainage infrastructure design to minimize the impacts to ground and surface water quality. These BMP's include down-turned elbows in catch basins to collect oils and grease in the runoff prior to discharge to the ground or surface water. All new construction must abide hazard mitigation standards.

2. **Existing Performance Evaluation**

MODESTO A. MAIDIQUE CAMPUS

The capacities of the existing swale, exfiltration trench, and lake system are sufficient for the demand generated by the present development. The system capacity analysis shows that the campus has sufficient area to provide additional lake area and/or exfiltration trench for future development. The lakes are not interconnected which causes each area to operate as an individual sub basin. Once these subbasins are connected, some compensation on runoff exceedances can be distributed.

ENGINEERING CENTER

The existing exfiltration trenches, on site dry retention areas, drainage swales, overland flow, and positive drainage pipe system are sufficient to meet the demand for drainage generated from the present development.

BISCAYNE BAY CAMPUS

The capacities of the existing swale, exfiltration trench, and lake system are sufficient for the runoff generated from the present development. The existing drainage pipes and exfiltration trench should not have excess capacity as they were probably designed for a specific drainage area. Irrigation Study and sea level rise issues need to be addressed.

3. **Host Community**

All stormwater runoff is handled by onsite facilities at Modesto A. Maidique Campus, the Engineering Center, and Biscayne Bay Campus. None of these sites have off-campus discharge connections nor do they share stormwater facilities with the neighboring host community.

FIU has operational responsibility for the management and maintenance of the stormwater systems at Modesto A. Maidique Campus, Biscayne Bay Campus, and the Engineering Center.

b) System Analysis and Recommendations

The existing exfiltration trench and drainage pipe systems at Modesto A. Maidique Campus, Biscayne Bay Campus, and the Engineering Center were designed for specific drainage areas and, in some cases, do not have excess capacity for future development. To address this issue, the following is needed:

- Future development will require exfiltration trench and/or a lake outfall system.
- Should lake outfall systems be proposed, they should meet pretreatment requirements prior to discharging into lakes or wet retention ponds per Section 24-42(3) DISCHARGES AFFECTING WATER QUALITY AND PROHIBITION OF POSITIVE of the Miami-Dade County Code of Ordinances. Lakes are considered the exposed portion of the Biscayne Aquifer and therefore stormwater runoff from pervious and impervious areas must be pre-treated prior to discharge into the Aquifer.
- All water bodies should be interconnected whenever possible to eliminate isolated subbasins and minimize the possibility of one subbasin being overburdened and another underutilized.
- Any proposed development that connects to an existing drainage system should evaluate the impacts on that system.
- A master drainage plan should be prepared based on the proposed development. Implementation should be ahead of development to ensure appropriate flood control.
- Regularly monitor and re-evaluate Disaster Resistant University-FEMA Hazard Mitigation Plan, based on proposed development and improvements.
- Best management practices (BMP’s) should be incorporated into the drainage infrastructure

design to minimize the impacts to the ground and surface water quality.

The level of service (LOS) for future program elements must meet state water quality and quantity regulations according to Chapters 40E-4 Environmental Resource Permits, 40E-40 Environmental Resource Standard Permits, and 40E-400 No Notice and Noticed General Environmental Resource Permits, FAC and other applicable local, state, and federal regulations.

Level of service for storm water drainage is a threshold beyond which a particular infrastructure is considered flooded. Table 9.1 describes the LOS standards of the Division of Environmental Resources Management of DRER. Each of the FIU sites can meet the LOS standards.

To assure that FIU continues to meet the LOS standards, it is recommended that all new developments prepare a pre-post analysis of the entire site to evaluate the 100-year flood stages.

Please note that finish floor elevations (FFEL) for proposed development must also abide by existing and new flood protection standards outlined in the 2020 Florida Building Code, seventh edition (FBC) and ASCE 24-05 Flood Resistant Design and Construction. In March 2012, additional requirements were added to the FBC and ASCE 24-05 for coastal zone Special Flood Hazard Areas (SFHA), which affects a portion of the Biscayne Bay Campus (BBC) due to its proximity to the Florida coastline.

In addition to SFHA designation, finish floor elevation standards are also governed by building use. Per Table 1-1 of ASCE 24-05, Colleges and Education Facilities are classified as Category III structures, which encompass most buildings located within the MMC, BBC and EC sites. The Recreation Complex (RC) at the MMC serves as the designated hurricane shelter for Monroe County, therefore being classified as a Category IV structure.

Table 9.1 Miami-Dade RER's LOS Standards

Type of Infrastructure	Rainstorm Design Return Period	Flooding Limits
Miami River (Primary Canal)	100-years	Top of Bank
Canals (Secondary Canal)	25-years	Top of Bank
Residential, commercial, andpublic structures	100-years	15 feet from front step
Principal Arterial (Evacuation routes)	100-years	Impassable at 8 inches above top of crown
Minor Arterial (4-lane roads in high traffic area)	10-years	To outer edge of traffic lanes
Collector Roads (2-lane roads on residential and commercial areas)	5-years (except 10-years for bridge of culvert in the canal system)	To crown of street
Local Roads (residential roads)	5-years	To crown of street or within 15 feet of occupied structure, whichever is lower

Source: Division of Environmental Resources Management, of Department of Regulatory and Economic Resources (DRER)

c) Existing Regulations and Programs

There are some federal, state, and local regulations governing land use and development of drainage features.

Water Quality Act of 1987

Federal legislation known as the "Water Quality Act of 1987" amended the Clean Water Act and provided federal provisions for the permitting of stormwater drainage. This results in all stormwater discharges to waters of the United States from construction activities which disturbs a total land area of 5.0 or more acres must be authorized by a National Pollution Discharge Elimination System (NPDES) permit from the United States Environmental Protection Agency.

Federal Emergency Management Agency (FEMA)

Federal Emergency Management Agency (FEMA) regularly updates and publishes Flood Insurance Rate Maps (FIRM) to establish eligibility for federal flood insurance.

U.S. Army Corps of Engineers and the State of Florida Department of Environmental Protection

The U.S. Army Corps of Engineers and the State of Florida Department of Environmental Protection have overlapping dredge and fill permitting criteria concerning the protection of wetland habitats and function.

South Florida Water Management District

South Florida Water Management District has regulatory responsibility for stormwater discharge, consumptive use, and surface water management permits.

Division of Environmental Resources Management, of Department of Regulatory and Economic Resources (DRER)

This Division was previously known as the Miami-Dade County Department of Environmental Resources Management (DERM) and most recently the Miami- Dade County Permitting Environmental & Regulatory Affairs (PERA). For the majority of projects in Miami-Dade County, this Division of DRER has been delegated stormwater permit responsibilities.

All stormwater management systems must obtain a Class II Permit for outfalls and a Standard Permit from the Water Control Section of the Division of Environmental Resources Management. The Division of Environmental Resources Management has an operating agreement with the South Florida Water Management District (SFWMD) to issue surface water management permits under Chapters 40E-4, 40E-40 and 40E-400, F.A.C.

(2) POTABLE WATER DATA AND ANALYSIS REQUIREMENTS

a) Potable Water Facility Inventory

MODESTO A. MAIDIQUE CAMPUS

The property is located within the Miami-Dade County Water and Sewer Department (M-D WASD) franchised water service area. A 30-inch main abuts the site along SW 8th Street (north side). A 12-inch main abuts the site along SW 107th Avenue on the east side and a 36-inch main also abuts the site along 117th Avenue on the west side. The site is serviced from the North by a 16-inch main, which runs along the main entrance of SW 8th Street and 112th Avenue, which is connected to internal secondary lines, composed of 8-inch and 12-inch mains. The site is also serviced from the East by three 12-inch mains connecting to SW 107th Avenue and running into campus along SW 11th Street, University Apartments Complex and Ronald W. Reagan Presidential House, respectively. From the West, two additional 12-inch mains service the site connecting to SW 117th Avenue and running into campus along SW 17th Street and the parking lot north of the FIU Campus Support Complex. All these water mains are owned and operated by M-D WASD. All water consumption is measured using water meters.

The source for this water supply is the Alexander Orr Water Treatment Plant, which is owned and operated by M-D WASD and has sufficient capacity to provide current water demand. The plant is presently producing water that meets Federal, State, and County drinking water standards.

BISCAYNE BAY CAMPUS

The property is located within the City of North Miami franchised water service area. A 16-inch main abuts the site along NE 151st Street to the north side, as well as a 30-inch main along NE 135th Street, to the south side of the property. The water distribution system on site consists of water mains of 8, 10, 12, and 16-inches in diameter, which tie into the before mentioned distribution mains. Water meters for each building measure all water consumption.

The source of this water is the Winson Water Treatment Plant, which is owned and operated by the City of North Miami and has sufficient capacity to provide current water demand. The plant is presently producing water that meets Federal, State, and County drinking water standards.

To reduce the irrigation demand on the potable water system, the University utilizes on site surface water lakes as the source for the campus irrigation. A prior connection to irrigation quality, treated effluent from the North District Wastewater Treatment Plant remains, but is not being utilized due to water quality concerns. The North District Wastewater Treatment Plant is owned and operated by M-D WASD. Since this campus is on the forefront of sea level rise and salinity of the on-campus lakes is a concern, FIU should work with WASD to improve the quality of this reclaimed source to provide a more sustainable irrigation water source for the campus.

ENGINEERING CENTER

The property is located within the M-D WASD franchised water service area. A 16-inch main abuts the site along W Flagler Street and another 16-inch main abuts the site along SW 107th Avenue. The water distribution system on site consists of 12-inch and 8-inch water mains, which tie into the before mentioned distribution mains. All these water mains are owned and operated by M-D WASD. Water meters for each building measure all water consumption for the site.

The source for this water supply is the Hialeah Preston Water Treatment Plant, which is owned and operated by M-D WASD and has sufficient capacity to provide current water demand. The plant is presently producing water that meets Federal, State, and County drinking water standards.

1. Existing Facility Capacity Analysis

i. Existing Condition

The physical condition of the water main distribution systems at all FIU sites is adequate. Pressure tests are performed regularly to assure the distribution systems meet all the required potable water demands.

Although the water facilities of the host communities appear to have adequate capacity to serve the University, it is expected that the 10-yearWater Supplies Facilities Work plan of the Miami-Dade Water and Sewer Department will call for (1) water conservation and re-use efforts, (2) facility improvements, and (3) stricter requirements for development. As per Senate Bill 360, the Work plan will restrict development unless there is sufficient water supply to meet the needs of future projects. FIU will need to work closely with M-D WASD and the host communities to assure there is sufficient capacity to meet the water consumption needs of future University development.

The potable water consumption for 2011-2012 at Modesto A. Maidique Campus, Biscayne Bay Campus and Engineering Center are shown in Tables 9.2, 9.3 and 9.4.

Table 9.2 Potable Water Consumption – Modesto A. Maidique Campus (FY 2019-20)

Building	Annual Consumption
Academic Health Center 1 & 2	1,552,100

Academic Health Center 3	743,512
Academic Health Center 4	5,024,316
Academic Health Center 5	209,440
Campus Support Complex	531,080
Central Utilities One	14,257,628
Central Utilities Two	8,721,680
Charles E Perry Primera Casa	1,210,264
Chemistry & Physics	2,345,728
College of Business Complex	628,320
Deuxieme Maison	713,592
Digital Art Studio	56,100
Duplicating Center	43,384
Engineering & Computer Science	460,768
Ernest R. Graham University Center	7,264,576
Firelines	86,020
FIU Arena	2,318,052
Herbert & Nicole Wertheim Center	588,676
Labor Center	89,760
Management and New Growth Opportunity	2,192,396
Owa Ehan	993,344
Patricia & Phillip Frost Museum	207,944
Paul Cejas Architecture	445,808
President's House	1,024,760
Rafael Diaz-Balart Hall (COL)	1,178,100
Ryder Business Building	542,300
Sanford & Dolores Ziff Education	201,212
Satellite Chiller Plant	66,442,596
School International & Public Affairs	650,760
Steven & Dorothea Green Library	1,899,920
Stocker Astroscience Center	147,356
Student Health Services	22,000
Veteran & Military Affairs	32,164
Viertes Haus	1,133,981
Wertheim Conservatory	3,072,784
West 1, 2 & 3	2,812,480
West 5 - 10	4,208,996
AUX (Housing/Park/Marc/Rec)	33,936,094
Total	167,989,991

Source: Facilities Management

Table 9.3 Potable Water Consumption – Biscayne Bay Campus (FY 2019-20)

Building	Annual Consumption
Academic I	9,409,000
Academic II	364,000
Aquatic Recreation Complex	1,980,000
Glenn Hubert Library	650,000
Hospitality Management	481,000
Marine Sciences	360,000
Physical Plant / Central Receiving	442,000
Roz & Cal Kovens Conference Center	223,000

Wolf University Center	1,714,000
AUX (Housing/Park/Marc/Rec)	8,631,000
Total	24,254,000

Source: Water Consumption and Sewage Report for 2019-2020, Facilities Management

Table 9.4 Potable Water Consumption –Engineering Center (EC) (FY 2019-20)

Building	Annual Consumption
EC I	8,756,088
EC II	4,645,148
Firelines	2,992
TOTAL	13,404,228

Source: Water Consumption and Sewage Report for 2019-2020, Facilities Management

ii. Projected Facility Demand and Capacity Analysis

Below are the projected levels of service for 2035 based on student growth and existing water consumption patterns. Projections for the Medical School are not included.

Table 9.5 Projected Need for Potable Water - Modesto A. Maidique Campus

Year	Head Count	Average GPCPD
2019-20	45,464	10.12
2021-22	45,464	10.12
2022-23	45,464	10.12
2023-24	45,464	10.12
2024-25	45,464	10.12
2025-26	45,464	10.12
2026-27	45,464	10.12
2027-28	45,464	10.12
2028-29	45,464	10.12
2029-30	45,464	10.12
2030-2035	45,464	10.12
Average Gallons per Capita per Day (GPCPD)		10.12

1) Source: Water Bill readings for 2019-2020, Facilities Management

Table 9.6 Projected Needs for Potable Water at Engineering Center

Year	Head Count	Average GPCPD
2019-20	3,396	10.81
2021-22	3,396	10.81
2022-23	3,396	10.81
2023-24	3,396	10.81
2024-25	3,396	10.81
2025-26	3,396	10.81
2026-27	3,396	10.81
2027-28	3,396	10.81
2028-29	3,396	10.81
2029-30	3,396	10.81
2030-35	3,396	10.81

Average Gallons per Capita per Day (GPCPD)	10.81

1) Source: Water Bill readings for 2019-2020, Facilities Management

Table 9.7 Projected Needs for Potable Water at Biscayne Bay Campus

Year	Head Count	Average GPCPD
2019-20	5,221	12.73
2021-22	5,221	12.73
2022-23	5,221	12.73
2023-24	5,221	12.73
2024-25	5,221	12.73
2025-26	5,221	12.73
2026-27	5,221	12.73
2027-28	5,221	12.73
2028-29	5,221	12.73
2029-30	5,221	12.73
2030-35	5,221	12.73
Average Gallons per Capita per Day (GPCPD)		12.73

1) Source: Water Bill readings for 2019-2020, Facilities Management
2) Does not include Reclaimed Water

2. Existing Performance Evaluation

General Performance, Condition and Expected Life of Facilities

As stated previously, the physical condition of the water main distribution systems at each of the FIU sites are adequate. Within the next ten years, M-D WASD and the host communities, which provide water supply to FIU, will be making improvements to their facilities. The improvements are expected to increase the capacity of the water plants and improve water conservation throughout the County. The intent is to increase capacity, while protecting Miami-Dade County's water resources.

To assure that future development at FIU has a minimum impact on the region's water supply, all water main improvements shall be hydraulically modeled to determine the impact to the system. In addition, hydraulic modeling of the water distribution system enables the University and M-D WASD to identify areas of concern and ensure that sufficient capacity and pressure are provided to meet future demands.

Level of Service

The water LOS is based on historical water consumed per enrolled student (population).

Water consumed by the Modesto A. Maidique Campus (MMC), Engineering Center (EC), and the Biscayne Bay Campus (BBC) during fiscal year 2019-2020 was approximately 205,648,219 million gallons (provided by FIU Facilities Management). Based on the total number of students, faculty, and staff at FIU (54,081), it is estimated that the water consumed per student/faculty/staff was 10.42 gallons per day (gpd).

Table 9.8 Level of Service by University Site

FIU SITE SERVED BY FACILITY	WATER CONSUMPTION FY 2019-20	HEAD COUNT (1)	LOS AT FIU SITE 2019-20
Modesto A. Maidique Campus	167,989,991 Gallons	45,464	10.12 Gallons perCapita per day
Engineering Center	13,404,228 Gallons	3,396	10.81 Gallons per Capita per day

Biscayne Bay Campus	24,254,000 Gallons	5,221	12.73 Gallons per Capita per day
Total	205,648,219	54,081	10.42 Gallons per Capita per day

Source: Water Consumption and Sewage Report for 2019-2020, Facilities Management

1) LOS at FIU is based on Head Count for 2019-2020. The total only includes the campuses stated above.
2) BBC LOS does not include reclaimed water.

3. Host Community

MODESTO A. MAIDIQUE CAMPUS

For the Modesto A. Maidique Campus, the potable water and fire flow needs are provided by the Miami-Dade Water and Sewer Department (M-D WASD) from the Alexander Orr Water Treatment Plant. The primary source of potable water for the Modesto A. Maidique Campus is the Biscayne Aquifer. M-D WASD is the utility company, which removes the water from the aquifer, and the Alexander Orr Water Treatment Plant is where the water is treated.

The Alexander Orr Water Treatment Plant currently has a permitted rated capacity of 214.74 MGD and a total installed capacity of 256 MGD per South Florida Water Management District Water-Use permit no. 13-00017-W, re-issued on February 9, 2015, with an expiration date of February 9, 2035. This permit was then reissued on September 21, 2015, due to revisions of certain special permit conditions (specifically 12, 13, 16, 22, 26 through 35 and 38).

BISCAYNE BAY CAMPUS

The potable water and fire flow needs are provided by the City of North Miami Public Utilities. The water supply is from two sources, Norman Winson Water Plant and M-D WASD. All the main distribution lines are owned and operated by the City of North Miami Beach.

The City of North Miami Winson Water Plant has the capacity to supply 9.3 million gallons a day (MGD). The City of North Miami reports that on average, the plant only produces 60% of the total demand (13.5 MGD) for the City of North Miami, which is 8.7 MGD. The remaining 40% of the total demand is provided by water purchased from M-D WASD through several interconnects in the distribution system.

All of the host communities provide potable water to FIU based on demand. There is no allocation cap on potable water usage at Modesto A. Maidique Campus, Biscayne Bay Campus or the Engineering Center. However, it should be noted that an agreement between the Florida Board of Regents and M-D WASD was executed in 1975 regarding water distribution facilities at Modesto A. Maidique Campus. The agreement does not specify the amount of potable water to be allocated. It only states that an adequate supply of water shall be provided to the Modesto A. Maidique Campus property. The lease agreement between the FIU Board of Trustees and M-D WASD had a term of forty (40) years from the date it was executed (July 1, 1975). The term automatically renewed on July 1, 2015.

ENGINEERING CENTER

For the Engineering Center site, the potable water and fire flow needs are provided by the Miami-Dade Water and Sewer Department (M-D WASD) from the Hialeah Preston Water Treatment Plant. The primary source of potable water for the Engineering Center is the Upper Floridian Aquifer. M- D WASD is the utility company, which removes the water from the aquifer, and the Hialeah Preston Water Treatment Plant is where the water is treated.

The Hialeah Preston Water Treatment Plant currently has a permitted rated capacity of 225 MGD and a total installed capacity of 235 MGD per Water- Use permit no. 13-00017-W. In 2013, a reverse osmosis (RO) treatment plant producing 7.5 MGD began operation. In 2015 the RO treatment plant expanded to produce a total of 10 MGD. Permit 13-00017-W was re-issued on February 9, 2015, with an expiration date of February 9, 2035. This permit was then reissued on

September 21, 2015, due to revisions of certain special permit conditions (specifically 12, 13, 16, 22, 26 through 35 and 38).

Table 9.9 Current Demand on Capacity for Each Facility Providing Potable Water to FIU

UNIVERSITY SITE	HOST COMMUNITY	COMMUNITY DEMAND	FIU DEMAND
Modesto A. Maidique Campus	Miami-Dade County	Alexander Orr: 214.74 MGD	0.460 MGD
Engineering Center	Miami-Dade County	Hialeah Preston: 225 MGD	0.037 MGD
Biscayne Bay Campus	City of North Miami	Winson Water Plant: 9.3 MGD	0.664 MGD

a) System Analysis and Recommendations

MODESTO A. MAIDIQUE CAMPUS

There is sufficient water treatment capacity at the Alexander Orr Water Treatment Plant for future development at Modesto A. Maidique Campus and the Engineering Center.

The onsite primary distribution system will need expansion for future development and missing links to provide a "looped" system. New secondary systems and elimination of dead-end systems will be required.

BISCAYNE BAY CAMPUS

There is sufficient treatment capacity at the City's Norman Winson Water Plant for future development at Biscayne Bay Campus. In addition, their agreement with M-D WASD would further provide capacity if necessary. The onsite primary distribution system is sufficient for future development; however, new secondary systems will be required. Also, some existing secondary systems are presently dead end and need to become a "looped" system.

ENGINEERING CENTER

There is sufficient water treatment capacity at the Hialeah Preston Water Treatment Plant for future development at the Engineering Center.

The onsite primary distribution system will need expansion for future development and missing links to provide a "looped" system. New secondary systems and elimination of dead-end systems will be required.

b) Existing Regulations and Programs

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

State Regulations: In accordance with federal guidelines, the Florida Safe Drinking Water Act (Sections 403.850 -403.864, F.S.) has been adopted, which designates the Florida Department of Environmental Protection (DEP) as the state agency responsible for the regulation of drinking water. The DEP has therefore promulgated rules classifying and regulating public water systems, including mandatory water treatment criteria (Chapter 17-550. F.A.C.). The DEP enforces both the primary and secondary water quality standards for public water supplies in Florida.

In addition to the Florida Statutes discussed above, in 2005 the Florida Legislature passed Senate Bill 360. This legislation requires all jurisdictions to amend their comprehensive plans to include the following provisions:

- Require adequate water supplies no later than certificate of occupancy.
- Provide for alternative water supply development funding, more comprehensive regional water supply plans and enhanced consumptive use permitting, as per SB 444, an act relating to water resource protection and sustainability. Municipalities must identify alternative water supply projects within 18 months after the regional water supply plan is updated.
- Coordinate local government water supply plans with water management districts' regional water supply plans. Requires consultation on population projections, timing of development, annexation, and any issue that may impact water supply.

Local Regulations: FIU is subject to the State Uniform Building Code for Public Educational Facilities and exempt from local regulations. Section 6A-2.012, F.A.C. states,

"All educational facilities constructed by a board ... are hereby exempt from all other state, county, district, municipal, or local building codes, interpretations, building permits and assessments of fees for building permits, ordinances and impact fees or service availability fees."

Rule 6A-2.001(48), F.A.C., however, states that educational facilities are not exempt from assessments "...for that length and size of line actually needed to service the educational or ancillary plant on that site".

Although Modesto A. Maidique Campus is not required to obtain building permits for their projects, they regularly review projects with and pay water meter fees to the local agencies charged with regulating, monitoring and operating water facilities. The Division of Environmental Resources Management of DRER is responsible for regulating and monitoring the operation of water facilities under Chapter 24 of the County Code. M-D WASD is responsible for the distribution of potable water throughout Miami-Dade County.

Biscayne Bay Campus reviews projects with the City of North Miami and pays to the City of North Miami fees associated with installation of water meters.

c) Reclaimed Water Use

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

Currently, Miami-Dade Water and sewer Department (M-D WASD) does not provide reclaimed water services to the West Miami-Dade County area.

BISCAYNE BAY CAMPUS

Reclaimed water is no longer available at BBC.

(3) SANITARY SEWER DATA AND ANALYSIS REQUIREMENTS

a) Sanitary Sewer System Inventory

MODESTO A. MAIDIQUE CAMPUS

The property is located within the Miami-Dade County Water and Sewer Department (M-D WASD) franchised sanitary sewer service area. The closest WASD sanitary sewer is an abutting a 36-inch force main located along SW 117th Avenue. The campus sanitary sewer system consists of gravity sewer lines of 4, 6, 8, 10, and 12-inches in diameter, as well as a series of nine (9) sanitary sewer lift stations permitted under PSO 428 (99-00428A, 99-00428B, 99-00428C, 99-00428D, 99-00428E, 99-00428F, 99-00428G, 99-00428H and 99-00428I). Master lift stations LS-1 (serves east portion of campus) and LS W-1 (serves west portion of campus) transmit all the wastewater flow to the M- D WASD 36-inch force main located on the west side of the campus. The force main directs the flow to pump station 30-0187, which then transfers the flow to the Central District Wastewater Treatment Plant (CDWTP).

The 36-inch force main, pump station 30-0187, and treatment plant are owned and operated by M-D WASD. Pump stations 99-00428D and 99-00428H are in initial moratorium (IM) status. Pump station 99-00428B is in temporary moratorium (TM) status. Pump station 99-0428I is in incomplete (IN) status. The remaining five (5) private pump stations and pump station 30-0187, are currently working within the mandated criteria set forth in the First and Second Partial Consent Decree. At this time the CDWTP has sufficient capacity to treat current discharge.

Pump Stations LS-2, LS-3, LS-6 and LS-9 currently serve the East portion of the MMC. Pump Station LS-6 transmits sewage from the University Apartments (UA); Pump Station LS-3 transmits sewage from the Ronald W. Reagan Presidential House (RH); Pump Station LS-2 transmits sewage from the Academic Health Centers 1, 2 & 3 (AHC1, AHC2 & AHC3); and LS-9 transmits sewage from the Market Station (PG5). The four (4) submersible pump stations discharge into the sanitary sewer gravity collection system which flows into master lift station LS-1.

Pump Stations LS-4, LS-7, LS-8 currently serve the South and West portions of the MMC. Pump Station LS-7 transmits all the sewage flow from the US Century Bank Arena only (GPA). Pump Station LS-4 transmits sewage flow from several buildings and facilities, including the Management and Advanced Research Center (MARC). Pump Station LS-8 serves the Recreation Complex (RC), the Rafael Diaz-Balart Hall (RDB) and the Labor Center (LC). The three (3) pump stations discharge into the sanitary sewer gravity collection system which flows into master lift station LS W-1.

BISCAYNE BAY CAMPUS

The property is located within the City of North Miami franchised sanitary sewer service area. The closest sanitary sewer is an abutting 12-inch force main located along Bay Vista Boulevard. The campus sanitary sewer system consists of gravity sewer lines 4, 6, 8 and 10-inches in diameter, as well as a sanitary sewer lift station permitted under PSO 756. This lift station directs the flow into pump station 06-FIU-W, which then transfers the flow to the North District Wastewater Treatment Plant (NDWTP). The above noted pump stations are at present working within the mandated criteria. The NDWTP has sufficient capacity to treat current wastewater generation. Pump station ---- is currently being upgraded and relocated and should be completed by -----.

ENGINEERING CENTER

The property is located within the M-D WASD franchised sanitary sewer service area. The closest WASD sanitary sewer is an abutting a 36-inch force main located along W Flagler Street. The campus sanitary sewer system consists of gravity sewer lines of 4, 6, and 8-inches in diameter, as well as a sanitary sewer lift station permitted under PSO 621. This lift station directs the flow into pump station 30-0187, which then transfers the flow to the CDWTP. The above noted pump stations are currently working within the mandated criteria. The CDWTP has sufficient capacity to treat current wastewater generation.

1. **Existing Facility Capacity Analysis**

   i. Existing Condition

MODESTO A. MAIDIQUE CAMPUS

The University has taken corrective measures to improve previously identified infiltration and inflow problems. All recommended improvements have been completed.

BISCAYNE BAY CAMPUS

The University has taken corrective measures to improve previously identified infiltration and inflow problems. All recommended improvements have been completed. In addition, the University is upgrading the sanitary sewer station to handle current and projected demands. The project is currently being permitted.

ENGINEERING CENTER

The University has taken corrective measures to improve previously identified infiltration and inflow problems. All recommended improvements have been completed. In addition, the University is upgrading the sanitary sewer station to handle current and projected demands. The project is currently being permitted.

ii. Projected Facility Demand and Capacity Analysis

MODESTO A. MAIDIQUE CAMPUS

Table 9.10 calculates the sanitary sewage flows based on the statistical generation rates by head count for each fiscal year.

Table 9.10 Projected Need for Wastewater Treatment - Modesto A. Maidique Campus

Year	Head Count	GPCPD
2019-20	45,464	7.54
2021-22	45,464	7.54
2022-23	45,464	7.54
2023-24	45,464	7.54
2024-25	45,464	7.54
2025-26	45,464	7.54
2026-27	45,464	7.54
2027-28	45,464	7.54
2028-29	45,464	7.54
2029-30	45,464	7.54
2030-35	45,464	7.54
Gallons per Capita per Day (GPCPD)		7.54

1) Source: Water Bill readings for 2019-2020, Facilities Management

ENGINEERING CENTER

Table 9.11 calculates the sanitary sewage flows based on the statistical generation rates by head count for each fiscal year.

Table 9.11 Projected Need for Wastewater Treatment – Engineering Center

Year	Head Count	GPCPD
2019-20	3,396	7.89
2021-22	3,396	7.89
2022-23	3,396	7.89
2023-24	3,396	7.89
2024-25	3,396	7.89
2025-26	3,396	7.89
2026-27	3,396	7.89
2027-28	3,396	7.89
2028-29	3,396	7.89
2029-30	3,396	7.89
2030-35	3,396	7.89
Gallons per Capita per Day (GPCPD)		7.89

1) Source: Water Bill readings for 2019-2020, Facilities Management

BISCAYNE BAY CAMPUS

Table 9.12 calculates the sanitary sewage flows based on the statistical generation rates by head count for each fiscal year.

Table 9.12 Projected Needs for Wastewater Treatment - Biscayne Bay Campus

Year	Head Count	GPCPD
2019-20	5,221	16.06
2021-22	5,221	16.06
2022-23	5,221	16.06
2023-24	5,221	16.06
2024-25	5,221	16.06
2025-26	5,221	16.06
2026-27	5,221	16.06
2027-28	5,221	16.06
2028-29	5,221	16.06
2029-30	5,221	16.06
2030-35	5,221	16.06
Gallons per Capita per Day (GPCPD)		16.06

1) Source: Water Bill readings for 2019-2020, Facilities Management

2. Existing Performance Evaluation

MODESTO A. MAIDIQUE CAMPUS

The design of sanitary sewer facilities on campus is based on a specific service area and sewage flows. The sanitary system on the Modesto campus includes two major pump stations identified as LS-1 and W-1. A system of sanitary sewer services, mains and smaller pump stations move sewer on site to these two major pump stations. Pump stations LS-1 and LS W-1 ultimately pump sewer off-site to the WASD wastewater treatment system. As additional buildings are planned on campus analysis of the added sanitary sewer needs and the current availability from the host community is completed and upgrades to the campus sanitary system including mains and pump stations is planned, designed and installed.

An Engineering Master Plan for the East Campus Sanitary Sewer System was prepared in April 2011 by C3TS (now Stantech). It was found that the four (4) existing pump stations (LS-2, LS-3, LS-6 and LS-9) serving the East portion of the campus, and their associated gravity sanitary sewer collection systems, are not suitable for the planned development and re-development of the area which consists of the proposed 30-acre Academic Health Sciences Center. As described in the East Campus Sanitary Sewer System Master Plan by C3TS, improvements to the gravity sanitary sewer system, and the replacement of the four (4) existing small submersible pump stations with a main submersible triplex Pump Station (LS E-1) would be required to meet the demand of the Academic Health Sciences Center. The LS E-1 would be similar to the existing LS W-1 pump station located on the West side of the campus.

Table 9.13 Sanitary Waste Generations – Modesto A. Maidique Campus (FY 2019-2020)

FLOW METER	WASTE GENERATED

Modesto A. Maidique Campus	125,135,164 gallons

SOURCE: FIU Water Bill readings provided by Facilities Management

BISCAYNE BAY CAMPUS

The sanitary sewer system should be adequate to handle future development of Biscayne Bay Campus. Modifications to the existing system may be necessary due to the site plan and/or system configuration. Due to the age of the system, infiltration and pump station conditions may need to be evaluated. However, the system is owned and maintained by the City of North Miami. Purchase of this sewer system by FIU is anticipated in the near future.

While the present treatment capacities of the NDWWTP exceed demand, the pump station operating time criteria may affect the issuance of a water meter.

Table 9.14 Sanitary Waste Generations – Biscayne Bay Campus (FY 2019-2020)

FLOW METER	WASTE GENERATED
Biscayne Bay Campus	30,614,000 gallons

SOURCE: FIU Water Bill readings provided by Facilities Management

ENGINEERING CENTER

Table 9.15 Sanitary Waste Generations – Engineering Center (FY 2019-2020)

FLOW METER	WASTE GENERATED
Engineering Center	9,783,096 gallons

SOURCE: FIU Water Bill readings provided by Facilities Management

3. Host Community

All the host communities provide sewer service to FIU sites based on usage. There is no allocation agreement on capacity at Modesto A. Maidique Campus, Biscayne Bay Campus, or the Engineering Center.

No data is available regarding the proportional capacity of the host community facility to meet the existing University need.

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

The sewage from Modesto A. Maidique Campus and the Engineering Center is treated by M-D WASD's South District Wastewater Treatment Plant (SDWWTP).

The service area for South District Wastewater Treatment Plant (SDWWTP) also includes all the residential and commercial areas that border the University, the City of Sweetwater, and southern Miami-Dade County.

BISCAYNE BAY CAMPUS

The City of North Miami is the utility company that invoices FIU for the sanitary sewage produced at Biscayne Bay Campus. However, they contract with M-D WASD to provide the treatment and disposal. M-D WASD's North District Wastewater Treatment Plant (NDWWTP) is located less than a mile away from the campus near the corner of Biscayne Blvd. & NW 151 St.

The geographic service area of the City of North Miami sanitary sewer facility also includes the residential and commercial areas that constitute the City of North Miami.

Table 9.16 Facility Demand and Capacity

M-D WASD FACILITY	FIU SITE SERVED BY FACILITY	FIU DEMAND GENERATED (MGD)	M-D WASD FACILITY CAPACITY (MGD)
South District Wastewater Treatment Plant	Modesto A. Maidique Campus	0.343	112.5**
South District Wastewater Treatment Plant	Engineering Center	0.027	112.5**
North District Wastewater Treatment Plant thru the City of North Miami	Biscayne Bay Campus	0.084	120

Source: Miami-Dade County miamidade.gov
** planned expansion will increase capacity to 131 million gallons per day annual average daily flow per EPA.gov

b) System Analysis and Recommendations

The Miami-Dade County Water and Sewer Department (M-D WASD) has made significant improvements to the County's sewer system as a result of the implementation of the requirements under the First and Secondary Partial Consent Decree (CASE 93-1109 CIV-MORENO), between the Miami Dade County and the Environmental Protection Agency. All the sanitary sewer pump stations are currently monitored to assure compliance with the Consent Decree as the County must certified that there is capacity in the collection and transmission system for new construction or increases in flows. The implementation of the Consent Decree also has helped to reduce infiltration and inflow in the County's collection system. While this reduction provides some additional capacity in the system, it may not be sufficient to meet the needs of the projected growth in Miami-Dade County. As a result, the County evaluates development orders that generate additional wastewater flows on a case-by- case basis. This work is accomplished under the Sewer Certification program implemented by the Division of Environmental Resources Management of DRER.

Plans to increase capacity of the system are also being reviewed and approved by the Division of Environmental Resources Management of DRER. All of these factors could have an impact on the expansion plans of the University.

The University may need to develop more specific agreements with M-D WASD and the other host communities to assure that all the University sites have sufficient capacity to meet the existing and future development needs of FIU.

c) Existing Regulations and Programs

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

In addition, the First and Secondary Partial Consent Decree (CASE 93-1109 CIV-MORENO) between the Miami-Dade County and the United States Environmental Protection Agency, requires that any new construction or increase in flow within the County must obtain a Sewer Capacity Certification from the Division of Environmental Resources Management of DRER. The Sewer Capacity Certification requirement does not constitute an actual construction permit; however, all County, State or Federal properties must comply with this requirement.

State Regulations: At the State level, the Florida Department of Environmental Protection (DEP) is responsible for compliance with federal and state regulations within Florida. Florida's Safe

Drinking Water Act provides for the regulation of public water systems. The act is administered under Chapter 17-22, F.A.C. which contains State standards for potable water.

Local Regulations: As a Board of Trustees facility, FIU is subject to the State Uniform Building Code for Public Educational Facilities and exempt from local regulations. Section 6A-2.012, F.A.C. states,

“All educational facilities constructed by a board ... are hereby exempt from all other state, county, district, municipal, or local building codes, interpretations, building permits and assessments of fees for building permits, ordinances and impact fees or service availability fees.”

Rule 6A-2.001(48), F.A.C., however, states that educational facilities are not exempt from assessments "...for that length and size of line actually needed to service the educational or ancillary plant on that site".

Although the Modesto A. Maidique Campus is not required to pull building permits for their projects, they regularly review projects with and pay water meter fees to the local agencies charged with regulating, monitoring, and operating water facilities. The Division of Environmental Resources Management, of DRER is responsible for regulating and monitoring the operation of water facilities under Chapter 24 of the County Code. M-D WASD is responsible for the distribution of potable water throughout Dade County.

The requirements of the First and Secondary Partial Consent Decree (CASE 93-1109 CIV-MORENO) between the Miami-Dade County and the United States Environmental Protection Agency (described above under the “Federal Regulations” section) pertaining to the Sewer Capacity Certification were incorporated into a County Ordinance (99-166) and codified into Chapter 24 of the Miami-Dade County Code of Ordinances. As mentioned above, all County, State or Federal properties must comply with this requirement.

(4) SOLID WASTE DATA AND ANALYSIS REQUIREMENTS

a) Solid Waste Collection Facilities Inventory

MODESTO A. MAIDIQUE CAMPUS, ENGINEERING CENTER & BISCAYNE BAY CAMPUS

Solid Waste collection and disposal is accomplished at all campuses, including the Modesto A. Maidique Campus, Engineering Center, and Biscayne Bay Campus through a combination of utilizing University staff, private contractors, and public entities. Following is a description of the solid waste collection and disposal methods used by type of material.

Trash Collection: Trash is collected in dumpsters at all campuses using various on-campus locations. Tables 9.17 & 9.18 indicate the dumpster location, size and number of pick-ups scheduled each week. Trash collection fluctuates by season.

Table 9.17 Trash Collection Facilities: Modesto A. Maidique Campus & Engineering Center

SERVICE LOCATIONS	CONTAINERS	SIZE CONTAINER (YD)	ESTIMATED FREQUENCY OF SERVICE (DAYS/WEEK)	DAYS OF SERVICE
MODESTO A. MAIDIQUE CAMPUS (MMC)				
Charles E. Perry / Primera Casa (PC)	1	6	6	M-SAT
Management & Advanced Research Center (MARC)	1	6	5	M-F
Academic Health Center 1 (AHC1)	1	6	5	M-F
Academic Health Center 2 (AHC2)	1	6	5	M-F
Academic Health Center 3 (AHC 3)	1	6	5	M-F
Paul L. Cejas School of Architecture (PCA)	1	8		M-F
Ronald W Reagan Presidential House (RH)	1	2	5	M-SAT
Chemistry & Physics	1	6	5	M-F

Sanford & Dolores Ziff Education Building (ZEB)	1	4	3	M, W, F
Herbert & Nicole Wertheim Performing Arts Center (WPAC)	1	4	3	M, W, F
Herbert & Nicole Wertheim Performing Arts Center (WPAC)	1	20	On Call	On Call
Patricia & Philip Frost Art Museum (PPFAM)	1	2	3	M, W, F
Ryder Business Building (RB)	1	4	5	M-F
College of Business Complex (CBC)	1	8	5	M-F
Art Studio	1	4	3	M, W, F
Owa Ehan	1	6	5	M-F
US Century Bank Arena (GPA)	1	8	6	M-SAT
Deuxieme Maison	1	6	5	M-F
Steve & Dorothea Green Library (GL)	3	6	6	M-SAT
Campus Support Complex (CSC)	1	8	3	M, W, F
Campus Support Complex - Compound	1	30	1	W
Ernest R. Graham Center (GC) - Bookstore	1	8	6	M-SAT
Ernest R. Graham Center (GC) - Cafeteria Compactor	1	30	2	M, W
Recreation Complex (RC)	1	6	3	M, W, F
Rafael Diaz-Balart Hall (RDB)	1	6	5	M-F
Duplicating Center (DC)	1	2	5	M-F
Ceramics (W01C)	1	4	3	M, W, F
West 1 (W01)	1	20	On Call	On Call
West 2 (W02)	1	2	5	M-F
West 3 (W03) – Grounds (Yard Waste/Grapple)	Grapple	Grapple	3	M, W, F
West 6 (W06)	1	2	5	M-F
West 7 (W07)	1	20	On Call	On Call
W10-Support (W10)	1	20	On Call	On Call
GHI	1	4	2	M, W
GHII	1	4	2	M, W
FIU Baseball Stadium (BBS) & FIU Community Stadium (FIUS)	2	6	3	M, TH, SAT
Nature Preserve	1	6	3	M, TH, SAT
University Apartments (UA)	7	6	6	M-SAT
University Towers (UT)	4	4	6	M-SAT
Everglades Residence Hall (EH)	2 1	4 2	6 6	M-SAT M-SAT
Panther Residence Hall (PH)	3 1	4 2	6 6	M-SAT M-SAT
Lakeview Housing North (LVN)	2	4	6	M-SAT
Lakeview Housing South (LVS)	2	4	6	M-SAT
Lakeview Housing South (LVS)	2	4	6	M-SAT
Red Parking Garage (PGR)	1	6	5	M-F
Market Station (PG5) – Cafeteria Compactor	1	30	1	W
School of International and Public Affairs (SIPA)	1	6	3	M, W, F
ENGINEERING CENTER (EC)	2 3	6 20	6 On Call	M-SAT On Call

Source: FIU Facilities Management

Table 9.18 Trash Collection Facilities - Biscayne Bay Campus

SERVICE LOCATIONS	CONTAINERS	SIZE CONTAINER (YD)	ESTIMATED FREQUENCY OF SERVICE (DAYS/WEEK)	DAYS OF SERVICE
BISCAYNE BAY CAMPUS (BBC)				
Glenn Hubert Library (HL)	1	8	3	M, W, F
Academic Center 1 & 2 (AC1 & AC2)	1	8	3	M, W, F
Roz & Cal Kovens Conference Center (KCC)	2	2	3	M, W, F
Physical Plant (S03)	1 2	8 20	3 On Call	M, W, F On Call
Ecotoxicology Lab	1	8	3	M, W, F
Marine Science (MS)	1	2	3	M, W, F
Bay Vista Housing (BH1)	4	4	6	M-SAT

Wolf University Center (WUC) - Cafeteria Compactor	1	30	2	M, W

Source: FIU Facilities Management

Recycling Program Outline: The Facility Management Department's recycling program is executed by the Custodial services Department for all E&G areas on the Modesto A. Maidique Campus (MMC), the Engineering Center (EC) and the Biscayne Bay Campus (BBC).

The University's recycling efforts are governed by the State of Florida under the Florida Statute 403.714 and the Florida Solid Waste Management Act of 1988.

Single Stream Recycling Program: The FIU Facilities Management Department commenced the single stream recycling program at the MMC, EC and BBC in June 2009. The single stream recycling program eliminates the use of separate recycling bins by enabling the use of a single bin where all recyclable materials may now be placed. This program was made possible with the launch of a single stream recycling plant in South Florida operated by Waste Management Corporation.

Single stream recycling items include:

- Paper (all types)
- Boxboard & Cardboard
- Aluminum cans
- Glass jars and bottles
- Plastic bottles #1-7
- Steel and tin cans
- Paper bags

As of August 2019, there are currently over 4,000 single stream recycling bins located throughout the Modesto A. Maidique Campus, the Engineering Center, and the Biscayne Bay Campus. Single stream recycling bins have been located at the following places:

- Small bins inside all offices
- Medium-size bins by all copy room areas
- Medium-size bins near vending areas
- Medium-size bins near elevators
- Medium-size bins in hallways where classrooms are located
- Large bins located at all loading zones for all buildings
- Large bins located at all athletics facilities (FIU Community Stadium, FIU Baseball Stadium and US Century Bank Arena)
- Large bins located at all housing complexes on both MMC and BBC (on the exterior placed strategically throughout the complex)

In addition to the items listed above for single source recycling, the following items are being recycled independently:

- **Confidential Paper Destruction:** Bins with locks are delivered and picked up as requested. Materials are shredded on-site by Micro-Shred.

- **Corrugated Paper (cardboard):** Eighteen (18) 8-yard containers for the collection of folded cardboard are located throughout the Modesto A. Maidique Campus (in buildings AHC1, AHC2, AHC3, MARC, DM, PC, CP, OE, RB, GC, CSC, CBC, GL, PG5 and SIPA), the Engineering Center and the Biscayne Bay Campus (in building AC1).

- **Tires:** Waste tires are stored in the Modesto A. Maidique Campus Nursery. The tires are then recycled through Motor Vehicle Services.

- **Wooden Pallets:** All wooden pallets are collected from different loading zones by the FIU recycling staff and taken to the recycling compound. Reusable pallets are then redistributed to University's vendors for reuse.

- **Yard Waste**: Small and medium branches are chipped on campus. Large branches, limbs and tree trunks are transported to the North Dade landfill for mulching. Grass clippings and fallen tree leaves are left on the ground to decompose.

- **Oil Filters:** Two drums for the collection of used oil filters are located at the Modesto A. Maidique Campus motor pool area, and when filled are disposed according to regulations.

- **Auto Batteries:** Auto batteries are collected by the FIU recycling staff and stored on pallets within the nursery area at Modesto A. Maidique Campus. The batteries are then recycled through Motor Vehicle Services.

- **Alkaline Batteries & Cell Phone Batteries:** All alkaline batteries and cell phone batteries are being recycled, e.g., those from electronic equipment, such as electronic door locks. Drop-off locations for students, faculty and staff are located at the Modesto A. Maidique Campus, Campus Support Complex (CSC) room 1132, and at the Biscayne Bay Campus, Academic Center 1 (AC1) room 195. The materials are picked up and recycled by AERC Recycling Solutions.

- **Cartridges & Cell Phones**: Printer toner cartridges and cell phones are being recycled. There are several drop-off locations throughout all main University buildings. In addition, there are drop-off locations for students, faculty and staff located at the Modesto A. Maidique Campus, Campus Support Complex (CSC) room 1132, and at the Biscayne Bay Campus, Academic Center 1 (AC1) room 195.

- **Light Bulbs & Ballasts**: All light bulbs as well as electrical ballasts being replaced on the Modesto A. Maidique Campus, Engineering Center and the Biscayne Bay Campus are being recycled. Bulbs are packaged in the same boxes that the new bulbs came in and are picked up by AERC Recycling Solutions which delivers them to a recycling plant in Palm Beach County.

Hazardous Waste:

- **Used Motor Oil:** Drums for the collection of used motor oil are located at each motor pool. The oil is then recycled through Motor Vehicle Services.

- **Hazardous Chemical Waste**: Materials classified as hazardous waste by the Environmental Protection Agency (EPA) is stored and disposed of in accordance with the Department of Environmental Protection (DEP), 40 CFR Part 261, and FAC 62-730. Entities that generate hazardous are required to determine their generator category based on how much waste is generated per month. The larger the quantity of waste generated, the more stringent the requirements. FIU campuses are categorized as follows:

  Modesto Maidique Campus (MMC) - Large Quantity Generator (LQG)
  Biscayne Bay Campus (BBC) - Small Quantity Generator (SQG)
  Engineering Center (EC) - Very Small Quantity Generator (VSQG)

  Any waste generated by users is stored at the point of generation in a Satellite Accumulation Area (SAA) until ready for pick up by Environmental Health & Safety staff. The waste must be labeled, placed in compatible leak-proof containers, and stored in secondary containment.
  Once EH&S receives a pick-up request, the collected waste is transferred to the Central Accumulation Area (CAA) to await pick-up and disposal by an approved hazardous waste

vendor. During special circumstances, such as a lab clean out or high-hazard waste, the waste will be collected directly from the point of generation by the vendor. The amount of time the waste will be stored in the CAA depends on the generator classification. Per EPA, the waste can be stored on site no longer than 180 days. EH&S schedules disposal with the vendor once a month for all CAA locations.

CAAs are located on each campus in the following areas:
Modesto Maidique Campus (MMC) - Academic Health Center 4 (AHC4), room 123
Biscayne Bay Campus (BBC) - Marine Science Building, room 117
Engineering Center (EC), room 1510

- **Biohazardous Waste:** Biohazardous waste is stored and disposed of in accordance with FAC 64E-16, the Department of Environmental Protection (DEP), and the Department of Health (DOH) Biomedical Waste permit. Pick-up requests are coordinated and tracked by EH&S. Waste is picked up from the point of generation by an approved biomedical waste disposal vendor. The vendor also provides supplies for waste containment - biohazard containers, red biohazard bags, and sharps containers. For pharmaceutical waste, users can request a black box from the biomedical waste vendor for disposal. An itemized list of contents must be included prior to pick up.
  The pick-up schedule for the points of generation (academic labs, research labs, and clinics) depends on the amount of waste generated but does not exceed every 30 days. The schedule ranges from every week to once a month. Biohazardous waste is generated at MMC, BBC, and EC. EH&S has a designated biohazardous waste storage room located in AHC4 123 (MMC) to accommodate for potential overflow of waste and storage of waste supplies. MMC is currently the largest generator of biohazardous waste due to the type and level of research activities.

- **Radiation Protection Program and Radioactive Waste:** FIU has a broad radiation license and an approved Radiation Protection Program (RPP) with the State of Florida's Bureau of Radiation (BoR). The RPP is detailed in FIU's Radiation Safety Manual and involves 4 areas: (1) purchase and handling of radioactive materials and the procedures for handling and disposing of radioactive waste; (2) semi-annual, legally required, testing of sealed radioactive sources on instruments at FIU; (3) registration and safe operation of x-ray generating devices; and (4) tracking of small radioactive, check sources.

Radioactive waste materials are stored in accordance with the Bureau of Radiation Control, Chapter 64E-5, Florida Statute Chapter 404, and the FIU Broad scope Radioactive Materials license requirements. Radioactive waste is currently generated only at the MM and Engineering campuses. The single radioactive waste storage area at each of these 3 locations are at: AHC4-123C on MMC; and OU-108 on EC. There is no radioactive waste currently generated on Biscayne Bay Campus (BBC). Only the RSO, FIU Authorized Users and trained and certified staff under these Authorized Users can handle radioactive waste to move it into the locked storage areas. On the MM Campus, waste is retrieved by the RSO and transferred to the EH&S Radioactive Waste Storage room in AHC4 123C. The short-lived radioactive waste remains in the storage room until it decays to natural background radiation levels. Longer-lived radioactive waste is disposed through an approved radioactive waste vendor The RSO coordinates with a commercial radioactive waste vendor and the FL BoR for an annual pick up of radioactive waste. Radioactive waste is not generated in teaching laboratories but in research laboratories. The volume of radioactive waste generated each year does not change much from year to year.

Solid Waste Generation:

1. **Existing Facility Capacity Analysis**

Existing Condition

Miami-Dade County is responsible for providing the landfill for the disposal of solid waste materials for solid waste generated at all University sites. Therefore, FIU is only responsible for the collection and hauling of the solid waste materials to the disposal locations. FIU currently has an aggressive solid waste recycling program and is exceeding all state recycling requirements. The specific solid waste volume at institutional facilities is dependent upon the number of University staff and support personnel, student enrollment classification mix, student on-campus housing/boarding, operating methods, materials purchased, and other related factors.

Table 9.19 Solid Waste and Recycling Material Generated by Year:

Year	Solid Waste(Tons)	Single Stream Recycling (Tons)	Total Tons
2017	6,604	1,325	7,929
2018	6,379	1,378	7,757
2019	6,368	1,326	7,694
2020	3,846	1,005	4,851
Total	23,197	5,034	28,231

Source: FIU Facilities Management

Projected Facility Demand and Capacity Analysis

Below is an account of the level of service provided at each FIU site for solid waste and recycling:

Table 9.20 Solid Waste and Recycling Level of Service: July 2019- June 2020

FTE	Solid Waste (1)	Recycling (2)
47,280	0.11 lbs per capita per month	0.02 lbs per capita per month

1) Source: FIU Facilities Management

Since the pandemic took place during 2020-2021, data is not concurrent with the previous and future projections.

2. Existing Performance Evaluation

The University has sufficient facility capacity and maintenance personnel to serve the current solid waste generation at the Modesto A. Maidique Campus, Biscayne Bay Campus, and Engineering Center.

3. Host Community

FIU utilizes the Miami-Dade County solid waste facilities, which serve the entire County. None of the FIU sites have an allocation agreement regarding the disposal of solid waste.

Miami-Dade County is responsible for providing a landfill for the disposal of solid waste materials. Therefore, FIU is only responsible for the collection and hauling of the solid waste materials to the disposal locations from each campus. Table 9.23 is a list of solid waste service providers.

Table 9.21 Solid Waste Service Providers

SERVICE PROVIDER	VOLUME
Waste Management, Inc. of Florida - Trash removal service 2125 NW 10 CT Miami, FL 33127 (305) 471-4444	Average 5,000 tons/year
Waste Management, Inc. of Florida Single Stream Recycling 2125 NW 10 CT Miami, FL 33127 (305) 471-4444	Average 1,400 tons/year
Waste Management, Inc. of Florida – Cardboard Recycling 2125 NW 10 CT Miami, FL 33127 (305) 471-4444	Average 100 tons/year
Motor Pool Tires	Not available
Ricky's Waste Oil Used motor oil 6330 W. 16 AVE, Hialeah, FL: 33012 (305) 822-2253	Approximately 6 drums/year
Ricky's Waste Oil Used oil filters 6330 W. 16 AVE, Hialeah, FL: 33012 (305) 822-2253	Not available
E-Scrap Light bulbs, ballasts and batteries 2220 East 11th AVE, Miami, FL 33013	Average 500 tons/year
Micro-Shred- Confidential Paper 19593 NE 10 AVE, Miami, FL 33179	Average 200 tons/year

Source: FIU Custodial Solid Waste Recycling Department, February 2001; revised in November 2022 by Facilities Management

The solid waste facilities include the Resources Recovery waste-to-energy facility, the North Dade Landfill (a trash-only facility) and the South Dade Landfill (a garbage and trash facility). These facilities are supported by three regional waste transfer stations.

The predominant land uses served by the County’s disposal facilities include residential and commercial areas.

b) System Analysis and Recommendations

Based on the information provided by the FIU Facilities Management and RecycleMania Competition, the University has continued to increase the percentage of solid waste being recycled and shown a decrease in total tonnage of solid waste generated at the Modesto A. Maidique and Biscayne Bay Campuses between FY 2019 and FY 2020. As shown in Table 9.21, there are opportunities to further reduce waste generation at the Biscayne Bay Campus and Engineering Center.

Additional Recycling Opportunities:

Absent from the list of recycled materials are white goods, which may be generated by the campus housing units, University food courts and faculty/student lounges. As part of the solid waste goals, objectives and policies, attention should be given to policies which lead to the implementation of programs for the recycling of these additional materials.

The University may also investigate policies requiring contractors to recycle a percentage of construction waste generated by renovation/redevelopment projects.

Solid Waste Management Trust Fund: The Florida Department of Environmental Protection (DEP) administers the Solid Waste Management Trust Fund as a source of money for grants to local governments for solid waste management, recycling, and public education; for demonstration projects, college, and university research, and to administer the Department's solid waste management programs.

The Solid Waste Management Trust Fund also is used for demonstration grants and research into the proper management and recycling of solid waste, including used oil, waste tires, manufacture of plastic foam products, disposal of white goods, disposal of seafood wastes, the use of rubber from used tires and plastics in building materials and in transportation, and for composting.

During the development of the solid waste goals, objectives and policies consideration will be given to formulation of a policy whereby FIU will seek to participate in the Solid Waste Management Trust Fund Program.

Compactors: Research should be conducted to study the benefits of replacing the standard front-load containers with vertical compactors. Most compactors have an average compact ratio of 1:3, greatly reducing the volume of waste andresulting in a significant reduction in frequency of hauling solid waste to the corresponding landfills.

c) Existing Regulations and Programs

Federal Regulations: The federal government regulates solid waste to minimize the potential for environmental impacts, and to encourage resource recovery. The U.S. Environmental Protection Agency (EPA) reviews solid waste management facilities for air and water quality impacts. The U. S. Army Corps of Engineers, along with the Florida Department of Environmental Protection (DEP), regulate filling activities in wetlands. The 1976 Federal Resource Conservation and Recovery Act (PL 94-580) removed the regulatory constraints that impeded resource recovery to encourage states to conserve materials and energy.

The Resource Conservation and Recovery Act also addresses the regulation of hazardous wastes. Pursuant to this Act, EPA has set forth guidelines and standards for the handling of hazardous wastes, and directs state agencies, including Florida's DEP, to regulate hazardous waste management. To aid in hazardous waste management financing, the EPA "Superfund" Program was established by the Comprehensive Emergency Response and Compensation Liability Act of 1980. This Act provided EPA with the funds to respond to sites requiring clean-up and emergency mitigation and allows local governments to apply for funding of their hazardous waste management projects.

State Regulations: The environmental impacts of solid waste are regulated at the state level by the Florida Department of Environmental Protection (DEP). The DEP follows the solid waste management guidelines set forth in Rule 17-701, F.A.C. when permitting solid waste facilities. Specifically, the DEP has established evaluation criteria for the construction, operation, closure, and long-term care of landfills. The agency also regulates the handling, classification, and disposal of wastes, as well as resource recovery operations.

The 1974 Florida Resource Recovery and Management Act (Chapter 403.701, F.S.) required each county to prepare a Solid Waste Management Plan. In 1988 this Act was amended by the Solid Waste Management Act to establish state goals, regulations, and programs for a host of solid waste activities. A central focus of the amendment is recycling. It mandates that counties recycle thirty percent of their total municipal solid waste by December 1994 and requires counties and municipalities to have initiated recycling programs by July 1, 1989. No more than half of the 30% can be met with yard trash, white goods, construction debris and tires. It requires that, at minimum, a majority of newspaper, aluminum cans, glass and plastic must be separated from the solid waste stream and offered for recycling. The State imposes deadlines for the separate handling of various special wastes, including construction and demolition debris, yard waste, white goods and used batteries and oil, to divert their disposal away from the landfills. Composting of other mechanically treated solid waste and yard trash is also encouraged.

Additionally, the new law requires municipalities to determine the full cost of solid waste management, to update it annually, and to provide this cost information to consumers. Other changes include the establishment of a Solid Waste Management Trust Fund to encourage innovative solutions to solid waste management and recycling, and encouragement of the use of enterprise funds to operate solid waste services.

Miami-Dade County Regulation: The principal authority of the County to regulate solid waste collection and disposal in the incorporated and unincorporated areas of County is provided for in the Home Rule Charter. Pursuant to Article 1, Section 1.01, Paragraph 9 of the Miami-Dade County Home Rule Charter, the Board of County Commissioners has the power to provide and regulate waste collection and disposal and, for incorporated areas, to delegate this authority to municipal governments.

Additional authority is provided for in Section 403.706(1) and (2)(b), F.S. In this section, the State of Florida mandates the establishment of a local Resource Recovery and Management Program. Furthermore, it designates that, unless otherwise agreed upon by interlocal agreement:

"... the board of county commissioners shall administer and be responsible for the local resource recovery program ... for the entire county."

Accordingly, through Chapter 15 of the Miami-Dade County Code, the Board of County Commissioners regulates all waste collection and disposal activities. This authority has been exercised through several County ordinances, one of which prohibits private collectors from disposing of solid waste in any location other than a County approved facility.

Responsibility for the collection and disposal activities has been assigned in the County Code as follows: The Public Works and Waste Management Department is designated to perform the function of solid waste disposal countywide in Chapter 2, Article XIV, Section 2-100, (f) and the Director of Solid Waste Collection Department is empowered to operate and administer the collection service, designate collection areas in the unincorporated area and enforce collection procedures.

The environmental impacts of solid waste disposal facilities are addressed in the extensive permitting requirements at the state and federal levels. Potential impacts of solid waste facilities on air and water quality are reviewed by the U.S. Environmental Protection Agency and the Florida Department of Environmental Regulation. At the local level, the Division of Environmental Resources Management, of Department of Regulatory and Economic Resources (DRER) has broad authority under Chapter 24 of the Code of Miami-Dade County to regulate facilities to protect the environment. (Source: Miami-Dade County Comprehensive Plan).

10.0 UTILITIES ELEMENT

(1) PURPOSE

The purpose of this element is to ensure adequate provision of utility services required to meet the future needs of the University including the following:

a) Ensure provision of adequate chilled water supply to meet future University needs;
b) Ensure provision of adequate electric power supply and other fuels to meet Future University needs;
c) Ensure provision of adequate supplies of natural gas or other fuels to meet future University needs; and
d) Ensure provision of adequate supply and distribution facilities for telecommunication systems required to meet future University needs.

Chilled Water Sub-Element

(2) DATA REQUIREMENTS. THIS SUB-ELEMENT SHALL BE BASED, AT A MINIMUM, ON THE FOLLOWING DATA REQUIREMENTS:

The following summary and analysis of the chilled water system is based on existing utility maps, data, and workshop meeting with FIU staff.

a) An inventory of the existing chilled water distribution systems on the campus indicating locations and sizes of main distribution lines. Updated maps of chilled water main distribution lines for MMC, BBC and EC are maintained by FIU Facilities Management and may be obtained upon request.

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The MMC chilled water system consists of three chilled water plants connected to a common piping distribution loop. The three chiller plants are:

- Plant #1 Main Chilled Water Plant
- Plant #2 Sub / Secondary Chilled Water Plant
- Plant #3 NE Satellite Chilled Water Plant

The chiller plant locations are shown on the campus map below:

Plant #1 – Main Chilled Water Plant

Designation	Manufacturer	Capacity	Current Status
Chiller #1	Trane	1,500 Tons	Operational
Chiller #2	Trane	1,500 Tons	Operational
Chiller #3 (15+ years)	Carrier	1,500 Tons	Operational
Chiller #4	Trane	1,500 Tons	Operational
Chiller #5	Carrier	1,500 Tons	Operational
Current Main Chiller Plant Capacity		7,500 Tons	
Available Future Capacity		0 Tons	
Full Build-Out Capacity of Plant		7,500 Tons	

Plant #2 – Sub / Secondary Chilled Water Plant (used for emergency capacity & water flow concerns)

Designation	Manufacturer	Capacity	Current Status
Chiller #1A	Carrier	1,500 Tons	Operational
Chiller #2A	Carrier	1,500 Tons	Operational
Chiller #3A	N/A	0 Tons	Space is currently repurposed
Current Main Chiller Plant Capacity		3,000 Tons	
Available Future Capacity		0 Tons	
Full Build-Out Capacity of Plant		0 Tons	

Plant #3 – NE Satellite Chilled Water Plant

Designation	Manufacturer	Capacity	Current Status
Chiller #1B	Trane	1,500 Tons	Operational
Chiller #2B	Trane	1,500 Tons	Operational
Chiller #3B	Trane	1,500 Tons	Operational
Chiller #4B	Trane	1,500 Tons	Operational
Chiller #5B	TBD	1,500 Tons	Future
Current Main Chiller Plant Capacity		6,000 Tons	
Available Future Capacity		1,500 Tons	
Full Build-Out Capacity of Plant		7,500 Tons	

The Main Chilled Water Plant and the Sub / Secondary Chilled Water Plant house seven (7), chillers, five (5) in the main and two (2) in the sub/secondary plant, six (6) cooling towers, four (4) at the main and two (2) at the sub/secondary plant, there are ten (10) condenser pumps, eight (8) at the main and two (2) at the sub/secondary plant, five (5) primary chilled water transport pumps consisting of three (3) at the main, and two (2) at the sub/secondary plant, plus a dedicated chilled water pump for each chiller at both plants central plants consisting of a total of seven (7) dedicated chilled water pumps.

The Satellite chiller plant currently has (4) 1,500 chillers and (4) 1,500 towers. Associated condenser water pumps, primary pumps, and secondary pumps are included.

Chiller plants have secondary chilled water pumps circulates the water through the piping loop and its extensions. Green Library, Owa Ehan, Engineering, Chemistry/ Physics, and Ryder Business Administration buildings have two (one standby) secondary chilled water pumps. Primera Casa has one secondary pump and Graham Center has two separate secondary systems, one with an inline pump and the other with 4 through a valved transfer loop. The primary/secondary transfer loop in most buildings is pressure controlled through an automatic mixing valve.

BISCAYNE BAY CAMPUS

A Central Utility Building located in a service yard near the Wolfe University Center produces the chilled water that is circulated throughout Biscayne Bay Campus. The Central Utility Building houses three chillers, cooling towers, condenser, and chilled water transport pumps. There are primary chilled water pumps for the entire loop. Chilled water is conveyed through the campus via underground and exposed supply and return pipes.

