

**FLORIDA INTERNATIONAL UNIVERSITY
2010-2020 Comprehensive Master Plan Update
State Project No. BT-857**

**CAMPUS MASTER PLAN UPDATE
INVENTORY AND ANALYSIS REPORT**

Prepared by

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1.0 ACADEMIC MISSION OF THE UNIVERSITY 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:

- a. South East Florida

c) Supplemental policies defining the University’s mission:

a. FIU Goals

- i. To educate undergraduate students
- ii. To educate graduate and professional students
- iii. To build a distinguished faculty and staff
- iv. To build an excellent student support system
- v. To build an excellent financial base
- vi. To build an excellent physical and technological infrastructure
- vii. To build collaborative university/community relationships

b. Florida International University specific initiatives to achieve mission and goals

- i. Achieve enhanced student learning and academic excellence.
- ii. Enhance the quality, quantity and impact of research and creative initiatives.
- iii. Engage with the community in collaborative problem solving.
- iv. Revitalize and expand FIU’s infrastructure and financial base

(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 Florida Board of Education, Division of Colleges and Universities 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 2010-2015 *Worlds Ahead* strategic plan the mission statement has been updated to address emerging goals for the 2nd decade of the 21st century. Through eleven colleges and schools, FIU offers more than 175 bachelor's, master's, and doctoral degree programs and conducts basic and applied research. Interdisciplinary centers and institutes conduct collaborative research to seek innovative solutions to economic, technological, and social problems. The *Worlds Ahead* Mission for FIU, approved by the Florida Board of education in 2010, reads 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."

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 2002 read as follows:

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

The current University mission, approved by the Florida Board of Education, Division of Colleges and Universities in the Fall of 2010, is more streamlined and identifies it's students as well as South Florida as the service area eliminating 'the state, the nation and the international community" to make the statement more concise.

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.

c) University Response To Roles Established By The Board Of Governors For The State University System

FIU's rapid increases in student enrollments and academic programs are evidence that FIU fulfills its role to become a major public university serving the diverse urban community of South Florida. Its current mission allows communities in Southeast Florida to have access to as full and complete a range of higher educational opportunities and experiences at undergraduate, graduate and professional levels as may be available at other public universities in Florida.

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 Worlds Ahead Strategic Plan*, the University's strategic plan for the second decade 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 2011, By Campus

Florida International University provides a vast and rapidly expanding array of educational opportunities for the 47,966 students enrolled in the fall 2011 academic degree programs. The majority 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.

Table 2.1 Headcount Enrollment (Fall 2011)

University Enrollment By Campus Overall HeadCount and Fulltime Equivalent	CURRENT (2011)	
	HC	FTE
MMC-Total		
<i>Enrollment</i>	33,199	19,417
<i>Undergraduate</i>	27,662	15,412
<i>Graduate</i>	5,537	4,005
BBC- Total		
<i>Enrollment</i>	7,273	2,895
<i>Undergraduate</i>	6,713	2,606
<i>Graduate</i>	560	289
EEC Total		
<i>Enrollment</i>	2,456	1,055
<i>Undergraduate</i>	1,942	864
<i>Graduate</i>	514	191
On-Line Total		
<i>Enrollment</i>	14,998	5,985
<i>Undergraduate</i>	13,202	4,997
<i>Graduate</i>	1,796	988
Total Undergraduate	49,519	23,879
Total Graduate	8,407	5,473
University Total	57,926	29,352

Source: FIU Office of Institutional Research Fall 2011

- * Includes Zero-Credit Students
 (1) Number represents non-duplicated total headcount for FIU.
 (2) Off campus and sponsored credit. Includes, Off-Campus, Sponsored Credit

b) FTE Enrollment, Undergraduate and Graduate, for Each College and By Campus (Fall 2011)

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 2011)