BBC Chilled Water Plant

Designation	Manufacturer	Capacity	Current Status
Chiller #1	Carrier	1,250 Tons	Operational*
Chiller #2	Trane	1,280 Tons	Operational
Chiller #3	Trane	1,280 Tons	Operational
Current Chiller Plant Capacity (without Chiller #1)		2,560 Tons	
Current Chiller Plan Capacity (with Chiller #1)		3,810 Tons	

*Chiller #1 is operational, but it is not very reliable and is currently only run if necessary

The current BBC Chilled Water Plant capacity total does not consider the replacement of the existing Chiller #3 (600 Tons). The existing Chiller #3 is out of service with the refrigerant removed.

Consideration may be given to increasing the size of the replacement for Chiller #3. The replacement chiller capacity should be evaluated with the existing chilled water distribution.

The chilled water from the Plant is circulated through the pipe network by primary transport pumps. The Library, Wolfe University Center, Academic One building and Kovens Conference Center have in-line single pump secondary systems drawing chilled water from the primary network. These three buildings have the secondary pumps located on a platform which renders them accessible for servicing. Each of the remainder buildings have two pumps for the secondary systems, one of them being a standby unit.

The "BRDG-TNDR" brand automatic valving system has been replaced by frequency drives on booster pumps at each building. The Kovens Conference Center is an exception, which does have booster pumps, however they are not on variable frequency drives.

ENGINEERING CENTER

The Engineering Center has three (3) chillers: two (2) 1,200.00 ton and one (1) 600.00 ton. One tower is in need of replacement and badly damaged. All three circuits are presently stand alone with its respective cooling towers, condenser pumps and chilled water pumps. There are primary chilled water pumps for the entire loop.

b) The following data shall be included for the chilled water facilities identified in (1) a):

1. The entity having operation responsibility for the facility;

MODESTO A. MAIDIQUE CAMPUS

Florida International University has operation responsibility for the chilled water system.

BISCAYNE BAY CAMPUS

Florida International University has operation responsibility for the chilled water system.

ENGINEERING CENTER

Florida International University has operation responsibility for the chilled water system.

2. The geographic service area of the facility and the predominant types of land uses served by the facility;

MODESTO A. MAIDIQUE CAMPUS

The geographic service area is Modesto A. Maidique Campus. The predominant types of land uses served by the facility are academic, support and recreation.

BISCAYNE BAY CAMPUS

The geographic service area is Biscayne Bay Campus. The predominant types of land uses served by the facility are academic, support and recreation.

ENGINEERING CENTER

The geographic service area is Engineering Center. The predominant types of land uses served by the facility are academic and support.

3. The design capacity of the facility;

MODESTO A. MAIDIQUE CAMPUS

The current cooling capacity of the chilled water distribution is indicated in Table10.1.

Table 10.1 Current Chiller Capacity – MODESTO A. MAIDIQUE CAMPUS

Plant	Number	Tons	Manufacturer	Arrangement
Plant #1 – Main	1	1500	Trane	Parallel
Plant #1 – Main	2	1500	Trane	Parallel
Plant #1 - Main	3	1500	Carrier	Parallel
Plant #1 – Main	4	1500	Trane	Parallel
Plant #1 – Main	5	1500	Carrier	Parallel
Plant #2 – Sub/Sec	1A	1500	Carrier	Parallel
Plant #2 – Sub/Sec	2A	1500	Carrier	Parallel
Plant #3 – NE Plant	1B	1,500	Trane	Parallel
Plant #3 – NE Plant	2B	1,500	Trane	Parallel
Plant #3 – NE Plant	3B	1,500	Trane	Parallel
Plant #3 – NE Plant	4B	1,500	Trane	Parallel
Total Current Chiller Capacity		16,500*		

Source: Facilities Operations
*Based on the Chilled Water System Engineering Study (July 2000), several older machines have been replaced and total chilled water capacity in the main plant is fully built out at 7,500 tons
**New chilled water plant.

The available chiller expansion capacity of the campus chilled water distribution is indicated in Table 10.2.

Table 10.2 Available Chiller Expansion Capacity – MODESTO A. MAIDIQUE CAMPUS

Plant	Number	Tons	Arrangement
Plant #1 – Main	N/A	0	N/A
Plant #2 – Sub/Sec	N/A	0	N/A
Plant #3 – NE Plant	1	1,500	Parallel
Total Current Chiller Expansion Capacity		1,500*	

Source: Facilities Operations

The total chiller equipment capacity with full build-out of all future planned chillers provides a total installed capacity of 19,500 Tons. Considering N+4 redundancy for MMC of one 1,500 Ton chiller, the available capacity with full build-out of all future planned chillers is 18,000 Tons. However, N+4 chillers current condition has caused issues with operation (carrier chillers at the main plant).

*MMC facility capacity analysis needs to be reviewed as MMC is not at full capacity.

BISCAYNE BAY CAMPUS

Cooling capacity of the plant is indicated in Table 10.3.

Table 10.3 Chiller Capacity – BISCAYNE BAY CAMPUS

Number	Tons	Manufacturer	Arrangement
1	1,200	Carrier	Parallel
2	1,280	Trane (newest)	Parallel
3	1,280	Trane	Parallel
Total*	3,760		

Source: Facilities Operations

The total chiller equipment capacity not including the replacement of Chiller #3 provides a total installed capacity of 2,480 Tons. Considering N+1 redundancy of one 1,280 Ton chiller, the available capacity is 1,200 Tons.

*BBC facility capacity needs to be reviewed as Chiller 3 was replaced.

ENGINEERING CENTER

Cooling capacity of the plant is indicated in Table 10.4.

Table 10.4 Chiller Capacity – ENGINEERING CENTER

Number	Tons	Manufacturer	Arrangement
1	1,200	Trane	Parallel
2	1,200	Trane	Parallel
3	600 (bad tower)	York	Parallel
Total	3,000		

Source: Facilities Operations

The total chiller equipment capacity provides a total installed capacity of 3,600 Tons. Considering N+1 redundancy of one 1,300 Ton chiller, the available capacity is 2,300 Tons.

4. **The current demand on the capacity of the facility; v**

MODESTO A. MAIDIQUE CAMPUS

The estimated chilled water peak demand is 12,000 Tons which serves approximately 3 million square feet of conditioned space. In the summer FIU runs 7 chillers. Therefore, the current chilled water peak demand density is approximately 250 square feet per ton.

BISCAYNE BAY CAMPUS

The estimated chilled water peak demand is 1,488 Tons which serves approximately 475,000 square feet of conditioned space. Therefore, the current chilled water peak demand density is approximately 400 square feet per ton.

ENGINEERING CENTER

The estimated chilled water peak demand is 600 Tons which requires only one of the three chillers in the plant to operate to serve the entire load.

5. **The level of service provided by the facility.**

MODESTO A. MAIDIQUE CAMPUS

At the present time, the Chiller Plant has N+1 redundancy in capacity (1,500 Tons) and a multiple distribution of chillers for safe operation. The building has been designed and the piping prepared for an expeditious expansion.

BISCAYNE BAY CAMPUS

At the present time, the Chiller Plant has approximately a N+1 redundancy (1,280 Tons) in capacity and a multiple distribution of chillers to provide safe operation.

ENGINEERING CENTER

At the present time, the Chiller Plant has approximately a N+2 redundancy (2,600 Tons) in capacity and a multiple distribution of chillers to provide safe operation.

(3) ANALYSIS DATA REQUIREMENTS. THIS SUB-ELEMENT SHALL BE BASED, AT A MINIMUM, ON THE FOLLOWING ANALYSES:

a) A facility capacity analysis, by geographic service area, indicating capacity surpluses and deficiencies for:

1. Existing conditions, based on the facility design capacity and the current demand on facility capacity;

MODESTO A. MAIDIQUE CAMPUS

The existing chiller plant capacity with the addition of the Science Classroom Complex and the Stempel Complex is at full capacity with one chiller redundant.Additional conditioned square footage will require the addition of new chillers tosupport the chilled water demand and maintain the N+1 redundancy.

BISCAYNE BAY CAMPUS

Additional chiller capacity will be required to maintain the N+1 redundancy in thechiller plant. The existing Chiller #3 has been replaced to provide the additionalcapacity required to accommodate the planned campus expansion.

ENGINEERING CENTER

N/A

2. The end of the planning time frame, based in the projected demand at current level of service standards for the facility, projected student populations and land use distributions, and any available existing surplus facility capacity.

MODESTO A. MAIDIQUE CAMPUS

There are several new buildings or expansions to existing ones in the planning stages. These buildings are in the general area of the main core. Therefore, it is planned to serve them from the Central Chiller Plant.

BISCAYNE BAY CAMPUS

The existing primary chilled water pump capabilities presently surpass the existing demand. This system is adequate to guarantee primary flow through the piping network, and with a 52% redundancy it is also capable of meeting the demand of future expansions. One pump as backup for the two existing chillers and three towers.

ENGINEERING CENTER

N/A

b) The general performance of existing chilled water facilities, evaluating the adequacy of the

current level of service provided by the facility, the generalcondition and expected life of the facility, and the impact of the facility uponadjacent natural resources.

MODESTO A. MAIDIQUE CAMPUS

The existing transport capacity is adequate for the additional buildings with one pump redundant for standby. Beyond that no new major facilities should be added to the campus without serious considerations of expanding the existing central chilled water plant and distribution system which could be interconnected to the existing facilities.

Two secondary pumps and one as backup.

BISCAYNE BAY CAMPUS

With the implementation of the 1995 Chilled Water Study recommendations, the system capacity of 2,600 tons is adequate. The existing primary chilled water pumpcapabilities presently surpass the existing demand. This system is adequate to guarantee primary flow through the piping network, and with a 52% redundancy it isalso capable of meeting the demand of future expansions.

Three primary, three secondary, and three condensers. N+1 redundancy for each.

ENGINEERING CENTER

The existing chillers, Chiller 1 and 2, are in good condition and Chiller 3 is nearing end of life has not been used recently

c) An assessment of opportunities or available and practical technologies to reduce University energy consumption. Investigation of emerging technologies to address this issue is encouraged.

MODESTO A. MAIDIQUE CAMPUS

Today and even more in the near and distant future any utility planning, especially the production of chilled water, needs to consider devices to conserve energy and produce/distribute it efficiently. Each Florida College and State University shall strive to reduce its campus wide energy consumption by 10%. The energy reduction may be obtained by either reducing the cost of energy consumed or by reducing total energy usage or a combination.

Some alternatives sources of energy have been considered to archive the desired energy reduction. Such sources are thermal energy storage, co-gen and geo- exchange.

FPL will develop a study of the feasibility of creating a thermal energy storage system based on the current rebates.

The feasibility of the co-gen will depend greatly on the heat load required and the ability to centralize all steam generation for the medical/research district; Therefore, more information will need to be obtained to further investigate this option. The Geo-exchange has been considered; however, it is not feasible.

BISCAYNE BAY CAMPUS

The existing transport pumping is provided with variable frequency drives, however, thefeedback controls are not provided to control the speed of the pumps. This offersopportunities to increase the efficiency of the chiller plant.

Biscayne campus may be branded as the environmental campus.

ENGINEERING CENTER

N/A

Notes:

BBC concrete towers to be removed and replaced with new backup towers. Concrete towers are older and in very poor condition.

Chillers 3 and 5 at main plant are older and unreliable, having starter issues. Recommend evaluation for replacement.

Water flow at sub plant is not meeting GPM and Towers are not functioning correctly. Pumps are only on/off. Condenser water piping is badly corroded. Chilled water piping is in disrepair and in need of replacement. Towers overflow with rust. Needs replacement from pump to tower and from the chiller.

Repair existing inoperable tower at inspect remaining existing towers at Engineering Center.

MMC: Replacement of pneumatic controls in existing buildings. CASE, Chemistry and Physics, B10 has nothing talking to BMS, Labor Center, PC building has a mix of different controls to be simplified or upgraded, VH all need controls upgrades.

Biscayne Campus: AC-1, AC-2, HM, WOLFE, KCC, Marine Biology has stand-alone phoenix valves that are obsolete, Library have pneumatic controls.

Engineering Center: stand-alone digital VAVs that need to be networked. Are also obsolete.

Electrical Power and Other Fuels Sub-Element

(1) DATA REQUIREMENTS. THIS SUB-ELEMENT SHALL BE BASED, AT A MINIMUM, ON THE FOLLOWING DATA REQUIREMENTS:

The following summary and analysis of the electrical power system at FIU is based on workshop meetings with FIU staff.

a) An inventory of the electrical power supply distribution system on the campus indicating locations and sizes of main distribution lines.

MODESTO A. MAIDIQUE CAMPUS

The electrical transmission and distribution system serving Modesto A. Maidique Campus consists of four (4) primary 13.2 KV feeders.

- International Substation

Location: South of SW 117th Avenue and SW 17th Street intersection.

- Two (2) 13.2 KV underground feeders.
- One (1) 13.2 KV hybrid overhead/overhead feeder.

- Tropical Substation

Location: East of SW 95th Avenue and SW 16th Street intersection.

- One (1) 13.2 KV overhead feeder.

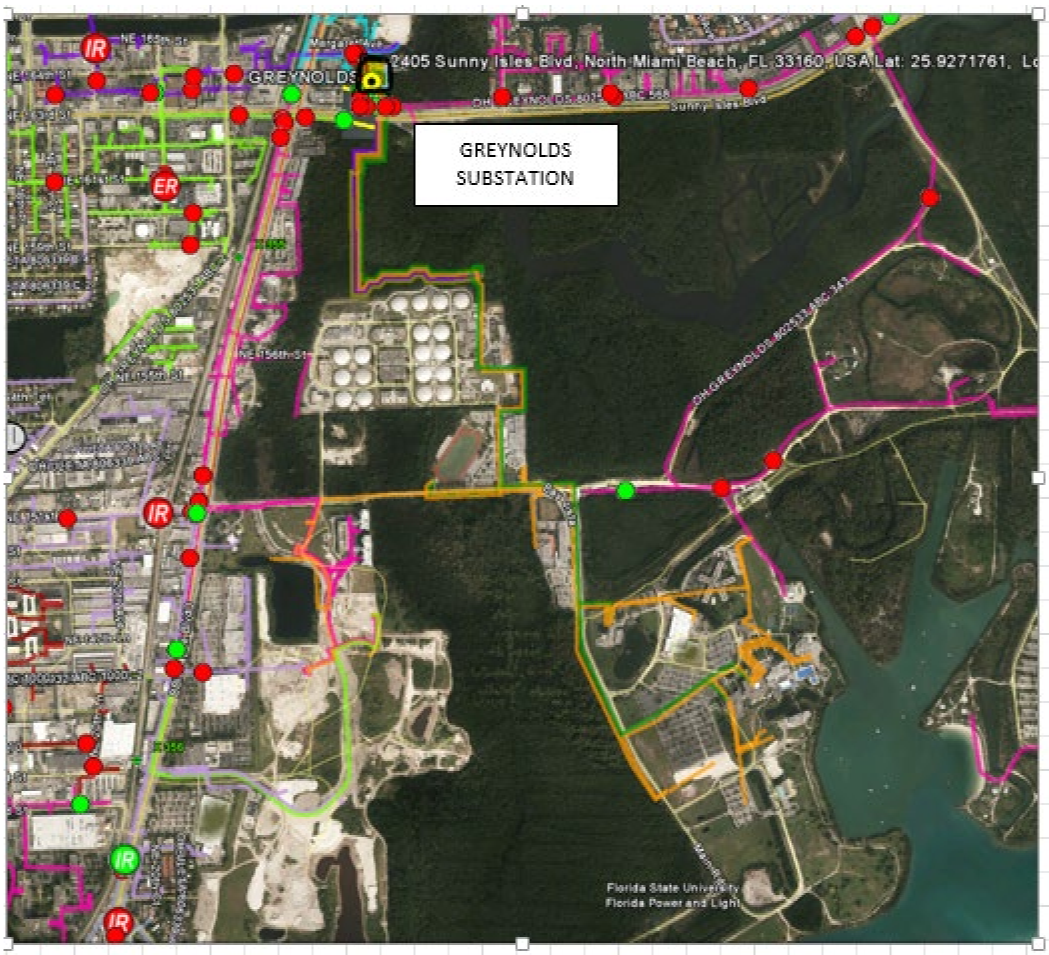
BISCAYNE BAY CAMPUS

The electrical transmission and distribution system serving Biscayne Bay Campus consists of two (2) primary 13.2 KV feeders.

- Greynolds Substation

Location: 2485 NE 163 St., North Miami, FL 33160

- Two (2) 13.2 KV underground feeders serve the entire campus from the Central Utilities Building.
  - One of the feeders is designated as the main service. In contrast, the second feeder is defined as a backup circuit, which is interconnected via an automatic throw-over mechanism within the transformer vaults to automatically come online in the event of a main service feeder failure.



ENGINEERING CENTER

The electrical transmission and distribution system serving Engineering Center consists of two (2) primary 22.9 KV feeders.

- Flagami Substation

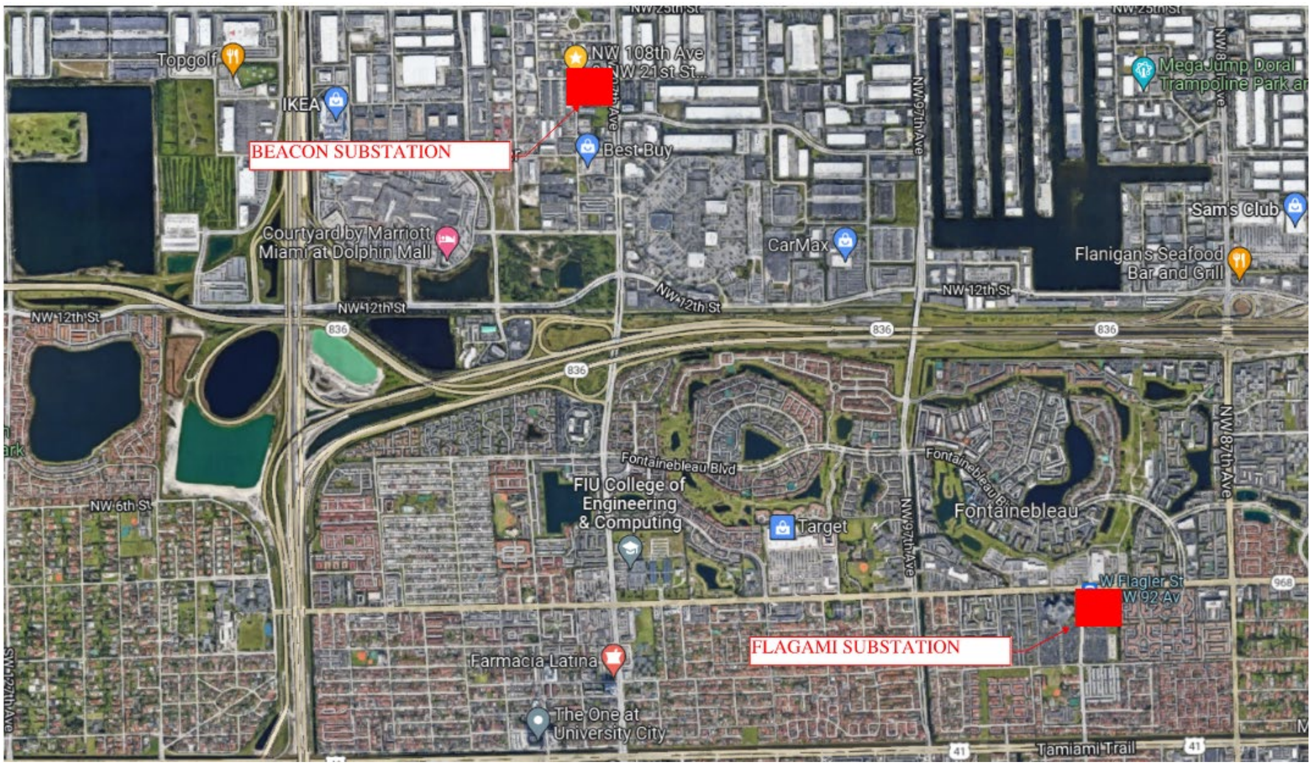
Location: West of SW 92nd Avenue and W Flagler Street intersection.

- One (1) 22.9 KV hybrid overhead/underground feeder.

- Beacon Substation

Location: NW 21 Street and NW 108th Avenue Intersection.

- One (1) 22.9 KV hybrid overhead/underground feeder.



The capacity of the Florida Power & Lighting feeders is constantly changing. This information needs to be requested from FPL when an accurate reading is required. FPL indicated that each campus has the capacity or is capable of having infrastructure updates for any growth that FIU can expect.

b) An inventory of any other fuel storage or distributions facilities on the campus indicating their location, size, and sizes of main distribution lines (if applicable).

MODESTO A. MAIDIQUE CAMPUS

There are several emergency and optional standby generators located on campus (each one with a diesel fuel tank) that back up the electrical system in the event of a blackout. These generators are located at the following buildings:

- PC-1 / Charles E. Perry
- PC-2 / Charles E. Perry (Data Center)

- DM / Deuxiem Maison
- GC / E. R. Graham University Center
- VH / Viertes Haus
- CU-1 / Central Utilities Substation (Lift Station)
- CU-2 / Central Utilities Substation
- GL / Green Library
- OE / Owa Ehan Building
- ECS / Engineering and Computer Sciences
- UHSC / University Health and Life Sciences
- WPAC / Wertheim Performing Arts Center
- PH / Panther Hall
- UT / University Park Towers
- EH / Everglades Hall
- LH / Lakeview Housing
- HLS / Academic Health Center 1
- CSC / Campus Support Complex
- MARC / Management and Advanced Research Center
- RDB / Rafael Diaz-Balart Hall
- RH / Ronald W. Reagan President's House
- PPFAM / Patricia & Phillip Frost Museum
- CBC / College of Business Complex
- SCP-1 / Satellite Chiller Plant Gen #1
- SCP-2 / Satellite Chiller Plant Gen #2
- FIUS / FIU Community Stadium
- RC / Recreation Center
- SIPA / School of International & Public Affairs
- NHS / Academic Health Center 3
- AHC4 / Academic Health Center 4
- AHC5 / Academic Health Center 5
- ACC / Ambulatory Care Center
- SASC / Student Academic Success Center
- MANGO / Management & New Growth Opportunities
- PVH / Parkview Housing
- PGP / Panther Parking Garage
- PGR / Red Parking Garage
- PG5 / Parking Garage 5 – Emergency
- PG5/ Parking Garage 5 – Public Safety Optional Standby
- PG6 / Parking Garage 6
- W-1 / W-1 Lift Station
- W-2C / Central Utilities Diesel/Gasoline Fuel Station

The fuel storage and distribution facility are located at the Campus Support Complex Vehicle Services Facility. The storage facility has the following available filing fuel tanks:

- (1) 12,000 gallons Spilt Fuel Tank (Diesel/Gasoline)
- (2) 12,000 gallons Diesel Fuel Tank

BISCAYNE BAY CAMPUS

There are several emergency and optional standby generators located on campus (each one with a diesel fuel tank) that back up the electrical system in the event of a blackout. These generators are located at the following buildings:

- CU / Central Utilities (Backup also for Academic Center One, Wolfe University Center)
- KCC / Kovens Conference Center
- ELB / Ecology Lab Building

- MS / Marine Science
- BH1 / Bay Vista Housing
- LS / Campus Sanitary/Sewage Pump Lift Station

ENGINEERING CENTER

One (1) emergency generator located on campus that backs up the electrical system in a blackout.

- Operations/Utilities Building (Backup also for Engineering Center Main Building)

c) The following data shall be included for the electrical power distribution system facilities identified in (1) a):

1. The entity having operational responsibility of the facility;

Most of the buildings are provided with their own service for all campuses. Therefore, FIU is the entity that has the operational responsibility for each building distribution.

Florida Power & Lighting provides the medium voltage distribution infrastructure that serves each building's service. FPL has the operational responsibility for the medium voltage distribution feeders installed on the campuses.

2. The geographic service area of the facility and the predominant types of land uses served by the facility;

MODESTO A. MAIDIQUE CAMPUS

The geographic service area is Modesto A. Maidique Campus. The predominant types of land uses served by the facility are academic, support and recreation.

BISCAYNE BAY CAMPUS

The geographic service area is Biscayne Bay Campus. The predominant types of land uses served by the facility are academic, support and recreation.

ENGINEERING CENTER

Same as Engineering Center types of land uses.

3. The design capacity of the facility;

For all campuses, the facility's Florida Power & Lighting design capacity is not available. Electrical design is done on a per building basis rather than considering the impact on the entire campus.

4. The current demand on the capacity of the facility;

The facility's Florida Power & Lighting current demand on the capacity is listed by campus below.

The following list is for all of the current electrical demands for the campuses:

MODESTO A. MAIDIQUE CAMPUS: 28,450 KW

BISCAYNE BAY CAMPUS: 4,823 KW

FP&L will ensure appropriate level of service to all campus buildings.

ENGINEERING CENTER: 3,838 KW

FP&L will ensure appropriate level of service to all campus buildings.

5. **The level of service provided by the facility.**

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

The LOS for the electrical distribution is managed by FP&L. FP&L will ensure adequate levels of service are provided for the campus.

BISCAYNE BAY CAMPUS

The LOS for the electrical distribution is managed by FP&L. FP&L will ensure adequate levels of service are provided for the campus.

(2) ANALYSIS DATA REQUIREMENTS. THIS SUB-ELEMENT SHALL BE BASED, AT A MINIMUM,ON THE FOLLOWING ANALYSES:

a) A facility capacity analysis, by geographic service area, indicating capacity and the current demand on facility capacity;

1. **Existing conditions, based on the facility design capacity and the current demand on facility capacity,**

The current electrical distribution system on each of the campuses is adequate for the existing and short- term program improvements.

2. **The end of the planning time frame, based in the projected demand at current level of service standards for the facility, projected student populations and land use distributions, and any available existing surplus facility capacity.**

Electrical design is done on a per building basis rather than considering the impact on the entire campus.

The capacity of the Florida Power & Lighting feeders and each building service are constantly changing. This information needs to be requested from FPL when an accurate reading is required. FPL indicated that each campus has the capacity or is capable of having infrastructure updates for any growth that FIU can expect.

b) The general performance of existing electrical power and other fuel facilities, evaluating the adequacy of the current level of service provided by the facility, the general condition and expected life of the facility, and the impact of the facility upon adjacent natural resources.

As previously noted, the existing primary voltage feeders designed to service each campus have both the required rating and capacity to accommodate all planned expansions. Existing primary feeders should be intercepted at manhole locations, tapped and extended via underground conduit ductbanks to planned expansion locations. From there, and based upon square footage and projected equipment loads, either pad mounted transformers or transformer vaults can be specified to provide the distribution voltages required by the end user.

In order to maximize the utility kilowatt hour consumption rate as well as providing streamlined electrical equipment, planned building expansions should take advantage of incentive and rebate program offered by Florida Power and Light, designed to help minimize consumption requirements especially at peak demand hours. These incentive programs include thermal energy storage, automated building lighting control systems and the ongoing conversion of lighting to LED.

The energy efficient technologies described above will be expanded upon in upcoming sections of this report when alternative plans are discussed.

.

c) An assessment of opportunities or available and practical technologies to reduce University energy consumption. Investigation of emerging technologies to address this issue is encouraged.

Electrical power distribution system should be extended to all long-term program improvements through the above master electrical feed systems. Specific routingand sizing should be evaluated when more details are known about these long-termprogram improvements.

FIU's goal is to reduce its campus wide energy consumption by 10%. The energyreduction may be obtained by either reducing the cost of energy consumed or by reducing total energy usage or a combination. Metered information regarding the current usage of energy at each type of building on campus is available from the existing electric meters for each building which are owned and maintained by FloridaPower and Light. This metered information can be used as a comparative analysis between buildings of similar types to determine the energy performance of each building.

Telecommunications Systems Sub-Element

(1) DATA REQUIREMENTS. THIS SUB-ELEMENT SHALL BE BASED, AT A MINIMUM, ON THE FOLLOWING DATA REQUIREMENTS:

The following summary and analysis of the telecommunication at FIU will be verified from a response to inquiries made to designated FIU personnel.

a) An inventory of the existing telecommunications system(s) serving the campus, including but not limited to:

1. Telecommunications:

MODESTO A. MAIDIQUE CAMPUS

The Campus main telecommunications feeder originates at 107th Avenue and enters the cable plant located at the PC Building. A second communications feeder has been provided from 117th Ave to provide a redundant loop. The cable plant, is owned, operated, maintained, and managed by the University also provides the voice communications via a new Voice over Internet Protocol (VoIP) system.

BISCAYNE BAY CAMPUS

A single telecommunications feeder provides service to the campus with no redundancy. If the main communication feeder is interrupted, the entire campus will lose voice and data service. The cable plant, located at the Academic Two building, is owned, operated, maintained, and managed by the University and provides the voice communications via a new Voice over Internet Protocol (VoIP) system.

ENGINEERING CENTER

Engineering Center Campus main telecommunications feeder originates at NW 107th Avenue west entrance and enters Utilities building. A second telecommunications feeder has been provided from West Flagler and 105th Place, and cable plant, is owned, operated, maintained, and managed by the University and provides the voice communications via a new Voice over Internet Protocol (VoIP) system.

2. Data network(s);

MODESTO A. MAIDIQUE CAMPUS

Data Communications at MMC is comprised of university-owned and managed fiber optic infrastructure which delivers data redundancy and resiliency to all buildings on campus. End user ports are twisted pair copper systems from which all data, voice and wireless services are made available to end users. MMC Campus has two entrance facilities for remote campus connectivity (BBC and EC) located at the PC and GL buildings. The medium used is fiber optic however this is managed and maintained by a third-party fiber provider.

BISCAYNE BAY CAMPUS

Data Communications at BBC is comprised of university-owned and managed fiber optic infrastructure which delivers data redundancy and resiliency to all buildings on campus. End user ports are twisted pair copper systems from which all data, voice and wireless services are made available to end users. BBC's Internet service is through MMC campus via redundant third-party managed fiber interconnection.

ENGINEERING CENTER

Data communications at Engineering campus is comprised of university-owned and managed fiber optic infrastructure which delivers data redundancy to all building network elements at the EC campus. End user ports are twisted pair copper systems from which all data, voice and wireless services are made available to end users. Additional research-based services are provided and managed by EIC. The University provides network connectivity to EIC to integrate their service offerings into the university managed data communications systems. EC's Internet service is through MMC campus via redundant third-party managed fiber interconnection.

3. Radio

UHF Radio systems are used by Campus Police, Miami-Dade Fire Rescue, Facilities Maintenance, Housing, DoIT, Graham Center, WRC and Parking & Transportation. The Campus Police use the Miami-Dade Police radio system and do not have any equipment on campus. Miami-Dade Fire Rescue operate a backup repeater on campus as part of their system. The primary equipment for all these systems are located on the roof of the Green Library at MMC and at Roof of Marine Biology at BBC.

FIU has a student FM radio station that has equipment also located on roof of Green Library.

b) An inventory of electromagnetic fields (if any) emanating from anytelecommunications transmitter that pose a hazard to persons or equipment.

We are not aware of any emanations from these UHF radio systems that pose a hazard to our staff. However, I do not have any information regarding the FIU student Radio System. which is operated by the Graham Center.

(2) ANALYSIS DATA REQUIREMENTS. THIS SUB-ELEMENT SHALL BE BASED, AT A MINIMUM, ON THE FOLLOWING ANALYSES:

a) A facility capacity analysis, by geographic service area, indicating capacity and the current demand on facility capacity;

1. Existing conditions, based on the facility design capacity and the current demand on facility capacity,

Information was not available to complete the required response.

2. The end of the planning time frame, based in the projected demand at current level of service standards for the facility, projected student populations and land use distributions, and any available existing surplus facility capacity.

MODESTO A. MAIDIQUE CAMPUS

A second main communications feeder has been extended into the campus from 117th Avenue providing a redundant loop for the campus.

BISCAYNE BAY CAMPUS

Telecommunication service currently only consists of extensions for planned building expansions will follow the established path of transmitting via fiber optic cables and distributing to end users via a copper based twisted pair network. Four-inch communication conduit ductbanks should be extended from the existing cable plant at Academic Two via intermediate manholes to service the building expansions.

A redundant communication feeder should be considered to serve the BBC to provide redundancy.

b) The general performance of existing telecommunications systems and facilities, evaluating the adequacy of the current level of service provided by the facility, the general condition and expected life of the facility, and the impact of the facility upon adjacent natural resources.

FIU has achieved the convergence of voice and data.

c) An assessment of potential electromagnetic hazards resulting from facilities required to meet future telecommunications needs of the University, and an analysis of practical ways to mitigate such hazards.

Information was not available to complete the required response.

11.0 TRANSPORTATION ELEMENT

(1) TRANSPORTATION DATA AND ANALYSIS REQUIREMENTS

a) Inventory and Assessment of University Parking

1. Current Campus Parking Facilities

MODESTO A. MAIDIQUE CAMPUS

The Parking, Transit and Service System Map (Figure 11.1A, Appendix 11.1) shows the parking layout at the Modesto A. Maidique Campus. The number of spaces by type for each parking lot is shown in Table 11.1. A total of 4,462 surface parking spaces and 8,896 multilevel parking spaces are provided on this campus. The majority of the parking spaces are allocated to students/residents (73%). Faculty and staff occupy 14% of the available spaces and the remaining 13% are allocated among executive, administrative, reserve, disabled, visitors (metered), carpool, motorbike, state vehicles, police, service, loading and car wash. All these spaces are located on campus. Currently, there are designated off-campus parking facilities within the Youth Fair property and Tamiami Park.

ENGINEERING CENTER

The Parking, Transit and Service System Map (Figure 11.1B, Appendix 11.1) shows the parking layout at the Engineering Center Campus. The number of spaces by type for the parking lot is shown on Table 11.2. A total of 1018 surface parking spaces are provided on this campus. The majority of parking spaces are allocated to students (73%). Faculty and staff occupy 17% of the available spaces and the remaining 10% are allocated among executive, administrative, disabled, visitors (metered), carpool, electric motor bike and state vehicles. All of these spaces are located on campus. Currently, there are no designated off-campus parking facilities.

BISCAYNE BAY CAMPUS

The Parking, Transit and Service System Map (Figure 11.C, Appendix 11.1) shows the parking layout at the Biscayne Bay Campus. Table 11.3 contains detailed counts of spaces by type for each lot. A total of 2817 surface parking spaces are provided at this campus. Parking spaces are allocated to students/residents (68%), faculty and staff occupy 13%, and the remaining 19% are allocated among executive, administrative, reserve, disabled, visitors (metered), carpool, motorbike, state vehicles, police, service and loading. All of these spaces are located on campus. Currently, there are no designated off- campus parking facilities.

Table 11.1 Parking Lot Counts by Stall Type – MODESTO A. MAIDIQUE

Florida International University Parking and Transportation	Modesto A. Maidique Campus - Parking Lot Counts By Space Type																			
LOT#	EXECUTIVE	ADMIN	FACULTY/STAFF	STUDENT	RESIDENT	RESERVED	DISABLED	METERED	CARPOOL	ELECTRIC VEHICLE	MOTOR BIKE	STATE VEHICLE	GOLF CART	FIU POLICE/AMBULANCE	SERVICE DELIVERY/LOADING	Tire Inflation Station	PRESIDENT/ PROVOST/SPECIAL ASSIGNMENT/DONOR	TIME LIMIT	CAR WASH	TOTAL
Lot 1				240		20														260
Lot 2a - South of AHC1	20	9				21		30												80
Lot 2b - East of Graham Center	3						8	56				2								69
3 - East of Book Store			85	162			14	79	-							1		7		348
Book Store Loading													3	1						4
4 - East of Blue Garage				203				2												205
5 - East of PAC & PAC Loading		3	26	538																567
6 - East of Tamiami Hall					18		3													21
7 - West of Stadium	2	4	99	252		4	7	5			2					1				376
8 - South of Rec. Complex	1					5	2	2							1					11
9 - West of Edu. Building	17	89	257	151			23	46								1	1			585
10 - West of FIU Arena			30	198		1	2	5			1	2								239
11 - US Century Bank Arena		14					4					4	10							32
12x - Panther Hall Admin.	2	16				2														20
Panther Hall Disabled Lot							-													-
Lakeview South	1						2													3
Everglades Hall							3													3
13 - University Towers					71		4				2									77
14 - University Apartments		8	91		321	1	17	3												441
15 - East of Business Services	1	8				4	4	1				2								20
15x - West of Business Services	5					2	5													12
16 - Green Library Loading	3					1	6					2			3					15
17 - Central Utilities												18	2							20
18 - Eng. & Comp. Science Loading							10	2				3			5					20
19 - North of OE							5													5
20 - GC Loading						2														2
21 - PC Loading	2					1	8	2					6	1				6		26
23 - Greek Housing				4			1													5
23x - Fiji House				2			1													3
24 - East of Stadium					16															16
25 - Motorpool												79								79
26 - CSC	2	39	93				5	11	1				4							155
26x - CSC - HR parking			22				1													23
27 - CSC Loading	1											18								19
28 - Surplus												6								6
29 - ROTC W10			7	30			2	1				11								51
30 - Panthersoft Trailers - W9			8	22			2					14								46
31 - Student Athletic Center			17	41			4						3							65
31x - Soccer Field				59																59
32 - HLS1 Loading - AHC1 Loading	1						7					2	1							11
33 - HLS2 Loading - AHC2 Loading	2											1	3		3					9
34 - University House				56																56
HG - Parkview Garage					272	5	9					3	6							295
PG-1 Gold Garage	19	128	196	572			22	14		2	8	3	13			1	6		16	1,000
PG-2 Blue Garage	4	35	303	576			15	44		1			3			1				982
PG-3 Panther Garage		20	125	1,240			8	16		3	2	5	2			1			11	1,433
PG-4 Red Garage	2	64	328	997			8	25		1	3	7	1			1			5	1,442
PG-5 Market Station	7	52	149	1,528		31	28	33				5		86	2	1		3		1,925
PG-6 tech Station	8	17	197	1,727			33	65		2		1						12		2,062
TOTAL	103	506	2,033	8,598	698	100	273	442	1	9	18	188	57	88	14	8	7	28	32	13,203

Source: FIU Department of Parking and Transportation, August 2022

Table 11.2 Parking Lot Counts by Stall Type – ENGINEERING CAMPUS

Florida International University Parking and	Engineering Center - Parking Lot Counts By Space Type											
LOT #	EXECUTIVE	ADMIN	FACULTY/STAFF	STUDENT	RESERVED	DISABLED	METERED	CARPOOL	ELECTRIC VEHICLE	MOTOR BIKE	STATE VEHICLE	TOTAL
1 -West of Building			15	181		10	17	-			2	225
2 - East of Main Building			50	144								194
3 - West of Wall of Wind			5	189		1	1				1	197
4 - West of OU				33		3					2	38
5 - East of OU				255								255
6 - Covered Area	1	12	81		1	10			1	1	1	109
TOTAL	1	12	151	802	1	24	18	-	1	1	6	1,018

Source: FIU Department of Parking and Transportation, August 2022

Table 11.2 Parking Lot Counts by Stall Type – BISCAYNE BAY CAMPUS

Florida International University Parking and Transportation	Biscayne Bay Campus - Parking Lot Counts By Space Type																
LOT#	EXECUTIVE	ADMIN	FACULTY/STAFF	STUDENT	RESIDENT	RESERVED	DISABLED	METERED	CARPOOL	ELECTRIC VEHICLE	MOTOR BIKE	STATE VEHICLE	GOLF CART	FIU POLICE/AMBULANCE	SERVICE DELIVERY/LOADING	Tire Inflation Station	TOTAL
1 - West of Library	9	12	163			3	11	30	1		6	3			2		240
2 - West of AC-1	2	6	92	234			12	55	3		4					1	409
AC-1 Loading												12					12
3 - West of AC-2				221													221
4 - West of AC-2			20	977			7	4									1,008
5 -West of Kovens Conference Center				223			13	16									252
5x - Next to Koven Center	2	2	20									3					27
6 - Old Housing Lot			2	198			8				3						211
7 - East of Central Recreation			29	33													62
8 - Public Safety		1	1				2	1					2		10		17
9 - South of Physical Plant													16				16
10 - Central Utilities																2	2
11 - East of Aquatic Center																	-
12 - South of Kovens Conference Center	2	2	20													3	27
13 - Bayview Housing	1	1	10		243	1		7	5			4					272
Bayview Loading															4		4
14 - Royal Caribbean						19	2										21
14x - Royal Caribbean Loading																	
15 - EL1			2	2		1		3									8
Instituto De				4													4
Marine Science Loading							2					1			1		4
Vehicle Services & Grounds												19					19
Facilities & Police		2		5			2	1				2		7	2		21
Pool Loading															3		3
TOTAL	16	24	359	1,888	243	24	55	116	9	-	13	22	18	-	16	6	2,817

Source: FIU Department of Parking and Transportation, August 2022

Existing University Parking Permit System:

Florida International University utilizes virtual parking permits for vehicles parking on its campuses and utilizes license plate recognition hardware and software (LPR) for parking systems management. Every motor vehicle parked in a non-meter space on university property must maintain a valid permit.

Vehicles used by members of the faculty, staff, students, (full or part-time), concessionaire employees and others who park at a nonmetered location on campus must be registered with the Parking Services during the first day the vehicle is on campus.

A student virtual permit will be issued to each student who is currently enrolled and has paid the transportation access fee or meets the criteria established by Florida Statutes 1009.25; 1009.26 and 1009.265 governing Educational Scholarships, Fees and Financial Assistance, fee exemptions, fee waivers and State employee fee waivers. A Transportation Access Fee is assessed to all students per semester as part of their enrollment fees except for students registered for a fully online degree program, students using tuition waiver, or otherwise classified as exempt.

Employees may elect to purchase a one semester, two semester or annual virtual permit. One semester and two semester permits will be valid from date of purchase and prorated accordingly. Annual permits are valid 365 days from date of purchase.

All vendors and contractors conducting business on campus are required to either purchase a staff virtual permit (at the Tier 1 rate), a daily virtual permit, or a 30-day virtual permit.

2. Current Special Events Parking

MODESTO A. MAIDIQUE CAMPUS

Existing Parking Facilities: Parking needs for baseball and soccer games are met at adjacent paved and unpaved lots. Basketball games and events at the FIU Ocean Bank Arena primarily use Lots 9, 10 and the Panther Parking Garage to accommodate parking demand. Parking demand for football games is met by reserved parking in Lots 6 and 7, as well as VIP parking in Tamiami Park, south of the FIU stadium. General football parking is accommodated in lots throughout the campus. Parking demand associated with University's athletic events and special events has not exceeded parking capacity.

The Miami-Dade County Fair and Exposition is an 18-day event typically held at the end of March. Daily attendance averages nearly 50,000 people. Parking for the Fair is provided in Tamiami Park, but additional parking for the Fair is provided on campus, as needed, on weekdays after 8:00pm and after 4:00 pm on weekends and holidays.

ENGINEERING CENTER

Special events include guest speakers, social events, engineering galas, and other student organized events. Most special parking needs have been and are expected to continue to be met with the existing parking capacity.

BISCAYNE BAY CAMPUS

Special events, which could potentially affect on-campus parking includes swimming tournaments, guest speakers, social events, and other student organized events. Most special parking needs have been and are expected to continue to be met with the existing parking capacity.

3. Assessment of Future Campus Parking Demand for Students, Faculty,Staff and Special Events for the Planning Period

MODESTO A. MAIDIQUE CAMPUS

Existing Parking Ratios:

Analysis of parking spaces is based on the number of users and the available parking spaces. Users include students, faculty, and staff who have parking permits. The number of parking permits is the quantity issued to students, faculty, staff, and others, which were obtained from the FIU Department of Parking and Transportation. Table 11.4 summarizes number of users, number of spaces, and ratio of users to spaces. Average ratios of 1.1 students/space and 2.9 faculty-staff/space were calculated for existing conditions. The computation of these ratios does not include auxiliary parking spaces for uses such as visitors, ADA, FIU Police, loading, etc. The need for these uses should be evaluated individually for each campus based on existing ratios for these uses.

Table 11.3 Existing Parking Ratios (2019) – MODESTO A. MAIDIQUE CAMPUS

Type of User	Number of Users	Number of Spaces**	Ratio of Users/Space
Students (FTE)	***20,480	9,296	2.2
Faculty/Staff/Misc (FTE)*	***7,171	2,937	2.44

* Faculty/Staff/Misc includes; Executive, Admin, Faculty/Staff, Reserved, State Vehicle, President/Provost/Special Assignment/Donor
** Source: FIU Parking & Transportation, August 2022
*** Enrollment Matrix (FIU)

Future Parking Needs:

Based on discussions and information provided by the University's Parking Department, the equation used for calculating parking spaces is based on the number of full-time enrollees (FTE) and the number of FTE living in campus housing. One (1) parking space is provided for every 2.2 FTE and one (1) parking space is provided for every two (2) FTE living in campus housing. Since future parking needs are based on FTE, it is important to obtain future enrollment data from the University. The FTE at the Modesto A. Maidique campus is estimated to be 24,650 (year 2020) and 3,913 (year 2020) full-time enrollees living in campus housing.

Future Needs Projections:

Total parking for planning periods (2019, 2025 and 2035) is shown in Table 11.6. Although sufficient parking is available for 2015 and 2020 on the entire campus, localized parking demand within specific areas of the campus will need to be addressed, as well as the parking demand generated by the Academic Health Sciences clinical component. For year 2035, an additional 1, 647 parking spaces will be required to satisfy future demand.

Table 11.4 Future Parking Needs Projections – MODESTO A. MAIDIQUE CAMPUS

	2019	2025	2035
Students *(6)*			
FTE (x)	20,480	20,480	20,480
FTE in campus housing (y) (Residents)	3,913	3,913	3,913
HC	29,651	29,651	29,651
Faculty & Staff (FTE) *(8)*	7,171	7,171	7,171
Faculty & Staff (HC) *(7)*	7,668	7,668	7,668
Total Population (4)	37,319	37,319	37,319
FIU Total Parking Demand Methodology (1)	$P = 0.34x+0.5y$ 10,170	$P = 0.34x+0.5y$ 10,170	$P = 0.34x+0.5y$ 10,170
FIU Adjusted Parking Demand (9)	10,068	10,068	10,068

Parking Capacity (Students, Faculty & Staff) (3)	11,951	11,951	11,951
FIU Methodology Available Capacity (5)	1883	1883	1883

1) Parking demand based on parking equations provided by FIU: P = 0.34x+0.5y (x = Full Time Enrollees, y = Full Time Enrollees living in campus housing)
2) Source: FIU Parking & Transportation (7/2011); includes PG6 Garage (add 2,100 spaces and remove 225 existing surface lot spaces). Computation: 10,076 (exist) + 2,100 – 225 = 11,951
3) Total Population includes: Headcount (HC) for Students and Faculty & Staff
4) Available capacity = (3) – (9). positive number indicates excess capacity & negative number indicates additional spaces needed to satisfy parking demand for year 2035
5) Source: FIU enrollment matrix
6) **Faculty/Staff (HC)** has a flat projection based on the flat projection of students until 2035.
7) **Faculty/Staff (FTE)** has a flat projection based on the flat projection of students until 2035.

ENGINEERING CENTER

Existing Parking Ratios:

The total number of permits issued to students, faculty, staff, and others was obtained from the University's Parking Department. Table 11.6 summarize number of users, number of spaces, and ratio of users to spaces at the Engineering Center. The average ratios of 1.91 students/space and 0.82 faculty- staff/space were found under the existing conditions. These do not include auxiliary parking spaces for uses such as visitors, disabled, and loading.

Table 11.5 Existing Parking Ratios (2019) – ENGINEERING CENTER

Type of User	Number of Users	Number of Spaces**	Ratio of Users/Space
Students (FTE)	***1,532	802	1.91
Faculty/Staff (FTE)*	***140	171	0.82

* Faculty/Staff/Misc includes; Executive, Admin, Faculty/Staff, Reserved, State Vehicle, President/Provost/Special Assignment/Donor
** Source: FIU Parking & Transportation, August 2022
*** Enrollment Matrix (FIU)

Future Parking Needs:

Based on discussions and information provided by the University's Parking Department, the equation used for calculating parking spaces is based on the number of FTE and the number of FTE living in campus housing. One (1) parking space is provided for every 1.91 FTE and one (1) parking space is provided for every two (2) FTE living in campus housing. Based on the future population estimates provided by the University, the FTE population at the Engineering Center is estimated to be 1,379 (~~year 2020~~). The Engineering Center does not offer campus housing, therefore FTE on campus housing was not considered in the computation of future parking demand.

Future Needs Projections:

Total parking for the planning periods (2019, 2025 & 2035) is shown in Table 11.8. A total of 5 additional parking spaces will be required at the Engineering Center for year 2035.

Table 11.6 Future Parking Needs Projections – ENGINEERING CENTER

	2019	2025	2035
Students (5)			
FTE (x)	1,532	1,532	1,532
FTE in campus housing (y) (Residents)	NA	NA	NA
HC	2,216	2,216	2,216
Faculty & Staff (FTE)(7)	140	140	140
Faculty & Staff (HC) (6)	143	143	143
Total Population (4)	2,359	2,359	2,359
FIU Total Parking Demand Methodology (1)	$P = 0.34x+0.5y$ 521	$P = 0.34x+0.5y$ 521	$P = 0.34x+0.5y$ 521
Parking Capacity (**Students, Faculty & Staff)** (3)	712	712	712
FIU Methodology Available Capacity (2)	191	191	191

1) Parking demand based upon parking equations provided by FIU: $P = 0.34x+0.5y$ (x = Full Time Enrollees, y = Full Time Enrollees living in campus housing)
2) Available capacity = (3) – (1). Positive number indicates excess capacity & negative number indicates additional spaces needed to satisfy parking demand for year 2035
3) Source: FIU Parking & Transportation (7/2011)
4) Total Population includes Headcount (HC) for Students and Faculty & Staff
5) Source: FIU enrollment matrix
6) **Faculty/Staff (HC)** has a flat projection based on the flat projection of students until 2035.
7) **Faculty/Staff (FTE)** has a flat projection based on the flat projection of students until 2035.

NA – not available

BISCAYNE BAY CAMPUS

Existing Parking Ratios:

The total number of permits issued to students, faculty, staff, and others was obtained from the Department of Parking and Transportation. Table 11.8 summarize the number of users, number of spaces, and ratio of users to spaces. Average ratios of 1.7 students/space and 0.7 faculty-staff/space were found under the existing conditions. These do not include auxiliary parking spaces for uses such as visitors, disabled, loading, etc.

Table 11.7 Existing Parking Ratios (year 2019) – BISCAYNE BAY CAMPUS

Type of User	Number of Users	Number of Spaces**	Ratio of User/Space
Students (FTE)	***2,363	2,131	1.10
Faculty/Staff (FTE)*	***326	445	0.73

* Faculty/Staff/Misc includes; Executive, Admin, Faculty/Staff, Reserved, State Vehicle, President/Provost/Special Assignment/Donor
** Source: FIU Parking & Transportation, August 2022
*** Enrollment Matrix (FIU)

Future Parking Needs:

Based on discussions and information provided by the University's Parking Department, the equation used for calculating parking spaces is based on the number of full-time enrollees (FTE) and the number of FTE living in campus housing. One (1) parking space is provided for every 2.94 FTE and one (1) parking space is provided for every two (2) FTE living in campus housing. Based on the future population estimates provided by the University, the FTE population at the Biscayne Bay Campus is estimated to be 3,906 (year 2020) and 781 FTE living in campus housing.

Future Needs Projections:

Total parking for the planning periods (2019, 2025 & 2035) is shown in Table 11.10. A total of 304 additional parking spaces will be required at the Biscayne Bay Campus for year 2035.

Table 11.8 Future Parking Needs Projections – BISCAYNE BAY CAMPUS

	2019	**2025**	**2035**
Students (5)			
FTE (x)	4,564	4,564	4,564
FTE in campus housing (y) (Residents)	408	408	408
HC	5,221	5,221	5,221
Faculty & Staff (FTE) (7)	364	364	364
Faculty & Staff (HC) (6)	425	425	425
Total Population (4)	5,646	5,646	5,646
FIU Total Parking Demand Methodology (1)	$P = 0.34x+0.5y$ 1,719	$P = 0.34x+0.5y$ 1,719	$P = 0.34x+0.5y$ 1,719
Parking Capacity (**Students, Faculty & Staff*****)*** (3)	2,366	2,366	2,366
FIU Methodology Available Capacity (2)	647	647	647

1) Parking demand based upon parking equations provided by FIU:$P = 0.34x+0.5y$ (x = Full Time Enrollees, y = Full Time Enrollees living in campus housing)
2) Available capacity = (3) – (1). Positive number indicates excess capacity & negative number indicates additional spaces needed to satisfy parking demand for year 2035
3) Source: FIU Parking & Transportation (7/2011)
4) Total Population includes Headcount (HC) for Students and Faculty & Staff
5) Source: FIU enrollment matrix
6) **Faculty/Staff (HC)** has a flat projection based on the flat projection of students until 2035.
7) **Faculty/Staff (FTE)** has a flat projection based on the flat projection of students until 2035.

4. Management Policies That May Reduce Parking Demand

a. Decreasing Automobile Trips

The automobile is the primary transportation mode for students and employees to commute to the University and most automobile trips continue to be single-occupant vehicle (SOV) trips. By promoting ridesharing with carpool and vanpool programs, many SOV trips could be eliminated reducing the demand on the number of parking spaces.

Encouraging students and employees who live in the residential areas around the campuses to use bicycle or pedestrian modes as the preferred commuting modes could decrease automobile trips. Improved bicycle and pedestrian facilities would promote the use of these modes as viable alternatives to automobile trips.

b. Increasing Parking Space Utilization

The survey of parking facilities shows that parking demand was high during peak hours and low during off-peak hours. Parking utilization could be improved by evenly distributing parking demand during peak and off-peak hours. Continuing to distribute class schedules throughout the school week will positively impact parking demand. The degree of parking demand reduction will depend on the actual implementation of class schedules and will need to be determined based on an assessment.

c. Increasing Use of Public or University-Provided Transit

Improving public transportation is crucial in reducing the need for new parking facilities and congestion near the university campuses. Long range improvements like the planned express bus route(s) connecting FIU to multimodal hubs such as the Miami Intermodal Center (MIC) may alleviate some of the parking and traffic issues. In the short term, improvements to the bus transit services may help increase public transit use and reduce automobile trips to the campuses. This will require that the University continue to work with Miami-Dade Transit to identify the necessary improvements, which may require a travel characteristics study including origin-destination, travel time, mode, purpose, etc. Improved weather protection at transit stations may also increase public transit use.

d. Utilization of Off-Campus Parking Areas

Off-campus parking is currently being utilized during football games at the Modesto A. Maidique Campus. These off-campus spaces are located within Tamiami Park. There are also approximately 280 overflow parking spaces provided at the Youth Fair property south of Parking Lot #5 on the Modesto A.Maidique campus. No other campus currently utilizes off-campus parkingfacilities, but locations for this should be considered in all phases of planning.

b) Inventory and Assessment of Transit Facilities and Services

MODESTO A. MAIDIQUE CAMPUS

A Miami-Dade Transit (MDT) bus terminal is located on campus, east of Lot #5 (Figure 11.1A, Appendix 11.1). Five bus routes serve the area. Table 11.11 provides information on the weekly schedule for each bus route, including frequency during weekday peak hours. For transit, weekday peak hour services operate from approximately 6:30 am through 9:00 am and in the evening from 4:00 pm to 6:30 pm. The buses operate with less frequent headways during the weekends. MDTA buses have a seated capacity of approximately 38 persons and a standing load of 31 persons.

Future MDT Express Bus service is anticipated to provide service to the MMC. This Express Bus route is proposed to link the Miami Intermodal Center (MIC) near Miami International Airport to SW 8th Street and 147th Avenue. The MMC is anticipated as a key station/stop for this Express Bus service. The MMC Express Bus route station will be located at PG 6.

The Cities of Doral and Sweetwater have trolley service to the Modesto A. Maidique Campus. The Doral trolley operates during weekdays only. The City of Sweetwater trolley operates seven days a week with reduced hours on the weekends.

The Panther Express Shuttle is available to the FIU community who are traveling between the Modesto A. Maidique and the Biscayne Bay Campuses. The service is free for students who are currently enrolled and pay the transportation access fee as part of their enrollment fees and non-students. Non-students and affiliates pay $5.00 each trip. Table 11.15 give the service frequency, route alignment, and service hours of the Panther Express Shuttle. Fall semester 2019 ridership data shows 115,000 passenger transports.

Campus Area Transit System (CATS) is a free transportation system, which is operated by FIU personnel at Modesto A. Maidique Campus. The shuttle transports FIU students, faculty, and staff between the Modesto A. Maidique campus and the Engineering Center campus which stops along the way at off campus housing residences (Figure 11.1B, Appendix 11.1). Table 11.13 summarize the frequency of service, route alignment, and service hours. Vans used for CATS have a seated capacity of 15 passengers.

The Panther Mover service expanded route now provides continuous golf cart transportation throughout the Modesto A. Maidique Campus. Table 11.15 summarize the frequency of service, route alignment, and service hours.

Freebee service was launched at FIU on September 8, 2020. Freebee, a free on-demand door to door transportation service is available to the FIU community. The ride must begin or end within the Modesto A. Maidique Campus or Engineering Center. Freebee service was launched at FIU on September 8, 2020 through a grant match funding. Freebee is transporting approximately 4000 plus passengers a month.

TapRide provides on demand point to point golf cart transportation throughout the Modesto A. Maidique Campus. The service is available for the DRC registered community and injured riders during the core hours of the day and opens to the full FIU community at 6:00pm. Table 11.13 summarize the frequency of service, route alignment, and service hours.

Table 11.9 Public Transit Routes – MODESTO A. MAIDIQUE CAMPUS

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
8/8A	10-20 minutes	From Brickell Metrorail to Modesto A. Maidique Terminal **(WEEKDAYS ONLY)**	4:39 am - 11:04 pm (Eastbound)
			5:30 am - 11:59 pm (Westbound)
11	10-30 minutes	From Metro-Dade Government Center (Stephen P Clark Center) toModesto A. Maidique Terminal	**Weekday** 4:46 am - 10:53 pm (Eastbound)
			Weekday 5:20 am - 11:59 pm (Westbound)
			Saturday 5:14 am - 11:05 pm (Eastbound)
			Saturday 5:40 am - 11:59 pm (Westbound)
			Sunday 5:15 am - 11:05 pm (Eastbound)
			Sunday 6:00 am - 11:59 pm (Westbound)
24 Coral Way	20-45 minutes	From SW 26^{th} Street and SW 147^{th} Ave toBrickell Metrorail	**Weekday** 5:45am - 11:50pm (Eastbound)

Limited			**Saturday** 6:10 am - 11:15 pm (Eastbound)
			Sunday 7:14 am - 9:32 pm (Eastbound)
24 Coral Way Limited	30-45 minutes	From Brickell Metrorail toSW 26th Street and SW 146th Ave	**Weekday** 5:35 am – 12:01 am (Westbound)
			Saturday 6:52 am - 11:55 pm (Westbound)
			Sunday 6:03 am - 10:10 pm (Westbound)
71	30 minutes	From Miami Dade College South to DolphinMall	**Weekday** 6:36 am -7:30 pm (Northbound)
			Saturday 7:14 am - 5:20 pm (Northbound)
			Saturday 7:14 am - 5:20 pm (Northbound)
71	30-35 minutes	From Dolphin Mall to Miami Dade CollegeSouth	**Weekday** 6:04 am - 7:47 pm (Southbound)
			Saturday 7:00 am – 6:20 pm (Southbound)
			Sunday 9:35 am – 5:35 pm (Southbound)
82 Westchester Circulator	50 minutes	Modesto A Maidique Terminal to SW 8th Street and 69th Ave Circulator	**Monday - Saturday** 8:00 am - 5:10 pm (Eastbound)
82 Westchester Circulator	50 minutes	Modesto A Maidique Terminal to SW 8th Street and 69th Ave Circulator	**Monday - Saturday** 8:04 am - 5:04 pm (Westbound)
Doral Trolley Route 4	30-40 minutes	FIU PG 6 to NW 107th Ave and NW 88th Street	6:53am-10:28pm Monday - Friday

Sweetwater Trolley	90 minutes	FIU PG 5 to 1701 NW 112th Ave	6:00am -10:00pm Monday – Friday 7:00am – 8:00pm Saturday - Sunday

Source: Miami-Dade Transit,2019, City of Doral, 2021, City of Sweetwater 2021

ENGINEERING CENTER

Four (4) MDT bus routes serve the Engineering Center daily. Table 11.12 provides information on the weekly schedule for each bus route, including frequency during weekday peak hours. For transit, weekday peak hour services operate from approximately 6:30 am through 9:00 am and in the evening from 4:00 pm to 6:30 pm. The buses operate with less frequent headways during the weekends.

The Cities of Doral and Sweetwater have trolley service to the Engineering Center. The Doral trolley operates during weekdays only. The City of Sweetwater trolley operates seven days a week with reduced hours on the weekends.

Campus Area Transit System (CATS) is a free transportation system, which is operated by FIU personnel at Modesto A. Maidique Campus. The shuttle transports FIU students, faculty, and staff between the Modesto A. Maidique campus and the Engineering Center campus which stops along the way at off campus housing residences (Figure 11.1B, Appendix 11.1). Table 11.13 summarize the frequency of service, route alignment, and service hours. Vans used for CATS have a seated capacity of 15 passengers.

Table 11.10 Public Transit Routes – ENGINEERING CENTER

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
11	10-30 minutes	From Metro-Dade Government Center to Modesto A. Maidique Terminal	**Weekday** 4:46 am - 10:53 pm (Eastbound)
			Weekday 5:20 am - 11:59 pm (Westbound)
			Saturday 5:14 am - 11:05 pm (Eastbound)
			Saturday 5:40 am - 11:59 pm (Westbound)
			Sunday 5:15 am - 11:05 pm (Eastbound)
			Sunday 6:00 am - 11:59 pm (Westbound)
51 Flagler MAX	5-30 minutes	From SW 8th Street and SW 134th Avenue to NW 1st Street and NW 1st Avenue **Weekdays Only**	**Weekday** 4:45 am – 6:56 pm

			(Eastbound)
			Weekday 5:59 am – 8:14 pm (Westbound)
212 Sweetwater Circulator	30 minutes	From SW 2nd Street and 117th Avenue to SW 108 Ave & W Flagler Street **Weekdays Only**	**Weekday** 9:00 am – 3:00 pm (Eastbound)
			Weekday 9:21 am – 2:51 pm (Eastbound)
Sweetwater Trolley	90 minutes	FIU PG 5 to 1701 NW 112th Ave	6:00am -10:00pm Monday – Friday 7:00am – 8:00pm Saturday - Sunday
Doral Trolley Route 4	30-40 minutes	FIU PG 6 to NW 107th Ave and NW 88th Street	6:53am-10:28pm Monday - Friday

Source: Miami-Dade County Transit, 2019, City of Doral 2021, City of Sweetwater 2021

BISCAYNE BAY CAMPUS

MDT bus shelters are located south of the library and east of parking lot #1 (Figure 11.1C, Appendix 11.1). Two MDT bus routes and one North Miami circulator service the Biscayne Bay Campus and are listed in Table 11.14 with service frequency, route alignment, and service hours. The buses operate with less frequent headways during the weekends.

The NOMI Express provides community bus service within the City of North Miami. Efforts should continue to strengthen coordination efforts with the City of North Miami to promote use of this bus service as an alternative transportation option available to both students and faculty.

The Panther Express Shuttle is available to the FIU community who are traveling between Modesto A. Maidique and the Biscayne Bay Campuses. The service is free for students who are currently enrolled and pay the transportation access fee as part of their enrollment fees and non-students. Non-students and affiliates pay $5.00 each trip. Table 11.15 give the service frequency, route alignment, and service hours of the Panther Express Shuttle. Fall semester 2019 ridership data shows 115,000 passenger transports.

Table 11.11 Public Transit Routes – BISCAYNE BAY CAMPUS

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
75	30-40 minutes	From Miami Lakes Technical Education Center to FIU Biscayne Bay Campus **Monday – Saturday Only**	**Weekday** 5:27 am – 9:05 pm (Eastbound)
			Weekday 5:20am-10:29pm (Westbound)
			Saturday 6:24 am – 8:37 pm (Eastbound)
			Saturday 7:05am-8:42pm (Westbound)
135	30 minutes	From Hialeah MetroRail Station to FIU Biscayne Bay Campus	**Weekday** 6:00 am – 9:27 pm (Eastbound)
			Saturday 6:00 am – 9:00 pm (Eastbound)

			Sunday 6:00 am – 9:00 pm (Eastbound)
135	15-30 minutes	From FIU Biscayne Bay Campus to Hialeah MetroRail Station	**Weekday** 5:09 am - 8:32 pm (Westbound)
			Saturday 6:10 am – 9:08 pm (Westbound)
			Sunday 6:11 am – 9:09 pm (Westbound)
NOMI Express Red Route	60 minutes	FIU Biscayne Bay Campus to Biscayne Boulevard and 128th Street	**Weekday** 7:00am–7:00pm excluding City observed holidays

Source: Miami-Dade County Transit, 2019, City of North Miami, 2021

Table 11.12 Campus Transit Routes

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
Panther Express	30 minutes	Modesto A. Maidique Campus to and from Biscayne Bay Campus	6:00am-11:00pm
Campus Area Transit System (CATS)	Continuous (15–20 minutes)	Modesto A. Maidique Campus to and from Engineering Center	6:00am-11:00pm
Panther Mover	10 minutes between stops	Continuous circulation through Modesto A. Maidique Campus	6:00am-11:00pm
Freebee	On Demand	Throughout Modesto A. Maidique Campus	7:00am-7:00pm
TapRide	On Demand	Throughout Modesto A. Maidique Campus	7:00am-6:00pm DRC registered and injured community.
TapRide	On Demand	Throughout Modesto A. Maidique Campus	6:00pm and later DRC and entire FIU community.

Source: FIU Department of Parking and Transportation, 2021

c) Inventory and Assessment of Pedestrian and Bicycle Facilities and Services

1. Existing On-Campus Facilities

MODESTO A. MAIDIQUE CAMPUS

Modesto A. Maidique Campus consists of a conglomerate of buildings connected by covered and uncovered walkways that serve pedestrians. A vehicular loop road surrounds the core academic facilities. The athletic facilities are located on the west side of the campus. Student housing is located on the east side and the south side of the campus. There are seven (7) general parking lots and six (6) parking garages provided on the campus. Figure 11.1D shows the general configuration of pedestrian and non-vehicular circulation on the campus. Pedestrian and non-vehicular circulation facilities are highlighted. A description of the pedestrian and non-vehicular facilities available on the campus is provided below.

Walkways:

Pedestrian access among the existing campus buildings is provided by covered and uncovered walkways. Walkway widths vary between 6′ and 14′. Pedestrian walkways are also provided along the campus loop road, leading to parking lots, garages, student housing, athletic/recreation facilities, and the host communities. Surface material of these walkways consists of cast-in-place concrete and asphalt.

Crosswalks/Bridges:

There are numerous crosswalks located along the campus loop road, connecting academic facilities located in the campus core to parking lots, garages, student housing, athletic/recreation facilities, and the host communities. Crosswalks are located at all signalized intersections and have pedestrian button activated countdown timing signals. Midblock crossings are marked and include pedestrian crossing flashing signage.

To minimize pedestrian conflicts crossing the campus loop road at Parking Garage 6, in addition to at grade signalized crosswalks, there is an elevated pedestrian bridge linking PG6 to the campus core. To improve safe crossing of SW 8th St/ US 41 to many off campus housing facilities in Sweetwater, FIU has partnered with FDOT to construct a pedestrian bridge over SW 8th Street. This bridge is anticipated to be complete in 2023.

Bikeways:

Bicycle racks are currently located in the courtyards of the residential housing dormitories on the campus. The Modesto A. Maidique campus currently contains over 50 bike racks that provide over 400 parking spaces within the campus. Many of the pedestrian and non-vehicular facilities are being shared with cyclists in the campus core and on the campus loop road. However, a designated and marked bikeway does not exist on this campus.

Golf Carts:

Golf carts and similar four-wheel vehicles are used extensively throughout the Modesto A. Maidique Campus for service maintenance, delivery, and staff transportation activities, including the Panther Mover service. In an effort to minimize conflicts between golf carts and pedestrians or bicycle uses within the campus, the University has developed a campus map that identifies golf cart access points to all building loading areas and routes prohibited for golf carts. These areas are shown in Figure 11.1D.

ENGINEERING CENTER

The Engineering Campus consists of one (1) primary educational building with parking areas on the East and West sides. Parking Lot #2 on the east side of campus are shaded with photovoltaic panels. An entry from SW 107th Avenue and an entry on Flagler Street provide access to the campus. The general configuration of the vehicular and non-vehicular circulation is shown in Figure 11.1E. The pedestrian and non-vehicular facilities available on the Engineering Center are described below.

Walkways:

There are uncovered pedestrian walkways 6′ wide, linking the Engineering building and the parking lots #1 and #2. Surface material of these walkways consists of cast-in-place concrete.

Crosswalks:

There are crosswalks providing access to the east parking lots from the Engineering building.

Bikeways:

Bicycle racks are currently located in the area close to the west entrance of the Engineering building. The Engineering Campus contains a bike parking rack that provides over ten (10) bicycle parking spots on the campus. However, an official marked bikeway does not exist on this campus.

Golf Carts:

Golf carts and similar four-wheel vehicles are used extensively throughout the Engineering Campus for service maintenance, delivery and staff transportation activities. In an effort to minimize conflicts between golf carts and pedestrians or bicycle users within the campuses, the University has developed a campus map that identifies golf cart access points to all building loading areas and routes prohibited for golf carts. These areas are shown in Figure 11.1E.

BISCAYNE BAY CAMPUS

Biscayne Bay Campus consists of a group of academic buildings on the east side of the campus with Bayview student housing and Conference Center south of the campus core. Parking lots are located on the western areas of the campus. One (1) main and two (2) secondary entrances provide vehicular access to the campus. The general configuration of pedestrian and non-vehicular circulation is shown in Figure 11.1F. The pedestrian and non-vehicular facilities available on the Biscayne Bay Campus are described below.

Walkways:

Pedestrian access among the existing buildings is provided via covered and uncovered walkways that vary in width between 5′ to 10′. Walkways provide access to student housing from the campus parking areas, academic core, and recreational facilities. Sidewalks are provided along the campus roads to furnish access to the parking lots. There is a shared-use path that runs along the Biscayne Bay side of the campus and ties into the Arch Creek Trail at the southwest portion of the campus. Walkways consist of cast-in-place concrete and asphalt surface material.

Crosswalks:

Crosswalks are provided along key pedestrian crossings on NE 145th Street and University Drive. Most pedestrian activity occurs on the crosswalks, since they link the academic facilities and parking lots. Additional crosswalks provide access between the parking lots and the support facilities located on the northwest portion of the campus as well as the Bayview student housing.

Bikeways:

Bicycle racks are currently located in the courtyards of the residential housing dormitories on the campus. The Biscayne Bay campus currently contains eleven (11) bike racks providing over fifty (50) bike parking spaces within the campus. Many of the pedestrian and vehicular facilities are being shared with cyclists on the campus core and the loop road. A non-continuous marked bike lane exists along Bay Vista Drive on campus.

Golf Carts:

Golf carts and similar four-wheel vehicles are used extensively throughout the Biscayne Bay Campus for service maintenance, delivery and staff transportation activities. To minimize conflicts between golf carts and pedestrians or bicycle uses within the campuses, the University has developed a campus map that identifies golf cart access points to all building loading areas and routes prohibited for golf carts. These areas are shown in Figure 11.1F.

2. **Existing facilities within the planning study area.**

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

Within the context area of the Modesto A. Maidique Campus and the Engineering Center, sidewalks are provided along major roadways surrounding the campuses. The MMC campus loop road has segments of designated and undesignated bike lanes as well as segment without any bicycle facilities. No designated bicycle facilities are found within the Engineering Center campus.

BISCAYNE BAY CAMPUS

There is a pedestrian sidewalk along Bay Vista Drive that runs from Biscayne Boulevard to the David Lawrence Jr. K-8 Center with a flashing pedestrian crossing to Alonzo & Tracy Mourning Sr. High School. There is a non-continuous undesignated bike lane along NE 151st Street and Bay Vista Boulevard to the main entrance of the Biscayne Bay Campus. This sidewalk and bike lane are the primary non-vehicular links between the Biscayne Bay Campus and the residential neighborhoods in the City of North Miami. There is also a pedestrian/bike path that is an extension of NE 135th Street which bisects the Arch Creek East Preserve and provides a non-vehicular link to the residential communities southwest of the Campus.

3. **Planned Pedestrian and Non-Vehicular Facilities on Campus and In thePlanning Study Area.**

At the MMC, to improve safe crossing of SW 8th St/ US 41 to many off campus housing facilities in Sweetwater, FIU has partnered with FDOT to construct a pedestrian bridge over SW 8th Street. This is part of the University City TIGER Grant awarded to FIU and the City of Sweetwater. This project also includes Complete Street pedestrian improvements along 109th Ave from SW 6th Street into the campus core. This bridge and the associated improvements are anticipated to be complete in 2023.

FDOT conducted a due diligence analysis for creating a Raised Bike Lane system at MMC. The analysis considered opportunities and constraints for varied strategies to achieve a Raised Bike Lane System to improve bicycle safety on the campus. Some of these strategies include raised bike lanes, designated off street bike lanes, conventional bike lanes and two-way cycle tracks. This analysis covered the campus loop road as well as SW 16th Street and SW 109th Avenue. FIU has submitted for a FDOT Transportation Alternatives Program (TAP) Grant in the amount of $1.25 million to design, permit and construct the strategies outlined in the FDOT analysis.

d) Inventory and Assessment of Opportunities to Implement TransportationDemand Management Strategies

Transportation demand management (TDM) strategies are intended to reduce or shift the number of single occupant vehicle (SOV) trips to non-SOV modes or to nonpeak periods. These TDM strategies can be achieved at all FIU campuses by continuing to encourage and facilitate pedestrian and bicycle modes, transit use, ridesharing and other alternatives. Some of the TDM strategies that are in place and/or could become improved upon at FIU's campuses include the following:

Parking

Parking Rates - Variable parking rates could be implemented on the campuses. Currently students are eligible for an annual pass at no cost. Variable parking rates could be charged throughout the day depending upon demand with higher rates being charged during peak times. An entitlement to 'free' parking would not be perceived and SOV trips could be reduced. Reduced rates may also be available to registered carpool vehicles.

Reduced Parking Availability - The parking availability or expansion of existing parking facilities could be limited therefore reducing the continual increase of parking on campus. This 'inconvenience' of the lack of readily available parking could encourage greater usage of alternative transportation methods to all campuses.

Carpool Spaces - Continue to encourage ride sharing and carpooling by providing more easily accessible parking spaces for these types of vehicles.

Parking Permit Buyback - A buyback program for parking permit holders could be implemented that would reimburse commuters that give back their parking permit and choose to use public transportation or ridesharing activities.

Transit

Local Connectors – Continue to encourage the use of local connector public transportation. This can be achieved by continuing to improve the relationships with these host communities and improving local commuter bus facilities within the FIU campuses. Partnering with the host communities to allow their residents to enjoy activities on campus at reduced rates may encourage these communities to further enhance the quality/ frequency of these connector routes.

Reduced Transit Rates – Continuing to work with Miami Dade Transit (MDT) to provide reduced student transit rider rates. This could also be extended to FIU employees to encourage their use of this service as well.

Transit in Lieu of Parking – Providing an annual or semester pass for public transit to students rather than a parking pass would be another alternative strategy.

Express Transit Routes - Currently an Express Bus Route that is jointly being initiated by Miami Dade Transit (MDT), Miami-Dade Expressway Authority (MDX) and the Florida Department of Transportation (FDOT) is being coordinated to have a hub on the Modesto A. Maidique campus at Parking Garage Number 6 (PG6). This campus hub would be a key stop between the Miami Intermodal Center and western Miami-Dade County. This Express route would provide direct access from the campus to key transportation destinations such as Miami International Airport, Port of Miami, Metrorail and Tri-Rail. These will also provide for as well as efficient linkages and transfer locations from Broward County. By providing a transit hub such as this at the Modesto A. Maidique Campus would provide a key catalyst for the desired TOD's to occur within the planning study area and host community of Sweetwater.

Improving Transit Facilities - Providing user-friendly bus stop locations on campus that are inclement weather protected and safe that encourages usage.

Bicycle and Pedestrian Modes

Bicycle Improvements – Provide clearly marked bicycle routes throughout all campuses. These trails and/or lanes would need to connect to adjacent host communities as well as public transportation and parking facilities within the campus. Each of these bicycle routes needs to be clearly identified and marked for ease of use. This would also minimize the conflict between pedestrian and bicycle users within the campus. It is also critical that FIU work with the local host communities, Miami-Dade County and FDOT to encourage that all local roadways within the planning area include clearly designated continuous bike routes to the campuses.

Bicycle Support Facilities - The continuation of bike friendly support facilities on all campuses should continually be encouraged by the University. An example of this is the Campus Bike Shop on the Modesto A. Maidique campus. Once demand is met, a similar facility could be provided on the Biscayne Bay campus also.

Bike Share Program - A bike share program could be implemented with locations near transit stops and parking garages to allow for easily rented bikes that students could use to commute from these transportation hubs into the core of the campuses.

Pedestrian Improvements - Sidewalks within the host communities need to be provided and include facilities that adequately and safely provide a route for campus commuters. Participating with these host communities and ensuring that these facilities provide a pedestrian friendly route is critical to encourage this type of commuting. This pedestrian network needs to continuously enhance on campus as well to provide a contiguous and uninterrupted pedestrian system. Designated walking/biking only areas should be clearly delineated on all campuses. This is critical to avoid conflicts with motorized vehicles and promote a user-friendly environment.

Operational Improvements

Parking Information – MMC's real time parking area availability status via information boards at key transportation decision points on campus allow for more efficient commuting from the point of campus entry to available campus parking facilities. This helps minimize traffic on the campus by commuters driving through heavy pedestrian areas to find parking. This information is also be linked to a wireless network and made available to commuters' wireless or smart phone devices. These systems need to be considered for use at EC and BBC as growth of those campuses continue.

Transit Information – This information should also be provided via a system whereby commuters could access and monitor real-time public transportation route and schedule/arrival times on their wireless devices. This is currently being reviewed as a potential initiative project by FIU.

Shared Car Program - The shared car program "Connect by Hertz" is another way that residents on campus or those who use alternative commuting modes can have access to a vehicle located within a campus (currently only on the Modesto A. Maidique campus). The University should also look to implement this program at the Biscayne Bay campus to reduce the amount of SOV trips generated by resident students.

Carpool and Ridesharing - The University should continue to promote the carpool program that is being coordinated with the Florida Department of Transportation’s South Florida Commuter Services. This program encourages carpool usage by allowing users to search for other carpool members by selecting the location and schedules they need to meet.

Flexible Working Schedule – Flexible schedules could be provided for the FIU administration, staff and faculty. This would allow for telecommuting and clearly benefit the volume of traffic that is generated by these personnel. This will also help reduce traffic flows at peak times.

Increase On-Campus Housing - By increasing the amount of on-campus housing the need for those residents to have a vehicle would be reduced for regular educational accessibility. This would significantly reduce the number of SOV trips required by nonresident commuters.

Distance-Learning Programs - Distance learning programs offered by the University enable students to take classes without traveling to the campuses. Providing more courses and programs through distance learning will reduce trips to the University by students significantly.

Transit Oriented Development (TOD) - Some of the most significant opportunities for TDM strategy implementation are the opportunity for Transit Oriented Developments (TOD) on campus or within the planning study area. TOD refers to mixed-use education, residential and commercial centers designed to maximize access by transit and non-motorized transportation. These centers include features to encourage transit ridership. There are current projects being contemplated within the host communities that are focused on the TOD development model. The greatest activity in this area is at the Modesto A. Maidique campus.

e) Inventory and Assessment of On-Campus Transportation System Safety

1. Traffic Crash Data for Bicycles, Pedestrians and Motor vehicles

MODESTO A. MAIDIQUE CAMPUS

Crash data recorded for the Modesto A. Maidique Campus roadway network were obtained from the FIU Police Department for the 2½-year period of June 2009 to December 2011. Table 11.17 summarizes crashes by location and year. During that period, here was a total of 502 crashes on the Modesto A. Maidique Campus, averaging 201 crashes per year.

Table 11.13 Intersection Crashes– MODESTO A. MAIDIQUE CAMPUS

Year	LOCATION	NUMBER OF CRASHES
2019	Unidentified Location	7
2019	Parking Garages	41
2019	Parking Lots	51

2019	SW 107th Avenue & SW 12th Street	1
2019	SW 107th Avenue & SW 15th Street	3
2019	SW 107th Avenue & SW 17th Street	1
2019	SW 108th Avenue (Unidentified location)	3
2019	SW 108th Avenue & SW 9th Street	1
2019	SW 108th Avenue & SW 10th Street	1
2019	SW 108th Avenue & SW 12th Street	1
2019	SW 108th Avenue & SW 16th Street	11
2019	SW 108th Avenue & SW 17th Street	1
2019	SW 109th Avenue (Unidentified location)	1
2019	SW 109th Avenue & SW 8th Street	11
2019	SW 109th Avenue & SW 9th Street	1
2019	SW 109th Avenue & SW 15th Street	4
2019	SW 109th Avenue & SW 16th Street (circle)	9
2019	SW 110th Avenue (Unidentified location)	1
2019	SW 111th Avenue & SW 14th Street	1
2019	SW 112th Avenue (Unidentified location)	3
2019	SW 112th Avenue & SW 8th Street	6
2019	SW 112th Avenue & SW 10th Street	1
2019	SW 112th Avenue & SW 12th Street	2
2019	SW 112th Avenue & SW 17th Street	3
2019	SW 113th Avenue	3
2019	SW 113th Avenue & SW 10th Street	7
2019	SW 113th Avenue & SW 11th Street	1
2019	SW 114th Avenue & SW 18th Street	1
2019	SW 115th Avenue	2
2019	SW 115th Avenue & SW 12th Street	1
2019	SW 12th Street (Unidentified location)	1
2019	SW 14th Street (Unidentified location)	2
2019	SW 15th Street (Unidentified location)	1
2019	SW 16th Street (Unidentified location)	6
2019	SW 17th Street (Unidentified location)	3
	2019 SUBTOTAL	**193**

Source: FIU Police Department, 2019

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

Crash data recorded for the Engineering Center roadway network were obtained from the FIU Police Department for the most recent 2½-year period (June 2009-December 2011). Table 11.19 summarizes crashes by location and year. There was a total of 6 crashes on the Engineering

Center, averaging 2.5 crashes per year. None of the intersections or roadway segments surrounding the Modesto A. Maidique Campus or Engineering Center was within the top 5% of the FDOT High Crash List.

Table 11.14 Intersection Crashes – ENGINEERING CENTER

Year	LOCATION	NUMBER OF CRASHES
2017	SW 107th Avenue (SR 985) & W. Flagler Street (SR 968)	
2017	SW 105th Place & W. Flagler Street (SR 968)	
	2017 SUBTOTAL	
2018	SW 107th Avenue (SR 985) & W. Flagler Street (SR 968)	
2018	SW 105th Place & W. Flagler Street (SR 968)	
	2018 SUBTOTAL	
2019	SW 107th Avenue (SR 985) & W. Flagler Street (SR 968)	
2019	SW 105th Place & W. Flagler Street (SR 968)	
	2019 SUBTOTAL	

Source: FIU Police Department, 2019

BISCAYNE BAY CAMPUS

Crash data recorded for the Biscayne Bay Campus roadway network were obtained from the FIU Police Department for crashes in the most recent 2½-year period (June 2009-December 2011). Table 11.21 shows that there was a total of 32 crashes on this campus in the period, or approximately 13 crashes per year. None of the intersections or roadway segments surrounding the Biscayne Bay Campus was within the top 5% of the FDOT High-Crash List.

Table 11.15 Intersection Crashes – BISCAYNE BAY CAMPUS

Year	LOCATION	NUMBER OF CRASHES
2019	NE 145th Street and N University Dr	
2019	Bay Vista Blvd (unidentified location)	
2019	NE 144th Street and Bay Vista Blvd	
2019	NE 147th Street (unidentified location)	
2019	NE 145th Street and Bay Vista Blvd	
	2019 SUBTOTAL	
2019	NE 144th Street and N University Dr	
2019	NE 145th Street (unidentified location)	
	2019 SUBTOTAL	

Source: FIU Police Department, 2019

2. Lighting Assessment for Bicycle and Pedestrian Facilities

MODESTO A. MAIDIQUE CAMPUS

The campus loop roadway lighting is consistent, using a shoe box type fixture on a short twelve to fifteen-foot post and was deemed acceptable. Parking Lots are adequately lit by shoe box type fixtures on tall, twenty-four-foot poles.

The pedestrian areas appear adequately lit with standardized twelve-foot pedestrian pole mounted luminaires throughout the campus. FIU maintains a minimum of 1.0 footcandles throughout the pedestrian areas. In addition to the standard lights, accent lights and bollards are used on the campus for aesthetic and security issues. Additional lighting for pedestrian walkways is provided by architectural pedestrian fixtures. These fixtures are typically associated with recent construction projects.

Some of the most critical locations to provide adequate lighting are at the pedestrian crosswalks. An analysis of lighting at pedestrian crosswalks should be conducted to ensure safe conditions at these locations.

ENGINEERING CENTER

The Engineering Center lighting is consistent. The west parking lot is adequately lit by shoe box type fixtures on a tall, twenty-four-foot pole. How is East lot lit under solar panels? Don't see lights. The pedestrian area on the west side of the academic building appears adequately lit with standardized twelve-foot pedestrian pole mounted luminaires.

BISCAYNE BAY CAMPUS

The parking lots have a series of light fixtures on a tall twenty-four-foot, square concrete pole. These aluminum fixtures with concrete standards are also used along primary roadways, recreational and maintenance facilities, the pedestrian path along Biscayne Bay and throughout the Kovens Center site. Occasionally illumination for roadways and open lawn areas on campus is provided by a shoe box type fixture on a shorter twelve-foot post. Some of the temporary/overflow parking areas did not appear to have lighting. This will need to be studied more thoroughly to ensure safe conditions.

Tall Cobra-head lights are used along Bay Vista Boulevard.

The pedestrian areas appear adequately lit with standardized twelve-foot pedestrian pole mounted luminaires throughout the campus. FIU maintains a minimum of 1.0 footcandles throughout the pedestrian areas.

3. Identification of High Traffic Crash Locations and Other Safety Concerns on Campus

The highest crash locations on the FIU campuses occur within the parking areas. There appears to be adequate signage and lighting within these areas.

On the Modesto A. Maidique campus, the most frequently occurring crash location was attributed to 16th Street and the 109th Avenue/16th Street circle. To alleviate this, the University has made modifications to this traffic circle to improve ease of use.

With the addition of PG5 and PG6, a significant increase in the number of crashes has occurred along 109th Avenue. This crash data in this area of campus must be monitored to prevent further increases.

The University has installed traffic/pedestrian signals at the SW 109th Avenue/ SW 10th Street, SW 108th Avenue/SW 10th Street and SW 113th Avenue/SW 10th Street intersections to help control pedestrian crossings at these locations adjacent to Parking Garages #4, #5, #6 and #3 respectively.

All other campuses are not experiencing significant crash concerns.

f) Inventory Planned New Roads, Road Modifications, and Other PlannedTransportation System Modifications

The Miami-Dade Transportation Planning Organization's ~~2015~~ Transportation Improvement Program indicates various projects that are planned to occur within the campus' planning study areas. These projects are primarily focused on resurfacing, capacity, and intersection improvements. No projects are currently planned for bicycle or pedestrian improvements within the campus' planning study areas.

Table 11.16 Proposed TPO Transportation Improvement Program Projects

TPO Project No.	Facility	Location/ From	Location/ To	Project Type	Proposed Funding (Millions)	Proposed Construction Date
PW0001133	NE 151 Street	Biscayne Boulevard	Bay Vista Boulevard	Widen from 4 to 6 lanes	$353,000 for PE, $9,826,000 for CST	2021
DT4377821	SR 968/FLAGLER ST	SR 821/HEFT	TO SR 5/ BISCAYNE BLVD (BRT STUDY)	Arterial/Collector Road PD&E/EMO STUDY	$ 2.315	2021-2022
PW0001123	W 102 Avenue	W Flagler Street	Fontainebleau Boulevard	Resurfacing	$541,000 for CST	2021
TA4443521	CITY OF DORAL - FIU/PANTHER STATION TROLLEY ROUTE			TRANSIT SERVICE DEMONSTRATION	$520,000	2021
DT1043	TOLL OPERATIONS MIAMI-DADE EXPRESSWAY - DOLPHIN			Expressway TOLL PLAZA	$11.095	2020-2025
TA000109	DTPW - SMART PLAN CORRIDORS T.R.I.P. CAPITAL EXPENDITURES			TRANSIT IMPROVEMENT	$11.161	2020-2025
TP4355434	HEFT (SR 821) NW 106 ST	AT NW 112 AVE INTERSECTION IMPROVEMEN TS		Expressway INTERSECTION IMPROVEMENT	TBD	2021
TP4438822	TURNPIKE EXT (SR 821) MANAGED LANE IMPLEMENTATION (MP 20-27)			DOT MISCELLANEOUS CONSTRUCTION	$1	2020-2021
TA14	Flagler MAX RTE 51 Operating Assistance	West Miami-Dade	Downtown	Transit/Urban Corridor Improvements	$1.144	2020-2023
DT4401821	SR 90/SW 8 ST SIGNALIZED INTERSECTION LIGHTING	SW 132 AVE	SW 70 AVE	Arterial/Collector Road LIGHTING	$0.502	2020-2021

DT4355061	SR 90/SW 8 ST TRAFFIC SIGNAL UPDATE PILOT PROJECT			Arterial/Collector Road TRAFFIC SIGNAL UPDATE	TBD	2020-2025
PW0001116	SW 24 Street	SW 107 Avenue	SW 87 Avenue	Widen from 4 to 6 lanes	Prior Years' Funding as follows: $1,672,000 for PE	2021-2025
PW000977	SW 117 Avenue	SW 40 Street	SW 8 Street	Arterial/Collector Road Resurfacing	Prior Years' Funding as follows: $780,000 for CST	2021
TP4150519	LANDSCAPING FOR SW 8 ST / HEFT INTERCHANGE			Expressway LANDSCAPING	TBD	2021
TP4150514	WIDEN HEFT, BIRD RD - SR836(MP23.8-26)(6 TO 10 LANES) INCUDES MANAGED LANES			Expressway ADD LANES & RECONSTRUCT	TBD	2019-2021
TP4150516	LANDSCAPING FOR HEFT WIDENING	BIRD RD	SR 836	Expressway LANDSCAPING	TBD	2021
DT4399241	SR 973/SW 87 AVE	SW 27 ST	SW 20 TERRACE	Arterial/Collector Road INTERSECTION IMPROVEMENT	$1.282	2021
DT4379231	SR 976/SW 40 ST	SW 11500 BLOCK	SW 107 AVE	Arterial/Collector Road INTERSECTION IMPROVEMENT	$0.065	2021

MPO Project No.	Facility	Location/ From	Location/ To	Project Type	Proposed Funding (Millions)	Proposed Construction Date
4124792	SW 107 Ave	SW 5th Street	W. Flagler Street	Add Lanes and Pavement Rehabilitation	$11.8	
4124793	SW 107 Ave	SW 12th Street	SW 4th Street	Add Lanes and Pavement Rehabilitation	$ 15	
4311771	SW 107 Ave	SW 24th Street	1100 Block	Resurfacing	$1.2	
4291623	SW 8th St	SW 127th Avenue	HEFT on-Ramp	Resurfacing	$2.5	
4291901	US 1/ Biscayne Blvd	Ne 121 Street	NE 151 Street	Resurfacing	$4.5	
4291902	US 1/ Biscayne Blvd	NE 135 Street	NE 135 Street	Intersection Improvements	$0.55	

g) Inventory and Assessment of Roadways on Campus and in the Planning Study Area

1. Adopted Level of Service (LOS)/Maximum Service Volumes

A level of service (LOS) analysis was conducted to evaluate the existing 2020 PM peak hour traffic conditions without any new capacity improvements. FIU experiences the highest volume of traffic during the PM peak period as many part-time students commute to/from campus during this period.

MODESTO A. MAIDIQUE CAMPUS

The study area includes access roadways and intersections adjacent to the campus. Highway Capacity Software (HCS) 2010 was used to analyze the LOS on each of the study area roadway segments. The current PM peak hour LOS for the roadways on campus and within the study area are shown in Table 11.23. All the roadway segments currently operate above adopted LOS “E”.

Capacity analyses for critical intersections around the campus were performed using HCS 2010. The existing intersection LOS for the existing 2012 PM peak hour is shown in Table 11.24. All locations, except for two (2), currently satisfy the minimum adopted LOS threshold. The intersections of SW 109th Avenue/SW 8th Street and SW 107th Avenue/SW 16th Street operate at a LOS E (capacity) during the 2012 PM peak hour. With future growth and traffic anticipation, these intersections could potentially fail. These locations need to be evaluated for future traffic impacts and capacity improvements.

Table 11.17 Existing Roadway Segment Level of Service (LOS) Analysis 2020 PM PeakHour – MODESTO A. MAIDIQUE CAMPUS

Location	Direction	Lanes (3)	LOS E Capacity (1)	Traffic Volumes (2)	LOS (4)
SW 117th Avenue, S/O SW 17th Street	NB	1	-	540	D
	SB	1	-	877	D
SW 17th Street, E/O SW 117th Avenue	EB	1	-	217	C
	WB	1	-	643	C
SW 117th Avenue, N/O SW 17th Street	NB	1	-	595	C
	SB	1	-	506	C
SW 8th Street, W/O SW 109th Avenue	EB	3	-	2163	B
	WB	3	-	2333	C
SW 109th Avenue, S/O SW 8th Street	NB	2	-	726	A
	SB	2	-	535	A
SW 8th Street, E/O SW 109th Avenue	EB	3	-	2240	C
	WB	3	-	2038	B
SW 109th Avenue, N/O SW 8th Street	NB	1	-	442	C
	SB	1	-	623	C
SW 8th Street, W/O SW 112th Avenue	EB	3	-	2520	C
	WB	3	-	2967	C
SW 112th Avenue, S/O SW 8th Street	NB	2	-	678	A
	SB	2	-	717	A
SW 8th Street, E/O SW 112th Avenue	EB	3	-	2353	C
	WB	3	-	2839	C

SW 107th Avenue, N/O SW 12th Street	NB	3	-	2170	B
	SB	3	-	2067	B
SW 12th Street, W/O SW 107th Avenue	EB	1	-	745	D
	WB	1	-	542	D
SW 12th Street, E/O SW 107th Avenue	EB	1	-	227	A
	WB	1	-	0	A
SW 107th Avenue, S/O SW 12th Street	NB	3	-	2215	B
	SB	3	-	1941	B
SW 16th Street, W/O SW 107th Avenue	EB	2	-	820	A
	WB	2	-	679	A
SW 16th Street, E/O SW 107th Avenue	EB	2	-	531	A
	WB	2	-	798	A
SW 107th Ave N/O SW 16th Street	NB	3	-	1465	B
	SB	3	-	1571	B
SW 107th Ave S/O SW 16th Street	NB	3	-	1258	A
	SB	3	-	1772	B
SW 108TH Ave, W/O SW 107th Avenue	EB	2	-	97	A
	WB	2	-	116	A
SW 107th Ave S/O SW 108TH Ave	NB	3	-	1613	B
	SB	3	-	1869	B
SW 107th Ave N/O SW 108TH Ave	NB	3	-	1525	B
	SB	3	-	1800	B

1) For LOS thresholds refer to HCM 2010 for Multi-Lane (HCM Exhibit 14-4, LOS based on density within segment) & Two-Lane highways (HCM Exhibit 15-3, LOS based on percent of free flow speed).
2) Traffic volumes are based on 2012 PM peak turning movement counts.
3) Denotes number of through lanes by direction.
4) From HCS 2010 analysis, see Appendix 11.5

Table 11.18 Existing Intersection Level of Service (LOS) Year 2020 PM Peak Hour - MODESTO A. MAIDIQUE CAMPUS

SIGNALIZED INTERSECTIONS		
	OPTIMIZED TIMINGS (1)	
Location	Average Stopped Delay (secs/veh)	LOS
SW 107th Avenue and SW 12th Street	29.3	C
SW 107th Avenue and SW 16th Street	65.8	E
SW 107th Avenue and SW 8th Street (2)	-	-
SW 107th Avenue and SW 1700 Block (SW 108th Ave)	9.7	A
SW 109th Avenue and SW 8th Street	76.1	E
SW 112th Avenue and SW 8th Street	31.2	C
SW 117th Avenue and SW 17th Street	32.9	C

SW 112th Ave & University Dr (Unsignalized-2 way stop controlled) (on campus) (3)	(EB approach=228.1) (WB approach = 31.1)	F D
University Dr & SW 109th Ave (on campus)	6.1	A

1) From HCS 2010 analysis, see Appendix 11.4
2) Intersection is not analyzed since FDOT is making improvements
3) Stop control on SW 112th Avenue

ENGINEERING CENTER

The study area includes access roadways and intersections adjacent to the campus. HCS 2010 was used to analyze the LOS on each of the roadway segments within the study area. All the roadway segments currently operate at or above adopted levels of service, as shown in Table 11.25.

HCS 2010 was also used to analyze the intersection LOS. Table 11.26 summarizes the existing LOS for study area intersections. Analysis results indicate that all study intersections operate at or above adopted levels of service.

Table 11.19 Existing Roadway Segment Level of Service (LOS) Analysis 2020 PM Peak Hour - ENGINEERING CENTER

Location	Direction	Lanes (3)	LOS E Capacity (1)	Traffic Volumes (2)	LOS (4)
NW 107th Ave (SR 985) S/O EC Entrance	NB	3	-	1281	A
	SB	2	-	1546	C
NW 107th Ave (SR 985) N/O EC Entrance	NB	3	-	1284	A
	SB	3	-	1606	B
W Flagler Street E/O EC Entrance/SW 105 Pl.	EB	3	-	1051	A
	WB	3	-	1203	A
W Flagler Street W/O EC Entrance/SW 105 Pl.	EB	3	-	1010	A
	WB	3	-	1223	A

1) For LOS thresholds refer to HCM 2010 for Multi-Lane (HCM Exhibit 14-4, LOS based on density within segment).
2) Traffic volumes are based on 2012 PM peak turning movement counts.
3) Denotes number of through lanes by direction.
4) From HCS 2010 analysis, see Appendix 11.5

Table 11.20 Existing Intersection Level of Service (LOS) Analysis 2020 PM Peak Hour –ENGINEERING CENTER

SIGNALIZED INTERSECTION			
LOCATION		**OPTIMIZED TIMINGS**	
		Average Stopped Delay (secs/veh)	**LOS**
SW 105th Pl and W Flagler St (SR 968)		33.8	C
UNSIGNALIZED INTERSECTION			
		Control Delay (secs/veh)	**LOS**
	WBR only (Stop Control)	16.4	C
	SBL	14.4	B

NW 107th Street and EC Entrance	NBL	12.0	B
	EBR only (Stop Control)	12.5	B

Source: From HCS 2010 analysis, Appendix 11.4

BISCAYNE BAY CAMPUS

The study area includes access roadways and intersections adjacent to the campus. HCS 2010 was used to analyze the LOS on each of the roadway segments within the study area. All the roadway segments currently operate above the adopted LOS "E" as presented in Table 11.27.

Table 11.21 Existing Roadway Segment Level of Service (LOS) Analysis 2020 PM Peak Hour – BISCAYNE BAY CAMPUS

Location	Direction	Lanes (3)	LOS E Capacity (1)	Traffic Volumes (2)	LOS (4)
Bay Vista Boulevard, (NE151st St) N/O NE 145 Street	NB	2	-	311	A
	SB	2	-	256	A
Bay Vista Boulevard (NE 151st St) E/O Biscayne Blvd	EB	2	-	580	A
	WB	2	-	782	A
Campus Entrance (NE 145th St) E/O Bay Vista Boulevard (NE 151st Street)	EB	1	-	210	B
	WB	1	-	184	B

1) For LOS thresholds refer to HCM 2010 for Multi-Lane (HCM Exhibit 14-4, LOS based on density within segment) & Two-Lane highways (HCM Exhibit 15-3, LOS based on percent of free flow speed).
2) Traffic volumes are based on 2012 PM peak turning movement counts.
3) Denotes number of through lanes by direction.
4) From HCS 2010 analysis, see Appendix 11.5

HCS 2010 was also used to analyze the intersection LOS. Table 11.28 summarizes the existing level of service for study area intersections. Analysis results indicate that the intersection of US 1/Biscayne Boulevard and NE 151st Street is currently operating at LOS E (capacity). With future growth and anticipated traffic, this intersection could potentially fail. This location needs to be evaluated for future traffic impacts and capacity improvements.

Table 11.22 Existing Intersection Level of Service (LOS) 2020 PM Peak Hour – BISCAYNE BAY CAMPUS

SIGNALIZED INTERSECTIONS		
	OPTIMIZED TIMINGS	
LOCATION	Average Stopped Delay (secs/veh)	LOS
US 1 (Biscayne Blvd) and NE 151st Street	72.2	E
UNSIGNALIZED INTERSECTION		
Bay Vista Boulevard(NE 151st St) and Campus Entrance (NE 145th Street)	Approach Delay (secs/veh)	LOS
WB Approach (L+R)	8.42	A
NB Approach (2 lane)	8.41	A
SB Approach (1 LT+2 THRU)	10.38	B

Source: From HCS 2010 analysis, see Appendix 11.4

2. Traffic Counts

MODESTO A. MAIDIQUE CAMPUS

PM peak period turning movement counts (TMCs) were collected at the following University access locations:

- SW 107th Avenue and SW 12th Street
- SW 107th Avenue and SW 16th Street
- SW 107th Avenue and SW 1700 Block (SW 108th Avenue)
- SW 109th Avenue and SW 8th Street
- SW 112th Avenue and SW 8th Street
- SW 117th Avenue and SW 17th Street

The TMC's were collected in September 2012 between Tuesday and Thursday during the PM peak periods from 4:00 PM to 6:00 PM. The data collected is included in the Appendix 11.3.

ENGINEERING CENTER

PM peak period TMC's were collected at the following intersections:

- NW 107th Avenue and Engineering Center Entrance (West Entrance)
- W Flagler Street and SW 105th Place (South Entrance)

The TMCs was collected in September 2012 between Tuesday and Thursday during the PM peak periods from 4:00 PM to 6:00 PM. The data collected is included in the Appendix 11.3.

BISCAYNE BAY CAMPUS

PM peak period TMCs was collected at the following intersections:

- US 1 (Biscayne Blvd)/NE 151 Street,
- Bay Vista Blvd (NE 151 Street) and FIU entrance (NE 145th Street).

The TMCs was collected in September 2012 between Tuesday and Thursday during the PM peak periods from 4:00 PM to 6:00 PM. The data collected is included in Appendix 11.3.

3. Pavement Condition

Pavement conditions throughout the campuses appear to be at acceptable levels. With the large amount of construction activities at MMC, attention will need to be paid to ensure the pavement and associated signing/marking are returned to acceptable conditions.

4. Road Designations

MODESTO A. MAIDIQUE CAMPUS

Collector Roads: The entrance roads and campus loop road (SW 10th Street/University Drive, SW 12th Street, SW 115th Avenue, SW 17th Street and SW 14th Street), function as collectors on this campus. These loop road(s) serve to collect traffic and segregate it from the campus core, yet provide vehicular linkage to key parking, education, athletic, housing and support facilities.

Local Roads: All other roads on campus function as local Streets; these Streets are SW 12th Street (west of SW 115th Avenue) on the western part of campus; SW 113th Avenue, just east of the nature preserve, SW 14th Street which runs east/west on the north side of University Towers; and the SW 12th Street entry to University Apartments at SW 107th Avenue.

The roadways in the planning study area are classified as follows: Tamiami Trail (SW 8th Street) is a state principal arterial. The Homestead Extension of Florida's Turnpike (HEFT) is a limited-access tolled expressway.

The following roadways are minor arterials:

- SW 24th Street (Coral Way)

- SW 107th Avenue (SR 985)
- SW 117th Avenue
- W Flagler Street (SR 968)

The following roadways are collectors:

- SW 16th Street
- NW 7th Street
- SW 97th Avenue
- SW 102nd Avenue
- SW 109th Avenue
- SW 122nd Avenue
- SW 127th Avenue

ENGINEERING CENTER

Collector Roads: The campus entrance roads to NW 107th Avenue and W. Flagler Street function as collectors.

Local Roads: All other roads providing access to the campus parking lots and engineering center building function as local Streets.

The roadways in the planning study area are classified as follows: Tamiami Trail (SW 8th Street) is a state principal arterial. The Homestead Extension of Florida's Turnpike (HEFT) is a limited-access tolled expressway.

The following roadways are minor arterials:

- SW 24th Street (Coral Way)
- SW 107th Avenue (SR 985)
- SW 117th Avenue
- W Flagler Street (SR 968)

The following roadways are collectors:

- SW 16th Street
- NW 7th Street
- SW 97th Avenue
- SW 102nd Avenue
- SW 122nd Avenue
- SW 127th Avenue

BISCAYNE BAY CAMPUS

Collector Roads: Bay Vista Boulevard is the main collector road which leads into the Biscayne Bay Campus. Bay Vista Boulevard intersects with US 1 (Biscayne Boulevard) and becomes NE 151st Street east of US1.

Local Roads: All other roads providing access to the campus parking lots function as local Streets.

In the Biscayne Bay Campus planning study area, US 1 (Biscayne Boulevard) and NE 163rd Street are classified as principal arterials. W. Dixie Highway is classified as a minor arterial, while the following are classified as collectors: NE 159th Street, NE 151st Street, and Bay Vista Boulevard.

5. Evaluation of Opportunities to Implement Transportation System Management Strategies (TSM)

- Add intersection turning lanes.

- Optimize traffic signal phasing and timings.
- Improve signal progression.
- Modify an interchange by following the Department's Interchange Modification Report Procedure.
- Implement incident management programs.
- Implement intelligent transportation systems (ITS).

The above TSM strategies are improvements intended to fully utilize the existing transportation system's capacity. Among these TSM strategies, the interchange modification strategy needs to be applied to the interchange of the Homestead Extension of Florida's Turnpike (HEFT) and SW 8th Street immediately. Long queues and traffic congestion occur on SW 8th Street because of traffic on westbound SW 8th Street traveling to northbound HEFT. The westbound left- turn lane is not long enough to accommodate traffic which can block through lanes on SW 8th Street during the PM peak hour.

A right-turn lane may be required on 107th Avenue northbound at the entrance to the Engineering Center. A right-turn lane improvement would increase capacity on 107th Avenue and provide safety improvements.

h) Assessment of the Roadway Capacity on Campus and in the Planning Study Area for the Campus Master Plan Base Year and Projected Year

1. Future Conditions for Enrollment, Building Program and Parking Facilities

MODESTO A. MAIDIQUE CAMPUS

Locations of future academic facilities, support facilities, and utilities elements for the Modesto A. Maidique Campus are anticipated. Academic facilities are located mostly inside of the campus loop road. The northeast area, which is outside of the campus loop road, will also accommodate future academic facilities.

ENGINEERING CENTER

Locations of future academic facilities, support facilities, and utilities elements for the Engineering Center are anticipated. Future facilities will be in the southwest area of the Engineering Center building.

BISCAYNE BAY CAMPUS

Future academic, support facilities and utilities are anticipated for the Biscayne Bay Campus.

2. Mode split

No current data is available regarding the mode split for the FIU campuses.

3. Trip generation:

For the years 2015 and 2020, the ITE (Institute of Transportation Engineers) Trip Generation Manual (8th Edition) was utilized for student headcount (land use code 550, page 1033) and for faculty/staff (employees) headcount (land use code 550, page 1039). Trip generation is based on equations or rates and the equations specified on these pages were utilized to compute the PM peak hour trips between 4:00 and 6:00 PM to match the adjacent street traffic peak hour. Tables 11.29 and 11.30 summarize the estimated total PM peak hour trips of the student and faculty/staff (employee) trip generation.

Table 11.23 Fall 2025 PM Peak Hour Trips by FIU Campuses

University Campus	Fall 2015 Student Headcount (1)	Fall 2015 Faculty/Staff (employees) Headcount (2)	2015 PM Peak Hour Trips (Veh/hr) (3)
Modesto A. Maidique	36,084	6,400	9,133
Engineering Center	2,647	88	651
Biscayne Bay Campus	7,838	344	1,721

1) From FIU enrollment matrix
2) Not provided by FIU, Projections calculated based on faculty/staff to student ratio for 2012, and percentage of total faculty/staff (employees) in 2012 which is FTE.
3) Total PM Peak hour trips = trip generation based on student headcount (1) + trip generation based on faculty/staff (employees) headcount (2).

Table 11.24 Fall 2035 PM Peak Hour Trips by FIU Campuses

University Campus	Fall 2020 Student Headcount (1)	Fall 2020 Faculty/Staff (employees) Headcount (2)	2020 PM Peak Hour Trips (Veh/hr) (3)
Modesto A. Maidique	37,719	6,690	9,493
Engineering Center	2,918	97	705
Biscayne Bay Campus	9,055	397	1,970

1) From FIU enrollment matrix
2) Not provided by FIU, Projections calculated based on faculty/staff to student ratio for 2012, and percentage of total faculty/staff (employees) in 2012 which is FTE.
3) Total PM Peak hour trips = trip generation based on student headcount (1) + trip generation based on faculty/staff (employees) headcount (2).

4. Roadway Capacity Assessment and Assessment of University Traffic Impacts on Off-Campus

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

The Modesto A. Maidique Campus is located within the Miami-Dade County Metropolitan Planning Organization (MPO) Traffic Analysis Zone (TAZ) 983 while Engineering Center is located within TAZ 814. Trip distribution was accomplished using the cardinal directional distribution method, which is currently used in Miami-Dade County. Distribution percentages of each TAZ were obtained from the Department of Planning and Zoning. Tables 11.31 and 11.32 show the distribution percentage and trip distribution corresponding to the cardinal direction for the TAZs in which the Modesto A. Maidique campus and the Engineering Center are located.

Table 11.25 Trip Distribution by Cardinal Direction – MODESTO A. MAIDIQUE CAMPUS

Cardinal Direction	Percent of Trip Distribution for TAZ 983 (1)	Trip Distribution (Year 2015) (Veh/hr) (2)	Trip Distribution (Year 2020) (Veh/hr) (2)
NNE	11.2	1,023	1,063
ENE	16.91	1,544	1,605
ESE	9.12	833	866

SSE	13.88	1,268	1,318
SSW	23.2	2,119	2,203
WSW	14.94	1,365	1,418
WNW	4.85	443	460
NNW	5.89	539	560
TOTAL	100	9,133 (2)	9,493

1) Percent trip distribution for TAZ from Miami-Dade County MPO.
2) Trip generation computed earlier from ITE Trip Generation Manual, 8th Edition.

Table 11.26 Trip Distribution by Cardinal Direction – ENGINEERING CENTER

Cardinal Direction	Percent of Trip Distribution for TAZ 814 (1)	Trip Distribution (Year 2015) (Veh/hr)	Trip Distribution (Year 2020) (Veh/hr)
NNE	14.49	94	102
ENE	18.5	120	130
ESE	14.62	95	103
SSE	11.97	78	84
SSW	20.46	133	144
WSW	10.98	71	77
WNW	3.90	25	27
NNW	5.08	33	36
TOTAL	100	651 (2)	705 (2)

1) Percent trip distribution for TAZ from Miami-Dade County MPO.
2) Trip generation computed earlier from ITE Trip Generation Manual, 8th Ed.

Existing Traffic Concurrency Evaluation:

The traffic assignment has been documented to establish the project traffic contribution on roadways within one mile of the campuses using the concurrency data kept by the Miami-Dade County Public Works Department. The resulting two-way assignment of project traffic along with the percentage of project traffic contribution for each concurrency station is shown in Table 11.33.

If Master Plan Update is a multi-year process, Miami-Dade County recommends delaying traffic study until near the end so that traffic numbers are more accurate at time of Campus Development Agreement.

Table 11.27 Traffic Impact Assessment – Two Way Analysis – MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER – Year 2020

Roadway	Limits	Station No.	Roadway LOS Standard (5)	Roadway Capacity	PHP	Two-Way Project Traffic (3)	Project Traffic Contribution (2)	Background Traffic (DHV) (4)
SW 127 Ave (1)	SW 7 St to NW 6 St	9770	A	2,840	1,741	112	1.1%	1,628
SW 127 Ave (1)	SW 8 St to SW 26 St	9772	B	3,150	2,386	31	0.3%	2,385
SW 122 Ave	SW 8 St to SW 26 St	877046	B	2,050	2,393	143	1.4%	1,310 (4)

HEFT	300' N of SW 8 St	2250	D	9,800	12,702	122	1.2%	7,208 (4)
HEFT	1000' N of Bird Rd	2270	F	9,800	11,580	275	2.7%	6,478 (4)
NW 107 Ave	Flagler St to SR 836	1218	D/C	5,590	6,450	1,275	12.5%	3,012 (4)
SW 107 Ave	Flagler St to SW 8 St	2580	F/D	4,630	6,127	2,662	26.1%	2,016 (4)
SW 107 Ave	SW 8 St to SW 24 St	1090	C	6,540	5,384	704	6.9%	2,723 (4)
SW 97 Ave (1)	SW 8 St to SW 40 St	9698	D	1,320	1,369	214	2.1%	1,154
SW 26 St. (Coral Way) (1)	SW 117 Ave to 127 Ave	9130	D	4,900	4,535	826	8.1%	3,709
SW 24 St (Coral Way) (1)	SW 107 Ave to 117 Ave	9128	C	4,330	3,783	51	0.5%	3,732
SW 24 St Coral Way) (1)	SW 97 Ave to 107 Ave	9126	C	7,380	3,647	357	3.5%	3,290
SW 8 St	SW 127 Ave to SW 137 Ave	88	C	7,320	5,405	275	2.7%	2,986 (4)
SW 8 St	SW 117 Ave to SW 127 Ave	2561	D/C	5,860	5,804	449	4.4%	3,116 (4)
SW 8 St	SW 107 Ave to SW 117 Ave	90	D/C	8,590	5,683	418	4.1%	3,064 (4)
W Flagler St (1)	NW 107 Ave to 114 Ave	9158	B	6,990	3,502	255	2.5%	3,247
W Flagler St (1)	NW 97 Ave to 107 Ave	9156	B	4,660	3,567	540	5.3%	3,026

1) Items had no FDOT 2011 volumes, therefore a 20% increase was applied (based on increase on other segments) to the previous numbers from 2006 Campus Master Plan
2) Same contribution as 2006 Campus Master Plan
3) Two-way project traffic = (Sum of 2020 PM peak trip generation trips for MMC (9493 from Table 11.31) + EC (705 from Table 11.32) campuses) x (2).
4) Background traffic (design hourly volume, DHV) computed from 2011 AADT. K factor of 0.09 used.
5) From HCS 2010, see Appendix 11.7

BISCAYNE BAY CAMPUS

The Biscayne Bay Campus is located within the Miami-Dade County Metropolitan Planning Organization (MPO) Traffic Analysis Zone (TAZ) 190. Trip distribution was accomplished using the cardinal directional distribution method. Distribution percentages of TAZ 190 were obtained from the Department of Planning and Zoning. Table 11.34 summarizes the distribution percentage and trip distribution corresponding to the cardinal direction of TAZ 190.

Table 11.28 Trip Distribution by Cardinal Direction – BISCAYNE BAY CAMPUS

Cardinal Direction	Percent of Trip Distribution for TAZ 190 (1)	Trip Distribution (Year 2015) (Veh/hr)	Trip Distribution (Year 2020) (Veh/hr)
NNE	10.51	181	207
ENE	0.15	3	3
ESE	0.01	0	0

SSE	4.13	71	81
SSW	11.31	195	223
WSW	26.71	460	526
WNW	23.44	403	462
NNW	23.73	408	467
TOTAL	100	1,721(2)	1,970 (2)

(1) Percent trip distribution for TAZ from Miami-Dade County MPO.
(2) Trip generation computed earlier from ITE Trip Generation Manual, 8th Edition.

Existing Traffic Concurrency Evaluation:

2 Table 11.35 depicts the project traffic contribution on all roadway links within one (1) mile of campus using concurrency data kept by the Miami-Dade County Public Works Department.

Traffic Impact Assessment – Two Way Analysis – BISCAYNE BAY CAMPUS - Year 2020

Roadway	Limits	Station No.	Roadway LOS Standard (5)	Roadway Capacity	PHP	Two-Way Project Traffic (3)	Project Traffic Contribution (2)	Background Traffic (DHV) (4)
West Dixie Hwy	NE 16 Ave to NE 163 St	531	A	2,910	1,370	2	0.1%	1,368 (4)
Biscayne Blvd	NE 135 St to NE 163 St	5219	C	9,540	5,608	73	3.7%	5,535 (4)
Biscayne Blvd	NE 121 St to NE 135 St	524	B	5,800	3,500	35	1.8%	3,465 (4)
NE 135th St	NE 12 Ave to Biscayne Blvd	1026	B/A	3,150	1,888	160	8.1%	1,728 (4)
NE 151 St/Bay Vista Blvd (1)	Biscayne Blvd to Biscayne Bay Campus Entrance	NA	A	3,420	1,244	670	34.0%	574

1) Obtained from 2012 TMCs.
2) Same contribution as 2006 Campus Master Plan
3) Two-way project traffic = (2020 PM peak trip generation trips for BC campus, i.e.1970, from Table 11.34) x (2).
4) Background traffic (design hourly volume, DHV) computed from 2011 AADT. K factor of 0.09 used.
5) From HCS 2010, see Appendix 11.7.

12.0 INTERGOVERNMENTAL COORDINATION

(1) DATA AND ANALYSIS REQUIREMENTS

a) Inventory of All Host and Affected Governments and Other Units of Local Government Providing Services but Not Having Regulatory Authority Over the Use of Land, Independent Special Districts, Water Management Districts, Regional Planning Councils, and State Agencies with which the University Coordinates or which Provides Services to the University.

Table 12.1 provides an inventory of the agencies and regulatory authorities with whom FIU interacts as it carries out its mission to serve the Florida Board of Education's Division of Colleges and Universities. These agencies serve as the primary coordination/jurisdictional agency(s). It should be noted that the agency coordination described in Table 12.1 reflects the historical coordination mechanisms and not those required to meet the goals, objectives, and policies of this current Comprehensive Master Plan (2020-2035).

Table 12.1 Host Community Government Agencies

CITY	**REGIONAL**
City of Sweetwater	South Florida Water Management District (SFWMD)
COUNTY	**STATE**
Miami-Dade County Commission	Florida Board of Education, Board of Governors
Miami-Dade County Department of Regulatory and Economic Resources (DRER)– Division of Planning	Florida Department of Environmental Protection (DEP)
Miami-Dade County Department of Regulatory and Economic Resources (DRER)-Division of Environmental Resources Management	Florida Department of Transportation (DOT), District 6
Miami-Dade Water and Sewer Department (WASD)	Florida Department of State
Miami-Dade Department of Transportation and Public Works (DTPW)	Florida Fish and Wildlife Conservation Commission
Miami-Dade Transportation Planning Organization (TPO)	**FEDERAL**
	U.S. Army Corps of Engineers (ACOE)
	U.S. Environmental Protection Agency (USEPA)
	Federal Highway Administration (FHA)

b) The Assessment Shall Include:

1. Existing Coordination Mechanisms for Each Entity Listed in (1) a

Subject 1. To assure existing and proposed land uses are compatible with the host communities land use plan element.

Description

To maintain the land use compatibility between the University and its host communities, a reciprocal review of development plans on and adjacent to the campuses is observed.

Primary Entities

- Miami-Dade County Department of Regulatory and Economic Resources (DRER)-Division of Planning
- City of Sweetwater
- City of North Miami
- FIU Facilities Planning

Currently, FIU does not own land in the City of Miami, the City of Sweetwater, and the City of North Miami Beach. However, these municipalities are near existing FIU sites. As such, the university maintains an informal relationship with these governments, informing them of future development plans as a courtesy.

Coordinating Mechanisms

The host communities have Future Land Use Elements adopted in accordance with Chapter 163, Florida Statutes. All amendments to the future land use plan map must undergo statutory review and the public hearing process as set forth in Chapter 163, Florida Statutes.

The Nature of the Relationship

Chapter 163 Florida Statutes related to the comprehensive plan amendment process gives the University formal standing to comment on land use issues related to amendments to Comprehensive Plans. The host communities are not required to coordinate the review of public or private land development proposal that are in accordance with the adopted land use plan, local zoning ordinances, and land development regulations with the University.

Subject 2. Expansion of Land Resources Available for University Facilities after the Projected Build-out date of 2035.

Description

Modesto Maidique Campus is constrained from any potential expansion by major roadways and existing land uses on the northern, eastern, and western boundaries. The University may also consider joint use of land.

Primary Entities

- Florida Board of Education's Board of Governors (BOG)
- Miami-Dade County Commission
- City of Sweetwater

Secondary Entities

- FIU Facilities Planning

- Miami-Dade County Parks, Recreation and Open Spaces
- Miami-Dade County Fair and Exposition

Coordinating Mechanisms

There are no coordinating mechanisms currently. Most discussion for potential expansion has been on an informal basis. However, an agreement will be needed if the plans for expansion become formal.

Nature of the Relationship

No formal relationship exists currently.

Subject 3. Miami-Dade County Department of Transportation and Public Works (DTPW)

Description

The University works closely with Miami-Dade Department of Transportation and Public Works and other transportation agencies to assure adequate transit service for the FIU community. Existing transit facilities include a bus terminal at Modesto Maidique and a bus stop at Biscayne Bay Campus.

Complete Streets MMC to EC link: 109th Avenue Phase 1 Complete Streets project (Southwest 8th Street to Southwest 6th Street) included in FDOT pedestrian bridge project. Future segments to be considered and coordinated with City of Sweetwater.

PG6 SMART Bus Terminal: continue coordination with FDOT and Miami Dade Transit to facilitate development of this bus terminal.

Primary Entities

- State of Florida Department of Transportation (FDOT)
- Federal Highway Administration (FHWA)
- Miami-Dade Transit (MDT)
- Miami-Dade Transportation Planning Organization (TPO)
- City of North Miami

Secondary Entities

- FIU Facilities Planning

Coordination Mechanisms

- Miami-Dade Public Hearing Process
- Miami-Dade Transportation Planning Organization (TPO)

Nature of the Relationship

No formal relationship exists currently.

Subject 4. Sanitary Sewage Collection and Treatment Capacity

<u>Description</u>

There are no agreements for the provision of sanitary sewage collection and/or treatment between FIU and the Miami-Dade Water and Sewer Department (WASD). There is a 1975 water distribution facility agreement that requires WASD to provide an adequate supply of potable water to the Modesto Maidique Campus. At the present time, no agreement exists between FIU and WASD that guarantees the availability of adequate sanitary sewage treatment capacity to either campus. Generally, the acceptance of sewage flow is part of the installation of the water meters by the utility. At the present time, WASD is accepting sewage for treatment at the South Regional Water Treatment Plant (SRWTP) from the Modesto Maidique campus and treatment of sanitary sewage from Biscayne Bay Campus at North District Wastewater Treatment Plant (NDWTP).

As a Florida State University System facility, FIU is subject to the State Uniform Building Code for Public Educational Facility and is therefore exempt from local regulations including impact fees and service availability fees. Although FIU is not required to obtain building permits for their projects, the projects are regularly reviewed and meter fees are paid to the agencies charged with regulating, monitoring, and operating the water facilities.

Given the increased sanitary sewage flows coincident with the ongoing campus development an allocation or measures which assure the acceptance of sewage from the University by WASD should be obtained.

Miami Dade Water and Sewer Department (WASD) potential discussion with WASD to privatize MMC water system, would help streamline permitting process and expenditures.

Primary Entities

- Miami-Dade Water and Sewer Department
- Miami-Dade Department of Regulatory and Economic Resources (DRER)- Division of Environmental Resources Management
- United States Environmental Protection Agency (EPA)
- City of North Miami
- FIU Department of Facilities Planning

Nature of the Relationship

The Miami-Dade Water and Sewer Department is responsible for developing and operating the county-wide sanitary sewage collection and disposal system. Environmental regulations in Chapter 24 of the Code of Miami-Dade County regarding sewer connections and septic tanks are administered and enforced by the Miami-Dade Division of Environmental Resources Management (DERM). The FIU Department of Facilities Planning routinely forwards engineering plans for water and sewer improvements to WASD and DERM for review. Comments are generally received only on the water component of the building design.

Subject 5. Development and Sufficiency Review

Description

The present procedure for the review of on-campus engineering and permitting requirements is for FIU to submit engineering plans to DERM, WASD and the host community as applicable. These plans are reviewed on an informal basis, comments are received, however, no permits are issued. Although agreements exist for the provision of water to the campuses, no formal review procedure or master agreement exist for the review and permitting of infrastructure improvements or reviewing the availability of facilities and services provided by the host government. In addition, the University is not required to submit building plans to the host community or receive building permits or certificates of occupancy.

Chapter 1013.30, Florida Statutes establishes provisions for campus planning and concurrency management that supersedes the requirements of Part II of Chapter 163, Florida Statutes. The growth management provisions established in Chapter 1013.30, F.S. were adopted in recognition of the unique relationship between campuses of the State University system and the local governments in which they are located. The statute recognizes that while the University provide research and educational benefits of statewide and national importance, and provide substantial educational, economic and cultural benefits to the host communities, the campus may also have an adverse impact on the public facilities, services and natural resources of local government.

Chapter 1013.30 F.S. requires the University to prepare and adopt campus master plans of which this element is a component. ***Upon adoption*** of the campus master plan in accordance with 163.3184(15), and within 270 days, the ***University Board of Trustees must forward a draft campus development agreement***. This development agreement must address the following public facilities and services: roads, sanitary sewer, solid waste, drainage, potable water, solid waste, drainage, parks and recreation and transportation. The development agreement must identify the level-of-service standard established by the host community, identify the entity that will provide the service to the campus, and describe any financial arrangements between the Board of Education's Division of Colleges and Universities and other entities relating to the provision of the facility or service.

The ***development agreement*** must determine the impact of existing and proposed campus development reasonably expected over the terms of the agreement (a minimum of five years) on the services and facility which the proposed campus will create or to which it will contribute. All improvements to facilities or services which are necessary to eliminate any identifies deficiencies must be specifically identified in the development agreement. University Board of Trustees "fair share" cost associated with remediating any of the facility or services deficiencies identified and attributed to University impacts must be stated. Chapter 1013.30, F.S. requires that the Board of Education's Division of Colleges and Universities assume responsibility for payment of the cost for remediation of the facility or services deficiencies. The Statute allows the fair share payment to be accomplished either by 1) paying a fair share of the required improvement identified in the development agreement or 2) taking on full responsibility for the improvement or improvements identified in the development agreement and agreed to between the host local government and the University Board of Trustees, the total cost which equals the "fair share" attributed to the University's impacts.

Primary Entities

- City of North Miami
- City of Sweetwater
- FIU Facilities Planning
- Miami-Dade Department of Regulatory and Economic Resources (DRER) – Division of Planning
- Miami-Dade Water and Sewer Department
- Miami-Dade Department of Regulatory and Economic Resources (DRER)- Division of Environmental Resources Management
- Miami-Dade Transportation Planning Organization (TPO)
- South Florida Water Management District Department of Economic Opportunity
- Florida State University System (SUS) and Board of Governors (BOG)

Secondary Entities

- South Florida Regional Planning Council (SFRPC)
- Florida Department of Environmental Protection (FDEP)
- Florida Department of Transportation (FDOT)
- Florida Department of State
- Florida Fish and Wildlife Conservation Commission

Coordinating Mechanism

Chapter 240.155, Florida Statutes

Nature of the Relationship

Primary:

The agencies, municipalities and Miami-Dade Departments are the entities that provide services and facilities which support the University. FIU utilizes the off- site services and utilities and, therefore, has a proportionate impact of these services. The Board of Governors and Florida International University are required to prepare the Campus Master Plan in accordance with the provisions contained in Chapter 1013.30, F.S. This statute requires the University to identify the proportionate impact of the host community and County's facilities and to mitigate these impacts.

Secondary:

In addition to the host communities and the water management district, the agencies identified as being secondary coordinating mechanisms will review the contents of the campus master plan for consistency with the requirements for the development of campus master plans. The findings contained in the campus master plans will provide the basis for identifying services and facility deficiencies and establishment of the University "fair share" commitments.

Effectiveness of Existing Coordination Mechanisms Described In (1) b

Miami-Dade County and the City of North Miami

The ability of the Miami-Dade County and the City of North Miami to supply basic services to both of the FIU campuses will determine the rate of growth, as well as the ability of the campus to accommodate anticipated growth while respecting and managing the naturally occurring resources of uplands, wetlands and wildlife and vegetation. Interaction with the context area through sound land planning efforts, constructive interaction with the FDOT and Miami-Dade County Department of Transportation and Public Works and the coordination with the City of North Miami, will be the key to successful growth and development at the FIU campuses.

Miami-Dade County, the City of North Miami, and FIU administrators have worked very closely throughout South Florida's growth. Each party sees the other as having an integral role in their combined success: the University helps each city to attract new businesses; new businesses and their new technologies encourage the University to respond with educational opportunities to train students to new career opportunities and to advance the level of training for current employees. The informal nature of the close, continuing alliance between the county, cities and the University has served them well.

Permitting/Jurisdictional Agencies

The University's relationship with jurisdictional agencies has also been positive throughout the existence of the University. FIU respects the unique natural environment in which it is located. By working well with suchpermitting/jurisdictional agencies as Florida Department of Environmental Protection (and its predecessor agencies, the Florida Departments of Natural Resources and of Environmental Resources), South Florida Water Management District and Florida Fish and Wildlife Conservation Commission, FIU has continued to grow--adding new facilities and serving more students--while preserving wetland and habitat areas.

Monroe County and the American Red Cross

One of the most important intergovernmental arrangements between the University and any public agencies has been developed by the FIU Department of Emergency Management for hurricane evacuation procedures. FIU has developed a plan for evacuation in case of hurricane or other emergencies and threats to public safety. The Emergency Operations Plan which is updated annually describes the necessary preparation and implementation of actions required to secure the University and evacuate the campuses. On behalf of the Florida State University System and Board of Governors, FIU has formed an agreement with the American Red Cross and the Monroe

County Office of Emergency Management to provide emergency shelter "during hurricanes or other disasters which cause the evacuation of special needs residents from Monroe County and for resident students who have not left campus.