	CURRENT (2011)
	FTE
College of Architecture + the Arts	
<i>MMC Campus enrollment</i>	1,251
<i>Undergraduate</i>	1,034
<i>Graduate</i>	217
<i>BBC Campus enrollment</i>	107
<i>Undergraduate</i>	103
<i>Graduate</i>	4
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	210
<i>Undergraduate</i>	198
<i>Graduate</i>	12
Total Undergraduate	1,335
Total Graduate	233
College of Architecture + the Arts	1,568

	CURRENT (2011)
	FTE
College of Arts and Sciences	
<i>MMC Campus enrollment</i>	11,402
<i>Undergraduate</i>	10,634
<i>Graduate</i>	768
<i>BBC Campus enrollment</i>	1,269
<i>Undergraduate</i>	1,229
<i>Graduate</i>	40
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	2,491
<i>Undergraduate</i>	2,352
<i>Graduate</i>	139
Total Undergraduate	14,215
Total Graduate	947
College of Arts and Sciences Total	15,162

	CURRENT (2011)
	FTE
College of Business Administration	
<i>MMC Campus enrollment</i>	2,129
<i>Undergraduate</i>	1,284
<i>Graduate</i>	845
<i>BBC Campus enrollment</i>	236
<i>Undergraduate</i>	236
<i>Graduate</i>	0
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	1,808
<i>Undergraduate</i>	1,339
<i>Graduate</i>	469
Total Undergraduate	2,859
Total Graduate	1,314
College of Business Admin. Total	4,173

	CURRENT (2011)
	FTE
College of Education	
<i>MMC Campus enrollment</i>	1,250
<i>Undergraduate</i>	911
<i>Graduate</i>	339
<i>BBC Campus enrollment</i>	21
<i>Undergraduate</i>	20
<i>Graduate</i>	1
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	149
<i>Undergraduate</i>	103
<i>Graduate</i>	46
Total Undergraduate	1,034
Total Graduate	386
College of Education Total	1,420

	CURRENT (2011)
	FTE
College of Engineering and Computing	
<i>MMC Campus enrollment</i>	721
<i>Undergraduate</i>	555
<i>Graduate</i>	166
<i>BBC Campus enrollment</i>	28
<i>Undergraduate</i>	28
<i>Graduate</i>	0
<i>EEC Campus enrollment</i>	1,055
<i>Undergraduate</i>	864
<i>Graduate</i>	191
<i>On-Line Campus enrollment</i>	251
<i>Undergraduate</i>	192
<i>Graduate</i>	59
Total Undergraduate	1,639
Total Graduate	416
College of Eng.and Comp. Total	2,055

	CURRENT (2011)	
		FTE
Honors College		
<i>MMC Campus enrollment</i>		<i>0</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>0</i>
<i>BBC Campus enrollment</i>		<i>0</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>0</i>
<i>EEC Campus enrollment</i>		<i>0</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>0</i>
<i>On-Line Campus enrollment</i>		<i>0</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>0</i>
Total Undergraduate		0
Total Graduate		0
Honors College Total		0

	CURRENT (2011)	
		FTE
College of Law		
<i>MMC Campus enrollment</i>		<i>491</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>491</i>
<i>BBC Campus enrollment</i>		<i>0</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>0</i>
<i>EEC Campus enrollment</i>		<i>0</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>0</i>
<i>On-Line Campus enrollment</i>		<i>0</i>
<i>Undergraduate</i>		<i>0</i>
<i>Graduate</i>		<i>0</i>
Total Undergraduate		0
Total Graduate		491
College of Law Total		491

	CURRENT (2011)
	FTE
Herbert Wertheim College of Medicine	
<i>MMC Campus enrollment</i>	167
<i>Undergraduate</i>	0
<i>Graduate</i>	167
<i>BBC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
Total Undergraduate	0
Total Graduate	167
College of Medicine Total	167