Responsibilities have been outlined for the various agencies to ensure smooth operation of the shelter. FIU Facilities Management personnel will provide building and maintenance service to residents and families, will schedule appropriate work crews to handle building sanitation, maintenance, and control of access to restricted areas. The Red Cross will be fully responsible for the operation of the shelter as a temporary housing facility. It will provide volunteers, food and food service, water, and other emergency supplies. If the need for emergency shelter continues for an extended period, FIU can provide alternate areas to move the shelter. The primary function of Monroe County will be for the establishment of a temporary infirmary, which will be fully staffed, supplied, and operated by the County's Emergency Medical Services.

FIU is only sheltering residential students who cannot go home. They advise students to go home if there is a pending storm. FIU does not shelter faculty and staff other than essential staff wo have to be present during an event. Moving forward, FIU does not plan to increase sheltering.

2. Specific Problems and Needs Within Each of the Campus Master Plan Elements Which Would Benefit from Improved or Additional Intergovernmental Coordination and Means for Resolving Those Problems and Needs

No elements of the Campus Master Plan were identified.

Growth and Development Proposed In Comprehensive Plans In The Area Of Concern and a Comparison With The Appropriate Regional Policy Plan In Order To Evaluate The Needs For Additional Planning Coordination.

- **Miami-Dade County Comprehensive Plan**: There are no development proposals at the County level that would require additional coordination.
- **City of North Miami Comprehensive Plan**: There are no development proposals at the City level that would require additional coordination.
- **City of Sweetwater Comprehensive Plan**: The City of Sweetwater Comprehensive plan has created mixed-use corridors along the portions of 107th Avenue, 109th Avenue, and SW 7th Terrace that run through the municipality. The mixed-use corridors allow for greater density and intensity in the designated areas.
- **334.352 State university ingress and egress.**—A local governmental entity may not prevent public motor vehicle use on or access to an existing transportation facility or transportation corridor as defined in s. 334.03 if that transportation facility or transportation corridor is the only point, or one of only two points, of ingress to and egress from a state university as defined in s. 1000.21. This section does not apply when a law enforcement agency prevents use or access to a facility or corridor in an emergency situation or to a temporary closure of a facility or corridor, if necessary, for road maintenance or repair.

c) Inventory and Assessment of All Previous Fair Share Payments Made bythe University to its Host or Affected Local Government

No fair share payments have been made by the University

13.0 CONSERVATION ELEMENT

(1) DATA AND ANALYSIS REQUIREMENTS

a) Natural and Environmental Resources on the University Campus and within the Planning Study Area

1. Rivers, lakes, bays, wetlands (including estuarine marshes), and bottom lands:

Rivers, lakes and bays:

MODESTO A. MAIDIQUE

A physical inventory was completed in December 2000 that identified 15 small bodies of water on the campus, all of which appear to be artificial (see Figure 13.1: Conservation Element). None of these small lakes are connected to canals or other bodies of water. The littoral zones of most of these lakes are sparsely vegetated with a variety of wetland plants.

One lake located off campus falls within the context area, located near the intersection of SW 122nd Avenue and SW 11th Street, is surrounded by residential units and landscaped lawn areas and has a reasonably well- developed littoral zone. Canals bordering Modesto A. Maidique and the Miami-Dade County Fair and Exposition to the north, west and south are vegetated primarily with the aquatic weed Hydrilla (Hydrilla verticillata). The canals are steep sided, and as such have no littoral zone.

BISCAYNE BAY CAMPUS

Fresh and brackish water: Bodies of fresh or brackish water on the Biscayne Bay Campus are restricted to two lakes on campus. A shoreline investigation of these lakes was conducted on December 2000. The larger of the two lakes (west lake) is located immediately to the west of the main parking areas on campus (see Figure 13.3: Conservation Element). The lake appears to have little or no submerged aquatic vegetation other than algal growth that coats most visible surfaces; there is approximately a 40 square-foot patch of emergent vegetation on one shoreline. Along the entire perimeter of the lake, shoreline vegetation has been mowed to the water's edge, except for a few planted bald cypress trees (Taxodium distichum). The second lake (East Lake) is located immediately to the south of the built-up area of campus. The shore of this lake has been landscaped and has emergent aquatic vegetation lining its entire shoreline and extending up to 10 feet into the water in some areas.

An inspection of the campus in December 2000 revealed that the previously described conditions in the 1994 Master Plan still exist on the site.

Within the context area of Biscayne Bay Campus, the Oleta River is the only river. The Oleta River extends into the context area to the north of Biscayne Bay Campus and is an important site for the endangered West Indian manatee (Trichechus manatus latirostris). Visual surveys of the river from adjacent roadways conducted and analysis of aerial photographs show that the river is bordered by apparently healthy stands of mangroves which show little or no human disturbance. The exception to this is the 30-acre Terama Tract, located between the Sunny Isles Causeway and the Oleta River, which has been filled and is now dominated by Australian pine (Casuarina sp.).

The only other bodies of fresh or brackish water located within the context area are several small lakes located within the Munisport Landfill site. These lakes were dug to a depth of 35 feet below mean sea level sometime in the 1970s. For descriptions of these lakes the reader is referred to the EPA Record of Decision (EPA, 1990)

Salt water: The northeastern, eastern, and southern sides of Biscayne Bay Campus are bounded by Biscayne Bay, the Intracoastal Waterway, and mangrove channels that join with the Bay. The northeastern edge of Biscayne Bay Campus also abuts a small estuary that extends northward from the Intracoastal Waterway and Biscayne Bay.

Within the context area of Biscayne Bay Campus, both the Oleta River State Recreation Area and the state mangrove preserves are bounded by portions of Biscayne Bay and the Intracoastal Waterway. Further, a flow-through pond system has been constructed within Oleta River State Recreation Area to enhance mangrove habitat.

The principal concern regarding potential surface water and development conflicts involves the need to ensure that development of the campus does not negatively impact the habitat of the West Indian manatee. There are opportunities to enhance the habitat values of the lakes and shoreline. These should be considered in devising goals for campus development.

<u>Wetlands:</u>

Although, to our knowledge, no jurisdictional wetland determinations have been carried out at either Modesto A. Maidique or Biscayne Bay Campuses, several areas on these campuses may qualify as jurisdictional wetlands under current Federal and State wetlands regulations. Determination and delineation of jurisdictional wetlands is a complicated process, involving analysis and interpretation of hydrology, soils, and vegetation data, and is beyond the scope of work for this project. An inventory of flora at the Modesto A. Maidique and Biscayne Bay Campus is listed in Table 13.1.

MODESTO A. MAIDIQUE

The entire Modesto A. Maidique campus was probably a sawgrass wetland prior to development of the Tamiami Airport, previously developed on this site. The context area was also historically a wetland. Potential wetlands at Modesto A. Maidique can be classified into the following categories:

Exotic-invaded hardwood hammocks containing wetland vegetation: In the southeast corner, the four largest tree islands contain a mix of native and exotic hardwood trees and shrubs, wetland herbs and graminoids, and other disturbance-adapted plants. At least one of the small hammocks appears to be an old pond that has been overgrown.

<u>Sweet bay-dominated hardwood hammock</u>: An oval-shaped hammock, located near the southwestern corner of Modesto A. Maidique, appears to be an old bay head that has been partially cleared. Wetland vegetation appears in the hammock and along its margins. This area has been designated as an on-campus botanical and wildlife area, and portions of it may be jurisdictional wetlands. The hammock represents a valuable natural botanical feature of Modesto A. Maidique.

One lake located off campus falls within the context area. This artificial lake, located near the intersection of SW 122nd Avenue and SW 11th Street, is surrounded by residential units and landscaped lawn areas and contains a reasonably well-developed littoral zone. This lake was not inspected during the December 2000 site visit.

<u>Wetland soils</u>: Only one of the three soil types that the Miami-Dade County Soil Conservation Service lists as present at Modesto A. Maidique can be considered a hydric (wetland) soil. Hallandale fine sand, located in the northern third of the campus and in two smaller areas in the east and southeast portions of the campus, are classified as a hydric soil by the USDA Soil Conservation Service (USDA, 1987). This soil type is level, poorly drained sandy soil underlain by limestone 7-20 inches deep. The remaining two soil types, Urthodents/Urban land complex and Urban land are well drained, either by nature of the base material (excavated limestone material) or by topography and drainage systems. Hydric soils were undoubtedly more extensive on site prior to the construction of Tamiami Airport.

Virtually all of Modesto A. Maidique Campus was historically a wetland. An accurate determination of the hydric nature of the on-site soils will be made during future jurisdictional wetland delineations conducted prior to development. To our knowledge, no jurisdictional wetland determinations have been carried out on campus or within the context area, and, at least for the campus, lack of such a determination could lead to problems and conflicts as new facilities are developed. Jurisdictional determinations should be carried out prior to proceeding with any new building construction.

Contained in Chapter 62-340, F.A.C. is the methodology to delineate the landward extent of all wetlands and other surface waters, including isolated wetlands. The landward extent of wetlands and other surface waters may be determined by the submittal of a permit application, by petitioning the Department or a District for a formal wetland determination, or through an informal, non-binding determination by the Department or the Districts on a "time-available" basis.

In the absence of clearly defined jurisdictional wetland areas within the campus, development may result in an avoidable loss of wetland areas and any potential wetland mitigation or restoration. For this reason, it is necessary to pursue a jurisdictional determination from the appropriate regulatory agencies, as well as permits from the Army Corps of Engineers, the Florida Department of Environmental Protection, and the South Florida Water Management District.

BISCAYNE BAY CAMPUS

Most, if not all the Biscayne Bay Campus was wetland prior to the development of the Interama Tract. Potential wetlands at Biscayne Bay Campus can be classified into the following categories:

Mangrove forests: The mangrove forests on the Biscayne Bay Campus are most certainly jurisdictional wetlands; however, the definitive boundaries of these areas are unclear. A complex analysis beyond the scope of work is required to determine the boundaries.

Mangrove forests located on the Biscayne Bay Campus are restricted to thin bands of mangroves that line an estuary on the north, as well as canals and ditches on the north and northeastern edges of the campus, and along the western edge of the campus. Extensive mangrove forests occur in state mangrove preserves located to the north and west of the Biscayne Bay Campus, and within the Oleta River State Recreation Area, located to the north and east of the Biscayne Bay Campus. Mangrove mitigation work has been completed or is in progress at several sites in the Oleta River State Recreation Area. Currently, mangrove mitigation planting is being conducted at the southern edge of Biscayne Bay Campus. For a discussion of mitigation sites and descriptions of mitigation projects at Biscayne Bay Campus and context area, see Section (1) 4. These mitigation projects are not related to Biscayne Bay Campus construction activities.

Back-mangrove associations: Back-mangrove vegetation associations occur in those areas that transition between mangrove forest and upland plant communities. On the Biscayne Bay Campus, back-mangrove associations occur on the land adjacent to the mangrove-lined canals at the north and west boundaries of the campus. Within the context area, back-mangrove associations occur on the land adjacent to the side of mangrove forests in the Oleta River State Recreation Area and in the State mangrove preserves.

Beach strand: Beach strand vegetation dominates the eastern edge of the Biscayne Bay Campus, which is primarily shoreline, a portion of which is stabilized with rip-rap for erosion control. Beach strand also occurs along portions of the south edge of Biscayne Bay Campus. Within the context area, beach strand occurs along portions of the shorelines within the Oleta River State Recreation Area and may occur in the State mangrove preserves.

Disturbed areas containing wetland plant species: In the southeast corner of the Biscayne Bay Campus, a large area was cleared of vegetation sometime prior to January 1993. Since that time, the scraped area has been recolonized by a mix of upland and transitional wetland weeds (Table 13.1 Preliminary Plant Species List). This area can be classified as a low-grade wetland, although it should be analyzed to determine if it is a jurisdictional wetland. The previously described area was examined during the December 2000 inspection of the campus. A portion of this area is being planted with mangroves, as compensatory mitigation for previous wetland impacts at the campus.

Wetland soils: Only one of the four soil types that the Miami-Dade County Soil Conservation Service lists as present on the Biscayne Bay Campus can be considered a hydric (wetland) soil. Terra Ceia muck, located to the north and northwest of the central building area of the campus, are classified as a tidal hydric soil by the United States Department of Agriculture Soil Conservation Service (USDA, 1987). Terra Ceia muck is tidally inundated and supports mangrove vegetation associations at the Biscayne Bay Campus and within the context area. Two of the remaining soil types, Urthodents (excavated limestone material) and Urban land (the built-up portion of campus) are well drained, either by the nature of the base material, or by topography and drainage systems. Urthodents occur to the northeast of the built-up campus area, and to the south and west. The final soil type, Opa- locka Rock outcrop complex, occurs in an area immediately south of the campus building area, and is bounded by Biscayne Bay to the east and by Urthodents to the west. This soil type is also well-drained.

It should be noted that most, if not all, of the Urthodents and Urban land areas of Biscayne Bay Campus were likely underlain by hydric soils prior to the development of the Interama Tract in 1962.

Prior to development, the Biscayne Bay Campus was predominately wetlands, most likely mangrove forest. These wetlands were cleared during the development of the site as the Interama project. An analysis of the campus and context area would likely indicate that these areas are historical wetlands. An accurate determination of the hydric nature of the on-site soils should be made during future jurisdictional wetland delineations conducted prior to development.

Table 13.1 Preliminary Plant Species List for the FIU Campuses

N=Native, E=Exotic, BBC=Biscayne Bay Campus, MMC=Modesto A. Maidique
* Listed as present in the landscape design manual (Modesto A. Maidique campus only)

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Ear-leaf acacia	Acacia auriculaeformis		X	X	X
Paurotis palm	Acoeloraphe wrightii	X			X
Leather fern	Acrostichum danaeifolium	X		X	
Woman's tongue	Albizia lebbeck		X	X	X
Golden trumpet	Allamanda cathartica		X	X	
Ginger lily*	Alpinia zerumbet				X
Alligator weed	Alternanthera maritima		X	X	
Slender amaranth	Amaranthus viridis	X		X	
Ragweed	Ambrosia artemesiifolia		X	X	X
Toothcups	Ammania coccinea	X		X	
Cashew	Anacardium sp.		X		X
Broomsedge	Andropogon glomeratus	X			X
Pine fern	Anemia adiantifolia	X			X
Sugar apple*	Annona squamosa			X	X
Anthurium*	Anthurium heiglii		X		X
Alexander palm*	Archoneophoenix alexandrae		X		X
Asian marlberry	Ardisia elliptica		X	X	X
Queen palm*	Arecastrum romanzofianum	X		X	
Scarlet milkweed	Asclepias curassavica		X		X
Asparagus fern	Asparagus plumosus		X		X
Carambola, Starfruit*	Averrhoa carambola		X		X

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Black mangrove	Avicennia germinans	X		X	
Saltbush	Baccharis halimifolia	X		X	X
Water hyssop	Bacopa monnieri	X			X
Orchid tree	Bauhinia sp.		X	X	X
Beggar's tick	Bidens pilosa		X	X	X
Bishopwood	Bischofia javanica		X	X	X
Akee*	Blighia sapida		X		X
Kapok tree	Bombax sp.		X		X
Borreria	Borreria laevis		X	X	X
Silver sea oxeye*	Borrichia frutescens	X		X	X
Bougainvillea*	Bougainvillea spectabilis		X	X	X
Black olive	Bucida buceras	X			X
Willow bustic	Bumelia salicifolia	X			X
Pindo palm*	Butia capitata		X		X
Beauty berry	Callicarpa americanum	X			X
Bottlebrush	Callistemon vinninalis		X	X	X
Ylang-ylang*	Cananga odorata		X		X
Seaside bean	Canavalia rosea	X		X	
Papaya	Carica papaya		X		X
Dwarf carissa*	Carissa macrocarpa		X		X
Natal plum*	Carissa macrocarpa		X		X
Fishtail palm*	Caryota mitis		X		X
Seven-year apple	Casasia clusiifolia	X		X	
Cassia	Cassia sp.		X		X
Australian pine*	Casuarina cunninghamianni	X		X	
Australian pine*	Casuarina equisetifolia		X	X	X
Australian pine*	Casuarina lepidophloid		X		X
Madagascar periwinkle	Catharanthus roseus		X	X	X
Silk cotton tree*	Ceiba pentandra		X		X
Sandspur	Cenchrus sp.	X		X	X
Coin-wort	Centella asiatica		X	X	X
Day jasmine	Cestrum diurnum		X	X	
Night blooming jasmine*	Cestrum nocturnum		X	X	X
Spurge	Chamaesysce hypericifloia	X		X	X
Spurge	Chamaesyce hyssopifolia	X			X
European fan palm*	Chamaerops humilis		X		X
Spiderplant*	Chlorophytum comosum		X		X
Silk floss tree*	Chorisa speciosa		X		X
Areca palm*	Chrysalidocarpus lutescens		X		X
Coco plum (Red Tip) *	Chrysobalanus icaco	X			X
Satin leaf	Chrysopyllum oliviforme	X			X
Thistle	Cirsium horridulum	X			X
Lime, Orange, etc.*	Citris aurantiifolia		X		X
Sawgrass	Cladium jamaicensis	X			X
Bleeding heart*	Clerodendron thomsoniae		X		X
Pitch apple	Clusia rosea	X			X
Pigeon plum	Coccoloba diversifolia	X			X
Big-leaf sea-grape*	Coccoloba grandifolia	X			X

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Sea grape	Coccoloba uvifera	X		X	X
Silver palm*	Coccothrinax argentata	X			X
Old man palm*	Coccothrinax crinita		X		X
Buttercup tree*	Cochlospermum vitifolium		X		X
Coconut*	Cocos nucifera	X		X	X
Croton*	Codiaeum variegatum		X		X
Taro	Colocasia esculenta		X		X
Buttonwood*	Conocarpus erectus	X		X	X
Silver buttonwood*	Conocarpus erectus (sericeus)	X		X	X
Geiger*	Cordia sebestena	X		X	X
Ti plant*	Cordyline terminalis		X		X
Queen sago*	Cycas circinalis		X		X
Dwarf/King sago*	Cycas revoluta		X		X
Bermuda grass*	Cynodon dactylon		X		X
Flat sedge	Cyperus haspan	X		X	X
Flat sedge	Cyperus ligularis	X		X	X
Indian rosewood*	Dalbergia sissoo		X		X
Royal poinciana	Delonix regia		X	X	X
White-tops	Dichromena floridensis	X			X
Diodea	Diodea virginiana	X			X
Black sapote*	Diospyros digyna		X		X
Varnish leaf*	Dodonaea viscosa	X			X
Tree dracaena*	Dracaena arborea		X		X
Dracaena "Janet Craig"	Dracaena deremensis		X		X
Corn plant*	Dracaena fragrans		X		X
Dracaena*	Dracaena marginata		X		X
Golden dew drop*	Duranta repens		X		X
Oil palm	Elais guineensis		X		X
Spike rush	Eleocharis geniculata	X		X	X
Soft rush	Eleocharis interstincta	X		X	X
Pothos*	Epipremnum aureum	X		X	
Loquat*	Eriobotrya japonica		X		X
Coral bean	Erythrina herbacea		X		X
Variegated tiger claw*	Erythrina variegata		X		X
Gum tree*	Eucalyptus spp.		X		X
White stopper	Eugenia axillaris	X			X
Surinam cherry*	Eugenia uniflora		X		X
Dog fennel	Eupatorium capillifolium	X		X	X
Mistflower	Eupatorium coelestinum	X			X
Blue daze*	Evolvulus glomerata	?			X
Strangler fig	Ficus aurea	X			X
Weeping fig*	Ficus benjamina		X		X
X	Ficus carica		X		X
Indian rubber tree	Ficus elastica		X		X
Strangler fig	Ficus microcarpa		X		X
Cuban laurel*	Ficus nitida		X		X
Forestiera*	Forestiera segregata	X			X
Lignum vitae*	Guaiacum sanctum	X			X

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Manatee grass	Halodule wrightii	X		X	
Firebush	Hamelia patens	X			X
Tulipwood*	Harpullia arborea		X		X
Scorpiontail	Heliotropium polyphyllum	X		X	X
Day lily*	Hemerocallis sp.		X		X
Hibiscus*	Hibiscus rosa-sinensis		X		X
Mahoe	Hibiscus tiliaceus	X		X	
Forster sentry palm*	Howeia forsteriana		X		X
Elodea	Hydrilla verticillata		X	X	X
Water pennywort	Hydrocotyle bonariensis		X	X	X
Marsh pennywort	Hydrocotyle umbellata		X	X	X
Bottle palm*	Hyophorbe lagenicaulis		X		X
Spindle palm*	Hyophorbe verschaffetltii		X		X
Musky mint	Hyptis alata	X		X	X
Dahoon holly*	Ilex cassine	X			X
Yaupon*	Ilex vomitoria	X			X
Railroad vine	Ipomoea pes-caprae	X		X	
Morning glory	Ipomoea spp.		X	X	X
Red ixora*	Ixora coccinea		X		X
Jacaranda*	Jacaranda mimosaefolia		X		X
Rush	Juncus megacephalus	X			X
Southern red cedar*	Juniperus siliciola	X			X
Life plant	Kalanchoe sp.		X	X	
Golden rain tree*	Koelreuteria formosana		X	X	X
Black ironwood*	Krugiodendron ferreum	X			X
Crape myrtle*	Lagerstroemia indica		X		X
Queen crape myrtle*	Lagerstroemia speciosa		X		X
White mangrove	Laguncularia racemosa	X		X	
Lantana	Lantana camera		X	X	X
Lantana	Lantana depressa	X			X
Lantana	Lantana involucrata	X		X	X
Lantana*	Lantana montevidensis		X		X
Lead tree	Leucaena leucocephala		X	X	X
Southern wax privet*	Ligustrum japonicum		X		X
Lippia	Lippia nodiflora	X		X	X
Liriope*	Liriope muscari		X		X
Chinese fan palm*	Livistona chinensis		X		X
Primrose willow	Ludwigia peruviana	X		X	X
Wild tamarind	Lysiloma bahamensis	X			X
Macadamia nut*	Macadamia tetraphylla		X		X
Sweet bay*	Magnolia virginiana	X			X
Apple*	Malus pumila (ana)		X		X
Mango*	Mangifera indica		X	X	X
Sapodilla*	Manilkara zapota		X		X
Mastic	Mastichodendron foetidissimum	X		X	
Melaleuca*	Melaleuca quinquernervia		X	X	X
Melanthera	Melanthera nivea	X		X	
Small-leaved cat tongue	Melanthera parvifolia	X			X

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Creeping cucumber	Melothria pendula	X		X	X
X	Metopium toxiferum	X			X
Climbing hemp vine	Mikania scandens	X		X	X
Spanish cherry*	Mimusops elengii		X		X
Mimusops*	Mimusops roxburghii		X		X
Mitrewort	Mitreola angustifolia	X			X
Balsam apple	Momordica balsamina	X			X
Monstera*	Monstera deliciosa		X		X
Orange jasmine*	Murraya paniculata		X		X
Banana	Musa paradisiaca		X		X
Simpsons stopper*	Myrcianthes fragrans	X			X
Wax myrtle	Myrica cerifera	X			X
Myrsine	Myrsine guianensis	X			X
Triangle palm*	Neodypsis decaryi		X		X
Sword fern*	Nephrolepis exaltata		X	X	X
Common reed	Neyraudia reynaudiana		X	X	X
Guinea chestnut*	Pachira aquatica		X		X
Screw pine*	Pandanus utilis		X		X
Maiden-cane	Panicum hemitomon	X			X
Jerusalem thorn*	Parkinsonia aculeata		X		X
Bahia 'Argentine' sod*	Paspalum notatum		X		X
Salt jointgrass	Paspalum vaginatum	X		X	
Corky passionflower	Passiflora suberosa	X		X	X
Egyptian starclusters	Pentas lanceolata		X		X
Avocado*	Persea americanum		X	X	X
Sweet bay	Persea borbonia	X			X
Yellow Poinciana*	Petophorum pterocarpum		X		X
Queen's wreath*	Petrea volubilis		X		X
Philodendron*	Philodendron selloum		X		X
Senegal date palm*	Phoenix reclinata		X		X
Pygmy date palm*	Phoenix roebelenii		X		X
Wild date*	Phoenix sylvestris		X		X
Pokeweed	Phytolacca americana	X		X	X
All spice*	Pimenta officinalis		X		X
Slash pine	Pinus elliottii var. densa	X			X
Jamaica dogwood	Piscidia piscipula	X			X
Black bead*	Pithecellobium keyense	X			X
Camphor weed	Pluchea odorata	X		X	
Camphor weed	Pluchea rosea	X		X	X
Leadwort	Plumbago capensis		X	X	
Frangipani*	Plumeria rubra		X		X
Japanese yew*	Podocarpus macrophyllus		X		X
Painted leaf	Poinsettia cyathophora	X		X	X
Fiddler's spurge	Poinsettia heterophylla	X		X	
Procession flower	Polgala incarnata	X			X
Pongam*	Pongamia pinnata		X		X
Peach*	Prunus persica		X		X
Buccaneer palm*	Pseudophoenix sargentii		X		X

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Guava*	Psidium guajava		X		X
Whisk fern	Psilotum nudum	X		X	
Wild coffee	Psychotria nervosa	X			X
Pineland brake fern	Pteris vittatta	X		X	X
Solitaire palm*	Ptychosperma elegans		X		X
Macarthur palm*	Ptychosperma macarthuri	X		X	
Laurel oak*	Quercus laurifolia	X			X
Live oak	Quercus virginia	X		X	X
X	Randia aculeata	X			X
Travellers palm*	Ravenela madagascarensis	X		X	
Lady palm*	Rhapis excelsa		X		X
Red mangrove	Rhizophora mangle	X		X	?
Oyster plant	Rhoeo spathacea		X	X	X
Winged sumac	Rhus copallina	X			X
Beak rush	Rhynchospora sp.	X			X
Castor bean	Ricinus communis		X	X	X
Royal palm*	Roystonea elata	X			X
Firecracker plant*	Russelia equisetiformis		X	X	X
Cabbage palm	Sabal palmetto	X		X	X
Duck potato	Sagittaria falcata	X		X	X
Willow	Salix carolinensis	X			X
Beach naupaka*	Scaevola frutescens		X	X	X
Umbrella tree	Schefflera actinophylla		X	X	X
Brazilian pepper	Schinus terebinthifolius		X	X	X
Bullrush	Scirpus sp.	X		X	X
Saw palmetto	Serenoa repens	X			X
Sesban	Sesbania punicea		X	X	
Sea purslane	Sesuvium portulacastrum	X		X	
Bristlegrass	Setaria geniculata	X		X	X
Indian mallow	Sida rhombifolia	X		X	X
Paradise tree	Simarouba glauca	X			X
Goldenrod	Solidago sp.	X			X
Necklace pod*	Sophora tomentosa	X			X
Cordgrass	Spartina sp.	X		X	X
Peace lily*	Spathiphyllum 'Mauna Loa'	X		X	
African tulip tree*	Spathodea campanulata		X		X
Buttonweed	Spermacoce verticillata	X		X	X
Dropseed	Sporobolus spp.	X		X	X
Blue porterweed	Stachytarpheta jamaicensis	X			X
St. Augustine grass	Stenotaphrum secundatum	X		X	
Pencil flower	Stylosanthes hamata	X		X	
Sea blite	Suaeda linearis	X		X	
Mahogany	Sweitenia mahogani	X		X	X
Syngonium	Syngonium podophyllum	X	X		
Rose apple*	Syzygium jambos		X		X
Silver trumpet-tree/yllow*	Tabebuia caraiba		X		X
Silver trumpet-tree/pink*	Tabebuia heterophylla		X		X

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Indian tamarind*	Tamarindus indica		X		X
Pond cypress*	Taxodium ascendens	X			X
Bald cypress	Taxodium distichum	X			X
Indian almond	Terminalia catappa		X	X	X
Tetrazygia	Tetrazygia bicolor	X			X
Turtle grass	Thalassia testudinum	X		X	
Shield fern	Thelypteris palustris	X			X
Seaside mahoe	Thespesia populnea		X	X	
Key thatch*	Thrinax morrisii		X		X
Thatch palm*	Thrinax radiata		X		X
Cardinal air plant	Tillandsia fasciculata	X			X
Air plant	Tillandsia sp.	X		X	X
Spanish moss	Tillandsia useoides	X		X	
Sea lavender	Tournefortia gnaphalodes	X		X	
West Indies trema	Trema lamarckianum	X			X
Thatch palm*	Thrinax radiata		X		X
X	Trema micrantha	X		X	X
Walking iris*	Trimezia martinicensis		X		X
Turnera*	Turnera ulmifolia		X		X
Cattail	Typha latifolia	X		X	X
Manila, Christmas palm*	Veitchia merrillii		X		X
Montgomery's palm*	Veitchia montgomeryana		X		X
Muscadine grape	Vitis rotundifolia	X			X
Mex. Washingtonia palm*	Washingtonia robusta	X		X	
Wedelia	Wedelia trilobata		X	X	X
Coontie	Zamia pumila	X			X
Wild lime*	Zanthoxylum fagana	X			X
Wandering Jew*	Zebrina pendula		X	X	X

Bottom Lands:

No bottom lands are known to occur at either Modesto A. Maidique or Biscayne Bay Campus or in their respective context areas.

2. Floodplains:

MODESTO A. MAIDIQUE

According to Flood Insurance Rate Maps (FIRM, September 11, 2009) Modesto A. Maidique is primarily designated as a special flood hazard area subject to inundation by the 1% annual chance of flooding. Areas of special flood hazard include Zones AE, and AH on the MMC campus. There are also a few smaller pockets of the campus which fall within Zone X, indicated as areas determined to be outside the 0.2% annual chance floodplain.

ENGINEERING CENTER

According to Flood Insurance Rate Maps (FIRM, September 11, 2009) EC is primarily designated within Zone X, indicated as areas determined to be outside the 0.2% annual chance floodplain.

BISCAYNE BAY CAMPUS

According to Flood Insurance Rate Maps (FIRM, September 10, 2009) BBC is primarily designated as a special flood hazard area subject to inundation by the 1% annual chance of flooding. Areas of special flood hazard include Zones AE, and AH on the BBC campus.

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

No unique geological features are known to occur at either Modesto A. Maidique or Biscayne Bay Campus or in their respective context areas.

4. **Existing mitigation sites:**

MODESTO A. MAIDIQUE

There are no mitigation projects at Modesto A. Maidique. However, there is a hardwood hammock area that is being restored and enhanced by the Environmental Studies program as well as maintenance of littoral vegetation at Henington Lake. While not for mitigation, oak trees were planted in a small area in the northeastern part of the campus. This area is presently known as the Earth Day 1990 Hammock.

BISCAYNE BAY CAMPUS

Within the Biscayne Bay Campus context area there are several areas that have either undergone or are slated for restoration/replanting. Most of these areas have been enhanced as a part of the Miami-Dade County Beach Restoration and Preservation Program, which is funded by mitigation bank payments.

A shoreline stabilization project along Biscayne Bay was carried out by Dade County Department of Environmental Resources Management (DERM) at Biscayne Bay Campus from 1989-1991. This project involved placement of boulder rip-rap along 1,225 linear feet of shoreline along the southern and southeastern edges of campus property; constructing mangrove planters totaling 1,525 linear feet along the southern and southeastern edges of FIU property (mangroves interspersed with rip-rap); 1,200 linear foot cordgrass (Spartina sp.) planter on the southeast edge; and planting of cordgrass along 500 feet of shoreline (no rip-rap) along the southeast edge. The December 2000 site inspection revealed that the above-referenced project appears to have been completed.

Another mangrove mitigation project was planned by DERM for Biscayne Bay Campus. This project involved scraping an area of 1.65 acres to an elevation of +1 foot above mean sea level, excavation of drainage channels to a height of 0 feet above mean sea level, and planting of red mangroves (Rhizophora mangle) and black mangroves (Avicennia germinans) on 3 foot centers in the areas between the drainage channels. The December 2000 site inspection revealed that the above-referenced project has been completed.

Construction of an access road to the Kovens Center required the filling of a section of a mangrove-dominated, tidally influenced canal. As mitigation for this activity, the University planted a buffer zone of native vegetation adjacent to mangroves near the impact site. The specifics are contained in DERM Permit # CC 95-056. The December 2000 site inspection confirmed that this project has been completed.

Security concerns necessitated the trimming of mangroves adjacent to the conference center (DERM Permit # 95–218; CC 99–053). The planting of mangroves at the southwestern end of campus was required for compensatory mitigation. The December 2000 site inspection revealed that this project was in progress. The design of this mitigation area allows for the expansion of additional mangrove plantings to the east if required by future development on campus. This project has been completed.

Several mitigation projects have been carried out at Oleta River State Recreation Area since its creation in 1986. The first of these was initiated by DERM in 1986 and involved placement of boulder rip-rap along 990 linear feet of Biscayne Bay shoreline for shoreline stabilization, construction of an 80- foot x 9-foot fishing pier extending into Biscayne Bay at the southwest corner of park, construction of a 935 linear foot sand beach along Biscayne Bay, shallowing and interconnecting 4 existing ponds and connecting the ponds to Biscayne Bay to create a shallow flow-through lagoon system, and repairing an existing bridge over the Oleta River at the north end of the park. A mangrove restoration project was carried out by DERM in Oleta River State Recreation Area from 1989 to 1991. This project involved clearing and grading approximately 15 acres of previously filled wetland area (the filled area was dominated by Australian pine), reducing elevation from +3 feet to between 0 and +1 foot above mean sea level, stockpiling graded material on park property in the west-central portion of the park (see Figure 13.2), planting approximately 75,000 red mangroves on 3-foot centers, and monitoring the planting sites and replanting to maintain at least 80% survival over a 2 year period. A roseate spoonbill (Ajaia ajaja) was observed in the mitigation area, along with several white ibis (Eudocimus albus), both of which are listed as species of special concern (see Table 13.2 for a complete list of County, State and Federally listed plant and animal species known to occur within the two campuses and their respective context areas).

In 1991, DERM carried out a mitigation project in Oleta River State Recreation Area that involved the construction of mangrove planters totaling 1800 linear feet of shoreline in three sections along the western side of the park. Red mangroves and black mangroves were planted.

Mangrove planters were observed on December 2000 and found the mangroves to be healthy and growing well, with apparent good survival of planted seedlings. The mangrove planters facing Biscayne Bay are planted with red mangroves and white mangroves (Laguncularia racemosa), while the shores of the flow-through lagoon are planted with black mangrove and buttonwood (Conocarpus erecta). In addition, other mangrove-associated plant species are becoming established. In both of these areas and along the extensive rip-rapped sections of shoreline there appears to be considerable natural establishment of mangrove seedlings.

A mitigation project on Sandspur Island (a part of the Oleta River State Recreation Area), located immediately south of Biscayne Bay Campus and within the context area, involved shoreline stabilization and mangrove reclamation. Specifically, boulder rip-rap and mangrove planters are being placed along the entire north, east, and south shorelines of the island (i.e., those shorelines facing the Intracoastal Waterway and thus most impacted by boat traffic in the Intracoastal).

Table 13.2 Animals-Threatened and Endangered Species System (TESS)/Florida

Scientific Name	Common Name	Status	FIU
Alligator, American	Alligator mississippiensis	T	N/A
Bankclimber, purple (mussel)	Elliptoideus sloatianus	T	N/A
Bat, gray	Myotis grisescens	E	N/A
Butterfly, Schaus swallowtail	Heraclides aristodemus ponceanus	E	N/A
Caracara, Audubon's crested FL pop.	Polyborus pancus audubonii	T	N/A
Crane, whooping U.S.A.	Grus americana	E	N/A
Crocodile, American	Crododylus acutus	E	N/A
Darter, Okaloosa	Etheostoma okaloosae	E	N/A
Deer, key	Odocoileus virginianus clavium	E	N/A
Eagle, bald lower 48 States	Haliaeetus leucocephalus	T	N/A
Jay, Florida scrub	Aphelocoma coerulescens	T	N/A
Kite, Everglade snail FL pop.	Rostrhamus sociabilis plumbeus	E	N/A

Manatee, West Indian	Trichechus manatus	E	BBC
Moccasinshell, Gulf	Medionidus penicillatus	E	N/A
Moccasinshell, Ochlockonee	Medionidus simpsonianus	E	N/A
Mouse, Anastasia Island beach	Peromyscus polionotus phasma	E	N/A
Mouse, Choctawhatchee beach	Peromyscus polionotus allophrys	E	N/A
Mouse, Key Largo cotton	Peromyscus gossypinus allapaticola	E	N/A
Mouse, Perdido Key beach	Peromyscus polionotus trissyllepsis	E	N/A
Mouse, southeastern beach	Peromyscus polionotus niveiventris	T	N/A
Mouse, St. Andrew beach	Peromyscus polionotus peninsularis	E	N/A
Panther, Florida	Puma(=Felis)concolor coryi	E	N/A
Pigtoe, oval	Pleurobema pyriforme	E	N/A
Plover	Chardrius melodus	T	N/A
Pocketbook, shinyrayed	Lampsilis subangulata	E	N/A
Puma (=mountain lion) FL	Puma(=Felis) concolor (all subsp. Exp.coryi)	T	N/A
Rabbit, Lower Keys marsh	Sylvilagus palustris hefneri	E	N/A
Rice rat lower FL Keys	Oryzomys palustris natator	E	N/A
Salamander, flatwoods	Ambystome cingulatum	T	N/A
Sawfish, smalltooth U.S.A.	Pristis pectinata	E	N/A
Sea turtle, green FL,	Chelonia Mydas	E	N/A
Sea turtle, green	Chelonia Mydas	T	N/A
Sea turtle, hawksbill	Eretmochelys imbricata	E	N/A
Sea turtle, Kemp's ridley	Lepidochelys kempii	E	N/A
Sea turtle, leatherback	Dermochelys coriacea	E	N/A
Sea turtle, loggerhead	Caretta caretta	T	N/A
Seal, Caribbean monk	Monacus tropicalis	E	N/A
Shrimp, Squirrel Chimney Cave	Palaemonetes cummingi	T	N/A
Skink, bluetail mole	Eumeces egregius lividus	T	N/A
Skink, sand	Neoseps reynoldsi	T	N/A
Slabshell, Chipola	Elliptio chipolaensis	T	N/A
Snail, Stock Island tree	Orthalicus reses	T	N/A
Snake, Atlantic salt marsh	Nerodia clarkii taeniata	T	N/A
Snake, eastern indigo	Drymarchon corais couperi	T	N/A
Sparrow, Cape Sable seaside	Ammodramus maritimus mirabilis	E	N/A
Sparrow, Florida grasshopper	Ammodramus savannarum floridanus	E	N/A
Stork, wood AL, FL, GA, SC	Mycteria american	E	N/A
Sturgeon, gulf	Acipenser oxyrinchus desotoi	T	N/A
Sturgeon, shortnose	Acipenser brevirostrum	E	N/A
Tern, roseate	Sterna dougallii dougalliii	T	N/A
Three-ridge, fat (mussel)	Amblema neislerii	E	N/A
Vole, Florida salt marsh	Microtus pennylvanicus dukecampbelli	E	N/A
Whale, finback	Balaenoptera physalus	E	N/A
Whale, humpback	Magaptera novaeangliae	E	N/A
Whale, right	Balaena glacialis	E	N/A
Wolf, red except where XN	Canis rufus	E	N/A
Woodpecker, red-cockaded	Picoides borealis	E	N/A

Woodrat, Key Largo	Neotoma floridana smalli	E	N/A
Amorpha crenulata	crenulated lead-plant	E	N/A
Asimina tetramera	four-petal pawpaw	E	N/A
Bonamia grandiflora	Florida bonamia	T	N/A
Campanula robinsiae	Brooksville bellflower	E	N/A
Cereus eriophorus var. fragrans	fragrant prickly-apple	E	N/A
Cereus robinii	Key tree-cactus	E	N/A
Chamaesyce deltoidea ssp. deltoidea	deltoid spurge	E	N/A
Chamaesyce garberi	Garber's spurge	T	N/A
Chionanthus pygmaeus	pygmy fringe tree	E	N/A
Chrysopsis floridana	Florida golden aster	E	N/A
Cladonia perforata	Florida perforate cladonia	E	N/A
Clitoria fragrans	pigeon wings	T	N/A
Conradina brevifolia	short-leaved rosemary	E	N/A
Conradina etonia	Etonia rosemary	E	N/A
Conradina glabra	Apalachicola rosemary	E	N/A
Crotalaria avonensis	Avon Park harebells	E	N/A
Cucurbita okeechobeensis ssp. okeechobeensis	Okeechobee gourd	E	N/A
Deeringothamnus pulchellus	beautiful pawpaw	E	N/A
Deeringothamnus rugelii	Rugel's pawpaw	E	N/A
Dicerandra christmanii	Garrett's mint	E	N/A
Dicerandra cornutissima	longspurred mint	E	N/A
Dicerandra frutescens	scrub mint	E	N/A
Dicerandra immaculata	Lakela's mint	E	N/A
Eriogonum longifolium var. ghaphalifolium	scrub buckwheat	T	N/A
Eryngium cuneifolium	snakeroot	E	N/A
Euphorbia telephioides	Telephus spurge	T	N/A
Galactia smallii	Small's milkpea	E	N/A
Halophila johnsonii	Johnson's seagrass	T	N/A
Harperocallis flava	Harper's beauty	E	N/A
Hypericum cumulicola	Highlands scrub hypericum	E	N/A
Jacquemontia reclinata	beach jacquemontia	E	N/A
Justicia cooleyi	Cooley's water-willow	E	N/A
Liatris ohlingerae	scrub blazing star	E	N/A
Lindera melissifolia	pondberry	E	N/A
Lupinus aridorum	scrub lupine	E	N/A
Macbridea alba	white birds-in-a-nest	T	N/A
Nolina brittoniana	Britton's beargrass	E	N/A
Paronychia chartacea	papery whitlow-wort	T	N/A
Pinguicula ionantha	Godfrey's butterwort	T	N/A
Polygala lewtonii	Lewton's polygala	E	N/A
Polygala smallii	tiny polygala	E	N/A
Polygonella basiramia	wireweed	E	N/A

Polygonella myriophylla	sandlace	E	N/A
Prunus geniculata	scrub plum	E	N/A
Rhododendron chapmanii	Chapman's rhododendron	E	N/A
Ribes echinellum	Miccosukee gooseberry	T	N/A
Schwalbea americana	American chaffseed	E	N/A
Scutellaria floridana	Florida skullcap	T	N/A
Silene polypetala	fringed campion	E	N/A
Spigelia gentianoides	gentian pinkroot	E	N/A
Thalictrum cooleyi	Cooley's meadowrue	E	N/A
Torreya taxifolia	Florida torreya	E	N/A
Warea amplexifolia	clasping warea	E	N/A
Warea carteri	Carter's warea	E	N/A
Ziziphus celata	scrub ziziphus	E	N/A

STATUS CODES:
E: Endangered
T: Threatened
T(S/A): Threatened because of similarity of appearance
XN: Non-essential experimental population

LISTING AGENCIES:
FGFWFC: Florida Game and Fresh Water Fish Commission
FDA: Florida Department of Agriculture and Consumer Services
USFWS: United States Fish and Wildlife Service
CITIES: Convention on International Trade in Endangered Species of Wild Fauna and Flora
BBC: Biscayne Bay Campus

The existing mitigation areas previously identified in the context area were not examined during the December 2000 campus inspection. No conflicts regarding mitigation have been identified. Existing and planned mitigation areas should be factored into development plans for the Biscayne Bay Campus.

5. Fisheries, wildlife marine habitats and vegetative communities, indicating dominant species present and species listed by Federal, State, or local agencies as endangered, threatened or species of special concern:

All species that were observed during the December 2000 inspections have been previously documented. Table 13.2 lists threatened, endangered and species of special concern likely to occur at Modesto A. Maidique and Biscayne Bay Campus while Tables 13.3 and 13.4 list the more common avian species and other fauna, respectively.

BISCAYNE BAY CAMPUS

Australian pine-dominated upland forest: The Australian pine-dominated forest has limited value as wildlife habitat for either birds or mammals. There is little or no food available for frugivorous, granivorous or nectarivorous species, and little cover available for species which prefer dense foliage cover. Woodpeckers and introduced exotics such as starlings, mynahs and parrots may use dead trees as nesting sites, but other species are unlikely to so. During migration, flocks of warblers and other insectivorous birds may forage in Australian pines, but they are probably a resource-poor habitat even for these species. No County, State or Federally listed plant or animal species were found in the Australian pine-dominated forests at the Biscayne Bay Campus.

Mangrove forest: The total area of these mangroves is relatively small, and although the mangroves present appear to be in good health, the carrying capacity for mangrove-frequenting species is likely to be small. Extensive mangrove areas exist to the north, east, and west of the campus. The mangrove-lined banks of the estuary and various canals may be important corridors for bird and mammal species traveling between these larger mangrove areas. Mangrove areas immediately adjacent to the campus may be important roosting and/or nesting sites for several species of wading birds, including little blue herons, green-backed herons, yellow-crowned night herons and white ibis.

Beach strand: Many of the plants making up the beach strand vegetative association are relatively small, having been recently planted or established following completion of rip-rap placement. The beach strand vegetation serves as an important corridor for land bird species traveling along the coast but is probably most important as a barrier between the littoral zone and jogging/maintenance paths located inland of the strand vegetation. This barrier may reduce disturbance to wading and pelagic birds utilizing the littoral zone and adjacent waters and may also provide roosting and nesting sites for some species, although nearby mangrove areas are likely to be more important in this respect.

Lakes and littoral zones: The two lakes located on the Biscayne Bay Campus do not appear to be very important wildlife habitat. The west lake is depauperate of both vegetation and animal life. The east lake has a well vegetated littoral zone but is smaller in size and depauperate in animal life.

Wildlife associated with Biscayne Bay and estuary: Vertebrate species in and adjacent to Biscayne Bay and associated waterways were observed during visits to the Biscayne Bay Campus and the Oleta River State Recreation Area. Bird species observed in and adjacent to the Bay included several species of herons, cormorants, gulls and ibis (Table 13.3). Fish species observed included various food and sport fish (snapper, mullet, and a sighting of what was likely to have been a tarpon or snook) as well as a variety of smaller fish species (Table 13.4). No mammals were observed in the Bay, although it is known to be an important area for the West Indian manatee. Atlantic bottlenose dolphins (Tursiops truncatus) and several species of sea turtles also occur in the area.

The shoreline on the Biscayne Bay Campus facing Biscayne Bay is of mixed habitat quality. The extensive area of rip-rap may be used by some species of herons, but is unlikely to be a suitable feeding habitat for most shorebirds or wading birds, or for mammals such as raccoons. The rip-rap does provide considerable cover and foraging area for various fish and invertebrate species. The shallow waters of the Bay adjacent to the shoreline appear to be good habitat for a variety of wildlife. Although this area was only surveyed from shore, turtle grass and manatee grass beds were visible, along with several species of algae. The sea grass areas in particular appear to be good habitat for a wide range of invertebrates and fishes and should consequently be valuable feeding grounds for diving and aerially fishing birds (cormorants, mergansers, gulls, terns and pelicans). Additionally, these areas support important game and food fish (mullet, snapper, tarpon and snook) and are important feeding/wintering grounds for the West Indian manatee.

Landscaped areas: Tree islands and landscaped areas at Biscayne Bay Campus are likely to be important primarily for common resident bird species such as bluejays (Cyanocitta cristata), mockingbirds (Mimus polyglottos), loggerhead shrikes (Lanius ludovicianus), gray kingbirds (Tyrannus dominicensis) and boat-tailed grackles (Quiscalis major). The tree islands are not large enough to provide nesting habitat for less aggressive or more secretive species.

Table 13.3 Preliminary Bird Species List for the FIU Campuses

MMC=Modesto A. Maidique, BBC=Biscayne Bay Campus

COMMON NAME	SCIENTIFIC NAME	Presence		
		MMC	BBC	CODE
Pied-billed Grebe	Podylimbus podiceps	X		pc
Dble-crested Cormorant	Phalacrocorax auritus	X	X	c/f
Anhinga	Anhinga anhinga	X		pc

Great blue heron	Ardea herodias	X	/f	
Little blue heron	Egretta caerulea	X	/l	
Cattle egret	Bubulcus ibis	X	X	c
Green-backed heron	Butorides striatus	X	X	pc
Yllw-crowned nt-heron	Nyctanassa violacea		X	
Blck-crowned nt-heron	Nycticorax nycticorax	X		p
White ibis	Eudocimus albus	X	X	/ia
Roseate spoonbill[b]	Ajaia ajaja		X	
Turkey vulture	Cathartes aura	X		c
Osprey	Pandion haliaetus	X	X	pc/f
Sharp-shinned hawk	Accipiter striatus	X		p
Cooper's hawk	Accipiter cooperii	X		pc
Red-shouldered hawk	Buteo lineatus	X		
Broad-winged hawk	Buteo platypterus		X	p
American kestrel[c]	Falco sparverius	X		pc
Common moorhen	Gallinula chloropus	X		c*
American coot	Fulica americana	X		c
Killdeer	Charadrius vociferus	X	X	pc
Greater yellowlegs	Tringa melanoleuca	X		c
Spotted sandpiper	Actitis macularia		X	
Laughing gull	Larus atricilla	X	X	pc
Ring-billed gull	Larus delawarensis	X		c
Least tern	Sterna antillarum	X		c
Black skimmer	Rynchops nigra	X		c
Rock dove	Columba livia	X	X	c
White-crowned pigeon	Columba leucocephala	X	/f	
Mourning dove	Zenaida macroura	X	X	p*
Eurasian collared dove	Streptopelia decaocto	X		p
Common ground-dove	Columbina passerina		X	
Monk parakeet	Myiopsitta monachus	X		pc*
Red-masked parakeet	Aratinga erythrogenys	X		pc
Cockatiel	Nymphicus hollandicus	X		c
Smooth-billed ani	Crotophaga ani	X		p
Burrowing owl	Speotyto cunicularia	X		c
Common nighthawk	Chordeiles minor		X	
Chuck-will's widow	Caprimulgus carolin.	X		p
Rufous hummingbird	Selasphorus rufus	X		p
Belted kingfisher	Ceryle alcyon	X	X	pc
Red-bellied woodpecker	Melanerpes carolinus	X	X	pc
Yllw-bellied sapsucker	Sphyrapicus varius	X		c
	Colaptes auratus	X		c*
	Empidonax sp.	X		p
Gt-crested flycatcher	Myiarchus crinitus	X		c
Eastern kingbird	Tyrannus tyrannus	X		p
Gray kingbird	Tyrannus dominicensis	X	X	pc*
Barn swallow	Hirundo rustica	X	X	pc
N. rugh-winged swallow	Stelgidopteryx serri.	X		pc
Blue jay	Cyanocitta cristata	X	X	p
Fish crow	Corvus ossifragus	X	X	c
House wren	Troglodytes troglody.	X		p
Blue-gray gnatcatcher	Polioptila caerulea	X	X	pc*
American robin	Turdus migratorius	X		p

Grey catbird	Dumetella carolinen.	X		p
Northern mockingbird	Mimus polyglottos	X	X	pc*
Brown thrasher	Toxostoma rufum	X		p
Cedar waxwing	Bombycilla cedrorum	X		p
Loggerhead shrike	Lanius ludovicianus	X	X	pc*
European starling	Sternus vulgaris	X	X	c
White-eyed vireo	Vireo griseus	X		p
Red-eyed vireo	Vireo olivaceus	X		p
Northern parula	Parula americana	X		pc
Prairie warbler	Dendroica discolor	X	X	pc
Palm warbler	Dendroica palmarum	X		pc
Black-and-white wrblr	Mniotilta varia	X	X	p
American redstart	Setophaga ruticilla	X	X	pc
Ovenbird	Seiurus aurocapillus	X		p
Common yellowthroat	Geothlypis trichas	X		p*
Northern cardinal	Cardinalis cardinalis	X	X	p*
Painted bunting	Passerina ciris	X		p
Red-winged blackbird	Agelaius phoeniceus	X		p*
Boat-tailed grackle	Quiscalus major	X	X	pc*
Common grackle	Quiscalus quiscula	X		pc*

a List compiled since 4 December 1992.
b Observed at the Oleta River State Recreational Area
c Subspecies undetermined

CODES: Codes given after a slash (/) refer to Biscayne Bay Campus, all other codes refer to Modesto A. Maidique.
a = Adult
c = Observed on campus other than in the preserve
f = Seen only in flight
i = Immature
p = Observed in the preserve, including the adjacent pond
= Species that bred or went through the motions of doing so
Note: Unless otherwise noted, all birds were adults.

Table 13.4 Animal Species (Excluding Birds) Observed or Reported at the FIU Campuses and in the Surrounding Context Areas

COMMON NAME	SCIENTIFIC NAME	Presence	
		BBC	MMC
MAMMAL SPECIES:			
Bobcat[a]	Lynx rufus		X
Raccoon	Procyon lotor	X	
West Indian manatee	Trichechus manatus	X	
Atl. bottlenose dolphin	Tursiops truncatus	X	
Red fox	Vulpes vulpes		X
FISH SPECIES:			
Snook	Centropomus sp.		X
Mosquito fish	Gambusia sp.	X	X
Mojarra	Gerres sp.	X	
Herring	Jenkinsia sp.	X	
Pinfish[b]	Lagodon rhomboidesX		
Bluegill	Lepomis macrochirus		X
Tarpon	Megalops atlantica	X	

Largemouth bass	Micropterus salmoides		X
Mullet	Mugil curema	X	
Tillapia sp.	Oreochromis spp.		X
Barracuda	Sphyraena barracuda	X	
Mangrove snapper	Serranidae	X	
Needlefish	Belonidae	X	
Silversides	Atherinidae	X	
Pufferfish	Tetraodontidae	X	
AMPHIBIAN SPECIES:			
Cane toad	Bufo marinus		X
East. Narrw-mouthed			
Toad	Gastrophryne carolinensis		X
REPTILE SPECIES:			
Carolina anole	Anolis carolinensis	X	X
Cuban Brown anole	Norops sagrei	X	X
Bark anole	Norops distichus	X	X
NOTABLE INVERTEBRATE SPECIES:			
Limpet	Acmaea sp	X	
Gulf fritillary	Agraulis vanillae		X
Battalaria snail	Battalaria sp.	X	
Barnacle	Chthamalus sp.	X	
Queen butterfly	Danaus gilippus berenice		X
Julia butterfly	Dryas iulia	X	
Blue sponge[b]	Dysidea etherea	X	
Florida atala butterfly	Eumaeus atala florida		X
Zebra butterfly	Heliconius charitonius		X
Sulfur butterfly	Phoebis spp.		X
Orange sponge	Demospongiae	X	
Sea cucumber	Holothuroidea	X	
Periwinkle	Gastropoda	X	
Mussel	Bivalvia	X	
Amphipods	Amphipoda	X	
Fiddler crab	Decapoda	X	
Sea urchin	Echinoidea	X	

Vegetation and Wildlife Composition:

MODESTO A. MAIDIQUE

Modesto A. Maidique contains relatively few naturally vegetated areas. Non-landscape vegetation associations can be classified into the following categories:

Tree islands: This association consists of isolated natural or landscape trees that have been overgrown with viny herbaceous and woody vegetation. In most cases, the "understory vegetation" (i.e., herbs and low shrubs growing under the crown of the tree) has been left intact, often to a radius of 10 feet or more.

Sweet bay-dominated hardwood hammock: An oval shaped hammock, known as the “Preserve”, is located near the southwestern corner of the Modesto A. Maidique Campus, which appears to be an old bay head that has been partially cleared. A central portion of the hammock contains a shelter, planted "butterfly garden" vegetation, and pine rockland area. In the relatively undisturbed portions of this area, canopy vegetation is dominated by sweet bay (Persea borbonia; some quite large), live oak (Quercus virginiana), mastic (Mastichodendron foetidissimum), wild tamarind (Lysiloma bahamensis), pigeon plum and white stopper (Eugenia axillaris). This area has been designated as an on-campus botanical and wildlife area. An interpretive trail system has been established, and individuals of several species are flagged throughout the zone.

This zone represents the most botanically valuable natural feature of Modesto A. Maidique. It is used by faculty to conduct research of reclaimed land.

Littoral zone and submerged vegetation associated with lakes: Modesto A. Maidique contains 15 ponds and lakes, all man-made. The littoral zones of most of these lakes are sparsely vegetated with a variety of wetland plants, including soft rush, flat sedge (Cyperus haspan), duck potato, primrose willow (Ludwigia peruviana) and cattail. Additionally, a few wetland trees, including willow (Salix carolinensis) and bald cypress appear to have been planted. Elodea abounds in the shallow-water portions of these lakes.

The vegetation of Henington Lake, located near the northeast corner of Modesto A. Maidique (Figure 13.1), was examined in some detail. This lake contains a spoil island called Henington Island, which is apparently intended to serve as a "rainforest island". Design team personnel were unable to access the island, but visual examination of Henington Island from the shore of the lake indicates that the island is dominated by a mix of native and exotic hardwood hammock trees, including Indian almond (Terminalia catappa), wild tamarind, royal poinciana (Delonix regia), Indian rubber tree (Ficus elastica), paurotis palm (Acoelorraphe wrightii), oil palm (Elaeis guineensis), umbrella tree (Schefflera actinophylla), paradise tree (Simarouba glauca), ear-leaf acacia (Acacia auriculaeformis), and kapok tree (Bombax spp.). Littoral zone vegetation in this lake includes Florida white-tops, soft rush, primrose willow, camphor weed, water hyssop (Bacopa monnieri), coinwort (Centella asiatica), miterwort and diodia, with scattered planted bald cypress and wax myrtle.

Littoral zone vegetation also occurs in association with the off-campus lake within the context area (west of Highway 821), consisting of extensive areas of cattail and soft rush which extend away from the shoreline for up to 20-30 feet in some places. Submerged vegetation consists of dense beds of elodea.

BISCAYNE BAY CAMPUS

Since the last master plan in 1995, a program for removal of exotic vegetation has been implemented as well as mangrove mitigation planting initiated. Exotic plant removal (i.e., Brazilian pepper, Australian pine) has led to a decrease in forested areas with a concurrent increase in grassland. There is a net increase in this habitat type, which benefits the associated wildlife, due to the mangrove mitigation planting at the south end of the campus. All wildlife species that were observed during the December 2000 inspection have been accurately documented at the campus.

Brief surveys were conducted of the vegetated areas at Biscayne Bay Campus. Vegetation surveys were largely restricted to brief walking surveys of the "forested" areas surrounding the main building area and the replanting zone near Biscayne Bay, and "windshield surveys" of additional portions of the campus and surrounding areas readily accessible by roads.

Biscayne Bay Campus contains relatively few naturally vegetated areas. Non-landscape vegetation associations at the Biscayne Bay Campus can be classified into the following categories:

Mangrove Forest: Mangrove vegetation at the Biscayne Bay Campus is restricted primarily to two areas: a narrow band along approximately 2100 feet of an internal canal; and along approximately 2200 feet of the estuary at the east edge of the campus. A few scattered trees also occur in the rip-rapped section of shoreline along Biscayne Bay.

Mangrove associations at the Biscayne Bay Campus are dominated by red mangrove, with buttonwood, black mangrove, white mangrove, and seaside mahoe (Thespesia populnea) also commonly found.

Back-mangrove associations: Back-mangrove associations are found on the Biscayne Bay Campus in areas that are transitional between mangrove forests and upland vegetation; i.e., along the edges of the mangrove forest, interior to the mangrove-lined portion of the estuary, and landward of mangrove forests elsewhere in the context area of Biscayne Bay Campus. Back-mangrove canopy is dominated by a mix of upland and wetland trees, including Australian pine, buttonwood, seaside mahoe, and sea grape.

Beach strand: Most of the eastern and southern edge of the Biscayne Bay Campus is Biscayne Bay shoreline, a portion of which has been rip- rapped for shoreline stabilization. Behind the rip-rap areas and in those portions of the shoreline that lack rip-rap, beach strand vegetation dominates. In addition, scattered buttonwood trees and a few red mangroves occur along the shoreline behind the rip-rap.

Within the context area of the Biscayne Bay Campus, beach strand vegetation also occurs along portions of the shorelines in the Oleta River State Recreation Area and may occur in the State mangrove preserves.

Littoral zone and submerged vegetation associated with lakes: The Biscayne Bay Campus contains two lakes, both apparently manmade (Figure 13.3). The western of the two lakes has a very sparsely vegetated littoral zone, with vegetation consisting almost exclusively of soft rush (Eleocharis interstincta), a few planted bald cypress (Taxodium distichum) and a few landscape grasses and lawn weeds. No deep-water vegetation was observed in the western lake. The eastern of the two lakes has a landscaped edge, and emergent vegetation occupies nearly the entire littoral zone of the lake. Dominant littoral zone vegetation in the eastern lake includes soft rush, duck potato (Sagittaria falcata), cattail (Typha latifolia).

Submerged vegetation associated with Biscayne Bay and estuary: A visual survey of aquatic vegetation from the shoreline, and inspection of vegetation washed up by tidal action were conducted along a portion of the Biscayne Bay shoreline and at several points along the estuary. In the estuary the predominant aquatic vegetation consists of Caulerpa spp. and several unidentified species of green algae and red algae. The shallow waters facing Biscayne Bay have a rubble bottom in most places, interspersed with turtle grass (Thalassia testudinum) and manatee grass (Halodule wrightii) beds.

Disturbed areas containing wetland plant species: In the southeast corner of Biscayne Bay Campus, a large area was cleared of vegetation. Since that time, the scraped area has been recolonized by a mix of upland and transitional wetland weeds.

6. Aquifers and aquifer recharge areas:

Technically, all of Miami-Dade County is an aquifer recharge area because an impermeable layer does not lie between the surface and the aquifer. However, aquifer recharge areas of concern to South Florida Water Management District (SFWMD) are the major wetland systems in western and southern Miami-Dade County. Neither campus is considered an important aquifer recharge area.

MODESTO A. MAIDIQUE

Modesto A. Maidique and context area receive water from the Miami- Dade Water and Sewer Authority Department (MDWASAD) which draws its water from the Biscayne aquifer. The Modesto A. Maidique campus and context area lack extensive wetland systems and are thus not important aquifer recharge areas.

BISCAYNE BAY CAMPUS

The Biscayne Bay Campus and context area receive water from the Miami- Dade Water and Sewer Authority Department (MDWASAD), which draws its water from the Biscayne aquifer. However, potable water is not drawn from the Biscayne aquifer within Biscayne Bay Campus context area because of saltwater intrusion.

7. Air quality, including but not limited to the pollutants subject to National Ambient Air Quality Standards:

Air quality information was obtained from Miami-Dade County DERM. The Miami-Dade County Ambient Air Monitoring Network consists of National Air Monitoring Stations (NAMS) and State and Local Air Monitoring Stations (SLAMS). The primary purpose of the network is to measure ambient air levels of criteria pollutants, the air pollutants for which National Ambient Air Quality Standards (NAAQS) have been established by the Federal government.

MODESTO A. MAIDIQUE

The Air Quality Index (AQI) scale ranges from 0 to 500 with the following descriptor words and ranges:

Good	0	to	50
Moderate	51	to	100
Unhealthful	101	to	199
Very unhealthful	200	to	299
Hazardous	300	to	500

The index uses a scale based on the National Ambient Air Quality Standards for the five pollutants (nitrogen dioxide, sulfur dioxide, carbon monoxide, lead, and total suspended particulates). The actual standard for each pollutant represents 100 on the AQI scale, which is unitless. The standards are aimed at protecting sensitive populations. If the AQI is over 100, generalized health effects and cautionary statements may also be provided. These statements were issued in 1989 when the Everglades fires were causing breathing problems for some people.

The reported Daily Index is done on working days using a PM10 sampler at the Miami Fire Station (1200 NW 20th Street), and all operational carbon monoxide, ozone, nitrogen dioxide and sulfur dioxide sites. The data for nitrogen dioxide and sulfur dioxide are recorded but have never been high enough to be used for the AQI. After converting the concentrations to AQI values, the highest AQI value of all the pollutants for the day is reported. After all the continuous monitoring data for the month are corrected and verified, a corrected AQI is calculated for every day in the month using all air monitoring sites. This is called the Total AQI and is reported to the Florida

Department of Environmental Protection every quarter.

BISCAYNE BAY CAMPUS

Very few Miami-Dade County air quality monitoring sites are located close to the Biscayne Bay Campus. The closest site is approximately 8.1 miles southwest of the campus. All the monitoring sites are located to the south of the Biscayne Bay Campus except the Thompson Park site, which is located nearly 19 miles west-northwest of the campus.

8. Surface water quality, including the water quality for each lake, river and other surface water, and the identification of any such water body designated as an Outstanding Florida Water:

Water quality data for Modesto A. Maidique Campus and Biscayne Bay Campus were obtained from two sources: (1) DERM monitoring wells in the vicinity of the two campuses, and (2) data compiled by the EPA from surface water quality assessments done in and around the Munisport Landfill.

DERM monitors a variety of parameters, including ammonia, nitrate/nitrite, organic PO4, total PO4, chloride, barium, iron, calcium, magnesium, potassium, sodium, manganese, zinc, sulfate, cadmium, chromium, copper, lead, mercury, turbidity, total dissolved solids, arsenic, nickel, selenium, silver, phenol, cyanide, alkalinity, total Kjeldahl nitrogen, color, and fluoride. DERM uses the 1993 DER drinking water standards, Chapter 17-550, F.A.C. Phenol is monitored by DERM.