	CURRENT (2011)
	FTE
College of Nursing & Health Sciences	
<i>MMC Campus enrollment</i>	890
<i>Undergraduate</i>	368
<i>Graduate</i>	522
<i>BBC Campus enrollment</i>	106
<i>Undergraduate</i>	94
<i>Graduate</i>	12
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	305
<i>Undergraduate</i>	183
<i>Graduate</i>	122
Total Undergraduate	645
Total Graduate	656
Nursing & Health Sciences Total	1,301

	CURRENT (2011)
	FTE
Chaplin School of Hospitality & Tourism Management	
<i>MMC Campus enrollment</i>	128
<i>Undergraduate</i>	128
<i>Graduate</i>	0
<i>BBC Campus enrollment</i>	798
<i>Undergraduate</i>	601
<i>Graduate</i>	197
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	137
<i>Undergraduate</i>	105
<i>Graduate</i>	32
Total Undergraduate	834
Total Graduate	229
School of Hosp. & Trsm Mngt Total	1,063

	CURRENT (2011)
	FTE
School of Journalism and Mass Communication	
<i>MMC Campus enrollment</i>	58
<i>Undergraduate</i>	56
<i>Graduate</i>	2
<i>BBC Campus enrollment</i>	320
<i>Undergraduate</i>	282
<i>Graduate</i>	38
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	125
<i>Undergraduate</i>	111
<i>Graduate</i>	14
Total Undergraduate	449
Total Graduate	54
School of Journalism and Mass Comm. Total	503

	CURRENT (2011)
	FTE
Robert Stempel College of Public Health and Social Work	
<i>MMC Campus enrollment</i>	853
<i>Undergraduate</i>	457
<i>Graduate</i>	396
<i>BBC Campus enrollment</i>	11
<i>Undergraduate</i>	11
<i>Graduate</i>	0
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	142
<i>Undergraduate</i>	45
<i>Graduate</i>	97
Total Undergraduate	513
Total Graduate	493
College of Public Health and Social Work Tot	1,006

	CURRENT (2011)
	FTE
University College	
<i>MMC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>BBC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
Total Undergraduate	0
Total Graduate	0
University College Total	0

	CURRENT (2011)
	FTE
University Graduate School	
<i>MMC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>BBC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
Total Undergraduate	0
Total Graduate	0
University Graduate School Total	0

	CURRENT (2011)
	FTE
Undergraduate Education	
<i>MMC Campus enrollment</i>	50
<i>Undergraduate</i>	50
<i>Graduate</i>	0
<i>BBC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>EEC Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
<i>On-Line Campus enrollment</i>	0
<i>Undergraduate</i>	0
<i>Graduate</i>	0
Total Undergraduate	50
Total Graduate	0
Undergraduate Education Total	50

	CURRENT (2011)
	FTE
Unclassified	
<i>MMC Campus enrollment</i>	<i>0</i>
<i>Undergraduate</i>	<i>0</i>
<i>Graduate</i>	<i>0</i>
<i>BBC Campus enrollment</i>	<i>0</i>
<i>Undergraduate</i>	<i>0</i>
<i>Graduate</i>	<i>0</i>
<i>EEC Campus enrollment</i>	<i>0</i>
<i>Undergraduate</i>	<i>0</i>
<i>Graduate</i>	<i>0</i>
<i>On-Line Campus enrollment</i>	<i>0</i>
<i>Undergraduate</i>	<i>0</i>
<i>Graduate</i>	<i>0</i>
Total Undergraduate	0
Total Graduate	0
Unclassified Total	0

Source: FIU Office Institutional Research 2011

c) Headcount Enrollment by Major, For Each College and Campus.

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

Table 2.3 Headcount Enrollment by Colleges on Campus (Fall 2011)

	BACCALAUREATE	GRADUATE	UNCLASSIFIED	TOTAL
College of Architecture & The Arts	1641	320	-	1961
College of Arts & Sciences	19,289	1,784	-	21,073
College of Business.	9,654	1,684	-	11,338

	BACCALAUREATE	GRADUATE	UNCLASSIFIED	TOTAL
College of Education	2244	925	-	3169
College of Engineering and Computing	5032	803	-	5835
College of Law	0	551	-	551
College of Medicine	0	167	-	167
College of Nursing & Health Sciences	2757	911	-	3668
School of Hospitality & Tourism Management	2004	314	-	2318
School of Journalism	2492	159	-	2651
College of Public Health and Social Work	921	875	-	1796
Unclassified	3791	1	-	3792

Source: FIU Office Institutional Research-2011

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 at this time. 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 2011)

Within the University structure, there are 202 baccalaureate, master's, and doctoral majors and 190 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 2011)

College of Arts and Sciences	BACCALAUREATE	MASTERS	DOCTORATE
African- American and New World Studies		MA	
Art	BFA	MFA	
Asian Studies	BA	MA	
Biology	BS	MS	PhD
Biochemistry	BA/BS	MS	PhD
Chemistry	BA/BS	MS	PhD
Computer and Informational Science	BS	MS	PhD
Creative Writing		MFA	
Economics	BA	MA	PhD
English	BA	MA	
Environmental Studies	BA/BS	MS	
Forensic Science		MS	
French	BA		
Geology	BA/BS	MS	PhD
Geography	BA		
History	BA	MA	PhD
Information Technology	BS	MS	
International Global Studies		MA	
International Relations	BA	MA	PhD
Italian	BA		
Latin American Studies		MA	
Liberal Studies	BA/BS	MA	
Linguistics		MA	
Marine Biology & Bio Oceanography	BS		
Applied Mathematics		MS	
Mathematics	BS		
Philosophy	BA		
Physics	BS	MS	PhD
Political Science and Government	BA/BS	MA	PhD
Portuguese	BA		
Psychology	BA	MS	PhD
Religious Studies	BA	MA	
Russian	BA		
Sociology	BA	MA	PhD
Spanish	BA	MA	PhD
Statistics	BS	MS	
Women's Studies	BA		

College of Business	BACCALAUREATE	MASTERS	DOCTORATE
Accounting	BA	MA	
Business Administration and Management	BBA	MBA	PhD
Finance	BBA	MSF	
Human Resources	BBA	M	
Information Resources Management		M	
International Business Trade and Commerce	BBA	MIB	
Logistics & Materials	BBA		
Management Information Sys.	BBA		
Marketing Management	BBA		
Taxation		MST	
International MBA (Real Estate)		MBA	
Real Estate	BBA	MA	

College of Education	BACCALAUREATE	MASTERS	DOCTORATE
Adult Education and Continuing Teacher Education		MS	EdD
Art Teacher Education	BS	MS	
Counselor Education		MS	
Curriculum and Instruction		MS	EdD
Early Childhood Education		MS	
Education and Admin. & leadership		MS	EdD
Elementary Teacher Education	BA		
English Teacher Education	BS	MS	
Foreign Language Teacher Education		MS	
Higher Education Administration		MS	EdD
International Comp. Education		MS	
Music Teacher Education		MS	
Parks & Recreation Management	BS	MS	
Physical Education Teaching and Coaching	BS	MS	
Reading Teacher Education		MS	
School Psychology			EdD
Special Education	BS	MS	ED
Urban Education		MS	

College of Engineering and Computer Science	BACCALAUREATE	MASTERS	DOCTORATE
Biomedical Engineering	BS	MS	PhD
Civil Engineering	BS	MS	PhD
Computer Engineering, Gen.	BS	MS	
Construction Engineering Tech	BS	MS	
Construction Management	BS	MS	
Electrical Engineering	BS	MS	PhD
Engineering Management		MS	
Engineering, Other		MS	
Environmental & Urban Sys.	BS	MS	
Environmental Health Engineering		MS	

College of Engineering and Computer Science	BACCALAUREATE	MASTERS	DOCTORATE
Materials Engineering		MS	PhD
Mechanical Engineering	BS	MS	PhD