MODESTO A. MAIDIQUE

There are five groundwater wells monitored by DERM within three miles of Modesto A. Maidique Campus. For two of the five wells data are available from 1981 through 1983 and 1989 through 1990. Data for two of the remaining wells are available only from 1992. Only data from 1989 were available for the final well.

In the wells near Modesto A. Maidique, there was one exceedance of lead in 1992. The lead level in the well was measured as 0.041 mg/L; the DER standard is 0.015 mg/L.

There were three exceedances of acceptable levels of iron in two wells near the Modesto A. Maidique Campus. These iron levels were, respectively, 1.0, 1.4, and 1.4 mg/L; the DER standard for iron is 0.3 mg/L. Two of these exceedances occurred in the fall of 1989; the third was in the fall of 1990. All other parameters monitored by DERM were within DER standards for these five wells.

BISCAYNE BAY CAMPUS

There are two groundwater wells monitored by DERM near the Biscayne Bay Campus each located two- and one-half miles from the campus. Data for one of the two wells is available from 1981 through 1990. Data for the other well is available from 1992.

EPA surface water data for the Munisport Landfill: The EPA, in cooperation with State and local regulatory agencies, has compiled an enormous amount of water and soil quality data for the Munisport Landfill (currently an EPA Superfund site), which is adjacent to the western boundary of Biscayne Bay Campus and falls within the context area for this campus. For details, the reader is referred to the EPA Record of Decision (EPA, 1990) for the Munisport site.

In June 1989, the EPA undertook a study to evaluate the emergence of toxic leachate from the Munisport Landfill into the surface waters of the mangrove preserve (EPA, 1989). Surface water quality within Munisport and the State mangrove preserve (adjacent to the southwest edge of Biscayne Bay Campus) was monitored at five sampling sites along the canal separating Munisport from the mangrove preserve and at two sites along the two culverts at the southeast boundary of the preserve. Surface water samples were analyzed for a variety of parameters including ammonia, nitrate/nitrite, phosphates, dissolved oxygen, metals and extractable and purgeable organics. EPA uses both State and Federal ambient water quality standards.

At all sampling sites, ammonia levels were much higher (maximum = 15 mg/L) in the portion of the preserve adjacent to the landfill than they were in the culverts at the east edge of the preserve (maximum = 2.0 mg/L). Ammonia concentrations at both sites varied directly with tidal stage, with dilution occurring with incoming high tide. The EPA concluded that the most likely source of increased ammonia levels in the mangrove preserve was the encroachment of leachate from the adjacent landfill.

Results of the organic and metal analyses of surface water samples revealed no detectable heavy metals and only a few extractable and purgeable organic compounds, none of which exceeded State or Federal water quality standards. Analysis of sediments extracted from the same sampling sites, however, revealed increased amounts of metals and organic compounds in the sites adjacent to the landfill compared with the sites nearer the Bay. However, the concentration of metals in sediments was generally within the ranges observed in marine sediments far removed from urbanization and industrial effects.

There are no water quality monitoring stations on or very near either campus. The absence of monitoring precludes the determination of whether or not campus activities are significantly affecting ground or surface water quality.

Storm water runoff from roadways and parking lots and other impervious surfaces is probably the principal source of water pollution on campus. Runoff from landscaped and grassed areas also, no doubt, contributes to water pollution. Presumably, fertilizers and pesticides are used in maintenance of landscaped areas on campus; no data relating to this matter was found. There are mulch storage areas on University property, and these likely contribute some leachate to the nearby waters.

There are areas along the waterfront away from the developed portions of the campus where a considerable amount of clearing has occurred. No doubt some of these areas contribute to turbidity in the adjacent portion of Biscayne Bay.

The Munsiport Landfill Site lies to the west of and adjacent to the campus. This is a Superfund site for which an Environmental Protection Agency (EPA) Record of Decision Declaration was issued in 1990 (EPA, 1990). Based on Munisport's impacts on the environment, the EPA prescribed a remedial action for this site, primarily to protect the State mangrove preserve adjacent to Munisport and Biscayne Bay Campus. Evaluating the potential long-term effects of Munisport on resources in the context area is beyond the scope of this study.

Because of the smaller size of the lakes, it is likely that storm water runoff has a greater impact on the lakes on campus than it does on Biscayne Bay or the Oleta River.

9. Known septic tanks, grease traps, storage sites of hazardous, toxic or medical waste:

No known septic tanks are present at either Modesto A. Maidique or Biscayne Bay Campus. According to FIU sources, the last septic tank was removed from Biscayne Bay Campus in 1992. Grease traps have been installed on both campuses in the portions of the sewer lines associated with food service facilities, and in association with the hospitality management facility on at Modesto A. Maidique.

10. Chemical and hazardous waste disposal systems:

MODESTO A. MAIDIQUE

According to information provided by the FIU Environmental Health and Safety staff, hazardous, toxic and medical wastes are collected by FIU Environmental Health and Safety staff from sources of generation and stored until pick-up and disposal can be arranged with a contracted waste disposal company. Hazardous (non-biohazardous and non-radioactive) waste is stored in the Hazardous Waste Shed located on the westside of Modesto A. Maidique.

Biohazardous wastes generated at Modesto A. Maidique are either picked up from the point of generation by the disposal company or are stored in an outside storage container (location unknown). Biohazardous waste is presumably generated from only two sites at Modesto A. Maidique: Modesto A. Maidique Health Clinic, from which biohazardous waste is collected once per week, and the Medical Science Lab, from which biohazardous waste is collected biweekly. Waste stored in the outside container is picked up once per month.

Radioactive wastes generated at Modesto A. Maidique are currently stored in Building OE 152 to "allow decay to an acceptable level". Radioactive wastes are transported to this room by the generators themselves (professors and their graduate assistants). Because the handling of radioactive waste is a regulated activity, this is currently the only acceptable arrangement for the disposal of radioactive wastes. No further information regarding the handling of radioactive wastes was provided.

As a rule, hazardous wastes stored on campus are disposed of by a waste disposal company every 180 days. The waste disposal company handling the disposal of hazardous wastes must meet basic insurance and other permit requirements.

The largest concentration of fuel tanks is at the grounds/motor pool building at the southwest corner of the campus, where two 6,000-gallon gasoline tanks, one 500-gallon kerosene tank, and one 600-gallon diesel tank are located. One-thousand-gallon emergency diesel tanks are located at Viertes Haus, the library, Owa Ehan, and Engineering and Computer Science. Smaller emergency diesel tanks (550-600 gallons each) are located at Public Safety, Primera Casa, Graham Center and Deuxieme Maison. A generator is also located at the Recreation Center.

BISCAYNE BAY CAMPUS

According to information provided by the FIU Environmental Health and Safety staff, hazardous, toxic and medical wastes are collected by FIU Environmental Health and Safety staff from sources of generation and transported to Modesto A. Maidique for storage until pick-up and disposal can be arranged with a contracted waste disposal company. Hazardous (non-biohazardous and non-radioactive) waste is transported to Modesto Maidique, where it is stored in the Hazardous Waste Shed located on the west side of the campus. Only small amounts of hazardous wastes (approximately 5-20 gallons per year) are generated at Biscayne Bay Campus. Biohazardous wastes generated at Biscayne Bay Campus are presumably picked up from the point of generation by the disposal company. According to FIU Health and Safety Staff, no radioactive waste is generated at Biscayne Bay Campus.

Below-ground fuel storage tanks on Biscayne Bay Campus are associated with motor pool/vehicle maintenance areas. Presumably there are underground emergency fuel storage tanks located under the main buildings, no specific information on this was given.

11. Surface and groundwater hydrology:

MODESTO A. MAIDIQUE

Refer to 13-(1)a)1.

BISCAYNE BAY CAMPUS

Refer to 13-(1)a)1.

b) Identification of:

12. Existing or Potential Commercial, Recreational, or Conservation Uses

MODESTO A. MAIDIQUE

Commercial Uses: There are no commercial uses in the lakes and surface waters in the context area.

Recreational Uses: The canals in the context area outside Modesto A. Maidique boundaries are used primarily for water conveyance and drainage. There is limited recreational boating and fishing along the canal that borders Tamiami Trail. We have no knowledge of recreational uses of the off-campus lake.

Conservation Uses: The Environmental Studies program plans to develop a wetland area within the lake associated with the teaching and research area. No other surface water-related conservation uses were discovered.

BISCAYNE BAY CAMPUS

Commercial Uses: There are no surface water-related commercial uses within the context area.

Recreational Uses: The principal surface water-related recreational uses in the context area are boating and fishing in the Oleta River. The FIU student rowing club uses the Oleta River on a regular basis. No other surface-water- related recreational uses on campus or within the context area were discovered.

Conservation Uses: There are a number of habitat enhancement/mitigation projects that have been or will be completed along the shoreline of the Oleta River. Additional mitigation work is in progress on Sandspur Island.

Biscayne Bay and all natural waterways (including the Oleta River and the estuary at the north end of the Biscayne Bay Campus) tidally connected to the bay have been designated as the Biscayne Bay Aquatic Preserve, a Miami- Dade County preserve and managed by the Florida Department of Environmental Protection (DEP).

Floodplains:

MODESTO A. MAIDIQUE

There are no floodplains on campus or within the context area.

BISCAYNE BAY CAMPUS

The Biscayne Bay Campus and the context area are within the 100-year flood zone. No commercial uses occur within the context area; therefore, all recreational and conservation activities within the context area and discussed elsewhere within this document are present in the floodplain area.

Wetlands:

MODESTO A. MAIDIQUE

Commercial Uses: There are no commercial uses in the wetland areas within the context area.

Recreational Uses: There is a jogging/fitness trail adjacent to the teaching and research park on campus. The other potential wetland areas are located in vacant land and serve no recreational function.

Conservation Uses: The teaching and research park serves both conservation and educational functions. The Environmental Studies program has an ongoing conservation/restoration project here and has plans to develop wetland areas associated with the preserve. No other conservation uses associated with on-campus wetlands have been identified.

BISCAYNE BAY CAMPUS

The majority of wetland areas on campus and within the context area are mangrove forest or back-mangrove associations.

Commercial Uses: There are no commercial uses associated with wetlands on campus or within the context area. However, seagrass and mangrove areas are important resources in the maintenance of fisheries, and as such may be important to commercial interests. There is a regional water treatment plant in an area that likely was dominated by mangroves at one time.

Recreational Uses: The dominant recreational feature within the context area is the 470-acre Oleta River State Park. The passive recreation uses in the mangrove areas of Oleta River State Park are primarily for nature study and education. Fishing and snorkeling are the primary active recreational activities associated with the mangrove areas. There is a beach and fishing pier at Oleta River, but these are not associated with the mangrove areas.

On campus, a jogging/fitness recreation trail runs adjacent to mangroves and passes some of the strand areas. While there may be other occasional recreational uses in portions of the mangrove areas at Biscayne Bay Campus, no evidence was found that any of these relate to University activities. No nature trails or evidence of planned passive or active recreation activities other than the jogging/fitness trails were observed on campus.

There are two structures on the water; however, neither one appears to serve as a recreational facility. The northern one is a pier in good condition, but it is located in a "no trespassing" area. The other is a floating dock that is in disrepair. It likely is used by the student rowing club and by occasional boaters. Also, there is a launch ramp adjacent to the red drum fish hatchery on campus that is accessed from a service road; however, with the absence of a parking lot and other amenities, it is of minor recreation value.

Conservation Uses: There are a number of State-owned mangroves preserves within the context area. According to the coastal element of the City of North Miami's Comprehensive Plan, there are 575 acres of mangrove preserves in or adjacent to the context area. Additional conservation uses within the context area are related to mitigation or environmental enhancement projects. These are discussed in Section (1) a) 4. existing mitigation sites.

Fisheries, wildlife marine habitats and vegetative communities:

MODESTO A. MAIDIQUE

Wetland plant communities on campus and within the context area are discussed in Section (1) a) 1 wetlands.

Commercial Uses: There are no commercial uses in any of the existing vegetative communities in the context area.

Recreational Uses: Other than those discussed above, there are no recreational uses associated with the vegetative communities in the context area.

Conservation Uses: Because Modesto A. Maidique is designated as a Wildlife Sanctuary by an agreement between FIU and the Tropical Audubon Society, those vegetative communities that serve as wildlife habitat (see Section (1) a) 5.) are protected. Other conservation uses are discussed under wetlands.

BISCAYNE BAY CAMPUS

Mangrove forests and back-mangrove associations, as well as beach strand communities, are discussed in Section (1) a) 5 above.

Commercial Uses: There are no commercial uses in any of the existing vegetative communities in the context area.

Recreational Uses: Other than those discussed in Section (1) a) 5, there are no recreational uses associated with the vegetative communities in the context area.

Conservation Uses: The only additional conservation uses not discussed above are an unknown contribution to the marine or estuarine ecosystem by the submerged vegetation associated with Biscayne Bay and the estuary.

Species Listed by Federal, State or Local Agencies:

MODESTO A. MAIDIQUE

The habitat values of each of the vegetation communities in the context area are discussed above as are the commercial, recreational and conservation values of each.

BISCAYNE BAY CAMPUS

The habitat values of each of the vegetation communities in the context area are discussed above, as are the commercial, recreational and conservation values of each.

The Oleta River in this area is a known habitat for the West Indian manatee. Recreational uses of the Oleta River are discussed above. Most of these activities are not associated with the campus. Nonetheless, some of the recreational uses of the Oleta River are not compatible with the survival of the West Indian manatee.

Known Corridors for the Faunal Species:

MODESTO A. MAIDIQUE

No animal corridors are known to occur on campus or within the context area.

BISCAYNE BAY CAMPUS

The only significant wildlife corridors on campus or within the context occur in mangroves, beach strand and other wetland areas, and are discussed above.

13. Available and Practical Opportunities and Methods for Protection or Restoration of Resources Identified In (1) A)

Rivers, lakes, bays, wetlands (including estuarine marshes), and bottomlands

Rivers and lakes:

MODESTO A. MAIDIQUE

Protective measures: Protective measures for lakes are discussed in Section 1. above. Methods for littoral zone protection are discussed in Section (2) 1. above.

Enhancement measures: Most of the lakes at Modesto A. Maidique would benefit from a variety of enhancement measures. Several of the lakes lack any kind of littoral zone and are steep-sided. These lakes would benefit from grading measures to produce a shallower grade. This would permit the planting of littoral vegetation around the peripheries of the lakes and would help to reduce safety hazards of steep-sided lakes. Most lakes on campus would benefit from the planting of native littoral zone plants. Such plantings would increase the value of the lakes as wildlife habitat, and, by absorbing excess nutrients could help prevent the occurrence of algal blooms.

Removal of exotic vegetation from the shorelines of lakes is also desirable as a means of enhancing their value. The species that is most problematic in this respect is Australian pine. Removal of adult trees followed by regular and systematic eradication of seedlings and saplings would reduce the control costs in the long term and prevent competition with desired native plant species.

BISCAYNE BAY CAMPUS

Protective measures: Routine monitoring of water quality at the two lakes on Biscayne Bay Campus should be initiated as a means of identifying point and non-point sources of pollution at the lakes. This is especially important for the west lake due to the potential of pollution from parking lots to the south of the lake, from the Munisport Landfill to the west, and from the maintenance and service facilities located to the north of the lake.

Within the context area, lakes located within the Munisport site were not open to public access, so an assessment of the need for protective measures for these lakes was not within the scope of this project. Furthermore, protective measures at these lakes are probably not warranted until environmental issues associated with the Munisport Landfill are resolved (EPA, 1990).

Within the context area, the Oleta River and adjacent mangrove areas and channels are protected within the Oleta River State Park and the State mangrove preserves. This waterway is already protected by various measures designed to minimize the impacts of boating and other recreational use on mangroves and on West Indian manatees that utilize the river.

Biscayne Bay and all-natural waterways (including the Oleta River and the estuary at the north end of Biscayne Bay Campus) tidally connected to the bay have been designated as the Biscayne Bay Aquatic Preserve, a Florida Department of Environmental Protection preserve.

Enhancement measures: The east lake on campus has a well-developed littoral zone, and natural colonization of the lake by various aquatic invertebrates and vertebrates will enhance its value as wildlife habitat over time. The width and depth of the lake probably restricts its value as habitat for aquatic birds and many fish species. The west lake appears to be very poor animal habitat at present. Planting of littoral zone vegetation along the periphery of the lake would greatly enhance its habitat and visual value.

The Oleta River and associated mangrove areas appear to be in good ecological condition. The existing protective measures governing the river and associated mangroves appear to be sufficient, and no enhancement measures are recommended. The Terama Tract (Figure 13.2) is the only disturbed area abutting the river, and any mitigation work done at the site (e.g., removal of Australian pine, removal of fill) is dependent on final resolution of the development status of the tract.

Wetlands:

MODESTO A. MAIDIQUE

There are relatively few wetland areas at Modesto A. Maidique. The majority of wetlands on campus and within the context area fall into three categories: the teaching and research park and associated lake, littoral zones associated with other lakes, and periodically flooded lawn areas.

Protective measures: The teaching and research park contains patches of wetland plant vegetation and has a lake with a reasonably well-developed littoral zone. The park and associated lake are already protected as a campus nature preserve, and existing levels of protection are probably adequate to protect these wetlands.

Littoral zones associated with the 15 other lakes on campus are generally poorly developed and likely serve as only marginal habitat for birds and other animals. However, littoral zone vegetation could be better protected by limiting the use of herbicides and pesticides within those portions of the campus that drain into lakes, and by selecting herbicides and pesticides with short environmental half-lives and low toxicity to non-target organisms. University maintenance staff should also be encouraged to restrict mowing near on campus lakes to encourage the growth of transitional wetland vegetation.

Within the context area, the only wetland is the large lake near SW 122nd Avenue and SW 11th Street. This lake possesses a reasonably well- developed littoral zone and serves as habitat for a number of birds and other animals. However, plastic bottles and other debris litter much of the littoral zone and should be removed.

Periodically flooded lawn areas occur on campus to the immediate west of the main entrance to the campus from Tamiami Trail and along the periphery of the playing fields in the northwest corner of the campus. These lawn areas support wetland vegetation, primarily because mowing has been curtailed due to ponding. However, because wetland hydrology, soils and vegetation appear to be present, these areas may qualify as jurisdictional wetlands under the United States Army Corps of Engineers (ACOE) and State of Florida wetlands regulations. Delineation of jurisdictional wetlands is a complex process and is beyond the scope of work for this project.

Flooded lawn areas likely only serve as marginal foraging habitat for birds and other animals.

Enhancement measures: Wetland areas associated with the teaching and research park are currently undergoing an enhancement program, with exotic plant species being removed and littoral zone vegetation being replanted in the adjacent lake.

The remaining wetland areas would benefit most from a reduced mowing regime, allowing the establishment of disturbance-sensitive wetland species, and allowing the development of mature, reproductive plant species would benefit these areas. Additionally, limiting the application of herbicides and pesticides would enhance the value of these areas as wildlife habitats.

BISCAYNE BAY CAMPUS

The majority of wetland areas on campus and within the context area are mangrove forest or back-mangrove associations. They are also located immediately adjacent to tidal waters. A Class I Permit is required prior to commencement of any work in, on, over or upon tidal waters, or any work to trim, cut, alter or remove mangroves or buttonwood trees associated with a coastal wetlands fringe, or prior to any work within a coastal wetlands.

Protective measures: Since mangrove areas on campus are primarily located along an estuary and canal at the north end of the campus, proposed protective measures apply primarily to these areas. A Class I Permit is required for any work within these areas.

The estuary located at the north end of the campus should be designated as a no-wake boating zone with signs posted at the entrance to the estuary. Recreational and other activities within the estuary should be limited to those activities which will not stir up sediment or scar the bottom, and which will not create undue wave action along shorelines. Any other activities which might damage mangrove roots and/or propagules should be prohibited or closely controlled. The mangrove-lined canal on campus is both shallow and narrow, and any recreational or other activities occurring in the canal will likely damage the mangroves growing there. Signs should be posted at potential access points of the canal designating it as a restricted-access or no-access area.

The mangrove canal and estuary should be periodically monitored to check for point and non-point sources of pollution (from parking lots, damaged sewage lines, etc.). Where possible, the University should restrict the use of herbicides, pesticides, and fertilizers within the portions of the campus that drain into mangrove and back-mangrove areas, and should carefully select herbicides and pesticides tailored to specific needs, and with short half-lives and low toxicity to non-target organisms.

Exotic plant species invading or approaching mangrove areas may pose a serious threat to the viability of these systems. The two most problematic species in this respect are Brazilian pepper and Australian pine. A policy of systematic removal of adults and seedlings of these and other exotic species from mangrove forests and back-mangrove associations is being implemented by the University.

Enhancement measures: Mangrove areas along the estuary and canal at the north end of the campus appear to be in relatively good condition. Growth of the mangroves have been enhanced by removal of shading Australian pines, especially along the north side of the canal and along the north part of the estuary. Shoreline stabilization and mangrove replanting programs have created and restored mangrove vegetation in areas at the southern and south-west edges of the campus.

Bottom Lands:

MODESTO A. MAIDIQUE

There are no bottom lands on campus.

BISCAYNE BAY CAMPUS

There are no bottom lands on campus.

Floodplains:

MODESTO A. MAIDIQUE

There are no floodplains on campus.

BISCAYNE BAY CAMPUS

The entire Biscayne Bay Campus is within the 100-year flood zone. All protection and enhancement activities discussed elsewhere fall within the floodplain.

Existing mitigation sites:

MODESTO A. MAIDIQUE

There are no mitigation sites on campus.

BISCAYNE BAY CAMPUS

All of the known mitigation sites on campus are within or are adjacent to wetlands and are discussed in Section (2) 1. above.

Fisheries, wildlife marine habitats and vegetative communities:

MODESTO A. MAIDIQUE

Most of the natural vegetative communities on campus and within the context area are wetlands and are discussed in Section (2) 1. above. In addition, specimen-sized trees (trunk diameter 18 inches or greater) shall be preserved wherever reasonably possible. A tree removal/relocation permit is required prior to any removal and/or relocation of any tree that is subject to the Tree Preservation and Protection provisions of the Miami-Dade County Code.

Protective Measures: Non-wetland areas that serve as habitat for birds and other wildlife should be adequately protected under the Wildlife Sanctuary agreement between the University and the Tropical Audubon Society (see Section (2) 1. above).

Enhancement Measures: Enhancement measures for wetland communities on Modesto A. Maidique and context area are discussed in Section (2) 1. above.

Upland plant communities (hardwood hammocks and tree islands) occurring on the campus and in the context, area would benefit from a systematic program of exotic plant removal targeting Australian pine, Brazilian pepper and lead tree (Leucaena leucocephala.) Facilities management is undertaking a removal program.

BISCAYNE BAY CAMPUS

Most of the natural vegetative communities on campus and within the context area are wetlands and are discussed in Section (2) 1. above.

Protective and enhancement methods: The only upland vegetative community on the campus and in the context area is Australian pine forests. These are undesirable vegetative associations that provide little or no wildlife habitat. No protection of these areas is warranted.

Species Listed by Federal, State or Local Agencies:

MODESTO A. MAIDIQUE

The habitat values of each of the vegetative communities are discussed in Section (2) 5. above.

Wetlands provide most of the significant habitat on campus and within the context area. Protective and enhancement measures for wetlands are discussed in Section (2) 5. above.

BISCAYNE BAY CAMPUS

The habitat values of each of the vegetative communities in the context area are discussed in Section (2) 5. The only natural vegetative communities that provide significant habitat are wetlands.

Known corridors for faunal species:

MODESTO A. MAIDIQUE

There are no known animal corridors on campus.

BISCAYNE BAY CAMPUS

The only significant animal corridors on campus or within the context area occur within the mangrove, estuarine and bay areas. Protective and enhancement measures for these areas are discussed in Section (2) 5.

14. For each of the resources identified in (1) a), identify known sources and rates of discharge or generation of pollution.

Air quality, including but not limited to the pollutants subject to NationalAmbient Air Quality Standards:

MODESTO A. MAIDIQUE

There are no air quality monitoring stations close to the campus or context area; however, data from the closest stations indicate few if any air quality violations, and it is probable that the air quality parameters measured by Miami-Dade County are within legal limits on campus.

Vehicular emissions are, no doubt, the primary source of air pollution on campus. There likely are some hydrocarbon emissions generated by on campus fuel storage.

We could find no data regarding air pollution emissions from laboratories and other chemical storage/chemical use areas; it is likely that any such emissions would have a more dramatic effect on the human environment than on natural resources.

BISCAYNE BAY CAMPUS

There are no air quality monitoring stations close to the campus or context area; however, data from the closest stations indicate few if any air quality violations, and it is probable that the air quality parameters measured by Miami-Dade County are within legal limits on campus.

Vehicular emissions are, no doubt, the primary source of air pollution on campus. There likely are some hydrocarbon emissions generated by on campus fuel storage.

We could find no data regarding air pollution emissions from laboratories and other chemical storage/chemical use areas; it is likely that any such emissions would have a more dramatic effect on the human environment than on natural resources.

Surface Water Quality, including the water quality for each lake, riverand other surface water, and the identification of any such water body designated as an Outstanding Florida Water:

MODESTO A. MAIDIQUE

Storm water runoff no doubt has some impact on surface water quality on the campus.

BISCAYNE BAY CAMPUS

Storm water runoff from roadways and parking lots and other impervious surfaces is probably the principal source of water pollution on campus. Runoff from landscaped and grassed areas also, no doubt, contributes to water pollution. Presumably, fertilizers and pesticides are used in maintenance of landscaped areas on campus; no data relating to this matter was given.

There are mulch storage areas on University property, and these likely contribute some leachate to the nearby waters.

There are areas along the waterfront away from the developed portions of the campus where a considerable amount of clearing has occurred. No doubt some of these areas contribute to turbidity in the adjacent portion of Biscayne Bay.

The Munsiport Landfill Site lies to the west of and adjacent to the campus. This is a Superfund site for which an Environmental Protection Agency (EPA) Record of Decision Declaration was issued in 1990 (EPA, 1990). Based on Munisport's impacts on the environment, the EPA prescribed a remedial action for this site, primarily to protect the State mangrove preserve adjacent to Munisport and Biscayne Bay Campus. Evaluating the potential long-term effects of Munisport on resources in the context area is beyond the scope of this study.

Because of the smaller size of the lakes, it is likely that storm water runoff has a greater impact on the lakes on campus than it does on Biscayne Bay or the Oleta River.

15. Opportunities of Available and Practical Technologies to Reduce Pollution or its Impacts Generated by University Activities for Resources Identified In (1) A)

In the absence of available data regarding pollution generated on campus or in the context area, it is not possible to recommend specific technologies to address these impacts. Strong consideration should be given to implementing air quality and water quality monitoring programs so that levels of pollutants generated by on campus activities can be documented and, if necessary, control technologies implemented.

16. Current and Projected Water Needs and Sources, based on the Demand for Industrial, Agricultural and Potable Water Use and the Quantity and Quality Available to Meet those Demands

Storm water runoff from roadways, parking lots and impervious surfaces is likely the principal source of water pollution for both campuses. Runoff from landscaped and grassed areas also, no doubt, contributes to water pollution. Presumably, fertilizers and pesticides are used in maintenance of landscaped areas on campus; no data relating to this matter was given. Storm water runoff no doubt has some impact on surface water quality on both campuses.

Strong consideration should be given to implementing water quality monitoring programs so that levels of pollutants generated by on-campus activities can be documented and, if necessary, control technologies implemented.

17. Opportunities or Available and Practical Technologies to Reduce Universities Energy Consumption

This component is addressed in the Utilities Element chapter.

14.0 CAPITAL IMPROVEMENTS ELEMENT

(1) DATA AND ANALYSIS REQUIREMENTS

The following represents an effort to compile University and Board of Governors information relating to the data requirements for the Capital Improvements Element. The analyses requirements for this element are based upon planning and facility requirements derived from analysis of the other elements of the Master Plan and input received from Florida International University (FIU). This includes the identification of necessary or recommended capital improvements, projected operating costs and infrastructure requirements and impacts. Each of these areas cannot be addressed from a funding perspective by the Consultant but should be evaluated each year hereafter to best facilitate the implementation of this plan by PECO/CITF monies and those made available by FIU. The data requirements are addressed below.

a) Facility Needs as Identified in the Other Elements and Support for Future Needs as Identified in the Future Land Use Element

Facility needs by building area requirements by space type are identified in Table 14.1, Table 14.2, and Table 14.3.

Table 14.1 Modesto A. Maidique Campus Overall Inventory and Projected Space Analysis

Modesto A. Maidique Campus (MMC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	24,012 HC	20,993 FTES
Graduate (In-Person)	5,622 HC	4,915 FTES
E-Learning Students	15,830 HC	13,839 FTES
Total FTE Students	45,464 HC	39,747 FTES

Faculty and Staff Summary:

Faculty	3,198	3,070 FTES
Staff	4,470	4,101 FTES
Student Empls	3,291	1,379 FTES
Total FTE Staff	10,959 HC	8,550 FTES

Space Use Category	Room Use Codes (FICM)	BOG FACTORS: NASF per FTE	BOG FACTORS: Total ASF	RECOMMENDATIONS: Space Factor	RECOMMENDATIONS: Total ASF	EXISTING INVENTORY: Space Factor	EXISTING INVENTORY: Total ASF	PLANNED PROJECTS: ASSIGNABLE SQUARE FEET	SURPLUS / (DEFICIT): ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	233,172	10.00 ASF per In-Person FTES	259,080	6.83 ASF per In-Person FTES	176,893	78,253	(3,934)
Teaching Labs	210,215	11.25 ASF per Total FTES	447,154	11.25 ASF per In-Person FTES	291,465	5.55 ASF per In-Person FTES	143,705	56,533	(91,227)
Open Labs	220,225			3.70 ASF per Total FTES	147,065	2.88 ASF per Total FTES	114,539		(32,526)
Research Labs	250,255,257	18.75 ASF per Total FTES	745,256	18.75 ASF per In-Person FTES	485,775	7.04 ASF per In-Person FTES	182,296	60,592	(242,887)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	894,308	142.80 ASF per FTE Staff*	785,345	103.02 ASF per FTE Staff	566,629	147,646	(71,070)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	536,585	13.50 ASF per Total FTES	536,588	4.66 ASF per Total FTES	185,198	131,559	(219,831)
	Subtotal ASF	71.87 ASF per Total FTES	2,856,474	63.03 ASF per Total FTES	2,505,318	34.45 ASF per Total FTES	1,369,260	474,583	(661,475)
Offices (Non E & G Funded)	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	305,412	105.04 ASF per FTE Staff	225,841	16,292	(63,279)
Athletics	520,523,525	4.50 ASF per Total FTES	178,862	7.00 ASF per Total FTES	278,208	3.48 ASF per Total FTES	138,208	0	(140,000)
Instructional media	530	3.00 ASF per Total FTES	119,241	3.00 ASF per Total FTES	119,242	0.35 ASF per Total FTES	14,022	0	(105,220)
Clinic	542,547			0.40 ASF per Total FTES	15,899	0.19 ASF per Total FTES	7,560	0	(8,339)
Special use	550,555,570,575,580,585,590			2.60 ASF per Total FTES	103,343	0.88 ASF per Total FTES	34,782	41,412	(27,149)
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	89,431	2.25 ASF per Total FTES	89,431	1.77 ASF per Total FTES	70,524	26,678	7,771
Food Service	630,631,635			2.19 ASF per Total FTES	87,008	1.35 ASF per Total FTES	53,518	0	(33,490)
General Use	650,655,660,665,680,682,685			5.07 ASF per Total FTES	201,711	3.59 ASF per Total FTES	142,499	0	(59,212)
Recreation	670,675			17.49 ASF per In-Person FTES	453,185	2.05 ASF per Total FTES	81,286	0	(371,899)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	174,887	4.24 ASF per Total FTES	168,528	1.53 ASF per Total FTES	60,616	37,702	(70,210)
Health Care	810,815,830,835,840,845,850,855,870,880			0.31 ASF per Total FTES	12,445	0.42 ASF per Total FTES	16,513	0	4,068
Total ASF		86.02 ASF per Total FTES	3,418,894	109.18 ASF per Total FTES	4,339,729	55.72 ASF per Total FTES	2,214,629	596,667	(1,528,433)

*The total need for additional staff and faculty space has been distributed across campuses proportionate to student enrollment.

Table 14.2 Engineering Center overall inventory and projected space analysis

Engineering Center (EC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	1,842 HC	1,610 FTES
Graduate (In-Person)	372 HC	325 FTES
E-Learning Students	1,182 HC	1,034 FTES
Total FTE Students	3,396 HC	2,969 FTES

Faculty and Staff Summary:

Faculty	78	77 FTES
Staff	65	63 FTES
Student Empls	69	32 FTES
Total FTE Staff	212 HC	172 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	*Room Use Codes (FICM)*	NASF per FTE	Total ASF	Space Factor	Total ASF	Space Factor	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	17,415	10.00 ASF per In-Person FTES	19,350	6.78 ASF per In-Person FTES	13,124	0	(6,226)
Teaching Labs	210,215	11.25 ASF per Total FTES	33,401	11.25 ASF per In-Person FTES	21,769	12.36 ASF per In-Person FTES	23,913	0	2,144
Open Labs	220,225			3.70 ASF per Total FTES	10,984	1.50 ASF per Total FTES	4,455	0	(6,529)
Research Labs	250,255,257	18.75 ASF per Total FTES	55,669	18.75 ASF per In-Person FTES	36,281	42.10 ASF per In-Person FTES	81,471	0	45,190
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	66,803	142.80 ASF per FTE Staff*	77,403	115.50 ASF per FTE Staff*	62,596	0	(14,807)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	40,082	13.50 ASF per Total FTES	40,076	0.96 ASF per Total FTES	2,848	0	(37,228)
	Subtotal ASF	71.87 ASF per Total FTES	213,369	69.34 ASF per Total FTES	205,863	63.46 ASF per Total FTES	188,407	0	(17,456)
Offices (Non E & G Funded)	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	4,074	107.80 ASF per FTE Staff*	3,125		(949)
Athletics	520,523,525	4.50 ASF per Total FTES	13,361	0.00 ASF per Total FTES	0	0.00 ASF per Total FTES	0	0	0
Instructional media	530	3.00 ASF per Total FTES	8,907	3.00 ASF per Total FTES	8,906	0.00 ASF per Total FTES	0	0	(8,906)
Clinic	542,547			0.40 ASF per Total FTES	1,187	0.00 ASF per Total FTES	0	0	(1,187)
Special use	550,555,570,575,580,585,590			0.00 ASF per Total FTES	0	0.00 ASF per Total FTES	0	0	0
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	6,680	2.25 ASF per Total FTES	6,679	0.00 ASF per Total FTES	0	0	(6,679)
Food Service	630,631,635			1.79 ASF per Total FTES	5,318	0.58 ASF per Total FTES	1,725	0	(3,593)
General Use	650,655,660,665,680,682,685			8.01 ASF per Total FTES	23,773	2.10 ASF per Total FTES	6,232	0	(17,541)
Recreation	670,675			1.69 ASF per In-Person FTES	43,751	0.00 ASF per Total FTES	0	0	(43,751)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	13,064	4.24 ASF per Total FTES	12,587	3.83 ASF per Total FTES	11,381	0	(1,206)
Health Care	810,815,830,835,840,845,850,855,870,880			0.42 ASF per Total FTES	1,244	0.00 ASF per Total FTES	0	0	(1,244)
Total ASF		86.02 ASF per Total FTES	255,380	105.55 ASF per Total FTES	313,382	71.02 ASF per Total FTES	210,870	0	(102,512)

*The total need for additional staff and faculty space has been distributed across campuses proportionate to student enrollment.

Table 14.3 Biscayne Bay overall Inventory and projected space analysis

Biscayne Bay Campus (BBC)

Fall 2019 Enrollment Summary:

Undergraduate (In-person)	3,012 HC	2,633 FTES
Graduate (In-Person)	391 HC	342 FTES
E-Learning Students	1,818 HC	1,589 FTES
Total FTE Students	5,221 HC	4,564 FTES

Faculty and Staff Summary:

Faculty	87	85
Staff	251	241
Student Empls	87	38
Total FTE Staff	425 HC	364 FTES

		BOG FACTORS		RECOMMENDED		EXISTING INVENTORY		PLANNED PROJECTS	SURPLUS / (DEFICIT)
Space Use Category	Room Use Codes (FICM)	NASF per FTE	Total ASF	NASF per FTE	Total ASF	NASF per FTE	Total ASF	ASSIGNABLE SQUARE FEET	ASSIGNABLE SQUARE FEET
Classrooms	110,115	9.00 ASF per In-Person FTES	26,775	10.00 ASF per In-Person FTES	29,750	10.37 ASF per In-Person FTES	30,859	900	2,009
Teaching Labs	210,215	11.25 ASF per Total FTES	51,345	11.25 ASF per In-Person FTES	33,469	9.17 ASF per In-Person FTES	27,278	1,200	(4,991)
Open Labs	220,225			3.70 ASF per Total FTES	16,887	5.61 ASF per Total FTES	25,597		8,710
Research Labs	250,255,257	18.75 ASF per Total FTES	85,575	18.75 ASF per In-Person FTES	55,781	12.05 ASF per In-Person FTES	35,862		(19,919)
Office (E&G Funded)	310,312,315,317,318,350,355	22.50 ASF per Total FTES	102,690	142.80 ASF per FTE Staff*	93,936	64.50 ASF per FTE Staff*	82,911	150	(10,875)
Study	410,412,415,420,430,440,455	13.50 ASF per Total FTES	61,614	13.50 ASF per Total FTES	61,616	9.31 ASF per Total FTES	42,504		(19,112)
	Subtotal ASF	71.87 ASF per Total FTES	327,999	63.86 ASF per Total FTES	291,439	53.68 ASF per Total FTES	245,011	2,250	(44,178)
Offices (Non E & G Funde	310,312,315,317,318,350,355			142.80 ASF per FTE Staff*	31,312	124.70 ASF per FTE Staff*	27,320		(3,992)
Athletics	520,523,525	4.50 ASF per Total FTES	20,538	4.50 ASF per Total FTES	20,539	2.16 ASF per Total FTES	9,861		(10,678)
Instructional media	530	3.00 ASF per Total FTES	13,692	3.00 ASF per Total FTES	13,692	0.32 ASF per Total FTES	1,479		(12,213)
Clinic	542,547			0.40 ASF per Total FTES	1,826	0.01 ASF per Total FTES	25		(1,801)
Special use	550,555,570,575,580,585,590			0.00 ASF per Total FTES	0	0.01 ASF per Total FTES	49		49
Assembly and Exhibition	610,611,615,620,625,694	2.25 ASF per Total FTES	10,269	2.25 ASF per Total FTES	10,269	4.22 ASF per Total FTES	19,282		9,013
Food Service	630,631,635			1.82 ASF per Total FTES	8,305	3.24 ASF per Total FTES	14,773		6,468
General Use	650,655,660,665,680,682,685			8.01 ASF per Total FTES	36,550	15.02 ASF per Total FTES	68,532		31,982
Recreation	670,675			2.60 ASF per In-Person FTES	67,262	0.37 ASF per Total FTES	1,667		(65,595)
Support	710,715,720,725,730,735,750,760,765	4.40 ASF per Total FTES	20,082	4.24 ASF per Total FTES	19,352	5.53 ASF per Total FTES	25,251	620	6,519
Health Care	810,815,830,835,840,845,850,855,870,880			0.34 ASF per Total FTES	1,571	0.27 ASF per Total FTES	1,211		(360)
Total ASF		86.02 ASF per Total FTES	392,580	110.02 ASF per Total FTES	502,117	90.81 ASF per Total FTES	414,461	2,870	(84,786)

*The total need for additional staff and faculty space has been distributed across campuses proportionate to student enrollment.

b) Inventory Of Existing and Anticipated Revenue Sources and Funding Mechanisms Available for Capital Improvement Financing

Florida International University currently relies on the following existing revenue sources and funding mechanisms for capital improvements:

- State Funding:
  *Public Education Capital Outlay (PECO)
  *Capital Improvement Trust Fund (CITF)
- Auxiliary Enterprises:
  *Revenue Bonds (housing, parking, etc.)
  *Student Health Fees
  *Bookstore
  *English Language Institute
  *Food Service
  *Other
- Foundation Loans (Direct Service Organization financing- DSOF)
- Contracts and Grants for Sponsored Research
- Special Lab Fees
- Online Fees
- Athletic Fees

In addition to these existing sources, FIU currently has no other anticipated sources of revenue funding for future facilities proposed by this Master Plan.

c) Inventory of Operations and Maintenance Costs for Existing Facilities

Operating and maintenance (O&M) costs typically originate from three categories: Below is an itemized list of each category along with the costs for each category for fiscal year 2004-2005.

- Preventive Maintenance Costs $ 9,855,971
- Differed Maintenance Costs $15,117,000
- General Maintenance Costs $39,423,084

d) Current University Practices That Guide the Timing and Location of Construction, Extensions, or Increases in the Capacity of University Facilities

Timing and location of new construction on campus is guided by previous master planning documents to determine location and the annual update of the legislative budget request for the capital improvement plan which determines funding. Additionally, a three-year Capital Improvement Fee list is prepared every third year for student services projects while auxiliary facilities projects and facilities projects using other fund sources are generally planned on an "as needed" basis or as an appropriate opportunity arises. Minor projects are funded annually for the specific purpose of renovations, repairs, maintenance, and site improvements. Specific policy decisions regarding use of space, including existing and new facilities are channeled for approval through the University Space Committee as an advisory committee to the University President.

A budget estimate is pre-approved and updated annually for the purpose of assessing anticipated project costs including planning fees, construction, surveys, testing services, contingencies, furnishings, and equipment.

1. Cost Estimate of Each On-Campus Capital Improvements Identified in The Other Plan Elements, Including Consideration of Inflation Factors and The Relative Priority of Need Ranking (see table)
2. Cost Estimate of Future Capital Improvements That May Be Required Functions of the University

Off-campus capital improvements necessary to support the future traffic and utility functions of the University are limited. The provisions for utilities are somewhat minimal within the ten (10)-year planning period but may change with the new level-of-service standards that have been adopted. However, a transportation improvement program should become a reality within the next ten (10) years.

3. Basis of the Cost Estimates

Cost estimates are based on the Board of Governors cost data provided each year with instructions for preparation of the 5-year capital improvement plan. This data is compiled by the Board of Governors. Projects selected for the database are classified by space type and averaged with ENR indexed adjustments for inflation and differences in the geographic locations of the University campuses throughout the state. Special facility type (e.g., athletic, recreational, greenhouse, infrastructure, etc.) are estimated based on contractor estimates, comparable projects of similar nature, or standard database publications such as ""R.S. Means," "Dodge Reports," or other widely accepted available data sources.

e) Projection of Operating Costs for Existing and Future Facilities:

The analysis found in Element 5.0 Academic Facilities and Element 6.0 Support Facilities indicates the need for additional facilities to accommodate the projected enrollment for 2015. This in turn will generate new operating costs that must be planned, as shown in Table 14.4.

Table 14.4 Projected Operating Costs

Projected Operating Costs	**2011**	**2015**	**2020**
Preventive Maintenance Costs	$9,855,971	$22,569,520	$29,657,486
Deferred Maintenance Costs	$15,117,000	$34,616,928	$45,488,386
General Maintenance Costs	$39,423,084	$90,276,248	$118,627,537
Total	$64,396,055	$147,462,696	$193,773,410

Source: Facilities Management
Based on cost per GSF. Includes existing and planned GSF for 2015.

State University System
5-Year Capital Improvement Plan (CIP)
FY 2023-24 through 2027-28

Summary of Projects - PECO-Eligible Projects

University: **FLORIDA INTERNATIONAL UNIVERSITY** Contact: Aime Martinez (name) 305-348-2101 (phone) amartin@fiu.edu (email)

PECO-ELIGIBLE PROJECT REQUESTS (ONLY)

Priority No.	Project Title	Total Supplemental (Non PECO) funding	Total Prior PECO Funding	Projected Annual PECO Funding Requested FY 23-24	FY 24-25	FY25-26	FY26-27	FY27-28	Programs to Benefit from Project	Net Assignable Sq. Ft. (NASF)	Gross Sq. Ft. (GSF)	Total Project Cost	Project Cost Per GSF	EPS Recommendation Date & Rec. # (1)
1	ENGINEERING BUILDING, Phase II - MMC	$ 20,850,000	$ 33,500,000	$ 15,150,000					Engineering	58,557	93,691	$ 69,500,000	$ 741.80	3-11-21/5.2
2	HONORS COLLEGE - MMC			$ 12,500,000	$ 12,500,000	$ 12,000,000			Honors	35,018	56,029	$ 37,000,000	$ 660.37	3-11-21/5.3
	Total:	**$ 20,850,000**	**$ 33,500,000**	**$ 27,650,000**	**$ 12,500,000**	**$ 12,000,000**	**$ -**	**$ -**						
3	SCIENCE LABORATORY COMPLEX - MMC				$ 20,000,000	$ 25,000,000	$ 25,000,000	$ 23,130,000	Sciences	77,184	123,495	$ 93,130,000	$ 754.12	3-11-21/5.4
4	ACADEMIC HEALTH CENTER STUDY COMPLEX - MMC				$ 20,800,000	$ 20,800,000			Academic Healt	39,086	62,538	$ 41,600,000	$ 665.20	3-11-21/5.1
5	REMODEL./RENOV. OF DM BUILDING - MMC				$ 10,000,000	$ 9,000,000			All	140,807	140,807	$ 19,000,000	$ 134.94	3-11-21/3.1
	Total:	**$ -**	**$ -**	**$ -**	**$ 50,800,000**	**$ 54,800,000**	**$ 25,000,000**	**$ 23,130,000**				$ -		
												$ -		
												$ -		
												$ -		
												$ -		
												$ -		
												$ -		

1) EPS recommendation is required as per F.S. 1013.31.

Summary of Projects - CITF Projects

University: **FLORIDA INTERNATIONAL UNIVERSITY** Contact: Aime Martinez (name) 305-348-2101 (phone) amartin@fiu.edu (email)

CITF PROJECT REQUESTS (ONLY)

Project Name	Total Prior CITF Funding	Projected Annual Funding FY 23-24	FY 24-25	FY25-26	FY26-27	FY27-28	Programs to Benefit from Project	Net Assignable Sq. Ft. (NASF)	Gross Sq. Ft. (GSF)	Project Cost	Project Cost Per GSF
GRAHAM UNVERSITY CENTER EXPANSION/RENOVATION/REMODEL- MMC	$ 23,900,295	$ 146,099	$ 6,800,000	$ 6,800,000	$ 4,000,000	$ 6,500,000	All	64,000	85,760	$ 48,146,394	$561
WELLNESS AND RECREATION FIELD SUPPORT BUILDNG - MMC	$ 1,396,523	$ 1,090,000					All	3,000	3,600	$ 2,486,523	$691
AQUATIC CENTER - MMC	$ 5,000,000	$ 2,500,000					All	n/a	n/a	$ 7,500,000	n/a
SOCCER & TRACK - MMC	$ -	$ 2,500,000					All	n/a	n/a	$ 2,500,000	n/a
WELLNESS AND RECREATION FACILITIES IMPROVEMENTS - MMC	$ -				$ 3,000,000		All	9,500	9,500	$ 3,000,000	$316
Total:	**$ 30,296,818**	**$ 6,236,099**	**$ 6,800,000**	**$ 6,800,000**	**$ 7,000,000**	**$ 6,500,000**					

15.0 ARCHITECTURAL DESIGN GUIDELINES ELEMENT

PURPOSE

The purpose of this element is to establish guidelines to assist in achieving a high level of quality in architectural design throughout the State University System (SUS). ~~See Appendix A for Architectural Design Guidelines.~~

(1) DATA REQUIREMENTS

This element shall be based, at a minimum, on the following data:

a) **A general description of the existing campus/community architectural character including building language, proportion, scale, etc.**

15.0 ARCHITECTURAL DESIGN GUIDELINES ELEMENT

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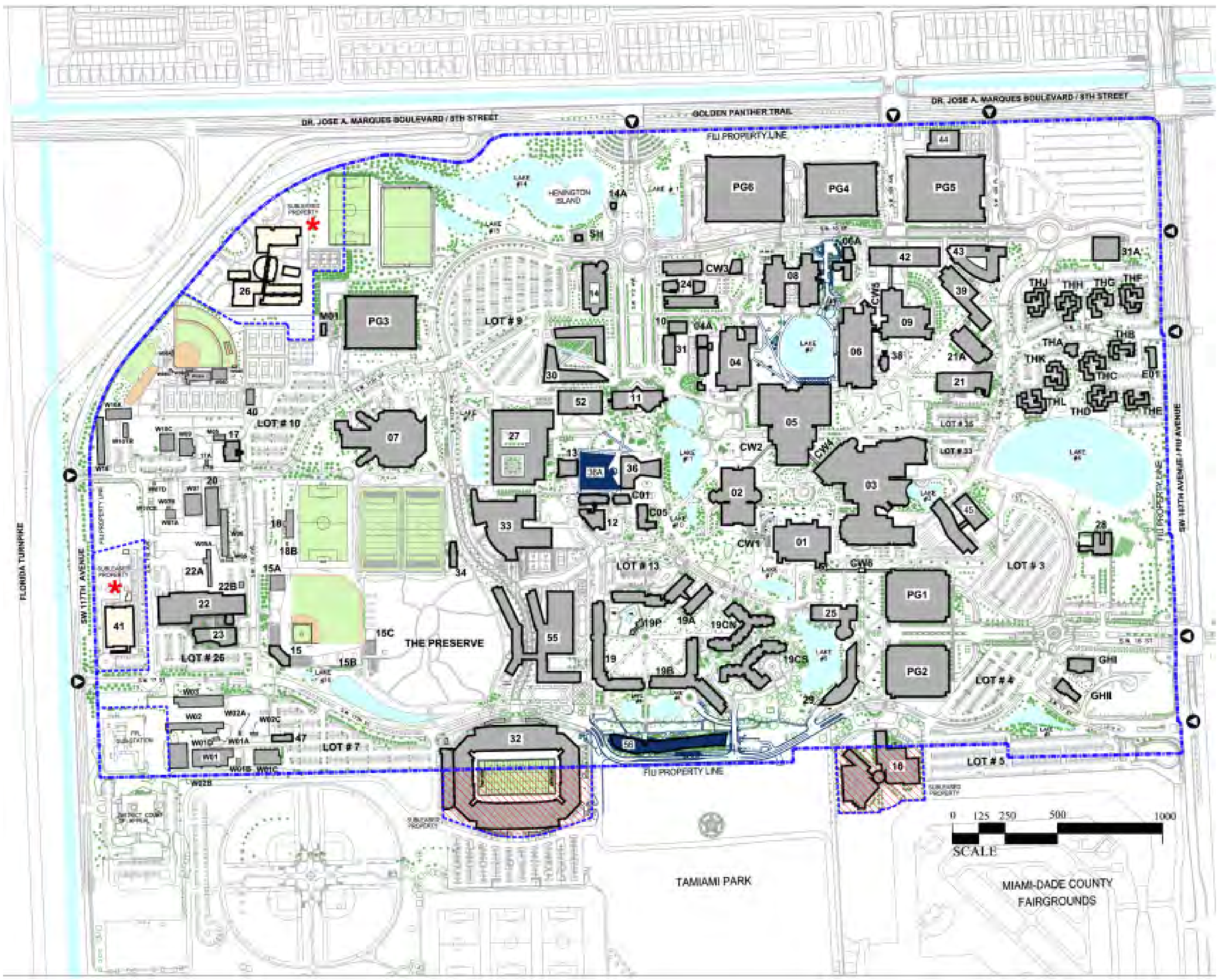
<u>**MODESTO A. MAIDIQUE CAMPUS**</u>



Formerly known as “Tamiami Campus” and “University Park,” Modesto A. Maidique Campus (MMC) is located within an urban setting; it is surrounded by Residential/commercial buildings on all its boundaries. Since opening to students in 1972, it has grown to become a very important part of the community. FIU offers a broad range of educational programs and services to a large student population, both local and international. The University has become an international center and has attracted students and professors creating a vibrant purveyor of a large variety of services to growing local and global community.

The campuses have seen five distinct development periods. Utilizing these periods, buildings and spaces can be understood and analyzed within this framework.

The original campus buildings were developed around a central rotunda and were connected with covered walkways and landscape outside courts. The existing original buildings, Prima Casa, Deuxime Maison, Graham Center, Green Library, Viertes Haus, Owa Ehan are primarily exposed concrete finish buildings (see Photographs 15.1 and 15.2).

Photograph 15.1 Ernest R. Graham University Center

Photograph 15.2 Primera Casa

Under the leadership of President Modesto Maidique in the late 1980’s and 1990’s, designs of buildings began to use “historical” architectural elements including arcades and arched entry features reminiscent of Stanford University. This was done in an attempt to establish a vocabulary of classical elements. For consistent proportions, all arches were formed using a quarter-circle (90-degree) arc. Most new buildings featured stucco finish and keystone trim; a popular local material used in public buildings for many decades in South Florida. These elements are evident in the entranced archway and in various buildings such as the Graham Center and the main campus entrances on SW 8th Street and 107th Avenue.

The design of some of these original buildings was monumental in proportion and in relationship to their surroundings. They had minimum amount of fenestration and drew day lighting and ventilation using interior open courtyards, which can be seen at Deuxime Maison and the Owa Ehan. Later buildings introduced colonnades, more fenestration, and more variation in scale.

Perhaps influenced by the FIU School of Architecture, later buildings used less historical reference and eventually had a more diverse utilization of materials in designs that included creation of more outdoor learning environments and buildings incorporating sustainability best practices and student life enhancements.

Site Inventory
35 FIU Buildings
FIU = 943,689 GSF
* 3 Subleased Buildings not Included in Site Inventory
(183,484 FIU +11,70 Subleased)
195.184 Total Acres

Biscayne Bay Campus (BBC) is located directly on the bay giving it beautiful water views of Oleta Park, Sunny Isles, Haulover and Bal Harbour looking out over the mangrove campus shoreline from areas above the first-floor level. The campus is only accessible by a single road, NE 151st Street, that turns south as Bay Vista Boulevard leading to the entrance of the campus. BBC serves a smaller student population due to the limited variety of academic courses that it offers. In addition to beautiful views, BBC's location is in the northern side of the Miami-Dade County close to the densely populated Dade/Broward County line. BBC has unfulfilled potential to be a major learning center, serving the diverse North Dade and South Broward County communities.

Hospitality Management was the first building built when this site was previously planned for use as the "Interama" Inter-American Trade Center. The original academic buildings, Academic One, Academic Two, and Wolfe University Center (see Photograph 15.4) were laid out in a stepping pattern, interconnected by aligned interior corridors, establishing a mall theme. Bay Vista Housing is located within wooded areas with limited views of the bay. The finish ground floor elevation level of all major buildings at BBC is +10.0 NGVD except that parts of the older Hospitality Management Building are at +9.0. All but the southern tip of BBC is within flood zone AE with a base flood elevation of +9.0. A policy of the previous master plan was that the minimum floor elevation of new buildings at BBC be at least +11.0 with +12.0 required at the southern end of campus.

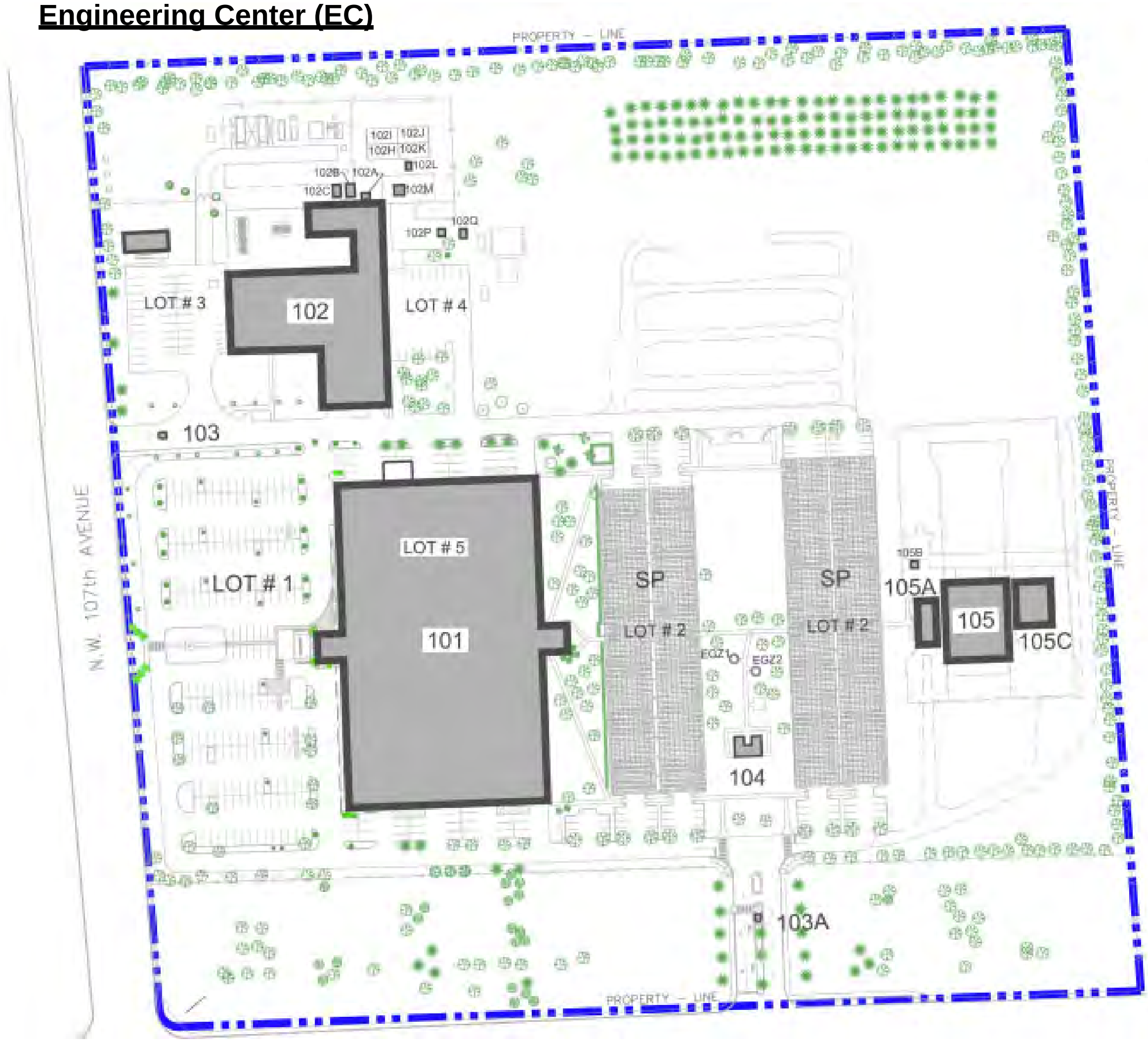
Photograph 15.3 Wolfe University Center

The original academic buildings established a similar architectural scale and form. The primary materials used were pre-cast concrete with embedded aggregates, cast-in-place concrete, and some fluted and split face concrete block. Glass areas are primarily storefront glass with some use of metal shading louvers at Hospitality Management. Later buildings are primarily stucco painted finish exteriors with the use of storefront type glass. The colors used on buildings are mostly a low-key palette. Saturated colors are found only on metal work, such as railings, and on some accent tile work.

Biscayne Bay Campus should focus its architectural direction, both building design and siting, in a way that takes advantage of the bay views. The campus location, mostly surrounded by mangroves and water lends itself to creating a secluded educational environment away from the urban setting. As students and staff approach the campus, there should be a transitional process for students and the community, that promotes the importance of educational environments. Environments such as outdoor learning centers can motivate and influence the community and students to take part in the university experience. The buildings should be oriented and designed to be open towards the bay side, with the use of architectural elements that enhance the natural surroundings of the site. Consider that views towards of the bay only occur at higher elevations due to the mangroves along the bay edge. As mangroves continue to mature, views will only be possible from the second level and above. Later buildings, such as the Kovens Center, represent a very different architectural approach that departs from some of the prevalent themes at the campus. Consideration needs to be given to the creation of design guidelines that will maintain a certain level of continuity, while allowing each building the ability to create its own character.

OTHER UNIVERSITY SITES

Engineering Center (EC)



The Engineering Center is considered part of the main campus as an extension of Modesto A. Maidique Campus, which is located within an urban setting. It is surrounded by residential and commercial buildings on all its boundaries along with a small park on the east side. The original building remains an academic facility, offering specialized engineering courses within the curriculum of FIU and remains an important component of the surrounding community (see Photograph 15.3). The "Wall of Wind" Hurricane Research Center (Bld.#105) was upgraded in 2012.

Photograph 15.4 Engineering Center

b) A description of architecturally significant historic buildings including style, age, etc.

<u>MODESTO A. MAIDIQUE CAMPUS</u>

The land that is now MMC was first developed as the Dade County-owned Tamiami Airport following WW-II in 1947. A 1950 aerial photograph shows 9 to 10 small buildings on the west side of the airport one of which may be W09 and another part of what is now W02. 1956 aerial photos show aircraft hangar, maintenance and training buildings that may still exist as W02, W09 and W10. During the 1962 Cuban Missile Crisis a surplus air traffic control tower from Miami International Airport was dismantled and moved to Tamiami Airport and it remains as the C01 Tower Building on campus. A 1963 aerial photograph shows the Tower, and what appears to be what are now FIU buildings W02, W03, W06, W07, W09. These buildings may have some possible historic value, but as of date this is not documented (see Photograph 15.5).

Photograph 15.5 Aviation Control Tower

BISCAYNE BAY CAMPUS

BBC campus was opened as FIU's "North Campus" in 1977 by FIU's second president, Harold Crosby who served a 3-year interim term from 1977 to 1979. The original building on this site was the only building ever built for the long-planned "Interama," a world's-fair-type development first proposed for the site in the early 1950's. The 3-story octagonal "Inter-American Trade Center Exhibit Building," designed by the Miami team of Pancoast Architects and Bouterse-Borrelli-Albaisa was completed in 1974. It has undergone several remodelings and had significant additions. Is now the home of FIU's School of Tourism and Hospitality Management.

OTHER UNIVERSITY SITES

Engineering Center

The primary building at the Engineering Center and its support building were completed in 1980 for the medical device manufacturing Cordis Corporation which was founded in Miami and is now part of Cardinal Health. The 3-story steel and concrete main building and the adjacent 1-story support building were designed by the Ohio-based factory design-build firm, The Austin Company. The buildings are not considered architecturally or historically significant.

Miami Beach

There are several historic properties on Miami Beach that are maintained by FIU that include: Wolfsonian, Wolfsonian Annex and the Jewish Museum of Florida. Those small sites are not being considered in the campus masterplan inventory and analysis.

c) A detailed inventory of existing material use, proportion, color, etc. for the following architectural elements:

1. Materials, 2. Color, 3. Architectural Detailing, 4. Scale, 5. Transparency, 6. Siting and Image

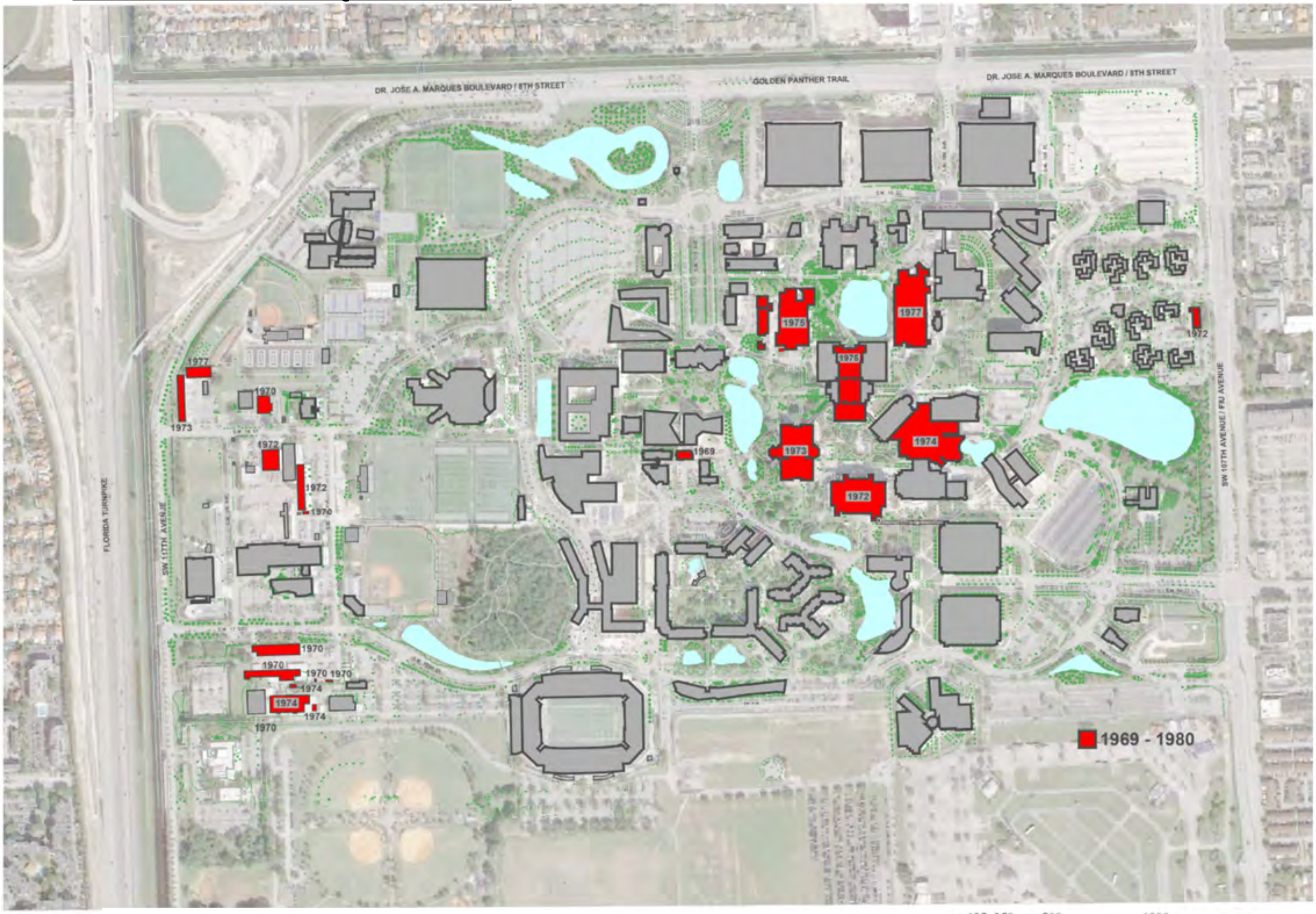
The campuses have seen five distinct development periods. Utilizing these periods, buildings and spaces can be understood and analyzed within this framework.

These periods can be identified as follows:

I. Formative	1969-1980
II. Development	1981-1990
III. Identity	1991-2000
IV. Masterplan-I	2001-2010
V. Masterplan-II	2011-2019
VI. Under Construction	2020-

A detailed inventory of architectural elements for each of these periods is described in (1) (C) beginning on page 15-11.

MODESTO A. MAIDIQUE CAMPUS



MMC 1969 – 1980 (I. Formative Years)

1. Materials

- Monolithic exposed concrete finish
- Minimal glass

2. Color

- Neutral colors based on building materials as well as shades of grey and beige are heavily used in the campus core
- Buildings have since been repainted throughout to develop to the campus “Panther” theme

3. Architectural Detailing

- Other than some support buildings on the west side of campus, all buildings have flat roofs. Most with parapets
- Buildings were designed as concrete structures in the “brutalist” style typical of the 1960’s and early 1970’s.

4. Scale

- The scale of buildings ranges from 1 stories to 5 stories

5. Transparency

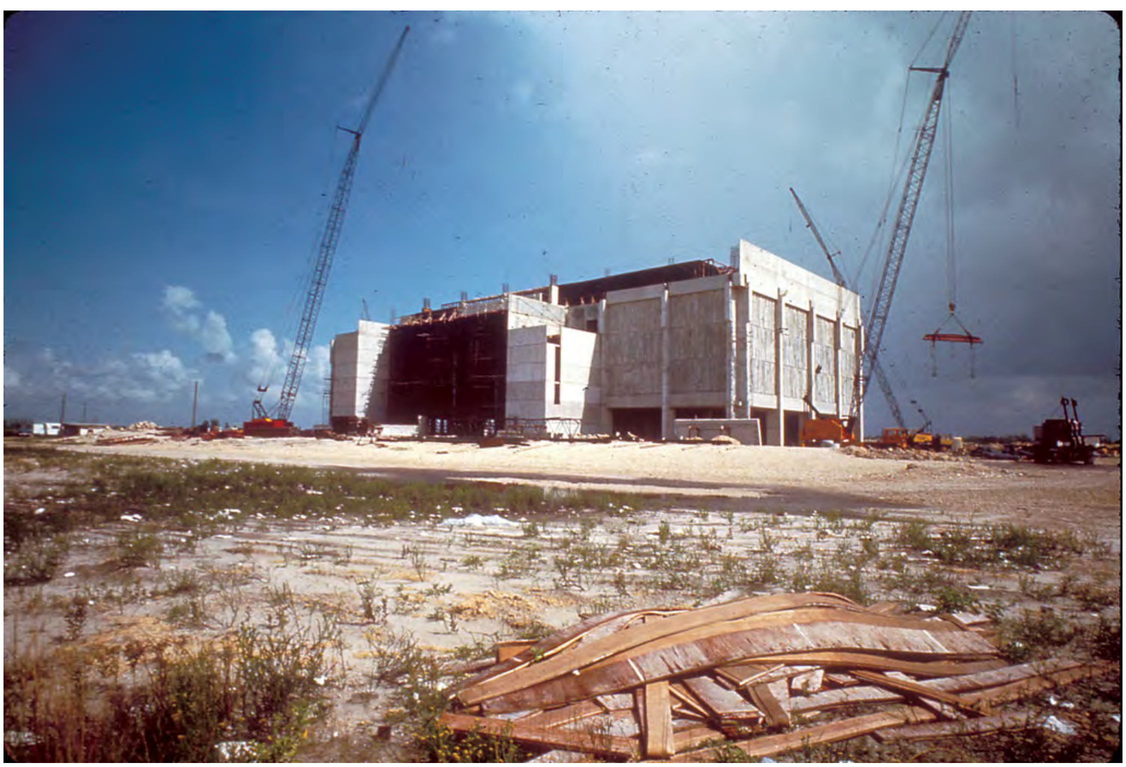
- Window opening are used throughout for daylighting
- Storefront glass walls are used minimally

6. Siting and Image

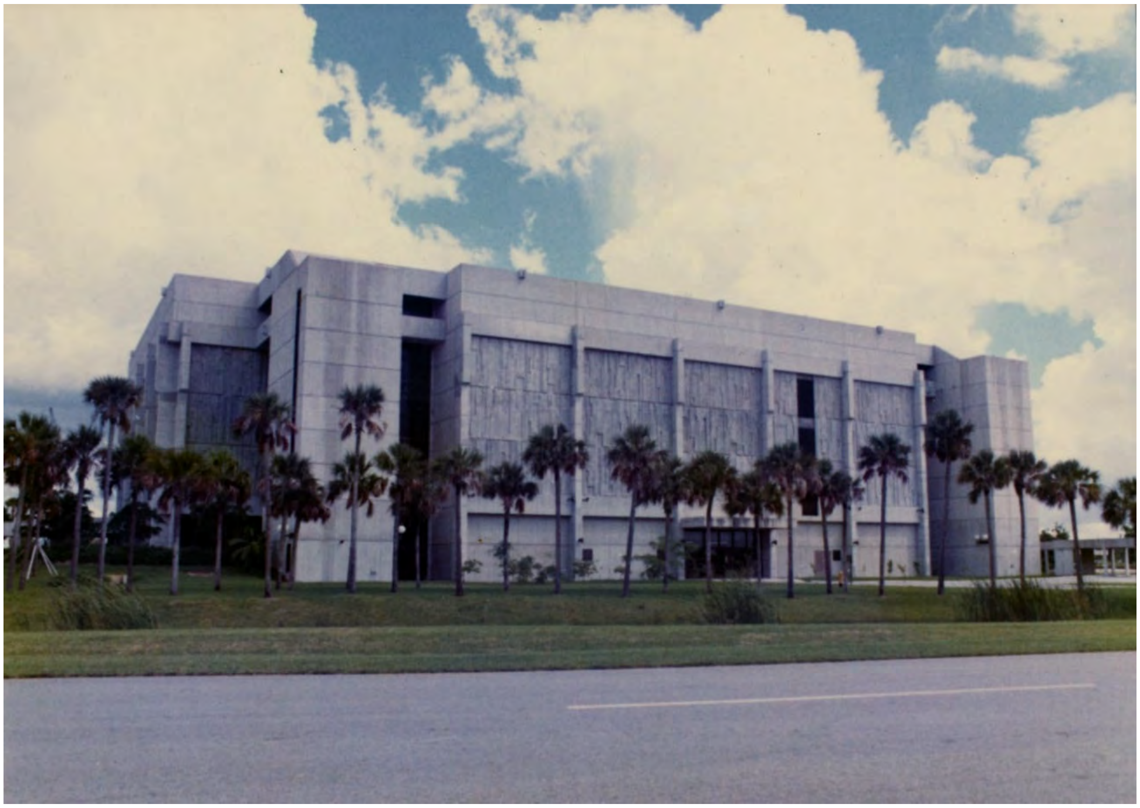
- The placement of the buildings created centrally located courtyards with axial relationships to the surrounding community
- Through their consistency of design and repetition of patterns, textures, colors and shapes begin to establish a visual theme in the campus appearance.

Photograph 15.6 Airport Tower 1972

Photograph 15.7 Tower/Primera Casa 1972

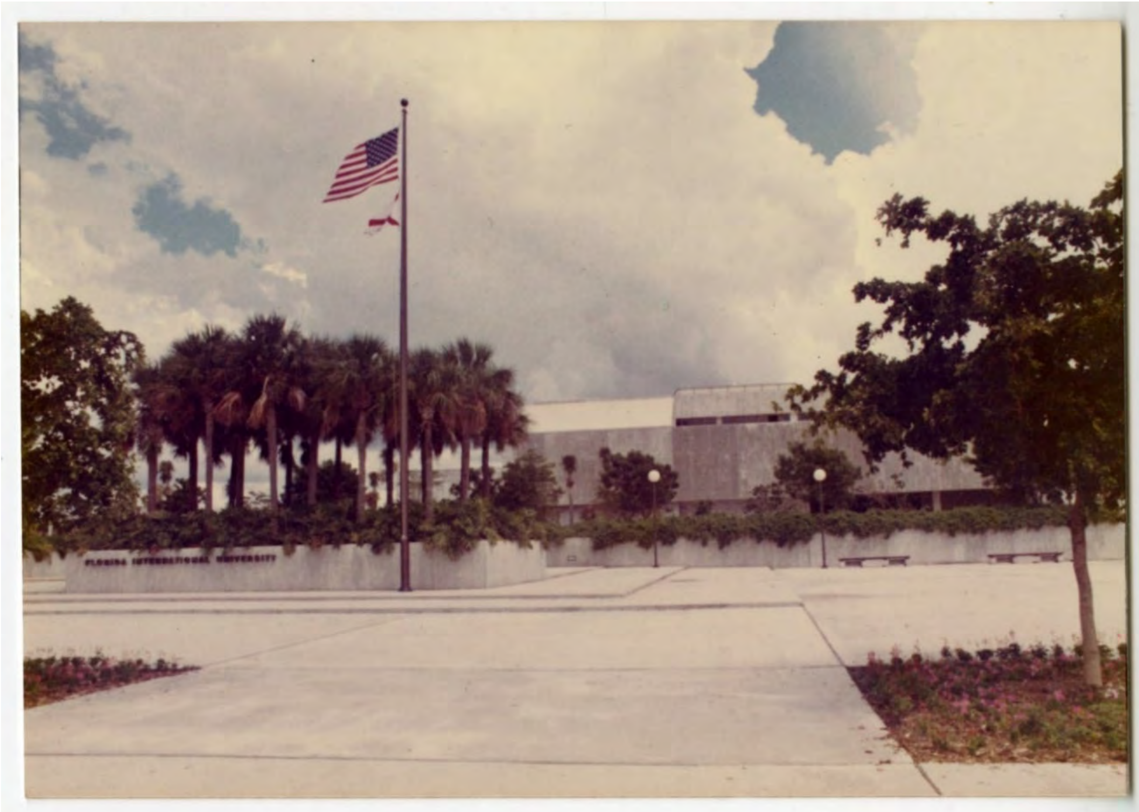


Photograph 15.8 Primera Casa 1972



Photograph 15.9 Primera Casa 1972

Photograph 15.10 Deuxieme Maison 1973

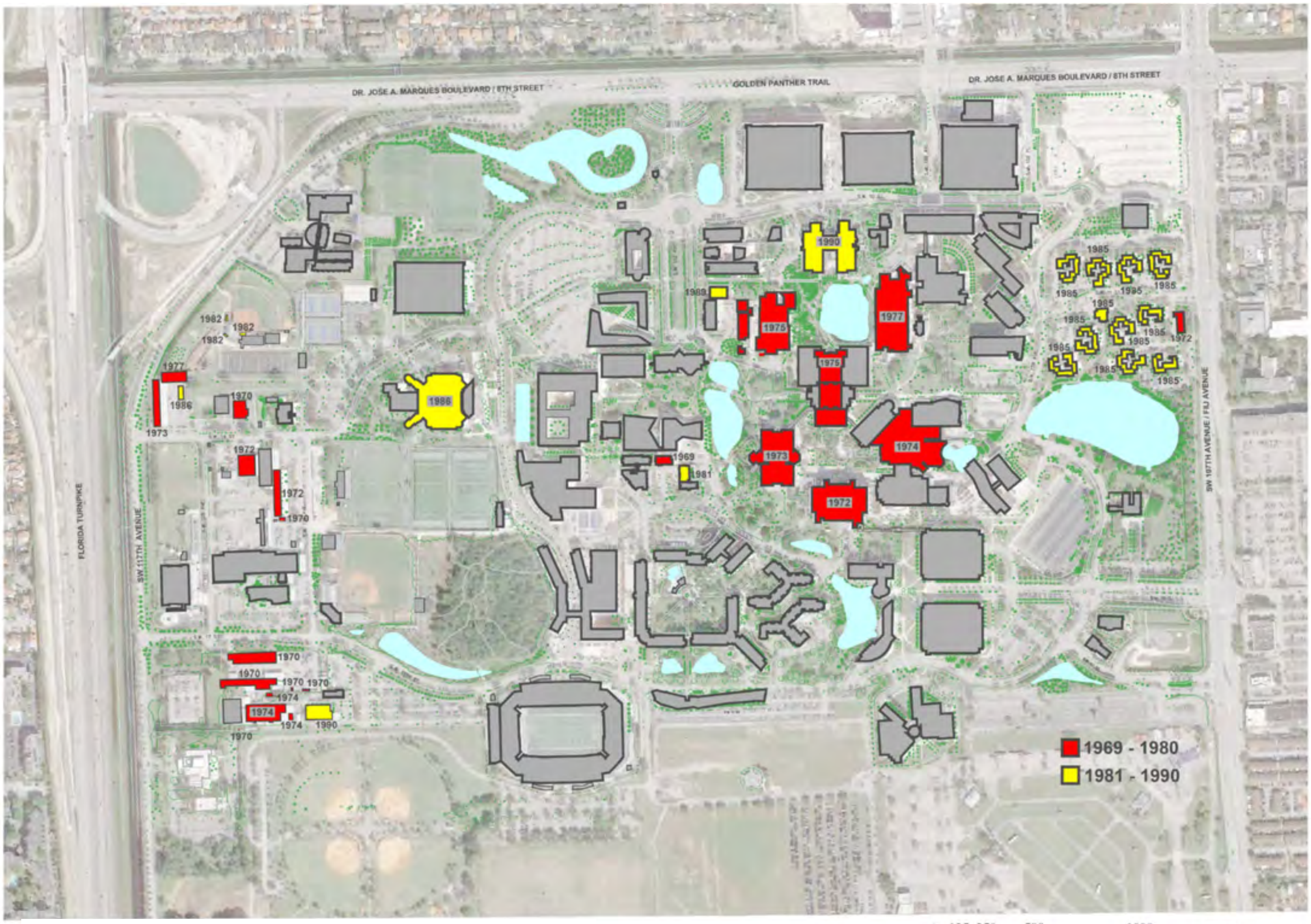


Photograph 15.11 Earnest R. Graham Univ. Center (formerly University House) 1974

Photograph 15.12 Viertes Haus 1975

Photograph 15.13 Steven & Dorothea Green Library (formerly the Athenaeum) 1975

Photograph 15.14 Owa Ehan 1977



MMC 1981 – 1990 (II. Development years)

0 125 250 500 1000
SCALE
NORTH

1. **Materials**
   - Monolithic exposed concrete finish
   - Steel construction
   - Minimal glass]

2. **Color**
   - Neutral colors based on building materials as well as shades of grey and beige are heavily used in the campus core
   - Buildings have since been repainted throughout to develop to the campus "Panther" theme

3. **Architectural Detailing**
   - The student housing complex are simple concrete-block and stucco structures with flat roofs and punched windows
   - The Arena is a contemporary building with fluctuating geometries giving hierarchy to the entrance that was added in 2012 (P.15.14)
   - The sporting structures, including later buildings, are highly branded with FIU colors and super-graphics (P.15.12).

4. **Scale**
   - 2 to 3 stories

5. **Transparency**

- Window openings at housing complex for daylighting
- Minimal storefront glass and curtain walls at the Arena to allow natural light at entries (P.15.14).

6. Siting and Image

- The athletics buildings are located at the perimeter of the internal core of the campus and begin to give a sense of boundary to the campus

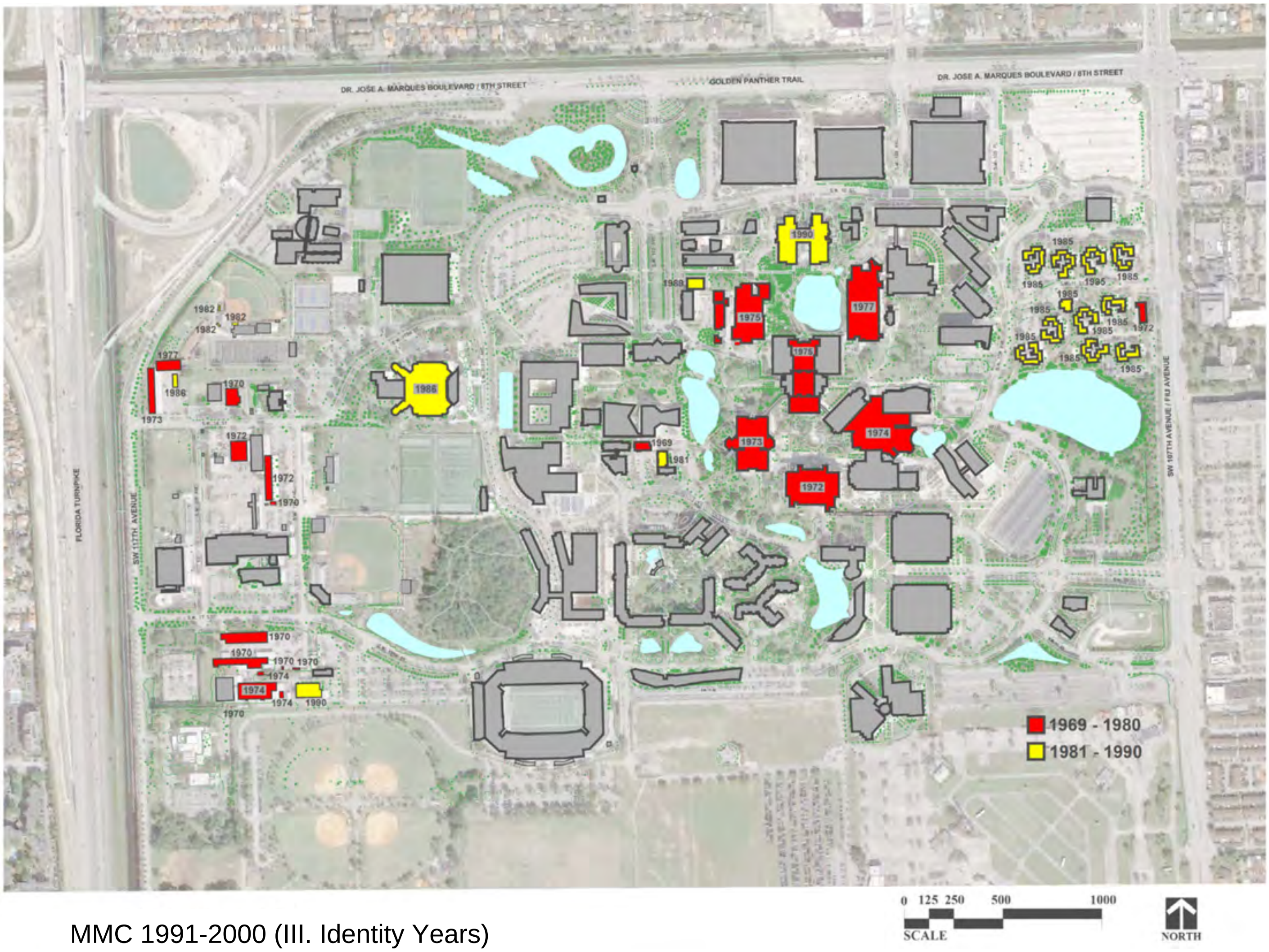
Photograph 15.15 University Apartments 1985

Photograph 15.16 Ocean Bank Convocation Center (formerly Golden Panther Arena) 1986

Photograph 15.17 C.A.S.E. Building (formerly Engineering & Computer Sciences) 1990

Photograph 15.18 FIU Soccer Stadium 1990

Photograph 15.19 Ceramics Building 1990



MMC 1991-2000 (III. Identity Years)

1. Materials

- Monolithic exposed concrete finish
- Fluted and split face block
- Minimal glass
- Natural materials such as stone at pedestrian level (P.15.19)

2. Color

- Neutral colors based on building materials with highlighted areas incorporating university colors (P.15.15)

3. Architectural Detailing

- The base of buildings are treated with more articulation than the rest of the building to give a more pedestrian friendly scale
- Flat roofs with articulation at roof line (P.15.16, P.15.18)
- Colonnades are continued when connecting buildings (P. 15.17)
- Patterned facades of segmented arches and geometric shapes
- Patterned facades and the use of construction lines are used to relate to the human scale
- The bases of buildings are generally open with integrated colonnades that create sheltered pedestrian circulation
-

4. Scale

- 2 to 10 stories

5. Transparency

- Window openings

6. Siting and Image

- Through their consistency of design and repetition of patterns, textures, colors, and shapes continue to establish a visual theme in the campus appearance.

Photograph 15.20 Chemistry & Physics 1991

Photograph 15.21 Wertheim Conservatory 1991

Photograph 15.22 Ryder Business Building 1991

Photograph 15.23 Labor Center Building 1994

Photograph 15.24 Baseball Stadium 1995

Photograph 15.25 Panther Residence Hall 1996

Photograph 15.26 Herbert & Nicole Wertheim Center 1996

Photograph 15.27 Children's Creative Learning Center 1996

Photograph 15.28 Sanford & Delores Ziff Education 1997

Photograph 15.29 Ricardo Silva Stadium (formerly FIU Community Stadium) 1998

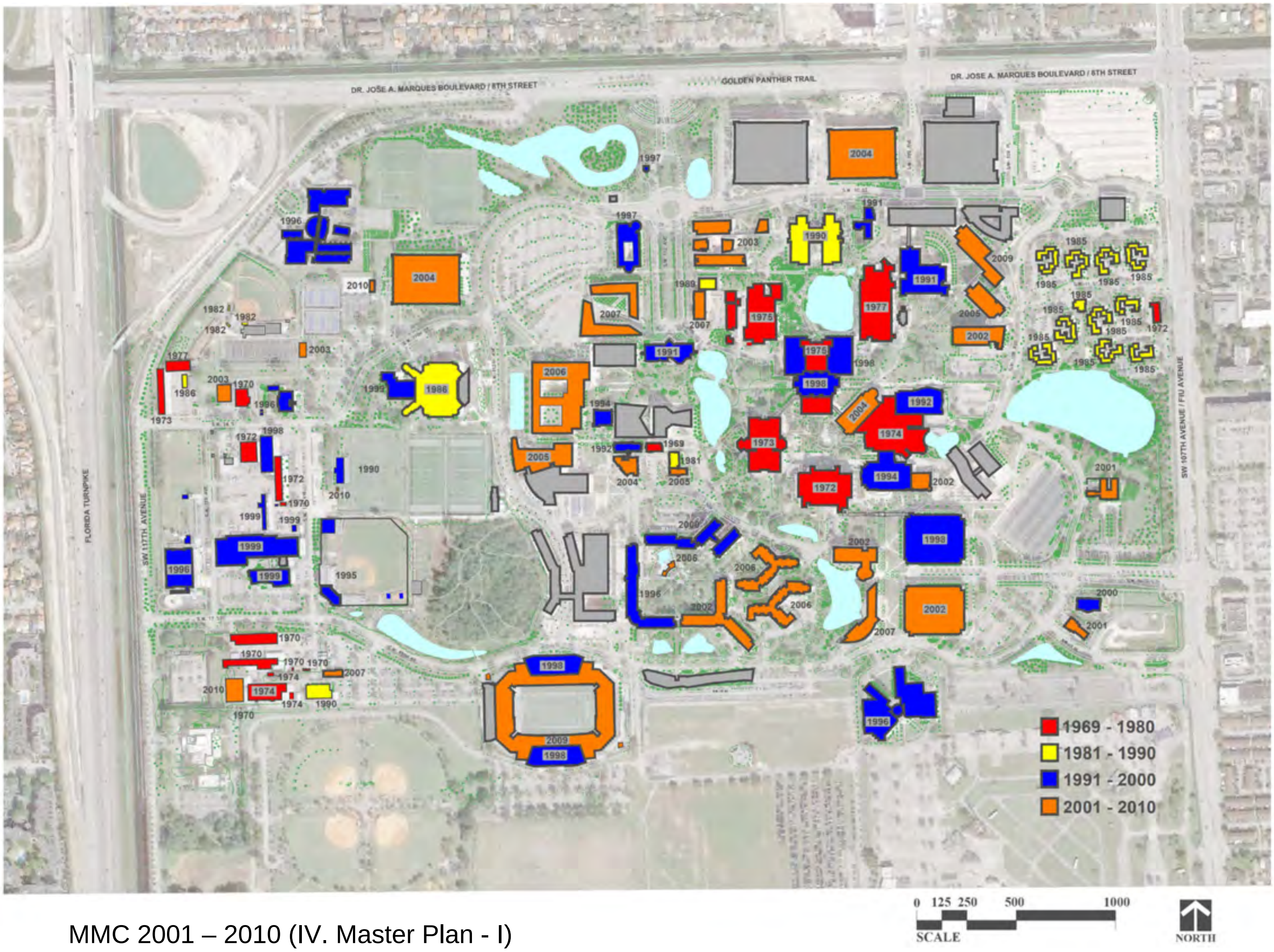
Photograph 15.30 Parking Garage One (Gold)1998

Photograph 15.31 Steven & Dorothea Green Library Expansion1998

Photograph 15.32 Steven & Dorothea Green Library Expansion1998

Photograph 15.33 Campus Support Complex 1999

Photograph 15.34 University Park Towers 2000



MMC 2001 – 2010 (IV. Master Plan - I)

1. Materials

- Precast concrete with stucco finish
- Wall cladding systems
- Generous use of curtain wall, storefront glass, and windows
- Decorative tiling (P.15.24)

2. Color

- Exposed concrete is most prominent (P.15.20, P. 15.22)
- Color has been added to complement the fabric of the campus (P.15.21)
- Buildings such as the Architecture Building have incorporated color into the design (P.15.24)
- Building colors inspired by President Maidique's visit to Europe and

3. Architectural Detailing

- Colonnades are generally integrated to the design of the buildings at the building edge (P.15.21) as well as through the building (P.15.23)
- Patterned facades and the use of construction lines are used to relate to the human scale
-
- The use of flat roofs with parapets is continuous with most buildings

- Highly articulated building designs add to the sophistication of the campus fabric

4. Scale

- 2 to 7 stories

5. Transparency

- Generous use of curtain wall on north facades to maximize daylighting
- Window openings throughout
- Use of building voids to create outdoor spaces and building transparency
- The orientation of buildings defines the proportion of openings, solids and voids.

6. Siting and Image

- Several buildings have a north-south orientation of fenestration to maximize daylighting and minimize thermal heat gain with long axis of rectangular buildings oriented east-west and shortest sides/ends at east and west.

- Through their consistency of design and repetition of patterns, textures, colors, and shapes continue to establish a visual theme in the campus appearance.

Photograph 15.35 Ronald W. Regan Presidential House 2001

Photograph 15.36 Academic Health Center 1 (formerly Health & Life Sciences I) 2002

Photograph 15.37 Academic Health Center 1 (formerly Health & Life Sciences I) - 2002

Photograph 15.38 Academic Health Center 1 (formerly Health & Life Sciences I) - 2002

Photograph 15.39 Academic Health Center 1 (formerly Health & Life Sciences I) - 2002

Photograph 15.40 Management & Advanced Research (MARC) 2002

Photograph 15.41 Management & Advanced Research (MARC) 2002

Photograph 15.42 Everglades Hall 2002

Photograph 15.43 Parking Garage 2 (Blue) 2002

Photograph 15.44 Earnest R. Graham Center Expansion 2002

Photograph 15.45 Earnest R. Graham Center Expansion 2002

Photograph 15.46 Paul Cejas Architecture 2003

Photograph 15.47 Paul Cejas Architecture 2003

Photograph 15.48 Parking Garage 3 (Panther) 2004

Photograph 15.49 Parking Garage 4 (Red) 2004

Photograph 15.50 GC Expansion 2004

Photograph 15.51 Wellness and Recreation Center 2005

Photograph 15.52 Academic Health Center 2 (formerly Health & Life Sciences II) - 2005

Photograph 15.53 Rafael Diaz-Balart Hall 2006

Photograph 15.54 Lakeview Housing 2006

Photograph 15.55 Phillip & Patricia Frost Museum 2007

Photograph 15.56 Phillip & Patricia Frost Museum 2007

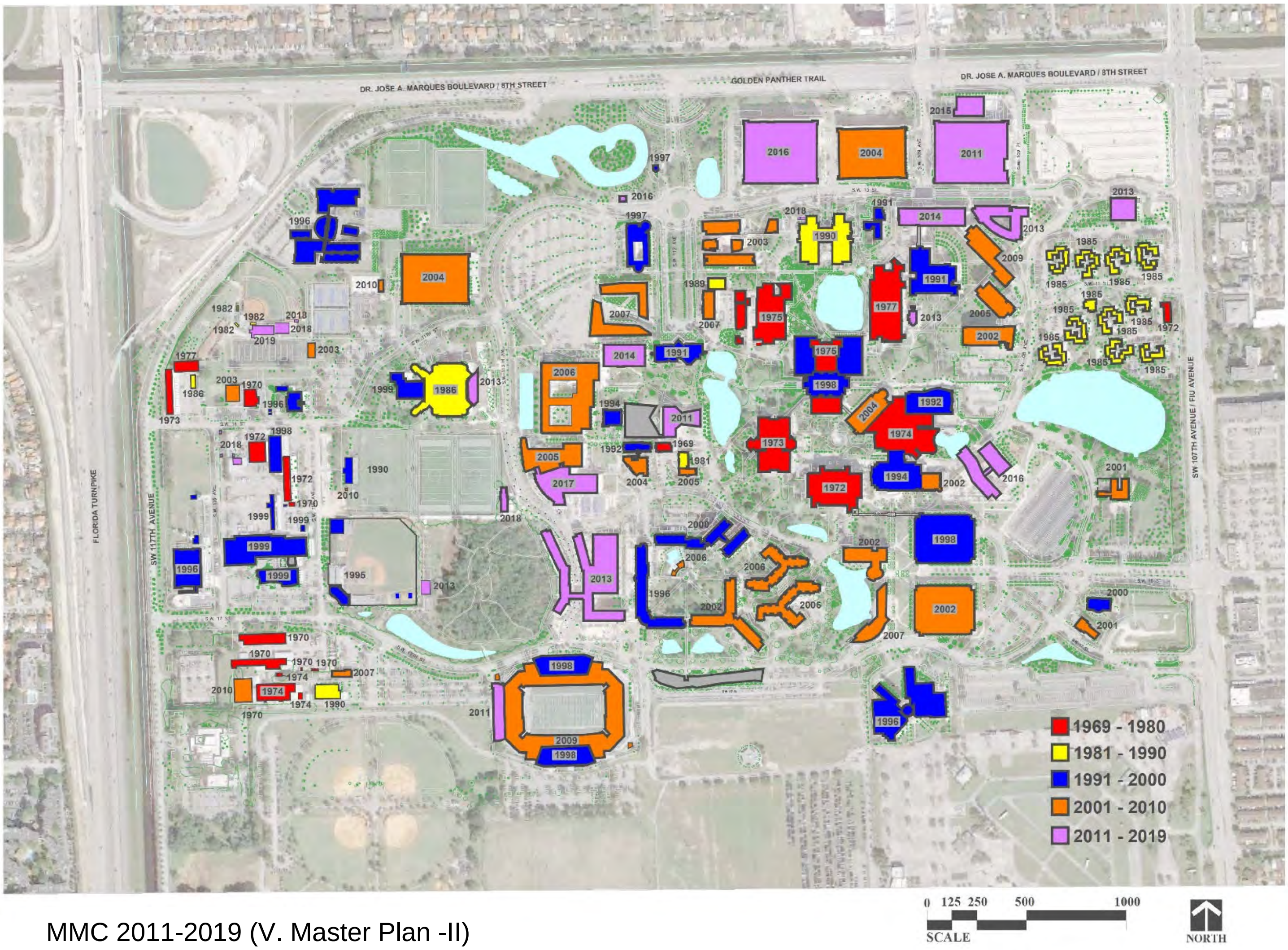
Photograph 15.57 College of Business Complex 2007

Photograph 15.58 College of Business Complex 2007

Photograph 15.59 Academic Health Center 3 - 2009

Photograph 15.60 Ricardo Silva Stadium Expansion 2009

Photograph 15.61 Ricardo Silva Stadium Expansion 2009



MMC 2011-2019 (V. Master Plan -II)

1. Materials

- Precast concrete
- Wall cladding systems
- Curtain wall, storefront glass and windows

2. Color

- Exposed concrete is most prominent (P.15.20, P. 15.22)
- Color has been added to complement the fabric of the campus (P.15.21)
- University colors incorporated into building facades and accents

3. Architectural Detailing

- Colonnades are generally integrated to the design of the buildings at the building edge (P.15.21) as well as through the building (P.15.23)
- Patterned facades and the use of construction lines are used to relate to the human scale
- Flat roofs with parapets
- Articulated building designs add to the sophistication of the campus fabric

4. Scale

- 2 to 7 stories

5. Transparency

- Generous use of curtain wall on north facades to maximize daylighting
- Window openings throughout
- Use of building voids to create outdoor spaces and building transparency
- The orientation of buildings defines the proportion of openings, solids and voids.

6. Siting and Image

- Several buildings have north-south orientation of building fenestration to maximize daylighting and minimize thermal gain with long axis of rectangular buildings oriented east-west and shortest sides/ends at east and west.
- Through their consistency of design and repetition of patterns, textures, colors and shapes continue to establish a visual theme in the campus appearance.

Photograph 15.62 School of International & Public Affairs 2011

Photograph 15.63 PG5 Market Station 2011

Photograph 15.64 Stocker Astroscience Center 2011

Photograph 15.65 Academic Health Center 4 - 2013

Photograph 15.66 Parkview Housing 2013

Photograph 15.67 Academic Health Center 5 - 2014

Photograph 15.68 MANGO Building 2014

Photograph 15.69 MANGO Building 2014

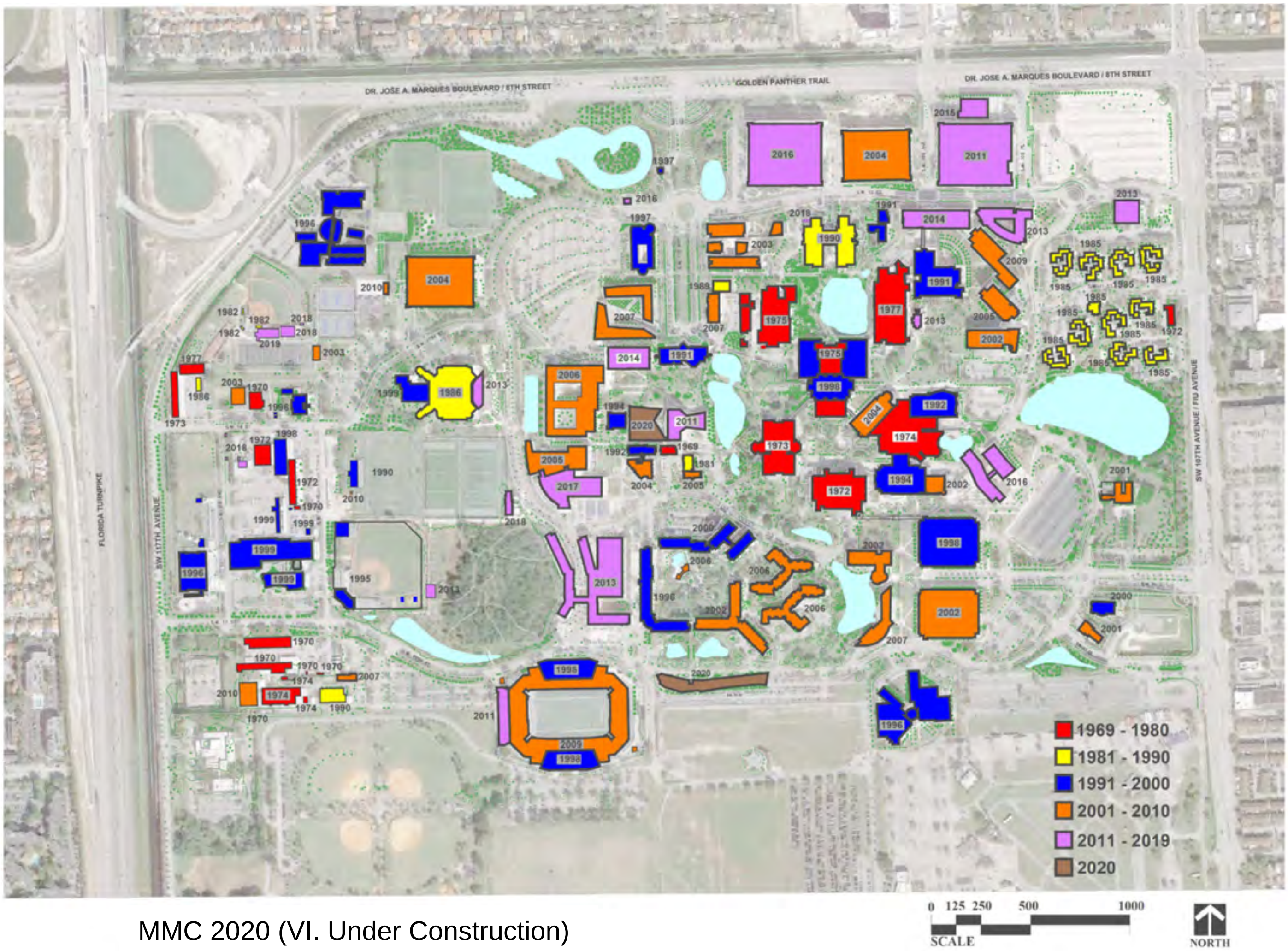
Photograph 15.70 Ambulatory Care Center 2015

Photograph 15.71 Student Academic Success Center 2016

Photograph 15.72 Parking Garage 6 – 2016

Photograph 15.73 Wellness & Recreation Center Expansion – 2017

Photograph 15.74 Wellness & Recreation Center Expansion – 2017



MMC 2020 (VI. Under Construction)

- No new buildings were completed in 2020.

- As of winter, 2020-2021, the Parkview-2/Tamiami Hall housing project was progressing towards top-off and the Green School of International Public Affairs Phase 2 was beginning site work prior to construction.

- As of winter 2020-2021, the Engineering Building was in design with a planned start of site construction in the Summer of 2021.

- As of winter 2020-2021, the CasaCuba project was in design and the Programs for the East Loop Road Realignment and Trish and Dan Bell Chapel were approved with selection of designers and construction Managers expected in spring or summer.

Photograph 15.75 SIPA 2 (Under Construction) – 2022

Photograph 15.76 SIPA 2 (Under Construction) – 2022

Photograph 15.77 Tamiami Hall (Rendering - Under Construction) 2022

Photograph 15.78 Tamiami Hall (Under Construction) – 2022

BISCAYNE BAY CAMPUS

BBC 1969 - 1980

BBC 1969 – 1980 I. (Formative Years)

1. Materials

- Precast and cast-in-place concrete with embedded aggregates
- Fluted and split face block
- Glass is used in the form of storefront panels

2. Color

- Neutral colors based on building materials as well as shades of grey and yellow

3. Architectural Detailing

- Detailing of concrete finishes generate branding opportunities (P.15.25)
- Flat roofs with parapets
- Open buildings with internal circulation to adjacent buildings
- Patterned facades and use of construction lines to relate to the human scale

4. Scale

- 1 to 3 stories

5. Transparency

- Window opening are used throughout
- Curtain wall are minimal
- Interior courtyards create voids that maximize natural daylighting within the building

6. Siting and Image

- Buildings are generally oriented facing the water for optimal exterior views
- Through their consistency of design and repetition of patterns, textures, colors and shapes, buildings begin to establish a visual theme in the campus appearance.

Photograph 15.79 Hospitality Management (Trade Center- Interama construction) 1974

Photograph 15.80 Hospitality Management (formerly Trade Center) 1976

Photograph 15.81 Academic One 1979

Photograph 15.82 Academic One 1979

Photograph 15.83 Gregory B. Wolfe University Center (formerly Student Center) 1980

Photograph 15.84 Gregory B. Wolfe University Center (formerly Student Center) 1980

Photograph 15.85 Gregory B. Wolfe University Center (formerly Student Center) 1980

BBC 1981 - 1990

BBC 1981 – 1990 (II. Development Years)

1. Materials

- Precast and cast-in-place concrete with embedded aggregates
- Fluted and split face block
- Glass is used in the form of storefront panels, dark in color
- Varied colorations of materials

2. Color

- Exposed concrete is most prominent
- Buildings such as the Hubert Library have incorporated color into the design
- For some buildings, color is not consistent with context or use

3. Architectural Detailing

- Pedestrian bridge with arcade below connects the library with the campus core
- Roof lines are flat and articulated with architectural elements or color
- Patterned facades and the use of construction lines are used to relate to the human scale

4. Scale

- 1 to 3 stories

5. Transparency

- Curtain wall on north facades to maximize daylighting (P.15.28)
- Window openings throughout
- Use of building voids to create outdoor spaces and transparency

6. Siting and Image

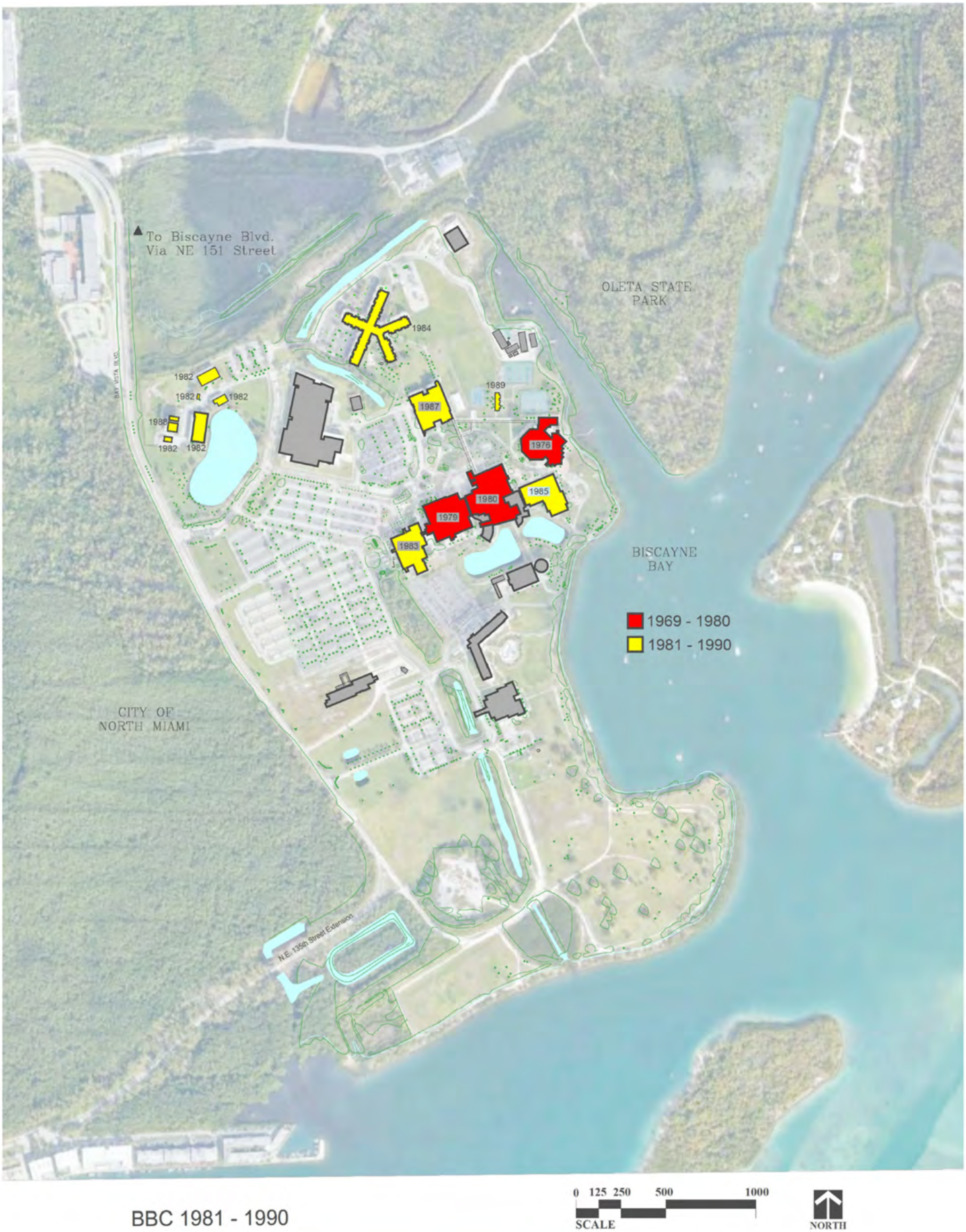
- Buildings are generally oriented facing the water for optimal exterior views
- Through their consistency of design and repetition of patterns, textures, colors and shapes buildings continue to establish a visual theme in the campus appearance

Photograph 15.86 Academic Two 1983

Photograph 15.87 Bay Vista Housing 1984

Photograph 15.88 Aquatic Recreation Center 1985

Photograph 15.89 Glen Hubert Library 1987



BBC 1981 - 1990

BBC 1991 – 2000 (III. Identity Years)

1. **Materials**
   - Monolithic exposed concrete finish
   - Punched windows with some shading devices

2. **Color**
   - Neutral colors are typical, non-specific to materials or context

3. **Architectural Detailing**
   - Flat roof structure with parapet
   - Construction lines and color at base to relate to pedestrian scale, clear demarcation of base

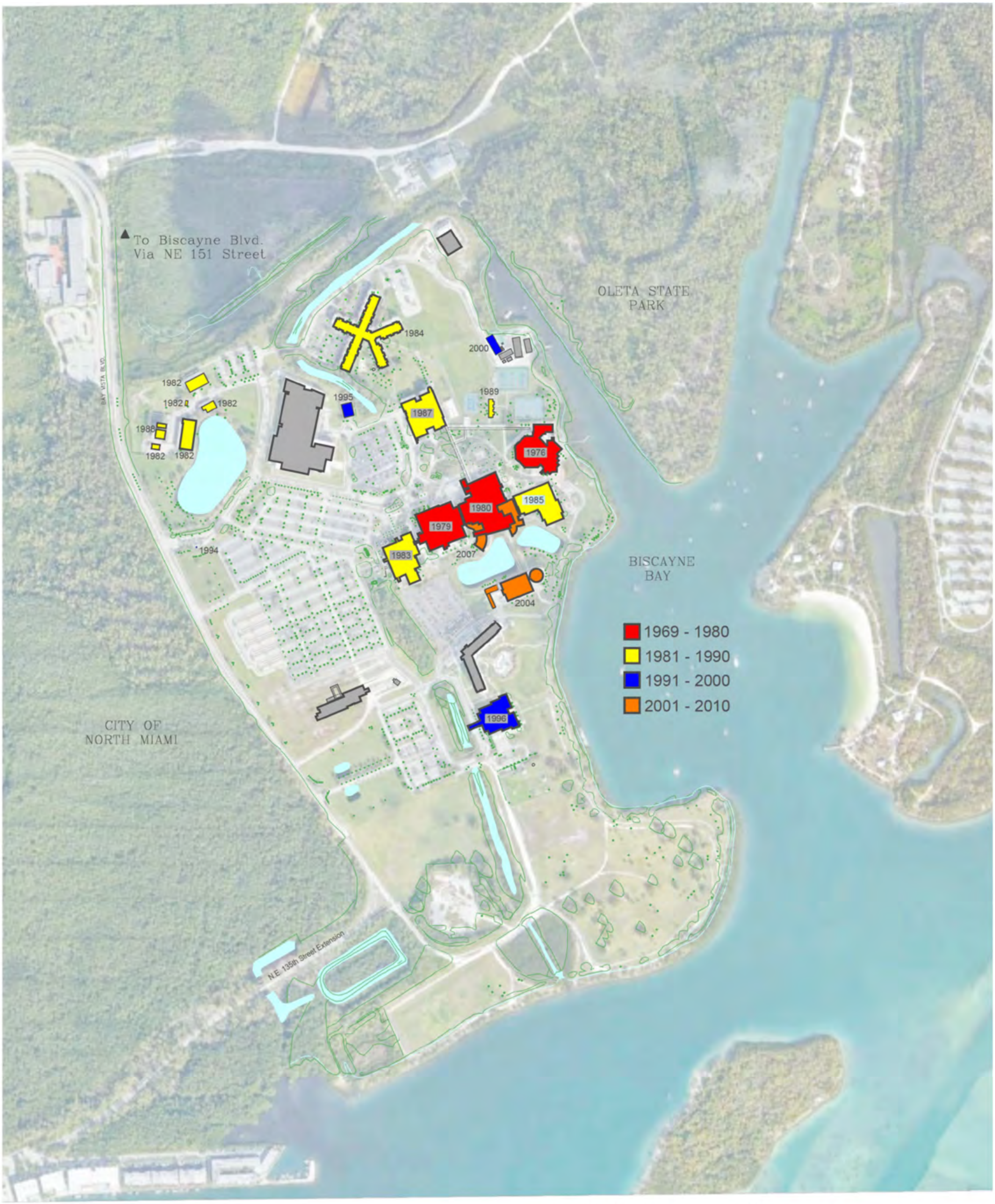
4. **Scale**
   - 4 stories

5. **Transparency**
   - Minimal use of window openings

6. **Siting and Image**
   - Oriented facing the bay maximized views to the water

Photograph 15.90 Student Health Services 1995

Photograph 15.91 Kovens Conference Center 1996



BBC 2001 - 2010

BBC 2001 – 2010 (IV. Masterplan-I years)

1. **Materials**
   - Monolithic exposed concrete finish
   - Minimal glass

2. **Color**
   - Neutral colors based on building material

3. **Architectural Detailing**
   - Flat roof structure with parapet

4. **Scale**
   - 3 stories

5. **Transparency**
   - Window openings throughout

6. **Siting and Image**
   - Oriented facing the bay maximized views to the water

Photograph 15.92 Marine Sciences 2004

BBC 2011 - 2019

BBC 2011 – 2019 (V. Masteplan-II years)

1. **Materials**
   - Monolithic exposed concrete finish
   - Minimal glass

2. **Color**
   - Neutral colors

3. **Materials**
   - Monolithic exposed concrete and stucco finish
   - Minimal glass

4. **Color**
   - Neutral colors based on building material

5. **Architectural Detailing**
   - Flat roof structure with tapered edges, parapets to screen roof equipment

6. **Scale**
   - 3 stories

7. **Transparency**
   - Window openings at public and office areas. Clerestory at corridors.

8. **Siting and Image**
   - Oriented facing streets and parking

Photograph 15.93 RCCL Training Center 2015

Photograph 15.94 RCCL Training Center 2015

Photograph 15.95 Bayview Housing 2016

Photograph 15.96 Frost Museum of Science – Batchelor Center 2018

BBC 2011 - 2019

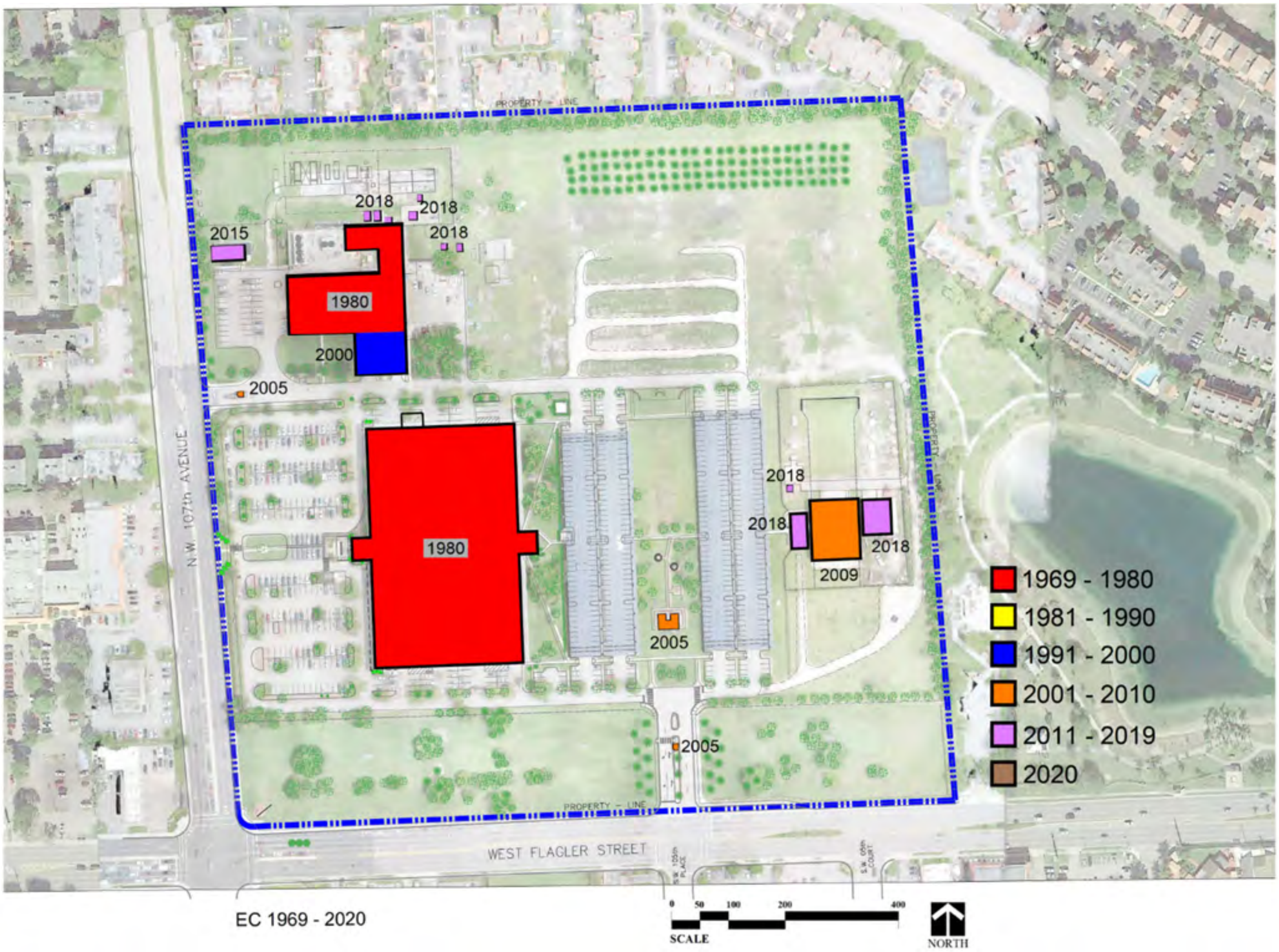
BBC 2020 – (VI. Under Construction)

- No new buildings were completed in 2020.
- As of winter, 2020-2021, the MAST Academy at FIU high school project was topped-off progressing towards completion in 2021.
- As of winter 2020-2021, no additional buildings were in active planning.

Photograph 15.97 MAST Senior High School 2020

Photograph 15.98 MAST Senior High School 2020

ENGINEERING CENTER



EC 1969-2020

1. Materials

- Precast and cast-in-place concrete with embedded aggregates
- Fluted and split face block
- Stucco finishes
- Glass is used in the form of storefront panels

2. Color

- Neutral colors based on building material

3. Architectural Detailing

- Consistent use of pattern and material with minimal building articulation
- The colonnade is continuous throughout the perimeter of the building P.15.36)
- The vertical lines of the window mullions break up the overwhelming horizontality of the building (P.15.37)

4. Scale

- 3 stories

5. Transparency

- Generous use of window openings

6. Siting and Image

- A goal of north-south orientation of building fenestration to maximize daylighting and minimize thermal gain with long axis of rectangular buildings oriented east-west and shortest sides/ends at east and west.

Photograph 15.99 Engineering Center 1984

Photograph 15.100 Engineering Center 1984

Photograph 15.101 Operations/Utility 1984

Photograph 15.102 Wall of Wind Research Facility 2009

Photograph 15.103 Wall of Wind Research Facility 2009

ANALYSIS REQUIREMENTS.
This element shall be based, at a minimum, on the following analyses:

d) An assessment of the degree to which existing building designs are coordinated, and the degree to which they contribute to or detract from the present visual or functional quality of the University.

MODESTO A. MAIDIQUE CAMPUS

Designs of the existing buildings appear to follow the requirements dictated by FIU's Architectural Design Guidelines, which include criteria for the creation of facilities to blend into the academic environment and learning experience. This criterion is meant to preserve and enhance the foundation of the FIU higher education mission and aspirations that has been the driver for past concept designs and that has framed the development of FIU. While the designs highlight unique styles of architecture, the buildings were required to define and further enhance both interior and exterior learning environments. The ability to inform each other within an emerging context has proven to be a challenge. And thus a variety of materials, proportions and scale has resulted in the most recent years.

Discussions about re-assessing building height restrictions, connectivity, proportions, and relationship to context will create opportunities for new building design as well as for renovations of existing facilities. Care must be placed on building performance as well as building placement, equal distribution of building footprint within the existing land and for accommodations of open space, covered walkways and gathering spaces.

BISCAYNE BAY CAMPUS

The existing academic and housing facilities are fairly muted in texture, color, and material, often overlooked as a viable asset to the campus. While these buildings struggle for an identity within the academic core, other buildings, such as The Library, Hospitality Management, and the Wolfe University Center, bring color and new textures to the overall design palate. Any renovation and enhancement projects that might occur to the academic and housing facilities should encompass similar design components of the more attractive facilities, incorporating more color and texture.

While the campus offers spectacular bay views to its visitors and users, such an attractive asset should be enhanced with new architectural elements included into new facility construction. The need to capture and retain people at the campus creates opportunities to offer ancillary functions, such as boardwalks, outdoor cafes and recreational areas. These amenities can be incorporated into new construction by careful and thoughtful design, giving definition for functionality to its users.

OTHER UNIVERSITY SITES

Engineering Center

The existing academic facility has undergone a much-needed "facelift". New colors and textures have been included as part of this enhancement and, along with new plant material, has accentuated the site within the community. In keeping with a South Florida theme, the new colors are bold and eclectic, bringing the facility into a new decade with energy and a renewed sense of placement within its environment.

With the addition of a new classroom facility planned for future expansion, there will be the need to re-assess how the University wants to project its image to the community, so the new classroom facility design must blend into the site and not compete with the existing building. With the creation of quads and pedestrian- friendly areas, properly placed landscape and vegetative buffers along edges, the new addition can enhance the site and create a facility which opens up to the community and does not distract from the overall vitality of the surrounding community.

e) An assessment of the accessibility of University buildings to disabled persons.

All buildings on all FIU campuses are built in accordance with the "Florida Building Code, Accessibility" requirements or have been renovated to comply with standard ADA requirements.

16.0 LANDSCAPE DESIGN GUIDELINES

PURPOSE

The purpose of this element is to provide guidelines to assist the University in establishing and maintaining a high level of quality in the design of landscape treatments on the University campus. The considerations of this element are qualitative in nature and are in addition to the quantitative requirements of other Master Plan elements. ~~See Appendix B for Architectural Design Guidelines.~~

(1) DATA REQUIREMENTS. THIS ELEMENT SHALL BE BASED, AT A MINIMUM, ON THE FOLLOWING DATA:

a) An inventory of the existing character, quality and location of landscape treatments on the campus identifying the existing character and quality of landscape treatments for the following.

1. Vehicular Circulation Routes

MODESTO A. MAIDIQUE CAMPUS

The existing vehicular circulation consists primarily of the Campus Greenbelt, two major entrances and seven secondary entrances. Currently, the predominant landscape treatment for the Greenbelt consists of a grass ground plane with a formal planting of canopy/shade trees in either a single or double row. The northern portion of the loop road (SW 10th Street) is planted with Live Oak trees which will, with time, continue to develop into a mature canopy arching over the roadway. The northeastern part of the greenbelt is planted with a variety of palms aligned with the parking garages and surrounding buildings. The southern portion of the road (SW 17th Street) is less developed, with some areas of Live Oaks and other canopy trees placed on the interior side of the street. When the Greenbelt is adjacent to parking areas, various strategies have been used to screen the vehicles including grass berms and dense landscaping. The relatively steep grassed slopes require greater maintenance than lower slopes yet offer substantial visual separation between campus and parking circulation.

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Photograph 16.1 – SW 10th Street looking west - Urban streetscape with pedestrian colonnades

The Greenbelt at the PG5/Market Station Parking structure utilizes some Royal Palms to soften the building while still allowing visibility of the ground floor retail.

Photograph 16.2 – Main Campus Entry at SW 8th St. and 112th Ave.

Royal Palms have been planted in one median to accentuate directional change of the Greenbelt and connection with a major campus entrance. The primary campus entrance road (SW 112th Avenue) has a formal landscape character with a symmetrical planting of Live Oak trees immediately within the campus entrance that leads to a formal boulevard that continues past the Greenbelt into the campus interior. This boulevard terminates with a vehicular drop-off in front of the Ryder Business Administration building and is planted on each side with mature Royal Palms.

Photograph 16.3 – Main Campus Entry at SW 8th St. and 112th Ave.

Photograph 16.4 – SW 10th Street looking west – Traffic Circle at Main Campus Entrance

Photograph 16.5 – SW 112th Avenue looking south – Main Campus Entrance

Photograph 16.6 – Main Campus Entry looking North from Ryder Business Building

Photograph 16.7 – Campus Entryway at SW 16th Street and SW 107th Avenue

The primary campus entryway at SW 16th Street and SW 107th avenue repeats the theme of a grand campus gateway. The focal point of this entrance is the Argosy sculpture by Alexander Liberman at the traffic circle located at SW 16th Street and the campus loop road. A double row of Royal Palms planted on each side of the street frame sidewalks that penetrate the southeastern quadrant of the campus.

Photograph 16.8 – Campus Entry looking West from 16th Street Traffic Circle

BISCAYNE BAY CAMPUS

Photograph 16.9 – Main Campus Entry at BBC

The U.S. 1 entrance to Biscayne Bay Campus consists of a campus identification sign and planting of Royal Palms on both sides of the road and median. Cabbage Palms on the southern side of Bay Vista Boulevard, which leads into the campus and is currently maintained with a grass shoulder. Along the northeastern corner of campus, adjacent to Bay Vista Boulevard, is a mixed planting of small canopy trees, palms, and flowering trees on a low berm. There are a few scattered groupings of Cabbage Palms and plantings associated with campus signage on Bay Vista Boulevard, but otherwise there are no consistent landscape treatments to identify the campus.

Photograph 16.10 – Main Campus Entry at BBC

Photograph 16.11 – Kovens Center Campus Entry at BBC

An allée of mature Royal Palms border the Kovens Center entrance road and frame a vista of the formal entrance and drop-off for the facility. Some internal roads on campus have modest plantings of palms. Existing street plantings offer no consistent theme to reinforce vehicular circulation hierarchy.

Photograph 16.12 – Kovens Center Campus Entry at BBC

2. Parking Facilities

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Most of the existing parking facilities are located along the Campus Greenbelt. For surface parking, landscape treatments typically consist of grassed medians at the terminus of parking rows planted with shade trees and additional trees planted along parking lot perimeters. Many of these surface lots are identified for future development including parking decks. Many of the older trees have grown and now offer a more mature tree canopy for surface-parking facilities along the edges.

PG4/Red Parking Garage: (Located in front of CASE and the Wertheim Conservatory, west of the 109th Avenue entrance). This parking garage helps to frame the view corridor for this developing gateway to the campus. A Ficus hedge has been planted adjacent to the Greenbelt to the deck along with Palms along the southern and eastern edges of the building. Large shade trees placed on the northern edge of the deck to help screen the structure from SW 8th Street were removed in 2017 for construction of the UniversityCity pedestrian bridge and plaza.

PG1/Gold and PG2/Blue Parking Garage: (Located at the entrance of 16th Street and 107th Avenue). These two parking garages help to anchor the 16th entrance. Rows of palm trees and other plantings on the median and sidewalks of 16th Street lead to the parking garages. Sidewalks along with the building's arcades connect the parking facilities to the campus core. There are also lawn areas with occasional benches interspersed under Royal Palms along the façade of the structures.PG3/Panther Parking Garage: (Located north of the U.S. Century Bank Arena). There is a simple landscape treatment consisting of lawn areas interspersed with small ornamental trees along the façade of the structure.

PG5/Market Station Parking Garage: (Located between the SW 108th Avenue and SW 109th Avenue entrances). There is a simple landscape of shrubs facing SW 10th Street with some Royal Palms. While the limited tree cover along the Greenbelt allows for visibility of ground floor retail and there is a covered area that allows for outdoor dining and pedestrian circulation, the lack of canopy vegetation diminishes the intent of creating an urban street that is comfortable for the pedestrian as well as a pleasing visual aesthetic to the campus. In an area of high pedestrian traffic and vehicular circulation, significant shade tree or palm plantings along this façade would help slow vehicular traffic.