College of Nursing & Health Sciences	BACCALAUREATE	MASTERS	DOCTORATE
Athletic Training/ Trainer		MS	
Health Services Administration	BS	MS	
Registered Nursing	BS	MS/MSN	
Nursing Science			PhD
Nursing Practice		Professional	
Occupational Therapy		MS	
Physical Therapy	BS	MS	
Speech / Pathology & Audio		MS	

College of Public Health and Social Work	BACCALAUREATE	MASTERS	DOCTORATE
Criminal Justice Studies	BS	MS	
Dietetics and Nutritional Services	BS	MS	PhD
Public Administration	BPA	MPA	PhD
Public Health		MS/MPH	PhD
Social Work	BS	MSW	PhD

College of Law	BACCALAUREATE	MASTERS	DOCTORATE
Law (Full time)			JD
Law (Part-time)			JD

College of Medicine	BACCALAUREATE	MASTERS	DOCTORATE
Medicine		Professional MD	

College of Architecture & The Arts	BACCALAUREATE	MASTERS	DOCTORATE
Architecture	BS	MS	
Art History and Appreciation	BA	MFA	
Communications Art	BA		
Dance	BFA/BA		
Interior Design	BS	MS	
Landscape Architecture	BS	MS	
Music	BM	MM	
Theater	BFA/BA		
Visual Arts	BFA / BA		

School of Hospitality Mgmt.	BACCALAUREATE	MASTERS	DOCTORATE
Travel and Tourism	BS	MS	

School of Hospitality Mgmt.	BACCALAUREATE	MASTERS	DOCTORATE
General Hospitality Administration Mgmt.	BS	MS	

School of Journal.	BACCALAUREATE	MASTERS	DOCTORATE
Mass Communication	BA	MS	

Source: State University System of Florida, Degree Programs Inventory 2011

g) Distribution of Faculty and Staff (Fall 2011)

Table 2.5 Distribution of Total Headcount of Faculty and Staff Overall by campus (Fall 2011)

University Personnel By Campus	CURRENT (2011)	
	HC	FTE
Modesto A. Maidique Campus-Total		
<i>Faculty and Staff</i>	5,888	5,010
<i>Faculty</i>	2,218	1,678
<i>Staff</i>	3,670	3,332
Biscane Bay Campus- Total		
<i>Faculty and Staff</i>	319	265
<i>Faculty</i>	116	91
<i>Staff</i>	203	174
Engineering Center Total		
<i>Faculty and Staff</i>	82	74
<i>Faculty</i>	40	38
<i>Staff</i>	42	36
University Total	6,289	5,349

Table 2.6a-c Distribution of Total Headcount of Faculty and Staff by college and by campus (Fall 2011)

Table 2.6a

FIU Modesto A. Maidique Campus		
	CURRENT (2011)	
	HC	FTE
MMC-Total		
<i>Faculty and Staff</i>	5,888	5,010
<i>Faculty</i>	2,218	1,678
<i>Staff</i>	3,670	3,332
College of Architecture + the Arts		
<i>Faculty and Staff</i>	229	173
<i>Faculty</i>	173	130
<i>Staff</i>	56	43
College of Arts and Sciences		
<i>Faculty and Staff</i>	1,306	1,050
<i>Faculty</i>	867	690
<i>Staff</i>	439	360
College of Business Administration		
<i>Faculty and Staff</i>	399	314
<i>Faculty</i>	228	158
<i>Staff</i>	171	156
College of Education		
<i>Faculty and Staff</i>	236	165
<i>Faculty</i>	184	119
<i>Staff</i>	52	46
College of Engineering and Computing		
<i>Faculty and Staff</i>	316	267
<i>Faculty</i>	171	145
<i>Staff</i>	145	122
Honors College		
<i>Faculty and Staff</i>	20	18
<i>Faculty</i>	10	8
<i>Staff</i>	10	10
College of Law		
<i>Faculty and Staff</i>	152	117
<i>Faculty</i>	82	59
<i>Staff</i>	70	58
Herbert Wertheim College of Medicine		
<i>Faculty and Staff</i>	387	338
<i>Faculty</i>	126	96
<i>Staff</i>	261	242
College of Nursing & Health Sciences		
<i>Faculty and Staff</i>	222	155
<i>Faculty</i>	167	110
<i>Staff</i>	55	45