PG6/Tech/Panther Station Parking Garage: (Located across the Greenbelt between CASE and the School of Architecture, west of the S.W. 8th Street and 109th Avenue entrance). The north side of the garage has minimal landscaping as a bus terminal is planned for that location. Land area on the east side is minimal but there are palms and some low shrubs that maintain safe sight lines. The southern edge of the garage has more room between the building and the roadway allowing planting of oaks, palms and shrubbery and maintaining openness between the roadway and building entrances. The west side of the garage has a large landscape buffer and a pond between the building and the 8th Street -112th Avenue campus entrance.

University Apartments Parking – (Located at SW 11th Street and SW 107th Avenue). Parking areas of various sizes and configurations are adjacent to University Apartment clusters across the Greenbelt from the Academic Health Center buildings 1-3.

Parking Lots 3, 4, & Presidential House: (Located on the southeastern section of the campus: Lot 3 is to the east of the SASC Building, and Lot 4 is to the east of the Blue Garage). These large parking lots do not provide sidewalks and are designed with the majority of pedestrian traffic walking within the main vehicular circulation aisles. Parking Lots 3 and 4 have minimal mature trees within the parking lot with smaller canopy trees formally planted along parking perimeters. Most medians are grassed with sporadic plantings and canopy trees at the end of the aisle terminuses. There are some grassed berms between the Greenbelt and the parking lots. The Reagan Presidential House lot is attractively landscaped with flowering trees and a perimeter hedge of Cocoplum. An alee of Royal Palms are planted on each drive of the entryway to the building.

<u>Parking Lots 5 & 7:</u> (Located along the southern boundary of the campus). Lot 5 is on the southeast corner of the campus. Lot 6 across from Everglades Hall and Panther Hall has become the site of the Parkview 2 student housing building leaving only limited number of spaces at the east end. Lot 7 is located on the southwestern section of the campus in front of the Baseball stadium. Parking Lot 5 has a continuous sidewalk and a Cocoplum hedge that connects to Wertheim Performing Arts Center. They lots have minimal tree canopies to provide shading but do have berms and vegetation that screens vehicles from the Greenbelt.

<u>Parking Lots 8 and 13</u>: (Located to the interior of the Greenbelt). Parking Lot 13 is a small lot that services Panther Residence Hall. This lot is surrounded on three (3) sides with grassy terrain and plantings of scattered trees that softens the parking area from SW 14th Street (a campus service drive). Interior parking islands are grassed with plantings of palms and canopy trees. Parking Lot 8 was located between the Recreation Complex and the University Health Services Complex and was largely displaced by the Recreation Center Expansion in 2017. A small remnant is used to serve the Student Health Center.

<u>Parking Lot 9</u>: (Located adjacent to the Greenbelt on the northwestern section of campus). Lot 9 currently serves the Sanford and Dolores Ziff Education Building and College of Business Complex. The lot provides sidewalks that connect to the campus central core. Gumbo Limbo trees are located in some of the islands, developing modest canopies. The grassed perimeters of the lots have been bermed to diminish visibility to the lot’s broad expanses of pavement. There are plans to build additional buildings on this lot. Colorful flowering shrubs and plants enhance some of the landscaped medians.

<u>Parking Lot 10:</u> (This lot is located to the west of U.S. Century Bank Arena). Parking Lot 10 has a perimeter sidewalk associated with the Greenbelt with flowering trees planted between the sidewalk and the perimeter of the surface parking. Terminal medians and occasional interior medians are grassed and planted with a canopy tree.

<u>Parking Lot 33:</u> This small parking lot adjacent to the Graham Center is landscaped with planted medians featuring canopy and smaller ornamental trees. An evergreen hedge screens the parking lot from the Campus Greenbelt. There are plans to build an expansion to the Graham Center on this site that would include a vehicular drop-off.

<u>Parking Lots 12-30:</u> (Located at various locations throughout campus). Most of these are small parking lots that serve the campus support system. The landscaping for these lots varies.

<u>ENGINEERING CENTER</u>

Parking Lots 1, 2, 3, and 4, have terminal medians. Lot 5 is mostly beneath the main bldg. #101. Occasional interior medians are grassed and planted with canopy trees. Lot 2 has been covered by canopies of solar panels that limit landscaping due to shade.

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Landscape treatments typically consists of grassed median with Gumbo Limbo and other shade trees at the terminus of parking rows planted with additional trees along parking lot perimeters. Parking Lot 7 and Lot 5 at the Kovens Center parking areas contain grassed medians with shade trees within parking rows and occasional planting islands with trees that extend between abutting parking spaces. There is a significant opportunity to include additional tree plantings within the parking lots to offer additional shade and enhance the character of the parking lots.

Typically for Parking Lots 1, 2, 3, 4, 5, 6 and 7 landscape treatments consist of trees provided in scattered parking medians and end medians the new Parking Lot 1 of #13 next to Bayview Housing has a similar pattern. One of the few structured landscape treatments within parking areas occurs along the southern edge of the circulation roadway for the Hubert Library, Wolfe University Center and Academic One and Academic Two. A formal planting of Cabbage Palms accentuates this primary vehicular circulation pattern. Additional tree massing would strengthen the campus edges along Bay Vista Boulevard and screen parking areas from circulation roads. A more consistent street tree scheme would better demarcate primary internal circulation roadways giving a sense of order to the vehicular circulation.

3. Pedestrian Circulation Routes

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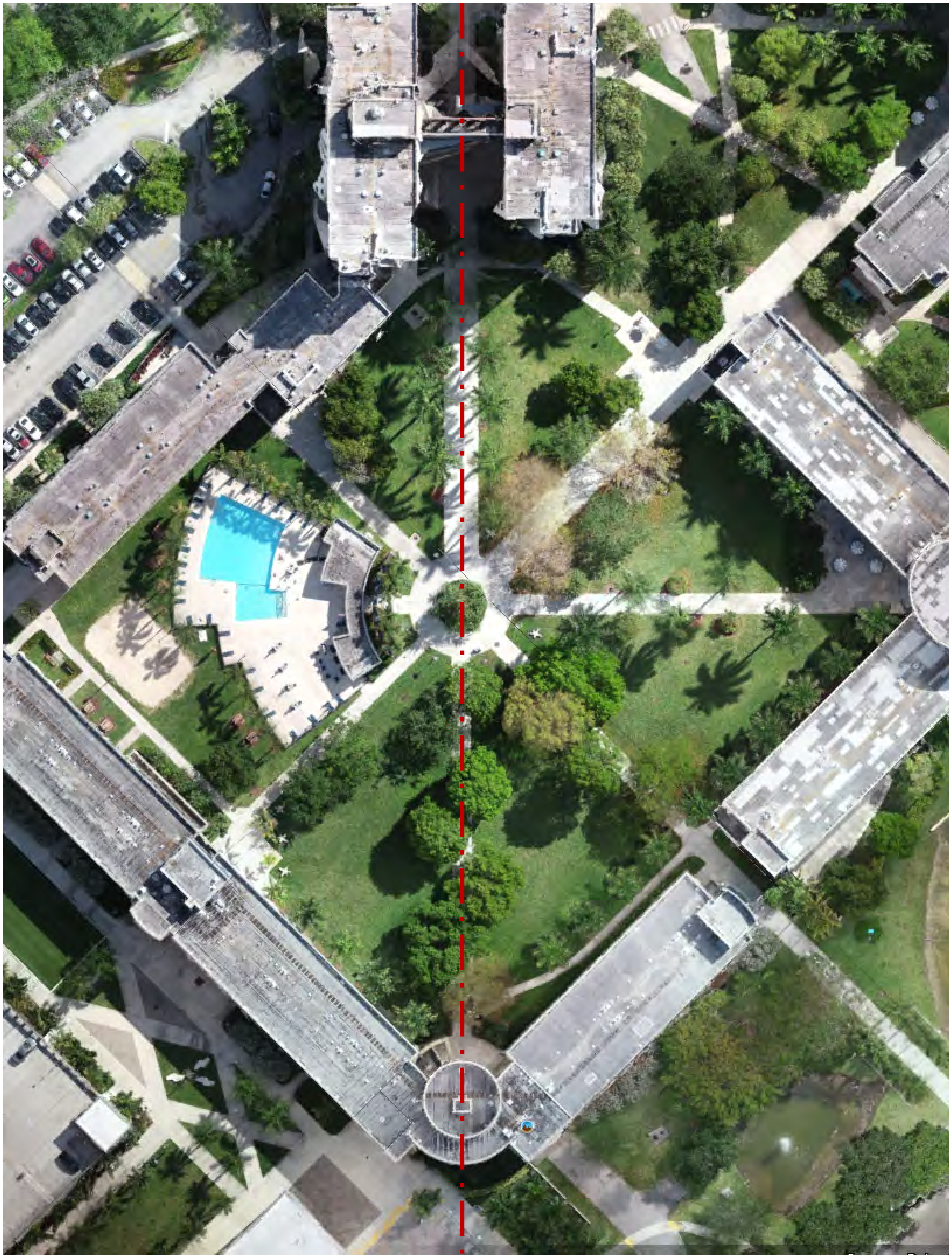
Major Walkways:
There are four major pedestrian axial walkways that cross the central campus core from the Campus Greenbelt and beyond. These axes serve as land planning and building guidelines as well as walkways:

> Avenue of the Sciences: extends in a diagonal direction from the Panther Housing / University Tower / Everglades Housing quad to the central campus core and extends to the Greenbelt near University Apartments and the emerging Health Sciences District, then terminates at the site of the new Engineering Bldg.
>
> Avenue of the Professions: extends from the western perimeter parking areas to the Green Library and continues easterly along the Graham Center to the Greenbelt.
>
> Avenue of the Students: Extends from PG3/Panther Garage east to the Owa Ehan Building.
>
> Avenue of the Arts: Extends from the Performing Arts Center north to the Graham Center.

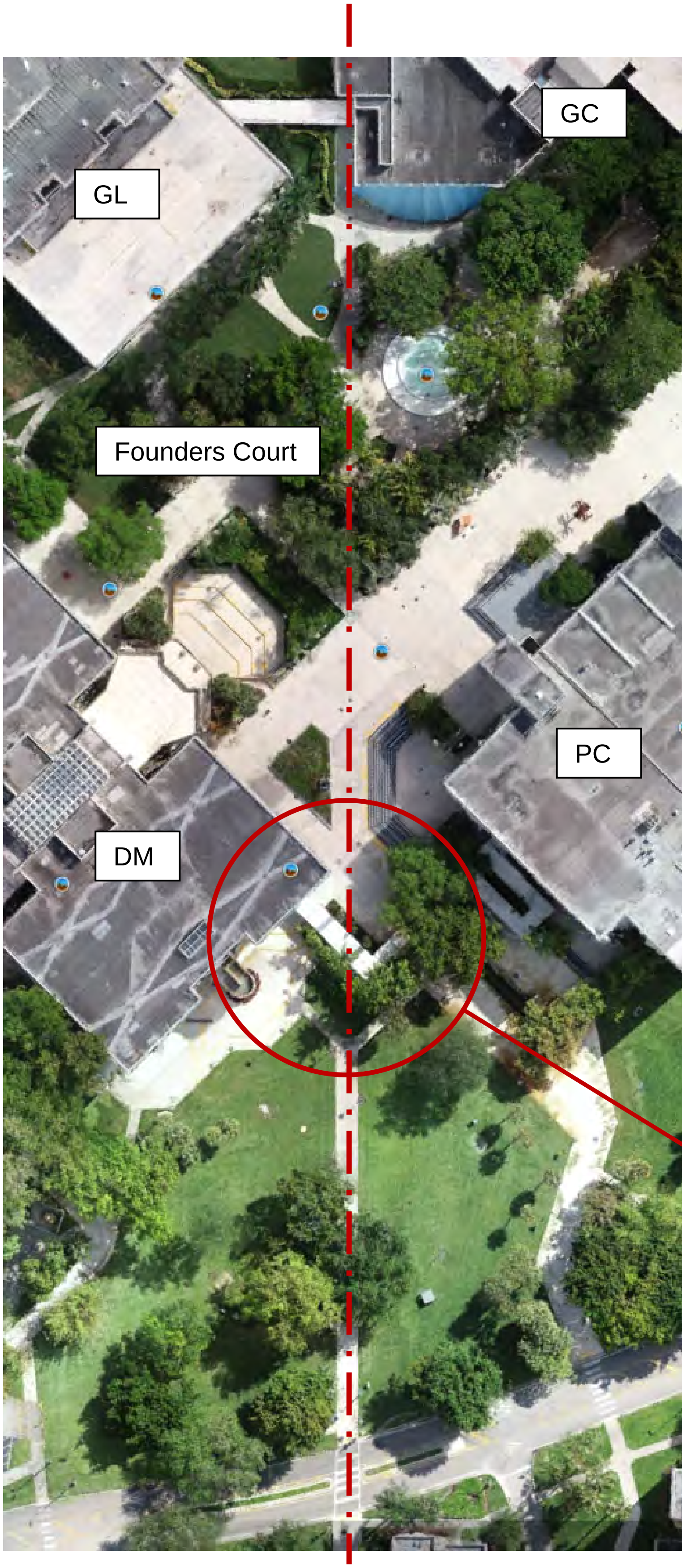
Though there is not a consistent landscape treatment of these axes, they are considered the foundation of campus pedestrian circulation. Often, the axes are difficult to separate from other walkways throughout campus as they lack a consistent pattern or enhancement that might be associated with their significance.

Avenue of Sciences - The diagonal pedestrian axis, the Avenue of Sciences, traverses the campus from the Panther Hall / University Tower quad northeast to the intersection of SW 107th Ave. and SW 8th St. It is characterized by a varied landscape treatment. The northeastern roundabout is planted with Royal Palms that continue along the axis towards the AHC-3 building along with a hedge of Cocoplum. Portions of this sidewalk have a more open look with few plantings to reinforce circulation patterns. Sidewalk plantings related to the residential quad are more formal with an allée of Royal Palms and small shade trees. Plans to extend this axis to the site if the Engineering bldg. are currently underway.



Photograph 16.13 – Avenue of the Sciences – Begins/ends at main Student Housing quad

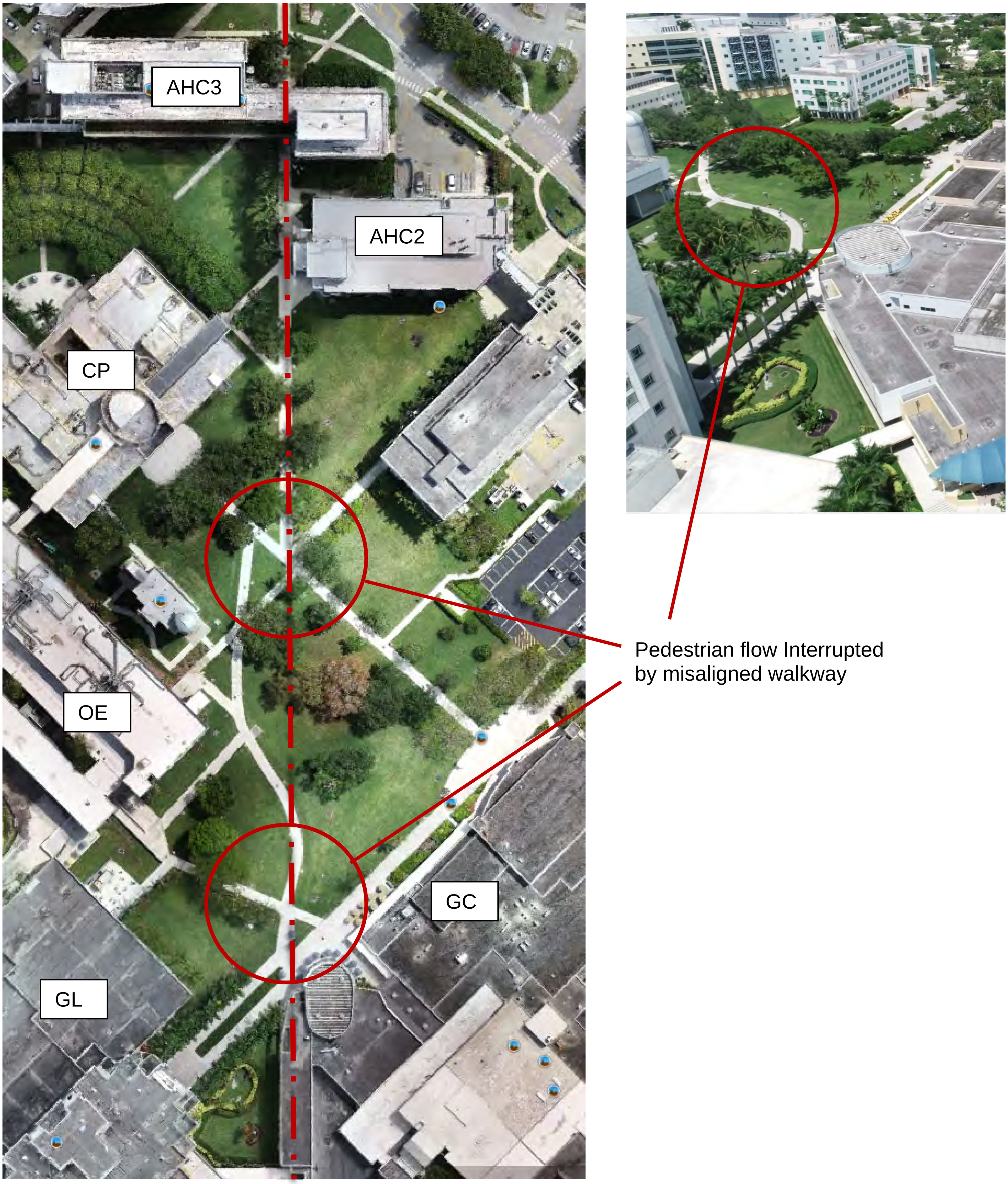
Photograph 16.14 – Avenue of the Sciences – beginning at Panther Hall



Pedestrian flow Interrupted
by low wall & walkway

Photograph 16.15 – Avenue of the Sciences – from Student Housing quad to Founders Court

Photograph 16.16 – Avenue of the Sciences south of Founder's Court



Photograph 16.17 – Avenue of the Sciences – from Founders Court to GC North quad

Photograph 16.18 – Avenue of the Sciences looking Northeast from the Graham Center north quad

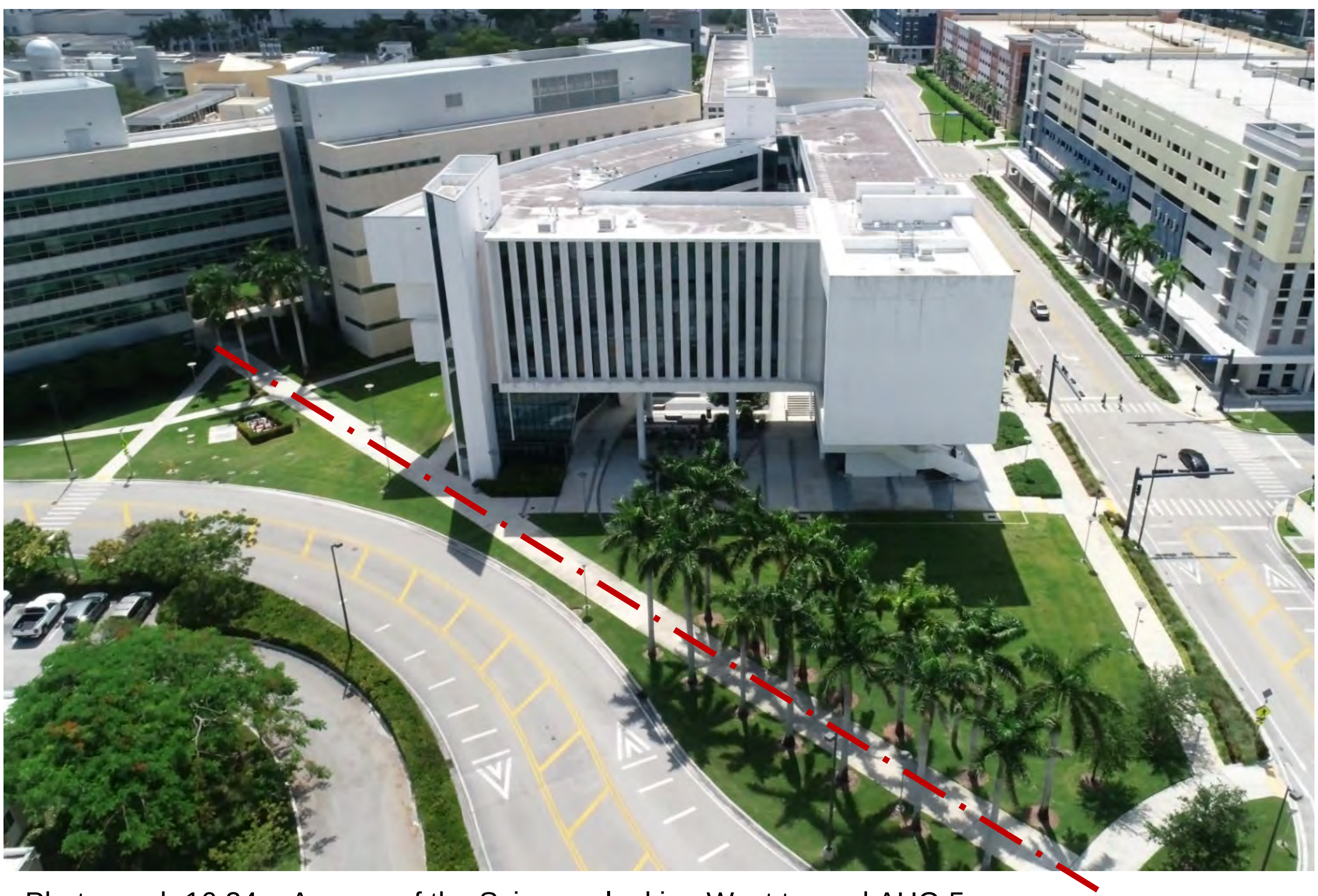
Photograph 16.19 – Walkway between Graham Center and Chemistry & Physics crossing the Avenue of the Sciences

Photograph 16.20 – Avenue of the Sciences looking Northeast from the Graham Center north quad

Photograph 16.21 – Avenue of the Sciences looking Northeast from the Graham Center north quad

Photograph 16.22 – Avenue of the Sciences – from GC North quad to Engineering site

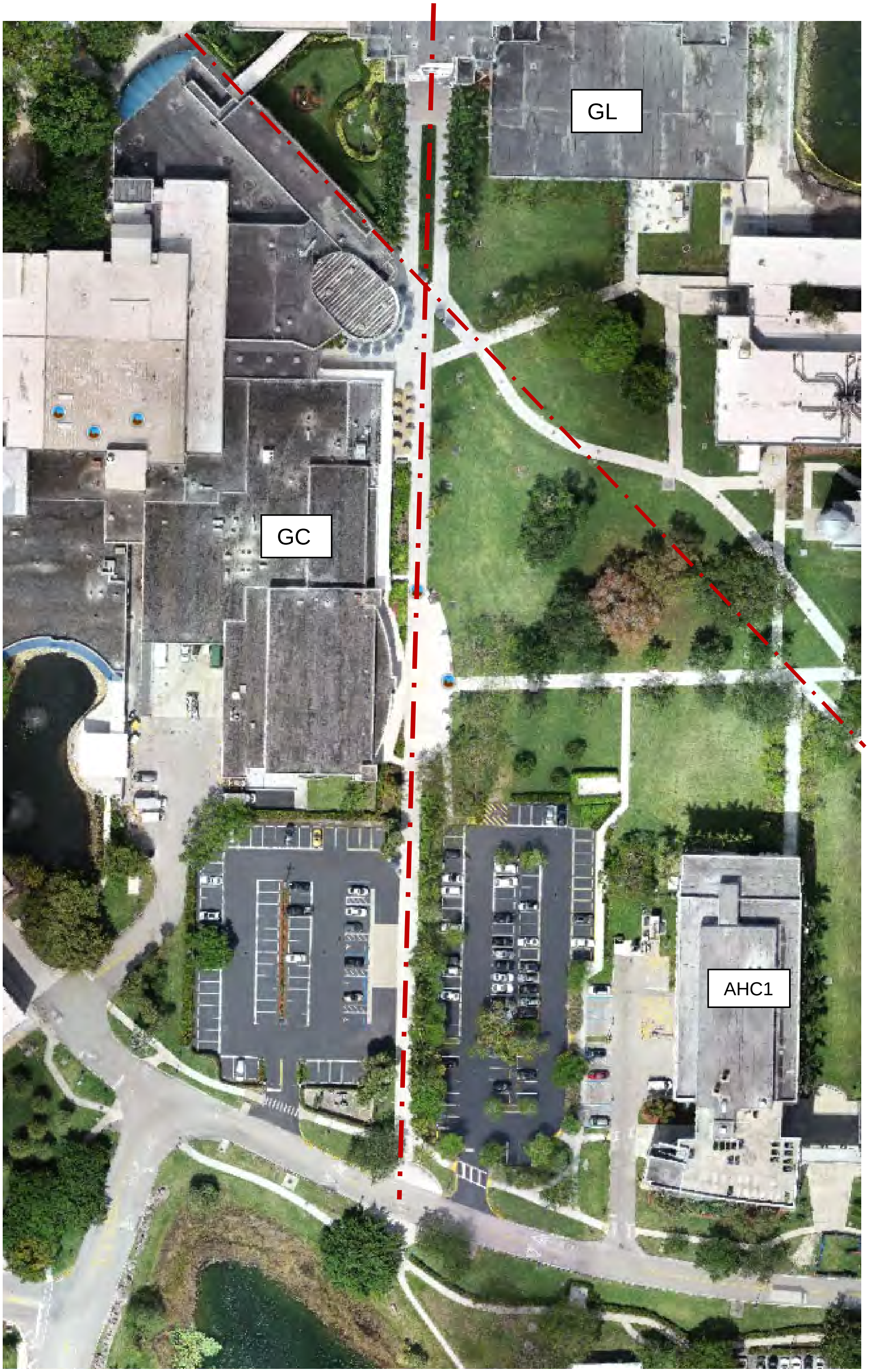
Photograph 16.23 – Avenue of the Sciences looking Northeast toward the Engineering building site



Photograph 16.24 – Avenue of the Sciences looking West toward AHC-5

Photograph 16.25 – Avenue of the Sciences looking down SW 10th Street

<u>Avenue of the Professions</u> - The landscape treatment of the east/west walkway, Avenue of the Professions, that links the University Apartments to Rafael Diaz-Balart Hall is reflective of its surroundings. There is a natural look to the landscape at the western portion of this walkway with its lakes, wooden bridge and informal tree plantings including a variety of palms. Live Oaks and other shade trees define the axis by the Ryder Business building. Weeping Figs are located adjacent to the Green Library breezeway with Bald Cypress on the south edge of the lake. Along the more urban areas of the campus core, there is a wider walkway with accent pavers and more structured planting of various palm species. The walkway has a simple, clean appearance by the Graham Center and near the eastern terminus of the walk. The landscape related to this walkway evolves from the site furnishings and formal planting of Coconut Palms.

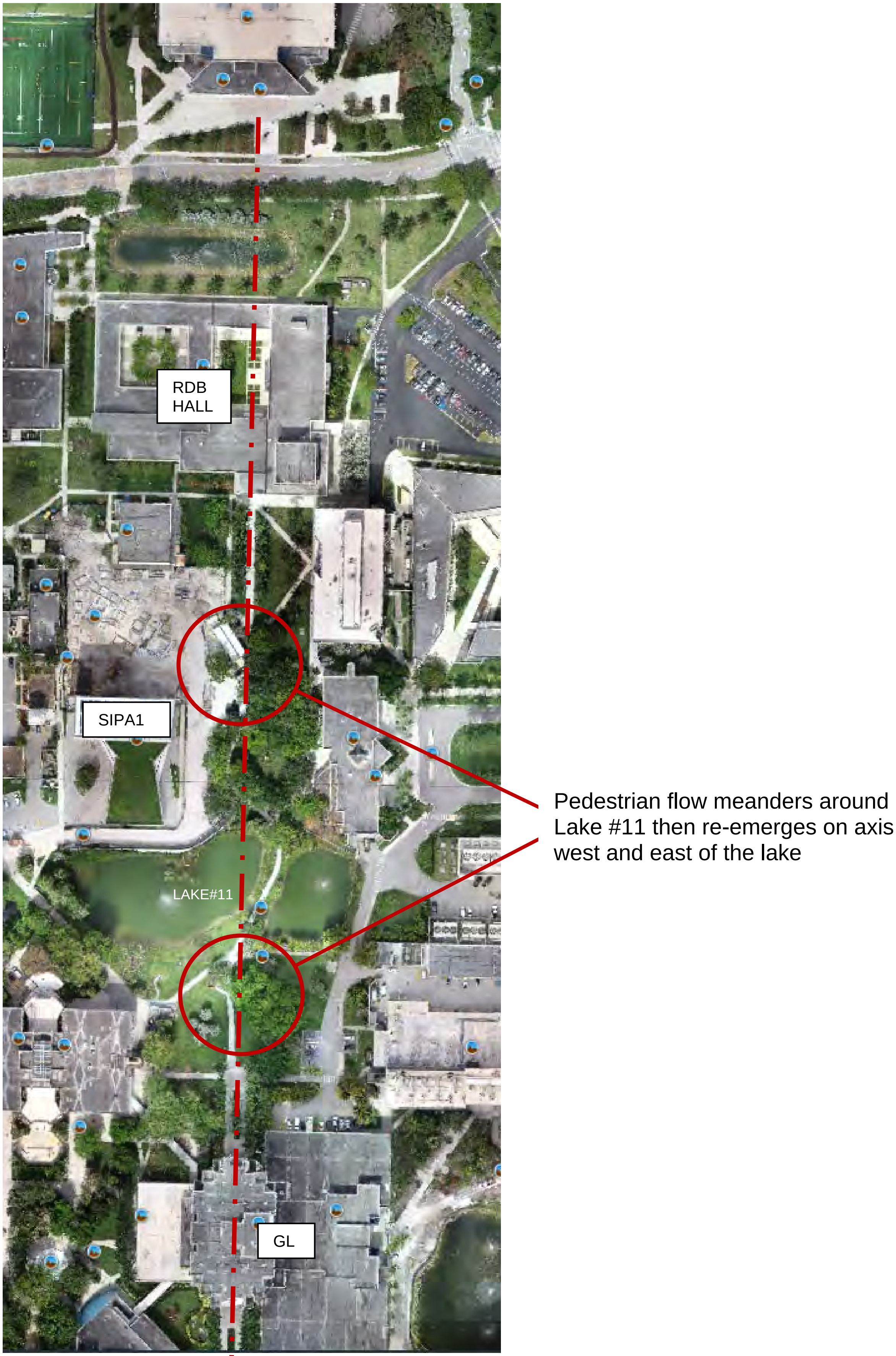


Photograph 16.26 – Avenue of the Professions – East end (bottom of page)

Photograph 16.27 – Avenue of the Professions – North of Graham Center

Photograph 16.28 – Avenue of the Professions – East of Green Library

Photograph 16.29 – Avenue of the Professions – East of Green Library looking west



Photograph 16.30 – Avenue of the Professions – West end (top of page)

Photograph 16.31 – Avenue of the Professions approaching Lake #11 and SIPA 1 looking west

Photograph 16.32 – Avenue of the Professions approaching Rafael Diaz Balart Hall looking west

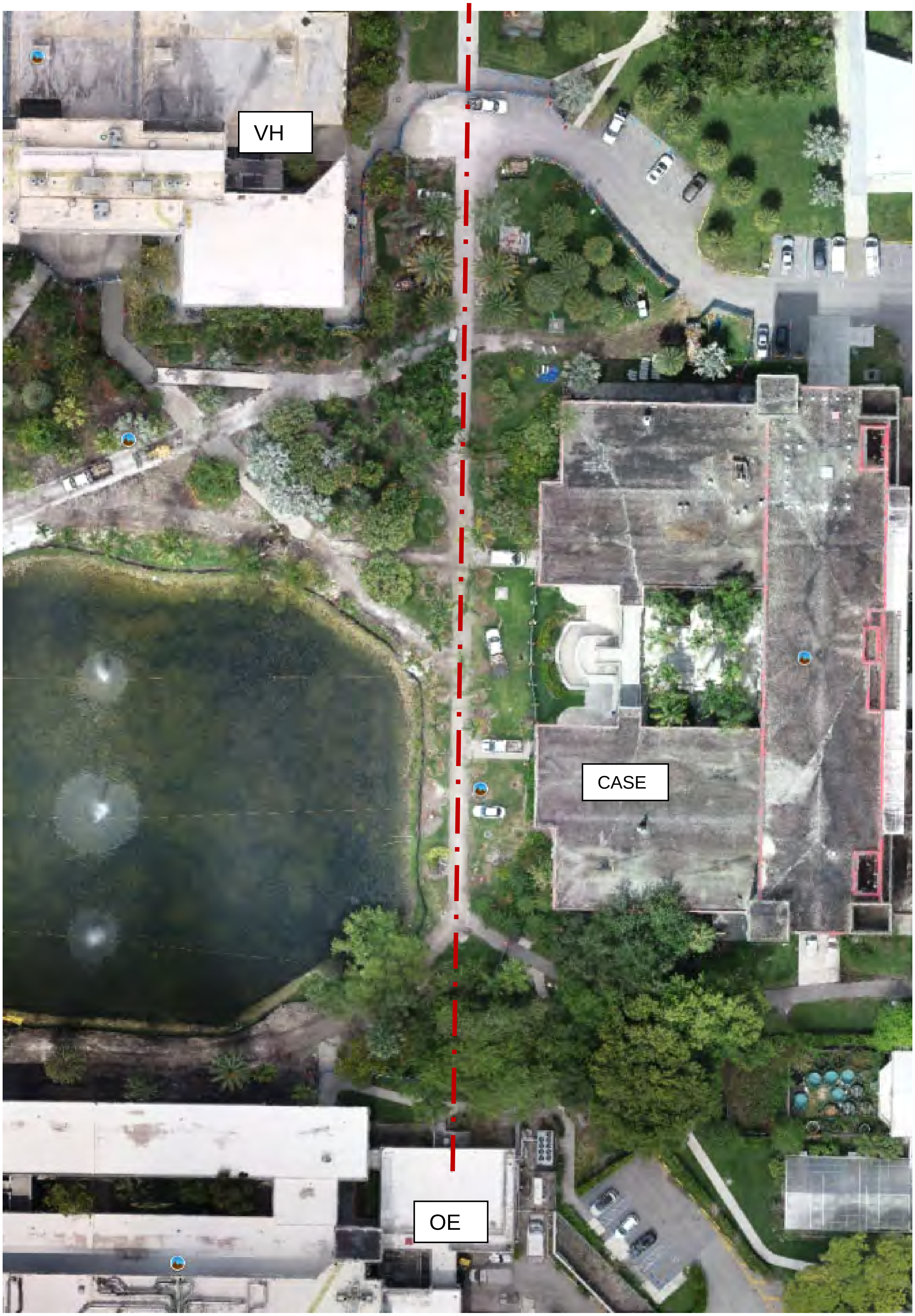
Photograph 16.33 – Avenue of the Professions from SIPA 1 looking east toward GL

Photograph 16.34 – Avenue of the Professions from SIPA 1 looking east toward GL

Photograph 16.35 – Avenue of the Professions approaching The Green Library looking east

Photograph 16.36 – Avenue of the Professions looking east at node crossing Avenue of the Sciences north of the Graham Center

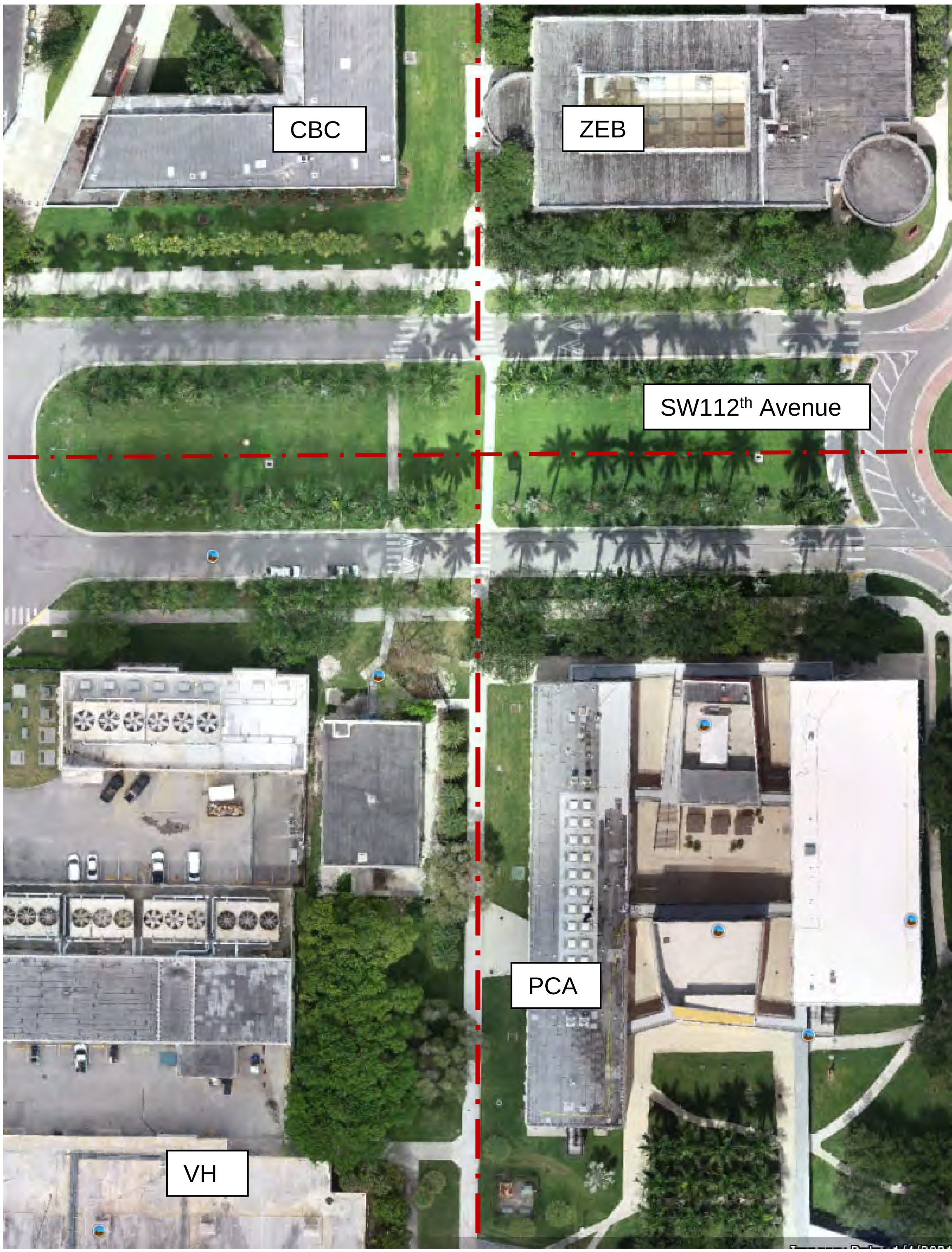
Avenue of the Students - The east/west walkway, the Avenue of the Students, that connects Owa Ehan to the PG3/Panther Parking Garage has occasional tree masses and some formal tree plantings adjacent to buildings but for the most part landscape treatments are limited. While there is some level of landscape treatment for each of these primary pedestrian routes, the sporadic approach of landscape design tends to accentuate portions of the walkways without addressing an overall theme and hierarchy of pedestrian circulation.



Photograph 16.37 – Avenue of the Students east end (bottom of page)

Photograph 16.38 – Avenue of the Students looking toward the OE Bldg.

Photograph 16.39 – Avenue of the Students looking west from the OE Bldg.



Photograph 16.40 – Avenue of the Students at 112th Avenue Entrance way crossing

Photograph 16.41 – Avenue of the Students south of PCA Building

Photograph 16.42 – Avenue of the Students south of Ziff Education Building

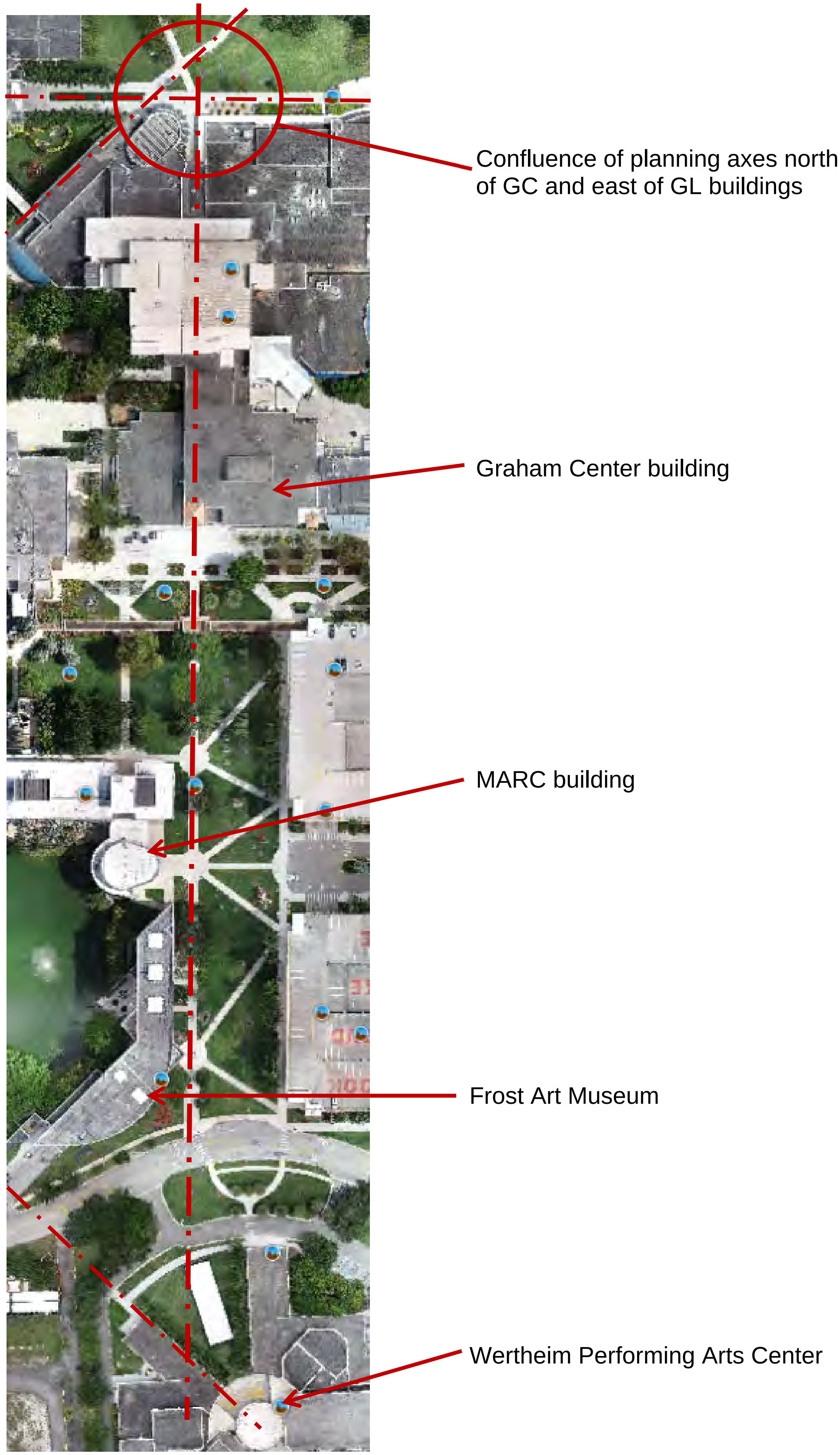
Photograph 16.43 – Avenue of the Students at the Education Building looking east

Photograph 16.44 – Avenue of the Students west end (top of page)

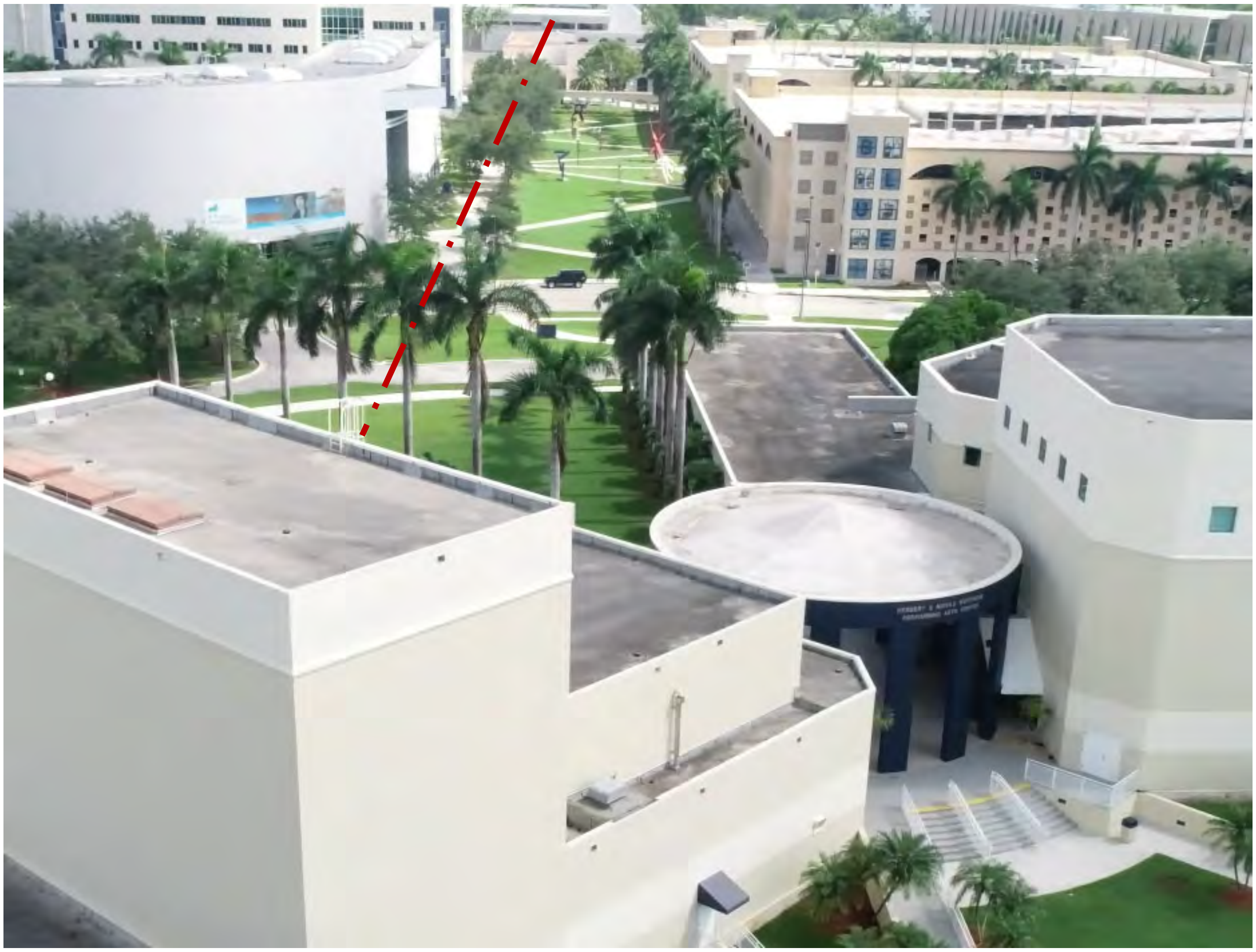
Photograph 16.45 – Avenue of the Students west end looking east – Ziff Education Bldg. on left / College of Business Complex on right

Photograph 16.46 – Avenue of the Students far west end at Panther Garage (PG-3)

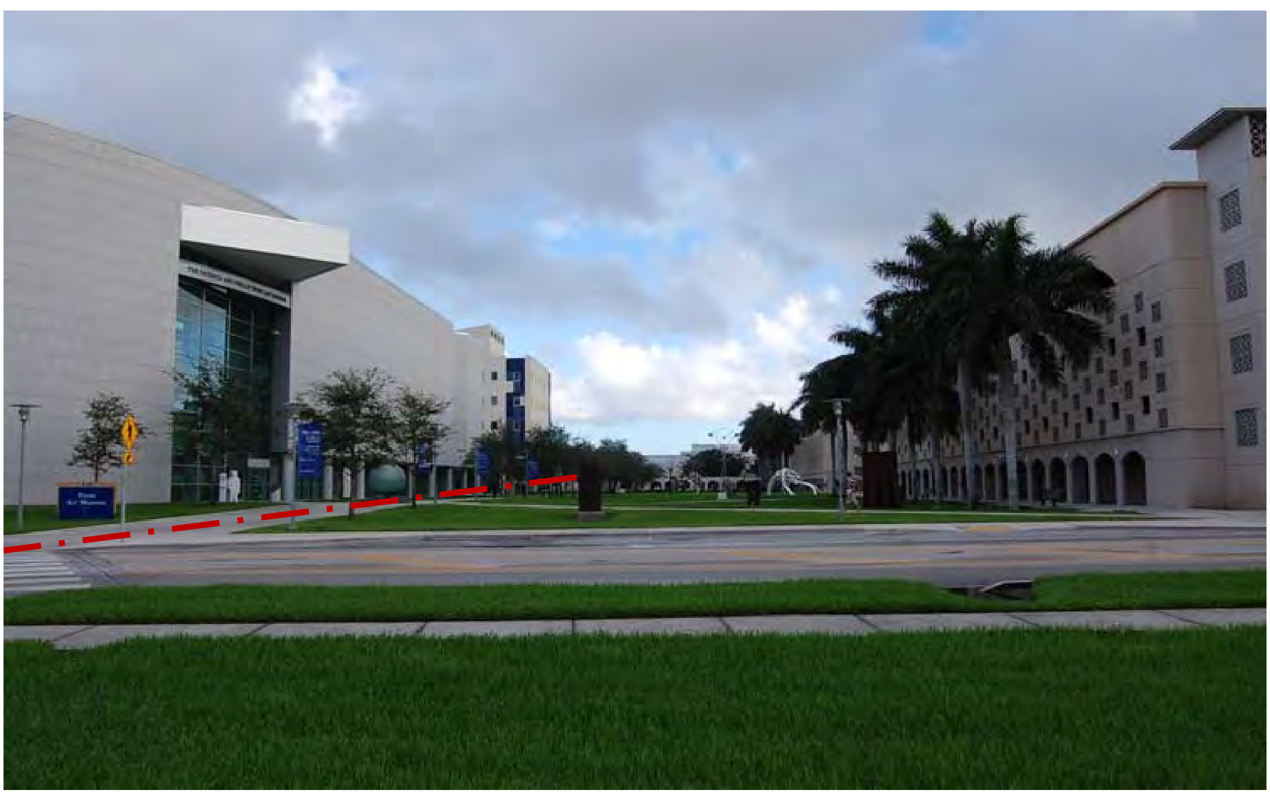
Avenue of the Arts - Extends from the Performing Arts Center north to the Graham Center and aligns with the main entrance and interior circulation spine within the building. The avenue serves as a public outdoor sculpture park which displays a number of significant works of art. It also features wide diagonal crosswalks aligned to connect the Blue and Gold parking garages directly to the Frost Art Museum main entry and MARC building entrance from each garage. North of GC the axis terminates at the intersection of the Avenue of the Sciences and Avenue of the Professions.



Photograph 16.47 – Avenue of the Arts



Photograph 16.48 – Avenue of the Arts looking North from the WPAC Bldg. (south end)



Photograph 16.49 – Avenue of the Arts looking North from the WPAC Bldg.

Photograph 16.50 – Avenue of the Arts looking North – Public Art Displays

Photograph 16.51 – Avenue of the Arts looking South from the MARC Bldg.

Photograph 16.52 – Avenue of the Arts looking North toward the Graham Center Bldg. (north end)

Photograph 16.53– Avenue of the Arts at the Graham Center Bldg. (north end)

Minor Walkways:
A broad pedestrian plaza, that is parallel to a smaller covered walkway, links the campus core between the Charles Perry Building and the Graham Center to the SASC bldg. PG1/Gold and PG2/Blue parking garages and adjacent surface parking lots. This corridor contains numerous formally planted areas of small palms and ornamental trees within a broad paved surface and a series of Deredia sculptures mounted on plinths of uniformed proportions. The formal plantings adjacent to the Chemistry and Physics building along with the interior courtyard of the College of Business complex offer quality examples that could be expanded beyond the limits of each respective buildings. Along with strengthening the visual impact of the Avenues, many of the pedestrian connections within the core campus need to be emphasized to enhance circulation, reinforce the identity of FIU and improve the campus environment.

Sidewalks:
In addition to the major and minor pedestrian walkways that traverse the inner campus, there is a network of sidewalks that encircle the campus. The pedestrian circulation pattern responds to the Campus Greenbelt and the location of the parking for the academic core area. The pedestrian traffic from several parking lots outside the Greenbelt link to a walkway located within a grassed buffer separating the roadway and parking circulation. This lawn area is normally bermed and when space allows planted with flowering shade trees. Other peripheral campus sidewalks include those adjacent to parking areas along the campus southern perimeter road. The small Live Oak trees planted along these sidewalks in time will provide needed shade for pedestrians. The west areas of the campus (SW 11th Street and SW 115th Avenue, adjacent to the Baseball Stadium and Campus Support Complex) and the main entrance on SW 8th Street lack sidewalks yet are part of the campus jogging trail system. SW 17th Street has a consistent sidewalk on both sides of the Greenbelt with the north sidewalk stopping as it approaches the FIU Nature Preserve, failing to connect to the SW 117th Avenue entrance.

Photograph 16.54 – Typical Sidewalk along Campus Greenbelt

Crosswalks:
Crosswalks are normally striped with white paint and in many cases vehicular speed tables with motion sensor activated flashing signals. Consideration should be given to the further use of concrete and/or colored pavers to clearly delineate pedestrian crossings and circulation patterns as well as a tool to slow vehicular traffic. This is important to consider in the emerging Academic Health Sciences District similar to S.W. 113 Ave. from Parkview Housing to the Arena. With the increase in density and urban qualities of the district, slowing vehicular traffic is essential to maintaining pedestrian safety.

Covered Walkways:
Covered walkways are generally limited within the campus but offer key connections such as at the academic core of the campus. The walkways connect the Green Library, the Charles Perry Building-Primera Casa, the Graham Center and the Deuxieme Maison building. Another covered walkway connects the PG1/Gold Parking Garage and the Perry Building. While generally intrusive to the landscape, covered walkways can be used to help define a space while providing key pedestrian circulation connections to buildings. Such is the case with the covered walkway between the PG1/Gold Parking Garage and the Perry Building. Given the climate conditions of south Florida, developing connections that help define a space, while not negatively impacting the surrounding environment should be further investigated. This can be accomplished both through architectural elements as well providing concentrated areas of shade trees.

Photograph 16.55 – Covered connection from the PC Building to PG1/Gold Parking Garage

Photograph 16.56 – The Preserve – east edge jogging trail looking north

Photograph 16.57 – The Preserve – north edge sidewalk looking west

Photograph 16.58 – The Preserve – southern edge pedestrian bridge looking north

Photograph 16.59 – Green Library North Wellness Walk

Photograph 16.60 – Green Library North Wellness Walk

Photograph 16.61 – Green Library North Wellness Walk

BISCAYNE BAY CAMPUS

Two examples of integrating the landscape with pedestrian circulation routes occur in a lushly planted pedestrian plaza between the Hubert Library and Academic One. Red pavers define a sitting area along with a variety of palms (Bottle Palm, Pygmy Date Palm, Cabbage Palm, Montgomery Palms) that provide shade while groundcovers such as Flax Lily, Foxtail Fern and Ceriman are used to define circulation in an informal setting. A more formal exterior space between the Library and Hospitality Management is planted with Canary Island Date Palms, Live Oaks and Autograph Trees that provide significant shade to the concrete walkway with ferns to define pedestrian circulation and sitting areas. Sidewalks include covered and uncovered walkways within the academic facilities. Walkways in open areas between the Library, Academic One and Hospitality Management are typically concrete. A second level walkway between Academic One and the Library passes through the treetops of the landscaped plaza below. This walkway offers cover for pedestrian circulation. At grade, the covered walkway acts as a building edge and to some degree a barrier that divides a lush tropical planting adjacent to the Library from a more open lawn area anchored by Live Oak trees.

The broad exposed aggregate walkways adjoining Academic One, Academic Two and adjacent to Hospitality Management have sparse landscape treatments consisting of modest landscape plantings and some site furnishings. A metal covered walkway between the Library and Hospitality Management and some adjoining secondary buildings have few landscape treatments. The covered walkways are effective in allowing access to classrooms during inclement weather but detract from the overall aesthetic of the quad. Landscape plantings for a connecting sidewalk from the Library to Bay Vista Housing is minimal, primarily limited to groupings of Cabbage and Coconut Palms that provide little shade or visual interest for pedestrians.

The landscape adjacent to the FIU's Biscayne Bay Campus Nature Trail that runs parallel to the Biscayne Bay between the Hospitality Management and the Marine Science buildings consist of Red Mangroves on the edge of the water and occasional Gumbo Limbo and Sea Grape trees, Sabal Palms, Coconut Palms and Australian Pines.

A series of curvilinear asphalt paths that circulate through the open lawns south of the academic facilities and adjacent to Biscayne Bay are typically landscaped with groupings of palms, canopy trees and some accent trees. Consideration for placement of additional landscaping in these areas should promote the establishment of prominent vistas to Biscayne Bay.

Photograph 16.62 – Campus walkway adjacent to Wolfe Center

Photograph 16.63 – Elevated Walkway between Wolfe Center and the Library

Photograph 16.64 –Walkway between Bayview Housing and Kovens Center

Photograph 16.65 – Walkway between Library and Bay Vista Housing

Photograph 16.66 – Walkway from Bayview Housing to the bayside walkway and surface parking

4. Bicycle Facilities

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Bicycle racks have been provided adjacent to most buildings in the academic core area and several other buildings. Use varies although in some cases they are not heavily used. The bicycle racks exposed to the weather were used less than those racks under cover. Currently there are no bike-only pathways established on campus. The FIU Bike Shop is located in the Recreation Trailer, adjacent to PG3/Panther Garage.

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Bicycle facilities consist of various types of bike racks located adjacent to the student housing, student center and most academic buildings. The traditional metal racks are located adjacent to housing with ribbon racks utilized in other areas on campus. Some of the bicycle racks are located without cover from the weather. There is a bike pathway parallel to the main entrance that leads to the facilities parking lot. An amazing amenity to FIU and the surrounding community is the bike path that connects NW 135th Street to Oleta State Park along the shoreline of the campus.

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Ribbon bike racks are provided under the main building adjacent to the building entrance. There are no bike pathways on the campus.

5. Public Transportation Facilities

MODESTO A. MAIDIQUE CAMPUS

There are currently no special landscape treatments for public transportation facilities. The Miami-Dade County Transit Authority bus system has a transfer facility at the SW 108th Avenue entrance that is planned to move to the north side of PG-6. A modern bus shelter for bus service is located east of the PG1/Gold Parking Garage and to the south of the PG3/Panther Parking Garage and east of PG5 Market Station.

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Current public transportation facilities consist of a two separate covered bus stops at the drop-off adjacent to the plaza area between the Academic One and the Library.

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There is one bus stop located on the west parking lot at the end of a parking bay centered with the building entrance. The bus stop sits within the parking lot with no landscaping. The Flager Express Bus route is planned to stop at the Engineering Center

6. Emergency Access Facilities

MODESTO A. MAIDIQUE CAMPUS

Landscape treatments present no particular deterrents for emergency access. Detailed studies for police and emergency access are recommended as the campus continues to mature. Care must be taken to avoid blocking routes for emergency vehicles through unpaved areas by adding plantings.

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Landscape treatments present no particular deterrents for emergency access. Detailed studies for police and emergency access are recommended as the campus continues to mature. Florida law cited below requires secondary access for universities. Resolution of this requirement is ongoing.

Florida State Statute: 334.352 State university ingress and egress.—A local governmental entity may not prevent public motor vehicle use on or access to an existing transportation facility or transportation corridor as defined in s. 334.03 if that transportation facility or transportation corridor is the only point, or one of only two points, of ingress to and egress from a state university as defined in s. 1000.21. This section does not apply when a law enforcement agency prevents use or access to a facility or corridor in an emergency situation or to a temporary closure of a facility or corridor, if necessary, for road maintenance or repair.

7. Planted Areas

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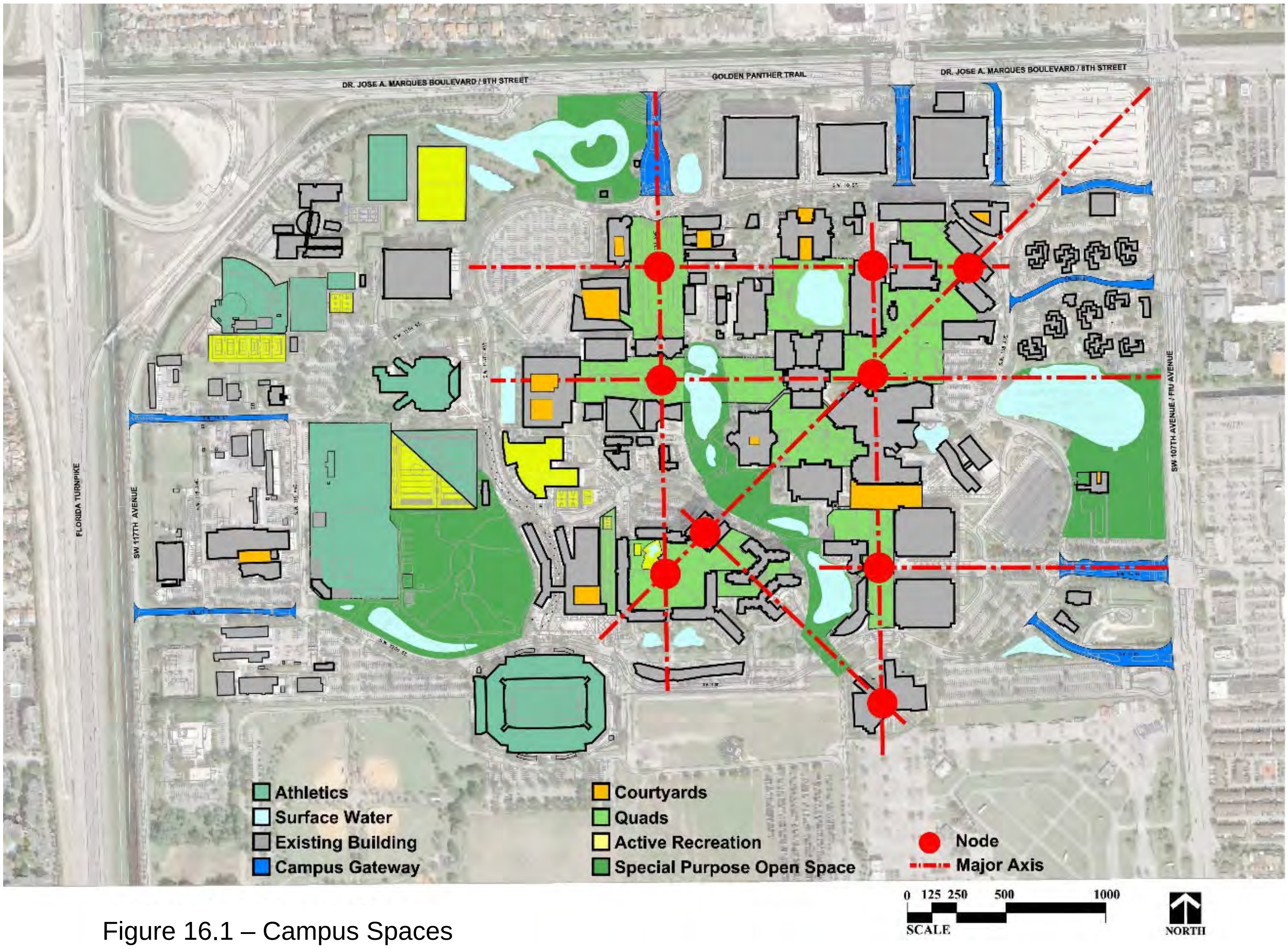

Figure 16.1 – Campus Spaces

As identified in Element 3.0 Urban Design, the campus is composed of a series of campus open spaces such as avenues, quadrangles, courtyards, and other special purpose landscapes. The campus landscape is a mixture of very formally planted spaces, with trees in lawn areas planted in single or double rows, and informally planted areas, with groupings of palms and trees often planted on berms in a random manner. Lake treatments with Coconut Palms and flowering tree species have a more tropical appearance while some ponds with Cypress trees and evergreen trees have a more natural look. Planted areas are well maintained. The limited use of shrub material in small masses and planters within the central academic core area is successful and helps to establish the appropriate scale in some areas, but excessive hardscape in other areas detracts from the space. Varying approaches to individual building courtyards have been an effective means of differentiating individual facilities while offering exterior spaces for rest and reflection with some being more effective than others.

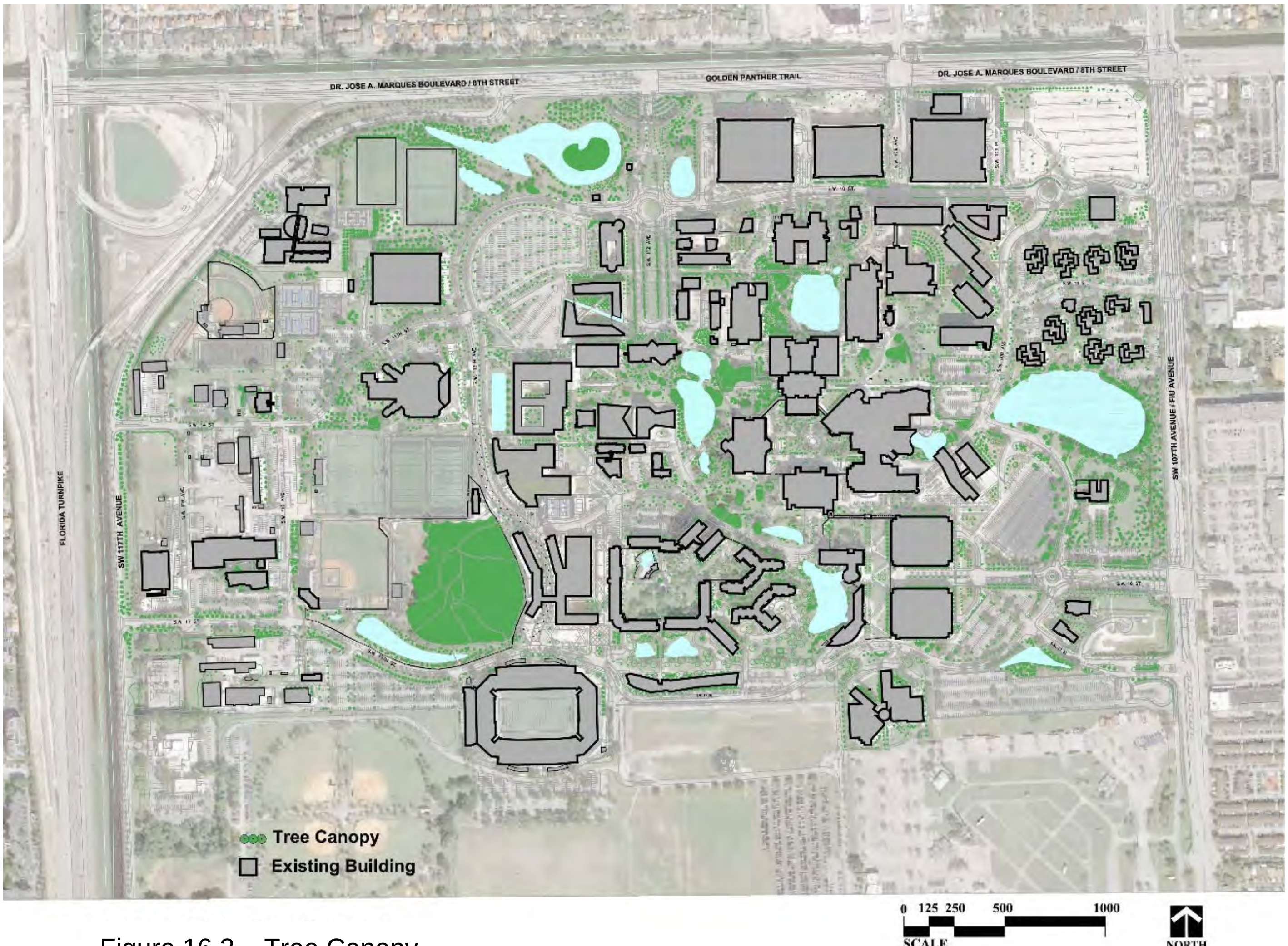

Figure 16.2 – Tree Canopy

The existing tree cover on the campus also varies with heavier concentration of shading in central gathering areas, Nature Preserve, Henington Island and along portions of the Greenbelt. While some quads provide significant tree cover creating opportunities for gatherings out of the sun, other quads are generally open. Tree cover within the parking areas is minimal. In 2019 and 2020, the FIU Office of Sustainability was pursuing designating the Modesto Maidique Campus as an Arboretum. During the summer of 2019 over 2,000 palm trees of various species were provided by a donor and were planted at MMC. In 2010, Florida International University (FIU) became the first school in Florida to be certified as a Tree Campus USA with the Arbor Day Foundation. This certification recognizes FIU's Modesto Maidique Campus (MMC) and Biscayne Bay Campus (BBC) for using best management practices to maintain a healthy urban tree canopy and for engaging the university community in environmental stewardship.

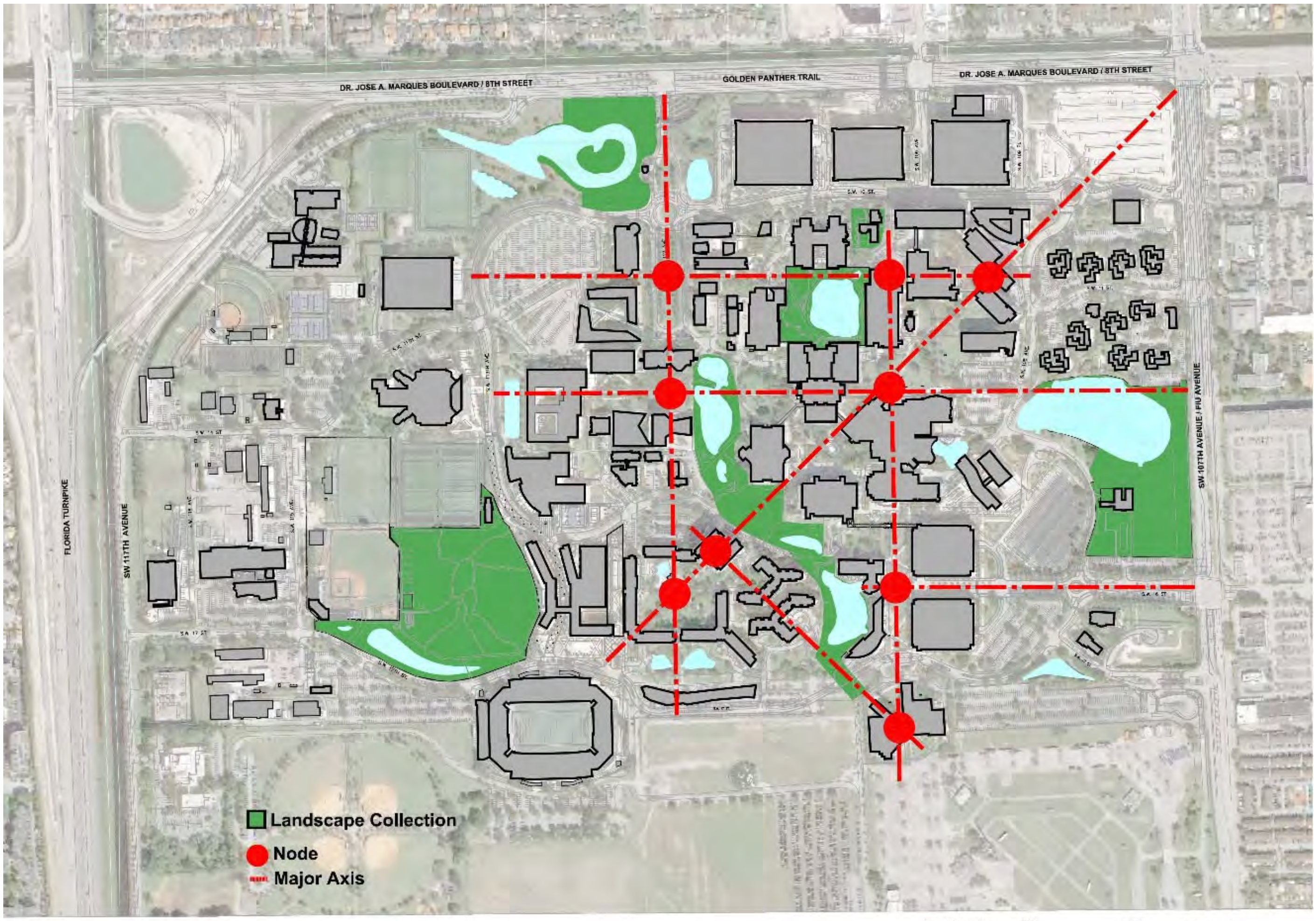

Figure 16.3 – Special Landscape Collection

0 125 250 500 1000
SCALE
NORTH

Entrances: The major entrances occur at SW 8th Street and SW 107th Avenue. The entrance from SW 8th Street is the ceremonial boulevard entrance with an arched symmetrical gateway and signage with flanking colonnaded walls. A formal planting of Royal Palms on either side of the roadway and Canary Island Date Palms in the median guides traffic onto the campus. At the Campus Greenbelt the planting pattern changes to a double row of Live Oaks with Royal Palms in the median. A second primary entrance from SW 107th Avenue has two ceremonial gates constructed of the same tan stucco finish and cut keystone coral used in the primary campus entrance. On each side of the boulevard the entry gate's arched base aligns with an allée of Royal Palms.

Ocean Bank Convocation Center/Arena: This facility is landscaped with a mixture of Royal Palms, Washingtonia Palms, Cabbage Palms and smaller palm varieties. Royal Palms and are planted at the building entrance island with fakahatchee grass used in islands at the paved plaza area. A cypress wetland has been established just north of the facility.

Viertes Haus and Central Utilities Building North Courtyard: This space is in contrast to the immediately adjacent main entrance landscape. This area is informally treated with plantings of Bottlebrush, Mahoganies and Cabbage Palms in a bermed lawn.

Ryder Business Administration / Rafael Diaz-Balart Hall / Deuxieme Maison / School of International Public Affairs: This central space is informal with a series of lakes with mounds and occasional informal plantings predominated with flowering trees. The lakes require periodic maintenance but the associated wooden bridge, arched stone entrance gate and gazebos create a pastoral setting. This area presents an opportunity for further development of pleasant study garden spaces for relaxation and quiet social reaction. Walkways in this area have high pedestrian traffic; but connection between buildings is not direct and some man-made paths can be observed. An obvious connection that has not developed but would create a dramatic and functional improvement to the area is spanning the lake between the School of International and Public Affairs and the Deuxieme Mason. While the gazebos provide opportunities for reflection or conversation, they are not of the highest quality and detract in some ways from the image of the campus.

Founders Court (Graham Center / Perry Building / Deuxieme Maison / Green Library): This central academic core is the most developed area with walkways, planters and a central depressed fountain area. There is a small amphitheater- like area at the east entrance of Deuxieme Maison. The plantings in this quad consist of various palms (pygmy date palm, bottle palm, triangle palm, royal palm, cabbage palm, old man palm), canopy trees (such as Mahogany, Sabicu, Sea grape) with ferns such as foxtail fern, foliage plants, accents and other ground covers (such as Flax Lily, Ti plant, Dwarf Schefflera).

Viertes Haus / Green Library / Owa Ehan / C.A.S.E. Building: The quad formed by these buildings is relatively open with a large central pond with fountain and open lawns predominantly planted with canopy trees. Royal Palms are planted adjacent to the front of the Green Library. The narrow interior courtyard for Viertes Haus is planted with a mixture of tall slender palms and other tropical vegetation, with a ground planting of various shade-loving tropical foliage materials. The quad has a collection of palms both native and non-native to Florida located on the edges of the buildings and in-between the walkways.

The front entrance of C.A.S.E. Building has a planter with a concrete seat-wall planted with Royal Palms. Each side of the entrance walkway is planted with a row of Royal Palms with smaller ornamental trees and shrubs adjacent to building exteriors. In an exterior courtyard mature Queen Palms are planted in tree grates and raised planters.

Ernest R. Graham Center: Exterior spaces surrounding the Graham Center function as the primary gathering area on campus for dining and social activities. An informal dining area on the western and northern sides of the center offer a pleasant view of the adjacent quad with its mature plantings of shade trees and tall palms toward Green Library and the open lawns with smaller ornamental trees and Coconut Palms to the north. On the east side, next to the parking lot there is a lake surrounded by tropical vegetation that includes palms, bamboo, philodendron, flax lily and other ground covers and shade trees.

Chemistry and Physics / Wertheim Conservatory: Lawns along the sides of the Chemistry & Physics building exteriors contain a large grove of Crape Myrtles planted at the northwest entrance to the building. The landscape treatment for the building's primary entrance includes a formal walkway with Royal Palms adjacent to the sidewalks framed by a planted border. A paved central courtyard contains Queen Palms and modest plantings. In the center of this plaza as a sculptural effect is a black granite column. Wertheim Conservatory has a planting of Date Palms on the north side of the facility and several shade trees on the east side including Ceiba, Caman, and Black Olives as well as a variety of palms. The Conservatory holds a collection of rain forest plant species from around.

Student Housing: Student housing consists of two housing districts: University Apartments is located adjacent to the northern end of the Avenue of Sciences. Panther Residence Hall, Everglades Hall, Lakeview Residence Housing and University Towers are located at the southern end of the Avenue of the Sciences. The grounds for the University Apartments have sparse plantings. With the development of the Academic Health Sciences District, these apartments may slowly be phased out. Other than substantial tree plantings along the lake south of the apartments, the landscape is minimal with scattered trees and few foundation plantings.

The predominant landscape treatment for Panther, Everglades, and Lakeview Residence Hall and University Towers are plantings of various types of palms including Paurotis Palms, Queen Palms, Royal Palms Pygmy Date Palms and Foxtail Palms. While the plantings are minimal for Panther and Everglades Hall, Lakeview has additional shrub and groundcover plantings. The north side of the new Tamiami Hall will include a landscape promenade and walking trail. Site furniture and Founder's wall will be adorned with plaques recognizing names of founders.

Baseball Stadium / FIU Community Stadium Athletic / Support Area: This area has few plantings with the exception of scattered trees and palms at the ends of the Baseball stadium. Some tree plantings occur along the northern edge of the FIU Community Stadium

Wertheim Performing Arts Center: This facility has rows of Royal Palms and Pygmy Date Palms planted along the building perimeters to articulate the pedestrian entrances to the building atrium; to the rear of the building, only the Pygmy Date Palms continue parallel to the ramps and to the edge of the fair fence. Canopy trees have been panted in parking areas.

Education Building: This facility immediately adjacent to the primary campus entrance at SW 112th Ave. has a colonnaded feature at the corner of the building constructed of materials similar to the entrance, tan stucco and cut Keystone Coral. The building's interior plaza with a striped paving pattern is virtually void of planting areas with the exception of a circular planter with Cardboard Plants and palms. Furnishings consist of circular tables with umbrellas and chairs and keystone coral benches in-between columns. A row of Pygmy Date Palms adjacent to a colonnade along the eastern building façade is framed by a series of Live Oak trees in front with palms located at the pedestrian entrance / plaza on the western side off the building.

Campus Support Complex: The primary landscape architectural contribution for this facility consists of its enhanced plantings, site amenities and furnishings. Colonnades, trellises, a pool with sculpture and special paving enhances the overall landscape concept. This building has lush plantings within a colonnaded entryway and an interior courtyard. A series of Royal Palms at the front of the building accentuate the entrance and relate the facility to human scale.

College of Business Complex: The building complex provides minimal landscape plantings along the perimeter of the buildings with a row of royal palms on the west face of the building adjacent to the parking lot. The interior courtyard and building entrances are accessed at two corners of the site. The interior landscape includes wide pedestrian walkways, lawn and a grouping of Royal Palms. A water feature is the central focus of the space. An Ixora hedge is used to screen utilities and on the edge of the southern walkway where shade trees have been planted to provide shade to the seating areas.

Rafael Diaz Balart Hall (College of Law): The north entrance to the building is framed by Bismarck Palms planted in two rows with groundcovers that continues into a grouping of Royal Palms parallel to the building. The east entrance is accentuated by rows of Royal Palms on both sides of the walkway. The building has two courtyards. The north courtyard is aligned with the Avenue of the Professions. It consists of grass areas on a grid with a row of Royal Palms. The south courtyard has a circular fountain at its center where a series of walkways intersect. Planting areas include Foxtail Palms with alternating blue and pink stone mulch. Seating is located on the edges of the courtyards. The west side of the building has a row of Royal Palms facing the lake.

Recreation Center: The front entrance to the building consists mostly of turf with Dwarf Schefflera around the edge of the building and some Croton plants as accents. Royal Palms are planted along the sidewalk parallel to the building.

Photograph 16.67 – Founders Court fountain area

Photograph 16.68 – Plaza at Rafael Diaz-Balart Hall

Photograph 16.69 – Courtyard at the Campus Support Complex

Photograph 16.70 – Lake #3 east of the Graham Center

Photograph 16.71 – Entry Plaza at Ocean Bank Convocation Center

ENGINEERING CENTER

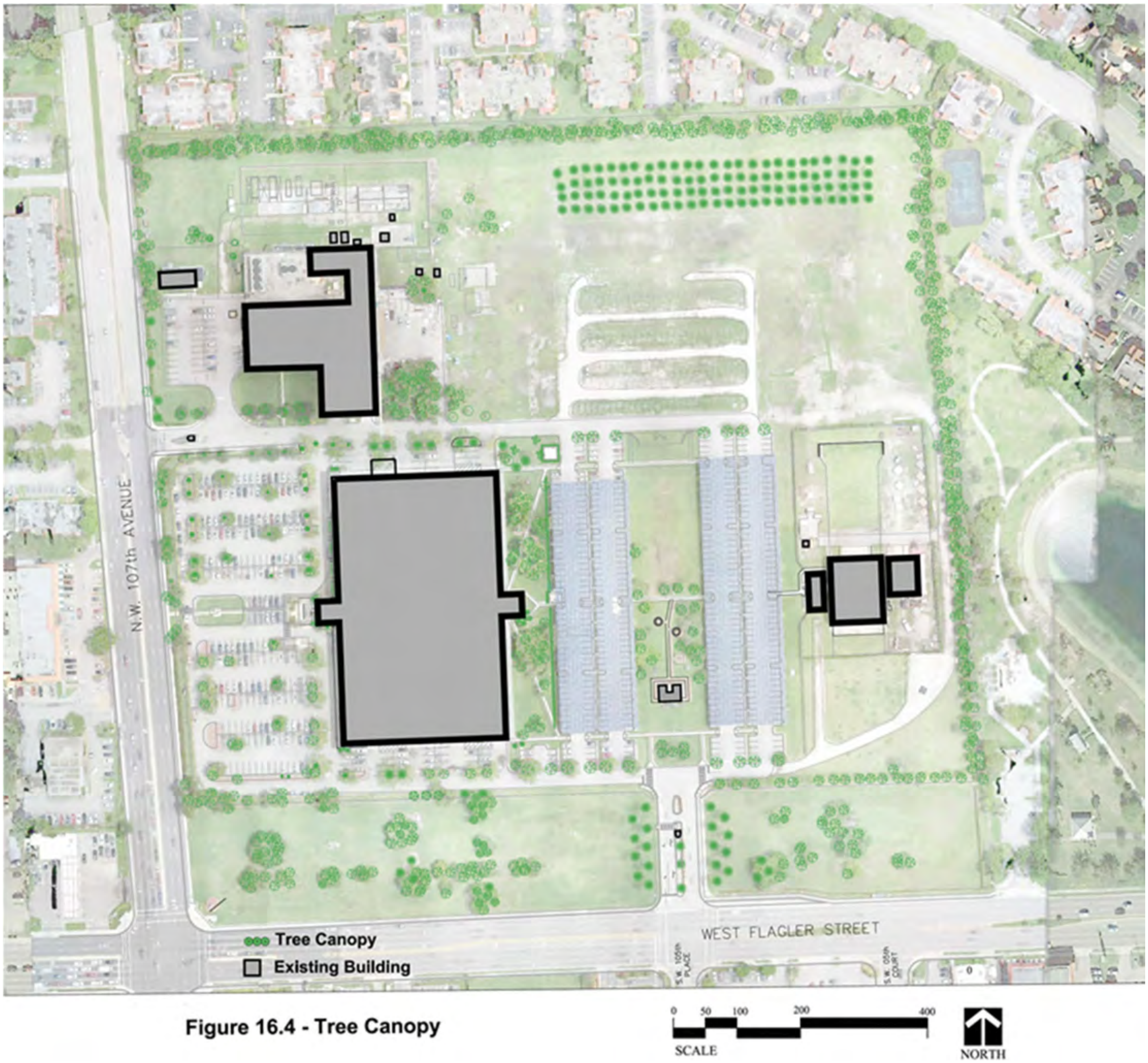

Figure 16.4 - Tree Canopy

BISCAYNE BAY CAMPUS

In general, most areas of campus have a modest base of landscape materials but lack a richness, fullness and maturity of plantings. Aside from a portion of the quad between the Hubert Library, Hospitality Management and Wolfe University Center and the area immediately adjacent to the Library, the remaining exterior building plazas are often sparse of plantings and site furnishings. Extensive pavements along most building exteriors could be softened with intermittent treatments of tree, palm and ground cover plantings and related site furnishings. These enhancements would soften and accentuate architectural facades and furnish additional quality exterior spaces for the enjoyment of students and faculty.

The existing tree cover on the campus is minimal with heavier concentration of shading adjacent to the Academic Core as well as some existing stands of trees throughout the campus.

Figure 16.5 - Campus Spaces

Figure 16.6 - Tree Canopy

Figure 16.7 - Special Lanscape Colletion

Main Entrance: The campus entrance at Bay Vista Boulevard has been planted with Royal Palms. A lake with a fountain adjacent to the campus entry drive is framed by a mass of Coconut Palms.

Academic Core: The quad surrounded by Hospitality Management, the Hubert Library, and the Wolfe University Center has an attractively designed plaza with lush plantings. Informal planting areas include Live Oaks and other canopy trees, Cabbage Palms and smaller palms, native plant species as Fakahatchee Grass and Firebush and flowering plants as Dwarf Ixora, lilies and other ornamental grasses. The functional plaza design respects pedestrian circulation needs while offering broad landscape areas of lawns, some dense plantings and shaded seating. An overhead walkway that divides the quad separates this open space into two zones with distinctly differing landscape characteristics. The area west of the overhead walkway is a more vibrant, social activity center while the large lawn area east of the overhead walkway and adjacent to Hospitality Management is a more passive space used for rest and relaxation. Plantings to the east of the walkway focuses on centrally located flagpoles and an adjacent seating area adjacent to the Wolfe University Center. This area includes a circular walk with seating shaded by a planting of Live Oaks and Autograph Trees. The west area is an open concrete plaza planted with Foxtail Palms and Live Oaks. Towards the Academic Two building, the lawn areas are bermed with either sculptural elements or trees.

The southern facade of the Wolfe University Center has been recently expanded to create a presence on an emerging southern quad. A seating area planted with palms and paved with red pavers has been created with views to the lake. Plantings consist of palms, bromeliads and lawn. The landscape treatments along the northern and southern façades of Academic One and the area between Academic One and Academic Two consist of periodic palm plantings within expansive concrete plazas and plantings of Coconut Palms and Queen Palms in lawns near these facilities.

An area that could be enhanced with additional landscaping is the large service court for Central Utilities north of Academic One and Wolfe University Center. Currently this area is screened with a steep grassed berm that has a topiary planting of 'FIU'. Although this area's bunker-style construction may limit the extent of plantings, it would be beneficial to plant trees or palms along the base of the grassed berm to offer continuity of landscape design. The area has an elevated walkway atop the berm providing convenient pedestrian connections and views of the quad.

The south side of Hospitality Management building lacks continuity in plant palette or intent. There are some sporadic plantings of palms and canopy trees but much of the building is surrounded with harsh pavements with few plantings. The patio area at the northeast corner of this building has a textured exposed aggregate pavement with site furnishings and modest foundation plantings. Given the intensity of the climate in south Florida, increased plantings and reducing hardscape would create more comfortable outdoor spaces for students and staff.

Housing and Recreation: The lawns surrounding student housing are landscaped with modest plantings of Coconut Palms and a few canopy trees. The tight courtyards are difficult areas to maintain a healthy landscape. Presently, plantings within building courtyards have rock mulch or in some instances there are no landscape treatments.

The space between the academic buildings and the Bay Vista Housing is an open lawn with a few scattered trees. Some picnic tables, grills and a volleyball net has been located in open spaces between the wings of Bay Vista Housing. A few small salt tolerant trees are planted within lawns along the tennis facilities. This casual recreation area needs additional vegetation to define spaces and buffer differing activities.

Bayview Housing is a 560-bed student housing public-private partnership that was completed in 2017 along with adjacent parking. The building has some landscaping at its base

Marine Biology Laboratory: The Marine Biology building delineates the southeastern edge of the developing south quad. Landscape includes palms to the southern, eastern and northern side of the building with low understory planting masses and groundcovers that consist of bromeliads and grasses along three edges. The existing service court is visible from the Bayview Housing. Some understory plantings would work well in softening this edge.

Support Facilities: This area currently has minimum landscape treatment. The area adjacent to the maintenance facility is currently being used as a shade house nursery and holding area for plant materials. The primary tree cover adjacent to Support Facilities consist of plantings of various canopy trees, Cabbage Palms and Coconut Palms.

Bayfront and Open Spaces: This open area with informal plantings has potential for development into a pleasant open space adjacent to the bay. Currently the plantings of Coconut Palms, Cabbage Palms, Gumbo Limbos, Sea Grapes, Tabebuias and other trees and palms are random without any apparent design direction to define the space. There is a boardwalk on the northern edge east of the Hospitality Management building but is limited access. Red Mangroves have started to grow over the structure.

Kovens Center: The front of the facility is landscaped with a dense planting of Cabbage Palms, evergreen shrubs, accent planting and other flowering groundcovers A series of mature royal palms are planted along the sidewalk on each side of the building porte-cochere. The plantings on the bayside of the building consist of masses of Cabbage Palms and Fakahatchee Grass and other simple plantings that compliment building architecture yet do not obscure views of Biscayne Bay.

Photograph 16.72 – Campus Plaza at Academic Two

Photograph 16.73 – Campus walkway at Academic One

8. Site Furnishings

MODESTO A. MAIDIQUE CAMPUS

Site furnishings are primarily placed in plazas, building courtyards, quads and other exterior areas associated with buildings. Some additional seating areas are placed along pedestrian walkways. Picnic facilities are distributed throughout the campus, typically in common lawn areas between buildings.

Site furnishings include benches, trash receptacles, ash urns, picnic and dining tables, and bicycle racks. There is a mixture of materials and styles with older furnishings predominant in much of the central academic campus core with more contemporary site furnishings typically associated with recent campus construction. As older site furnishings become unserviceable, they should be replaced with the more contemporary campus standard selected models.

In addition to traditional manufactured site furnishings utilized on campus there are numerous supplementary and custom site furnishings that contribute to the overall fabric of the landscape character. Probably the most distinctive addition to the campus landscape and what distinguishes the Modesto A. Maidique Campus from other universities is the extensive collection of sculptures displayed in the landscape. Most of the primarily modern sculpture is placed in locations to accentuate the more urban zones of campus: near building entryways, plazas and at circulation termini.

Presently, there are four formal water features located on campus, the large, depressed fountain and pool in the central academic core, a small fountain with a sculptural element Campus Support Complex courtyard, a small circular fountain in the southern courtyard at the Rafael Diaz-Balart Hall and the liner reflecting pool within the College of Business Complex. Several lakes on campus have aerator type fountains. Within the Foundation Court and in other open spaces associated with some buildings, planter seat-walls were constructed and became an integral part of the landscape scheme.

BISCAYNE BAY CAMPUS

Site furnishings are primarily placed in plazas, quads, under roof overhangs near building entrances and in other exterior areas associated with buildings. Some additional seating areas are placed along pedestrian walkways.

Presently, the only fountains on campus are two aerator type fountains located in the lake near the primary campus entrance drive on Bay Vista Boulevard and in the lake between the Marine Science building and Wolfe University Center.

9. Lighting Location and Type

MODESTO A. MAIDIQUE CAMPUS

Unlike other site furnishings, a small variety of lighting fixtures are found on campus. The campus loop roadway lighting is fairly consistent, using a shoe box type fixture on a short twelve-to-fifteen-foot post. Parking Lots have the multiple shoe box type fixture on a tall, twenty-four-foot post. There are some Cobra head type light fixtures near vehicular service, adjacent to the U.S. Century Bank Arena and some parking areas for University Apartments. The pedestrian area lighting is predominately a clear, cylindrical fixture with painted metal framing and round, hood on a short twelve-foot post. Bollard type lighting fixtures are used in front of Engineering and Computer Science and adjacent to the Graham Center. The only lighting apparent in the Athletic / Support Area was the tall recreational type of flood light used to light the tennis courts and play fields.

BISCAYNE BAY CAMPUS

Unlike other site furnishings, a small variety of lighting fixtures are found on campus. The parking lots have a series of single or double shoebox type fixtures on a tall twenty-four-foot, square concrete pole. These aluminum fixtures with concrete standards are also used along primary roadways, recreational and maintenance facilities, the pedestrian path along Biscayne Bay and with some at the Kovens Center site. Occasionally illumination for roadways and open lawn areas on campus is provided by a shoe box type fixture on a short twelve-foot post. Tall Cobra-head lights are used along Bay Vista Boulevard.

The principal style of lighting that occurs in the academic core and along most walkways is a pedestrian scale light that consists of a clear, cylindrical fixture with painted metal framing and round hood supported by a short twelve-foot post.

10. Trash Collection Facility

MODESTO A. MAIDIQUE CAMPUS

Typically, service areas and recycle and trash collection facilities are screened with walls but in a few instances maintenance facilities and some of the older facilities need buffering or landscaping to screen trash collection facilities. As more facilities begin to orientate towards the Campus Greenbelt, sensitive screening solutions will become a critical element for building projects.

BISCAYNE BAY CAMPUS

Normally service areas, trash collection facilities and receptacles are screened with walls. There are a couple instances such as maintenance facilities and residential areas where buffering or landscaping is needed to screen trash collection facilities.

11. Maintenance Facility MODESTO A. MAIDIQUE CAMPUS

This facility is found in the Campus / Support area. The landscape treatment is limited to hedges along the street and sporadic street tree planting.

BISCAYNE BAY CAMPUS

An attractive setting for the clustered campus maintenance facilities is achieved by a view across a lake with floating fountain and planted with numerous Coconut Palms, flowering trees and canopy trees. Parking and service areas for the maintenance facilities are inward oriented and not visible to the general public, university staff and students.

12. Campus Edges

MODESTO A. MAIDIQUE CAMPUS

Currently the campus edge landscape treatments consist of broad lawns planted with various tree and palm species. The northern edge along SW 8th Street and the northeast portion of SW 107th Avenue have been planted with Royal Poinciana, Live Oak, Gumbo Limbo and an assortment of various other accent trees, palms and flowering trees in a rather loose, open pattern. The addition of numerous palms and flowering trees, along with the maturation of the existing canopy defines the campus edges creating a buffer between the campus and the community while minimizing the impact of the multi-story parking structures. Royal Palms are planted in a row at the northwestern corner of the campus along SW 8th Street.

There is little landscape treatment along the southern boundary with Tamiami Park and along the perimeter of the elementary school. The southern portion of the Greenbelt is planted with Live Oak trees along the adjoining Tamiami Park and Miami-Dade County Fair and Exposition, but there is no noticeable spatial separation between the campus and the park.

BISCAYNE BAY CAMPUS

Most of the eastern edge of this campus overlooks Biscayne Bay. A portion of the shoreline has been "rip-rapped" for stabilization. Existing Mangroves are preserved along much of the shoreline with some openings that allow views to Biscayne Bay. Selective clearing or transplanting of landscape materials could offer selected vistas of Biscayne Bay. A mature Mangrove Forest exists at the northeastern corner of the campus adjacent to Oleta State Park and the remainder of the northern edge is predominated with Australian Pines.

The southern edge of the campus except for a cleared area is forested with Australian Pine, Sea Grape and Brazilian Pepper interspersed with some scattered upland mangroves. The western edge, most visible along Bay Vista Boulevard and adjacent to the lake is planted with Coconut Palms, Cabbage Palms and scattered flowering trees.

b) A description of the natural landscape context within which the University campus exists, including a description of important native plant species.

MODESTO A. MAIDIQUE CAMPUS

The Modesto A. Maidique Campus was previously an airport and contains relatively few naturally vegetated areas. Non-landscape vegetation associations are described in 13.0 Conservation Element, Existing Vegetative Communities.

The only significant natural landscape feature currently at the Modesto A. Maidique Campus is a "Bay Hammock" known as “The Preserve” located between Parkview Residence Hall and the Baseball Stadium. This area is described in 13.0 Conservation Element, Existing Vegetative Communities.

BISCAYNE BAY CAMPUS

Much of the natural vegetation context on the Biscayne Bay Campus, includes forested parcels to the southwest of the central building area and to the north of the canal at the northern edge of the building area. These context areas are dominated by Australian Pine interspersed with scattered Brazilian Pepper and Sea Grape.

Mangrove vegetation at the Biscayne Bay Campus exists along a narrow band of an internal canal and along an estuary at the eastern edge of the campus. Mangroves also occur in a portion of the shoreline along the Biscayne Bay rip- rapped for stabilization. Along the natural shoreline, beach strand vegetation dominates scattered buttonwood trees and a few Red Mangroves. Mangrove plant associations at Biscayne Bay Campus include Red Mangrove, Green Buttonwood, Black Mangrove, White Mangrove, and Seaside Mahoe.

Within the context area of the Biscayne Bay Campus, extensive mangrove forests occur in the state mangrove preserves located to the north and west of the campus, and within the Oleta River State Recreation Area. Beach strand vegetation also occurs along portions of the shorelines in the Oleta River State Recreation Area and may occur in the State mangrove preserves.

A buffer zone of native vegetation was planted as mitigation, adjacent to a section of the mangrove-dominated, tidally influenced canal impacted by construction of an access road for Kovens Center. Mangrove mitigation planting has been completed at the southwestern end of campus for compensatory mitigation for mangroves trimmed near Kovens Center for security concerns. Removal of terrestrial exotic vegetation, such as Brazilian Pepper and Australian Pine has been a priority at the campus since Hurricane Andrew. This exotic removal project is still in progress.

c) An identification and inventory of existing historic landscape features on the campus.

There are no known historic landscape features on the University properties.

d) An identification and inventory of specimen or significant landscape features on the campus.

MODESTO A. MAIDIQUE CAMPUS

Although there are no specimen landscape features on campus, there are several significant landscape features that have evolved with a natural maturing of the campus landscape. These spaces include ‘The Mall’, which is a formal, axial planting of Royal Palms framing a lawn at the SW 112th Avenue entrance. The vista of this grand boulevard terminates at a primary campus drop-off point in front of the Ryder Business Administration building.

Another significant landscape feature is the Foundation Court. This exterior space, framed by the Green Library, Deuxieme Maison, Graham Center and the Charles Perry building, has a canopy of mature evergreen and flowering trees, under-story plantings of tropical foliage plants and various seating areas. The core of this landscaped space is anchored by a large circular, depressed fountain. Building facades and entry points are accentuated with large planters of mature palms and canopy trees. The space is dated, resembling the architecture of the surrounding buildings. Recent improvements have included red pavers as accent material of existing retaining walls but appear out of context given the surrounding materials.

A contrasting significant landscape feature occurs west of the central campus core. This natural style of campus landscape has a more scenic, open feel than the canopied landscape in campus interiors. The landscape of this naturalistic style is comprised of lakes, grassed mounds and informal plantings of flowering and canopy trees.

The quad framed by the CASE building, Viertes Haus, Owa Ehan and the Green Library includes a palm collection established in the early 1990’s. The Natural Preserve and Henington Island offer varying natural landscapes used for teaching and research. The Wertheim Conservatory (currently undergoing repairs from Hurricane Irma) is home to a collection of over 400 rain forest plant species.

Photograph 16.74 – Palm collection adjacent to Viertes Haus & Green Library

Photograph 16.75 – Nature Preserve adjacent to Campus Greenbelt

Photograph 16.76 – Nature Preserve adjacent to Campus Greenbelt

Photograph 16.77 – Nature Preserve adjacent to Campus Greenbelt

BISCAYNE BAY CAMPUS

A significant landscape feature on campus is associated with the entrance roadway and vehicular drop-off for the Kovens Center. A buffer zone of native vegetation was planted along the existing mangrove-dominated canal located immediately in front of the building's public entryway. The preserved mangrove wetland in front of the facility is augmented with plantings of Fakahatchee Grass, Firebush, Beach Sunflower and other natives that blend with the indigenous preserved species in the foreground and a backdrop of massed plantings of Washingtonia Palms. The landscape treatments for Kovens Center blends the existing site conditions, compliments building architecture and creates a dramatic arrival vista. A vista to the building's entry rotunda and drop-off is defined by an allée of Royal Palms that border the entrance roadway.

e) An inventory of the existing types of outdoor furnishings and graphics used on campus, including identification of model numbers, materials etc. (seating, trash receptacles, paving materials, light poles and fixtures, signage, etc.)

MODESTO A. MAIDIQUE CAMPUS

Outdoor Furnishings

Existing campus site furnishings are a mixture of materials and styles with older furnishings more prevalent in the central academic campus core and more contemporary site furnishings utilized in recent campus construction. The Graham Center, Campus Support Complex, Panther Residence Hall and University Towers have their own palette of site furnishings. Site furnishings include benches, trash receptacles, picnic and dining tables, and bicycle racks.

- Benches: The majority of older styles of existing benches on campus include curved redwood slat benches and concrete planter walls. Bench styles recently installed on campus include a curved composite wood bench with metal framing and a pale blue, metal slat bench with back. Benches associated with individual buildings or courtyards vary.

- Trash Receptacles: Older styles of trash receptacles on campus include rectangular redwood slat and exposed aggregate (pea gravel) with brown top types. Trash receptacles recently installed on campus include black perforated metal with solid black metal top receptacles. A similar receptacle is a blue perforated metal with solid white metal top.

- Bicycle Racks: Older styles of bicycle racks on campus include looped steel racks, slotted concrete bike racks and steel 'ribbon' style racks as well as single bike loops. These older style racks are being replaced by stainless steel "Bicilinea" racks

- Picnic Tables: Older styles of picnic tables on campus include redwood slat, square tables with benches. Recently installed picnic and dining tables include a perforated metal table and seats with canvas umbrella for the table. This varies across campus.

Graphics

There is a campus graphics and signage program that has been fully adopted as a campus wide signage system. The system consists of a unified system of coordinated messages, styles, colors, and materials. The signs are easy to read, and the graphics are simple enough to accomplish their purpose. The colors and materials are compatible with one another and consistent with the branding image of FIU. Campus signage includes primary entrance signs, secondary site identification signs, changeable electronic message signs, directional signs, building identification signs, campus directory signs, parking lot signs and banners.

- Primary Campus Entrance Sign: The primary campus entrance sign associated with the principal campus access occurs at SW 112th Avenue entrance. The grand entry gate consists of two masonry arches supported by three cut Keystone Coral arched pillars. 'Florida International University' is identified in large, brown, individual letters. Below the campus name above the central arched pillar is the campus logo. A secondary entrance at SW 16th Street has two ceremonial gates constructed of the same ochre colored stucco finish and cut keystone coral used in the primary campus entrance. On one of the gates, 'Florida International University' is identified in large, brown, individual letters and on the other gate is the campus logo. A variable, computerized electronic message board is located within each entry gateway. These lighted boards are contained in an arched blue sign panel with two, blue, tubular posts. 'Florida International University' is identified in white, individual letters applied to the sign panel and the school logo is centered above in the sign's arched top. At the 17th Street west entrance to MMC two "Daktronics" color messaging signs have been installed. They are visible from the Homestead Extension to the Florida Turnpike. A Daktronics color messaging sign has been installed at the SW 16th Street campus entrance adjacent to the traffic circle.

- Minor campus Site Identification Signs: There are minor campus site identification signs located at the campus perimeters. One sign occurs at the SW 17th Street and SW 117th Avenue entrance, one at SW 17th St and SW 107th Avenue entrance, one at the intersection of SW 8th Street and SW 107th Avenue and one along SW 107th Avenue east of the Regan House. These monument signs are constructed of smooth concrete panels with brown, individual capital letters.

- Directional Signage: Directional signs are constructed of a rectangular aluminum panel painted blue with white, adhesive, individual die - cut letters and directional arrows. This sign panel overlaps an aluminum panel painted yellow with a campus logo. Directional signs vary in size depending on the number of messages. The sign panel's blue and yellow school colors with white letters offer high contrast for excellent sign legibility. Building identification for the major buildings on campus is provided by individual aluminum, capital letters, stud mounted to the building façade.

- Monument Style Building Identification Signs: Buildings such as the Green Library have a monument style building identification sign constructed of the same materials as the directional signage. This horizontal shaped sign has white letters on a blue panel overlapping a yellow panel. Some of the minor buildings are identified with a white letter and number applied to a small, blue aluminum panel.

- Parking Lot Signs: Parking lot signs are similar to directional signage with the exception that the parking lot number is identified with blue letters at the top of the yellow aluminum panel in lieu of the campus logo.

- Parking Garage Signs: Electronic signs at garages indicate an estimate of how many parking spaces of various categories (executive, admin, faculty-staff, etc.) are available at each garage level. An electronic garage "Parking Information" sign for PG-6 and PG-3 listing the number of student and other spaces is located at the 112^{th} Avenue Entry from SW 8^{th} Street. An electronic garage "Parking Information" sign for PG-5 and PG-4 listing the number of student and other spaces is located at the 109^{th} Avenue Entry from SW 8^{th} Street.

- Directory Sign: A campus directory sign has a blue metal support for the typical blue and yellow painted sign panels. The large, white campus map applied to a blue panel prominently denotes the campus sign location. Directional arrows and names for adjacent facilities are indicated in the margin of the sign panel. Fabric campus banners are attached to light standards to identify special events on campus. Banners have blue fabric with gold striping and white and gold letters.

BISCAYNE BAY CAMPUS

Outdoor Furnishings

Site furnishings include benches, trash receptacles, picnic tables, dining tables, and bicycle racks. There is a mixture of materials and styles. The older site furnishings are normally constructed of concrete and wood while the more contemporary site furnishings are often constructed of metals and polymer materials. As older site furnishings become unserviceable, they should be replaced with more contemporary campus standard selected models.

- Benches: Concrete benches are located in the plaza in front of Academic One & Two. Wood slat benches are placed under covered walkways and often near buildings. An interesting wood bench as well as concrete benches are utilized along the circular walkway in the quad north of Wolfe University Center. The wood bench is constructed of heavy wood planks. Another style bench, a white plastic bench with back, is located in the southern plaza for Academic Two. A natural wood slat bench with accented steel framing is located adjacent to the Hubert Library.

- Trash Receptacles: The principal trash receptacle utilized on campus is a square aggregate (pea gravel) concrete trash receptacle with a brown or blue metal hood. Trash receptacles recently installed on campus include black perforated metal with solid black metal top receptacles. A similar receptacle is made of blue perforated metal with a solid white metal top.

- Bicycle Racks: Older styles of bicycle racks on campus include the traditional style steel racks used at Bay Vista Housing. Other bicycle facilities include steel 'ribbon' style racks.

- Picnic Tables: A contemporary picnic table is utilized in various forms throughout the campus. This table is manufactured of a square or circular perforated metal table with seats of like material and tubular steel support system. The color palette varies between locations, with blue and yellow being most predominate.

- Concrete or Exposed Aggregate Paving: Scored concrete or exposed aggregate paving is typically used for walkways, plazas, and courtyards. The exterior patio at the southwest corner of Academic Two is paved with colored, stamped concrete that simulates Mexican tile. Red pavers and red modular block walls have been used for a secluded garden adjacent to the library. While the space is well used due to shade and comfortable seating, the use of the materials is inconsistent with that of the campus.

Graphics

- Primary Campus Entrance Sign: The primary campus entrance sign associated with the principal campus access occurs at Bay Vista Boulevard and Biscayne Boulevard. A secondary campus entrance sign is located immediately south of the main campus entrance drive off of Bay Vista Boulevard. A smaller site identification sign is located at the entry drive for Kovens Center. These monument signs are constructed of smooth concrete panels with brown, individual capital letters. A variable message sign is located just north of the main campus entrance drive off of Bay Vista Boulevard. These lighted boards are contained in an arched blue sign panel with two, blue, tubular posts. 'Florida International University' is identified in white, individual letters applied to the sign panel and the school logo is centered above in the sign's arched top.
- Directional Sings: Directional signs are constructed of a rectangular aluminum panel painted blue with white, adhesive, individual die - cut letters and directional arrows. This sign panel overlaps an aluminum panel painted yellow with a campus logo. Directional signs vary in size depending on the number of messages. The sign panel's blue and yellow school colors with white letters offer high contrast for excellent sign legibility. Building identification for the major buildings on campus is provided by brown, individual aluminum, capital letters, stud mounted to the building facade. Additional building identification signs are identified on sign panels with the same style and materials of the directional signs.
- Parking lot signs: Parking lot signs mounted on light standards identify the number of each parking lot. For these signs the parking lot number is identified with white numbers in a blue banner mounted near the top of parking lot light standards. Fabric campus banners are attached to pedestrian campus light standards to identify special events on campus. Banners have blue fabric with gold striping and white and gold letters.

- Directory Sign: A campus directory sign located near the public bus shelter has a blue metal support for the typical blue and yellow painted sign panels. The large, white campus map applied to a blue panel prominently denotes the campus sign location. Directional arrows and names for adjacent facilities are indicated in the margin of the sign panel. An intensification of the muted blue and gold colors for the campus map delineation would improve the overall sign legibility.

2) ANALYSIS REQUIREMENTS. This element shall be based, at a minimum, on the following data:

a) An assessment of the degree to which existing landscape features (plants, materials, furnishing, graphics, etc.) are coordinated and the degree to which they contribute to or detract from the present visual and functional quality of the campus.

MODESTO A. MAIDIQUE CAMPUS

The Modesto A. Maidique Campus has made dramatic improvements in the physical character of the campus landscape and its site amenities. While there is great diversity in landscape schemes, there are some unifying elements that are repeated throughout the campus. Unifying landscape treatments include Royal Palm allées to frame vistas and significant circulation corridors, groupings of palms at campus and building entrances, street tree plantings, groupings of flowering and canopy trees in lawn areas, minimal understory plantings at buildings edges and grassed berms adjacent to parking and service areas.

Opportunities for further development are the enhancement of the various Avenues on campus. These significant pedestrian walkways are often indistinguishable from other walkways, lacking in hierarchy. Through the use of consistent plantings and hardscape materials along with increased site furnishings, the Avenues would further enhance the image of the campus as well as establishing a way-finding measure. Increasing the density of the tree canopy should be considered to further provide shading from the intense climate of south Florida. A significant obstacle for their improvements is funding. The Avenues are not directly linked to a new building project, but a significant improvement to an existing condition.

Site amenities and site furnishings are coordinated well with campus signage and lighting but aging trash receptacles and varying materials palette for benches detract from the experience. Through the repetition of colors, materials, and design elements most site materials, furnishings and graphics contribute to the overall visual and quality of the campus. The University colors of blue and yellow are utilized in signage and site furnishings and sometimes as accent colors for buildings. Many of the furnishings are constructed of blue and black painted metals or sand and tan colors of textured concrete products. Some of the newer site furnishings are finished with more subtle pastel blues, corals and tans. Through the consistency of design and repetition of patterns and colors the built landscape begins to establish a visual theme in campus appearance.

BISCAYNE BAY CAMPUS

In general, most areas of Biscayne Bay Campus have a moderate base of plantings yet still lack the maturity of plantings needed to identify campus landscape themes. The majority of landscape treatments on campus do not utilize density of plantings, continuity in plant palette or design intent. Given the “heavy” architectural style of the buildings, repetition of selected particular plant species and landscape treatments would unify the campus landscape. A successful example of this approach is the plaza area immediately adjacent to the Wolfe University Center within the northern quad. Another area with potential for a strategic landscape investments are the informal plantings of trees and palms in the open lawns between Wolfe University Center and Kovens Center and especially along the edge of Biscayne Bay. The existing pathway along the Bay offers unprecedented views and access to not only FIU students and staff but for the entire North Miami community. Creating an inviting environment, with view corridors and shaded areas provides an amenity unmatched in the region.

Funding will be an issue, as this significant improvement is not directly tied to a building project. An area of concern is the open spaces around Bay Vista Housing, Improving the image of student housing should be a priority for campus landscape development, this includes providing an enhanced, shaded pedestrian connection between the academic core of the campus and the housing. Other priority zones on campus for landscape improvements include buffer areas along Bay Vista Boulevard and on-campus parking and roadways, open spaces adjoining recreational facilities and spaces near the Marine Biology Laboratory.

A successful gathering place on campus occurs in front of the Hubert Library. This appears to be a result of shade, comfortable seating, and location more than design and material selection. There is a critical need to develop more definable spaces on campus. Presently, the areas near Academic One and Academic Two are dominated by broad expanses of exposed aggregate walkways with few trees and minimal site furnishings. Extensive pavements along most building exteriors could be softened with intermittent treatments of tree, palm and ground cover plantings and related site furnishings. These areas need more shade, quality site furnishings and other site amenities to create desirable exterior spaces for gathering and social interaction. Emphasis has been placed on developing the southern facade of Wolf University Center to create views towards the bay and place activity on the developing southern quad. The University has successfully coordinated graphics and signage system but there is less consistency of style and materials for site furnishings.

b) An assessment of the existing design treatments for the items identified in (1) a) with regard to their impacts on campus safety.

MODESTO A. MAIDIQUE CAMPUS

The Modesto A. Maidique Campus has made a good effort to assure design treatments for campus landscape features do not adversely impact campus safety. Landscapes are somewhat open and typically recognize the need to ensure walkways are well lit and landscaped areas do not provide shelter for assailants. Sight visibility along pedestrian and vehicular corridors has been maintained through thoughtful design and selective vegetative maintenance. Current directional and regulatory signage and lighting intensity is satisfactory to sustain campus safety.

BISCAYNE BAY CAMPUS

Biscayne Bay Campus has made a good effort to assure design treatments for campus landscape features do not adversely impact campus safety. Landscapes are somewhat open and typically recognize the need to ensure walkways are well lit and landscaped areas do not provide shelter for assailants. Sight visibility along pedestrian and vehicular corridors has been maintained through thoughtful design and selective vegetative maintenance. Current directional and regulatory signage and lighting intensity is satisfactory to sustain campus safety.

b) An assessment of the ease or difficulty of maintaining the existing landscape features.

MODESTO A. MAIDIQUE CAMPUS

The sheer size of the campus landscape contributes to a relatively extensive effort to maintain a quality appearance for plantings, assist in campus safety and security and assure the health and vitality of plant materials. By primarily limiting shrub and under-story plantings to campus entry zones, selected screenings and building facades, courtyards and exterior plazas, the efforts associated with more intensive shrub care are minimized. Additional thought should be given to the campus plant palette to ensure that sustainable, low maintenance species are the predominant materials selected including consideration in identifying alternative turf species that may reduce irrigation and mowing demands.

Most site amenities, including pavements and furnishings, require minimal maintenance. A replacement program for older furnishings with new site furnishings with an extended life cycle will ease required maintenance for campus site furnishings. The required level of maintenance for lighting and signage is normal for preserving satisfactory functional levels.

BISCAYNE BAY CAMPUS

By limiting shrub and under-story plantings to campus entry zones, selected screenings and building facades, courtyards and exterior plazas, the efforts associated with more intensive shrub care are minimized. Further thought should be given to the accepted campus plant palette to ensure that sustainable and low maintenance species are the predominant materials selected. Transition to salt-tolerant plant species should be considered so that plants may better survive hurricane flooding and irrigation with increasingly brackish water.

Most site amenities, including pavements and furnishings, require minimal maintenance. A replacement program for older furnishings with new standardized site furnishings with an extended life cycle will ease required maintenance for campus site furnishings. The required level of maintenance for lighting and signage is normal for preserving satisfactory functional levels.

c) An assessment of the physical condition of the existing landscape features.

MODESTO A. MAIDIQUE CAMPUS

Existing campus landscape features are in good physical condition. Site furnishings, lighting and pavements with few exceptions are presently in good physical condition.

BISCAYNE BAY CAMPUS

Existing campus landscape features are in good physical condition. There are some areas of campus that do not have an established turf and inherently require added maintenance. Consideration should be given to using other salt tolerant turf species. Site furnishings, and lighting with few exceptions are presently in good physical condition. Some of the earlier paving materials in plazas are beginning to deteriorate and consideration should be given to replacement with attractive alternative pavements.

d) An assessment of the accessibility of the campus to disabled persons.

MODESTO A. MAIDIQUE CAMPUS

Disabled accessibility for the campus is good. Signed handicap parking spaces and ramps are consistently located near facility accesses. The campus is nearly devoid of exterior stairways and most pedestrian sidewalks maintain manageable slopes. Additional consideration should be given to straight line origin-destination paths for the visually impaired.

BISCAYNE BAY CAMPUS

Disabled accessibility for the campus is good. Signed handicap parking spaces and ramps are consistently located near facility accesses. The campus is nearly devoid of exterior stairways and most pedestrian sidewalks maintain manageable slopes.

17.0 FACILITIES MAINTENANCE ELEMENT

(1) DATA REQUIREMENTS

a) Building Survey Including General, Exterior, Interior and Systems Elements

FIU has on-going reviews of existing facilities by in-house and independent consultants to maintain updated status of maintenance requirements.

(2) ANALYSIS REQUIREMENTS

a) Projected Improvement Needs for Each Facility During the Planning Period

The University is proceeding with improvements as funds become available from the State University System (SUS).

b) Projected Level and Frequency of Building Maintenance by Facility

The University follows a planned maintenance program by facility. This plan includes preventive as well as general maintenance.

18.0 COASTAL MANAGEMENT ELEMENT

(1) DATA REQUIREMENTS

a) Inventory of All Land Uses and Facilities on the University Property within Coastal Area

MODESTO A. MAIDIQUE

Refer to 4.0 Future Land Use, 5.0 Academic Facilities and 6.0 Support Facilities Elements for an inventory of all land uses and facilities included at Modesto A. Maidique is not classified as a coastal zone.

ENGINEERING CENTER

Refer to 4.0 Future Land Use, 5.0 Academic Facilities and 6.0 Support Facilities Elements for an inventory of all land uses and facilities included at Engineering Center. Engineering Center is not classified as a coastal zone.

BISCAYNE BAY CAMPUS

Refer to 4.0 Future Land Use, 5.0 Academic Facilities and 6.0 Support Facilities Elements for an inventory of all land uses and facilities included at Biscayne Bay Campus.

According to Flood Insurance Rate Maps (revised 11 September 2009), the entire Biscayne Bay Campus and context area is classified as coastal zone. The reader is referred to the inventory of land uses, and facilities contained in 13.0 Conservation Element of this Master Plan Revision and other appropriate sections of this document.

b) Inventory of Natural Features on the University Property within the Coastal Area

BISCAYNE BAY CAMPUS

According to Flood Insurance Rate Maps (revised 11 September 2009), the entire Biscayne Bay Campus and context area is classified as coastal zone. The reader is referred to the inventory of wetlands, vegetative cover, areas subject to coastal flooding, and wildlife habitats contained in 13.0 Conservation Element of this Master Plan.

c) Inventory of On-Campus Estuarine Conditions

BISCAYNE BAY CAMPUS

The northeastern edge of Biscayne Bay Campus abuts a small estuary that extends northward from the Intracoastal Waterway and Biscayne Bay

Biscayne Bay and all-natural waterways (including the Oleta River and the estuary at the north end of Biscayne Bay Campus) tidally connected to the Bay have been designated as the Biscayne Bay Aquatic Preserve, a Florida Department of Environmental Protection preserve.

d) Campus Facilities Designated as Public Hurricane Shelters

The South Florida hurricane season takes place from June through November each year. FIU has developed a plan for evacuation in case of hurricane or other emergencies and threats to public safety. The Emergency Operations Plan, which is updated annually, describes the necessary preparation and implementation of actions required to secure the University and evacuate the campus. This report includes specific responsibilities of essential personnel during these times.

Signs are posted at each entrance to Modesto A. Maidique indicating emergency routes to help direct the on-campus traffic generated by such events. Broadcast agreements with local radio and television stations are established to communicate to the University's faculty, staff, students, and the surrounding community in case of emergency.

In the event of a hurricane, Biscayne Bay Campus would be completely evacuated, due to its location in the coastal zone and vulnerability to hurricane storm surge. Students living in on-campus housing on each campus will be provided with shelter at Modesto A. Maidique campus. Because Modesto A. Maidique is located on uplands at the western developed fringe of Miami-Dade County, it is not considered vulnerable to storm surge.

Shelter Space

Each county in South Florida has developed a hurricane evacuation plan, which includes a series of designated public shelter spaces. On behalf of the Board of Regents, FIU has an agreement with the American Red Cross and the Monroe County Office of Emergency Management to provide emergency shelter "during hurricanes or other disasters which cause the evacuation of residents from Monroe County and for resident students who have not left campus". At present, Monroe County relies solely upon FIU to provide shelter for up to 5,000 evacuees from storms in Categories 3 through 5. The shelter space is based upon a standard of 20 square foot per person. However, the Monroe County Comprehensive Plan indicates a need for more than double this capacity. Consequently, FIU representatives have identified possible additional shelter capacity to meet the needs of Monroe County.

The recreation Center at MMC has been identified as temporary housing during an evacuation. Communication systems have been installed in rooms that are designated as "Command Central" for managers of the Red Cross and Monroe County, and areas designated as a temporary infirmary.

Responsibilities have been outlined for the various agencies to ensure smooth operation of the shelter. FIU Physical Plant personnel are assigned to provide building and maintenance service to residents and families, schedule appropriate work crews to handle building sanitation, and maintain control of access to restricted areas. The Red Cross will be fully responsible for the operation of the shelter as a temporary housing facility. They will provide volunteers, food and food service, water, and other emergency supplies. If the need for emergency shelter continues for an extended period, FIU will provide alternate areas to move the shelter, so the Primera Casa can be converted into educational uses within a period of five days. The primary function of Monroe County is to establish a temporary infirmary, which will be fully staffed, supplied, and operated by the County's Emergency Medical Services.

Hurricane Evacuation

During the evacuation caused by Hurricane Andrew in 1992, the majority of students who live on campus took shelter at Modesto A. Maidique at Primera Casa. If the majority of students were to require emergency shelter while classes were in session, provisions would need to be made for approximately 4,000 FIU students in addition to evacuees from Monroe County and the shelter staff. The Primera Casa building currently has a housing capacity for 1,800 people. If extra space is needed, additional shelters and infirmaries may be established on the FIU campus through the mutual agreement of FIU, the Red Cross and Miami-Dade County. This additional space could be accommodated in Golden Panther Arena hallways, which will be convenient because of the amount of space and shower facilities available.

Hurricane Preparation

Preparation of the Primera Casa building for occupancy of evacuees will begin afterMonroe County Emergency Management or the American Red Cross contacts FIUPublic Safety Department. When possible, FIU will be given a 36-hour advance warning. The three-party agreement states that "depending on the extent of the disaster and the number of people requiring shelter the facility will be vacated no later than 5 days after the disaster", although, if the need for emergency shelter continues for an extended period, FIU can provide alternate areas to move the shelter.

The primary function of Monroe County will be for the establishment of a temporary infirmary, which will be fully staffed, supplied, and operated by the County's Emergency Medical Services.

Post Hurricane Actions

The University Emergency Operations Plan lists the necessary post-hurricane actions to return the facilities to campus use. The plan includes damage assessment, media communication, information hot-line activation, securing hazardous areas, and documentation of damages to ensure safety and to resume University operations as quickly as possible.

In compliance with Florida Statute 240.295, FIU has identified public shelter space to house students, faculty and staff expecting to require shelter space in time of disaster.

Based on the assumption that approximately 25% of the University population would seek shelter at Modesto A. Maidique, the following space will be required by the end of the planning period:

- Total shelter space required during a storm (based on 20 sf/person): 203,805 sf
- Total shelter space required after a storm (based on 40 sf/person): 497,600 sf*

*This number will be much lower due to the fact that most evacuees will return to their own residence

In addition to providing shelter for the University community, FIU will provide shelter space for Monroe County evacuees.

- Total shelter space required by Monroe County (5,000 people) during a storm (based on 20 sf/person): 100,000 sf

Given the space requirements and the future space availability at Modesto A. Maidique, FIU will be able to provide a sufficient amount of shelter space for the projected ten-year University enrollment in the event of a disaster. This will, however, require coordination with the American Red Cross to ensure that new buildings include hurricane shelter criteria.

e) Inventory of Existing Beach and Dune Systems on the University Property, Including Erosion and Accretion Trends, and an Identification of Existing University Programs to Protect or Restore Beaches or Dunes

BISCAYNE BAY CAMPUS

Beaches at Biscayne Bay Campus are limited to short and poor-quality stretches along the coastline. No dunes are present on Biscayne Bay Campus. Rip-rap was installed along portions of the shoreline of Biscayne Bay Campus and in various areas within the context area in order to stabilize shorelines and prevent erosion. Please refer to 13.0 Conservation Element’s Wetland Mitigation Sites for more information concerning these mitigation projects.

Within the context area, only one beach was created as part of a mitigation project at Oleta River State Recreation Area in 1986 (see 13.0 Conservation Element’s Wetland Mitigation Sites,). There are no dunes in the context area.

<u>Shoreline accretion and/or erosion trends:</u> Historical aerial photos of Biscayne Bay Campus for the years 1985, 1988, and 1990 were obtained in order to search for evidence of shoreline accretion and/or erosion trends. Analysis and comparison of these photos revealed areas in Biscayne Bay located directly east of Biscayne Bay Campus, which appeared darker than the surrounding water. These areas may represent dredging activity. There was no evidence in the photos of either shoreline accretion or erosion. Rip-rap has been placed along the shoreline (Wetland Mitigation Sites, in 13.0 Conservation Element of this Master Plan).

f) Inventory of Public Access Facilities, Including Access Points to Beaches or the Shoreline, Ramps, Docks or Other Public Use Facilities on the University Property

BISCAYNE BAY CAMPUS

No public access facilities exist on this campus. The existing dock is foruniversity use for the Marine Biology program.

g) Coastal High Hazard Area and Inventory of Improvements and Infrastructure

BISCAYNE BAY CAMPUS

According to Flood Insurance Rate Maps, Biscayne Bay Campus and context area are not classified as coastal high hazard area. Refer to the inventory of land uses, and facilities contained in 13.0 Conservation Element of this Master Plan Revision.

(2) ANALYSIS REQUIREMENTS

a) Measures to Reduce Exposure to Hazards for Identified Facilities

BISCAYNE BAY CAMPUS

All new construction and renovation of existing facilities must comply with current Building Codes and Public Shelter Criteria, when applicable, as outlined in Section 235.26 (8)(a), F.S. The State of Florida Building Codes outlines specifications related to building structure and material that are intended to reduce exposure to hazards in coastal zone areas.

b) Impacts of Proposed Development on Identified Natural Resources and Strategies for Avoidance and/or Mitigation of Impacts

BISCAYNE BAY CAMPUS

Some buildings and other improvements to Biscayne Bay Campus are proposed in areas that are adjacent or in close proximity to lake littoral zones and other natural vegetation associations. A vegetated buffer zone should be maintained around existing natural vegetation associations to minimize the impacts or proposed developments on the natural functions and values of these areas.

The majority of the buildings and other improvements planned for Biscayne Bay Campus are sited within areas presently occupied by Australian pine-dominated forests. Because this vegetation association is considered undesirable, construction in Australian pine forests should not have any appreciable negative impact on natural resources except as these developments impact adjacent or nearby vegetation associations or potentially jurisdictional wetlands.

Some of the proposed improvements at Biscayne Bay Campus may impact lake littoral zones and other areas that may be jurisdictional wetlands (see 13.0 Conservation Element). Prior to commencement of construction activities in potential jurisdictional wetland areas, the University should have a binding jurisdictional wetlands determination performed, and, if necessary, perform any required mitigation.

c) Impacts of Any Proposed Development on Estuarine Environmental Quality, Strategies to Minimize Impacts of Development and a Feasibility Analysis of Mitigating Impacts of Identified Pollution Sources

BISCAYNE BAY CAMPUS

Methods for protection and enhancement of natural resources at the Biscayne Bay Campus are discussed in 13.0 Conservation Element.

No improvements are proposed in the immediate vicinity of the on-campus estuary. However, the absence of water quality monitoring precludes determining whether or not existing campus activities have significantly affected estuarine water quality. Methods for protection and enhancement of estuarine environments at the Biscayne Bay Campus are discussed in 13.0 Conservation Element.

d) Host Community's Plans and Procedures for Hurricane Evacuation and Sheltering, Including the Requirements for the Use of University Facilities as Public Shelters

The host community, Monroe County, hurricane evacuation plan is outlined in Section18 (1) d) of this report.

e) Adequacy of Existing Beach and Dune Protection

BISCAYNE BAY CAMPUS

No dunes are present at Biscayne Bay Campus, and beaches are limited to stretches along the coastline. Extensive shoreline enhancements have been done in the context area of Biscayne Bay Campus and are planned for Biscayne Bay Campus itself. Because it appears that no appreciable accretion or erosion is occurring with regard to the beaches in the context area, existing and planned enhancements are probably adequate to protect campus beaches.

f) Capacity of and Need for Public Access Facilities to the Beach or Shoreline

BISCAYNE BAY CAMPUS

There is currently no need for public access facilities to the Biscayne Bay shoreline at Biscayne Bay Campus due to the proximity of Oleta State Park, which provides many public waterfront activities. Waterfront activity should be limited to the University community and not be promoted for public use due to liability. It also allows the University to control use of its facilities. However, the Master Plan outlines waterfront enhancements that include a continuous promenade at the water's edge with intermittent structures and extends the existing open space buffer towards the southern peninsula where beach activity could be developed.