Table 2.6a (cont'd)

Chaplin School of Hospitality & Tourism Management		
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
School of Journalism and Mass Communication		
Faculty and Staff	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
Robert Stempel College of Public Health and Social Work		
Faculty and Staff	186	148
<i>Faculty</i>	121	93
<i>Staff</i>	65	55
University College		
Faculty and Staff	90	79
<i>Faculty</i>	12	3
<i>Staff</i>	78	76
University Graduate School		
Faculty and Staff	41	40
<i>Faculty</i>	6	6
<i>Staff</i>	35	34
Undergraduate Education		
Faculty and Staff	146	122
<i>Faculty</i>	9	8
<i>Staff</i>	137	114
Unclassified		
Faculty and Staff	2,158	2,025
<i>Faculty</i>	62	53
<i>Staff</i>	2,096	1,973
NOTES		
1. Faculty includes: Department Chair, Tenured Faculty, Non-Tenured Lecturers		
2. Staff includes: Adjunct Staff, Departmental Staff, Administrative Staff. The total does not include student employees.		

FIU BISCANE BAY CAMPUS		
	CURRENT (2011)	
	HC	FTE
BBC- Total		
<i>Faculty and Staff</i>	319	265
<i>Faculty</i>	116	91
<i>Staff</i>	203	174
College of Architecture		
<i>Faculty and Staff</i>	1	1
<i>Faculty</i>	1	1
<i>Staff</i>	0	0
College of Arts and Sciences		
<i>Faculty and Staff</i>	25	24
<i>Faculty</i>	11	11
<i>Staff</i>	14	13
College of Business Administration		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Education		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Engineering and Computing		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
Honors College		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Law		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
Herber Wertheim College of Medicine		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0



BISCANE BAY CAMPUS

	CURRENT (2011)	
	HC	FTE
College of Nursing & Health Sciences		
Faculty and Staff	3	3
Faculty	3	3
Staff	0	0
Chaplin School of Hospitality & Tourism Management		
Faculty and Staff	96	73
Faculty	63	45
Staff	33	28
School of Journalism and Mass Communication		
Faculty and Staff	57	48
Faculty	36	29
Staff	21	19
Rober Stempel College of Public Health and Social Work		
Faculty and Staff	1	1
Faculty	1	1
Staff	0	0
University College		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
University Graduate School		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
Undergraduate Education		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
Unclassified		
Faculty and Staff	136	115
Faculty	1	1
Staff	135	114
NOTES		
1. Faculty includes: Department Chair, Tenured Faculty, Non-Tenured Lecturers		
2. Staff includes: Adjunct Staff, Departmental Staff, Administrative Staff. The total does not include student employees.		

2.6c

FIU Engineering Center Campus		
	CURRENT (2011)	
	HC	FTE
EEC Total		
<i>Faculty and Staff</i>	82	74
<i>Faculty</i>	40	38
<i>Staff</i>	42	36
College of Architecture		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Arts and Sciences		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Business Administration		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Education		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Engineering and Computing		
<i>Faculty and Staff</i>	41	39
<i>Faculty</i>	38	36
<i>Staff</i>	3	3
Honors College		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
College of Law		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0
Herber Wertheim College of Medicine		
<i>Faculty and Staff</i>	0	0
<i>Faculty</i>	0	0
<i>Staff</i>	0	0

FIU Engineering Center Campus

	CURRENT (2011)	
	HC	FTE
College of Nursing & Health Sciences		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
Chaplin School of Hospitality & Tourism Management		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
School of Journalism and Mass Communication		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
Robert Stempel College of Public Health and Social Work		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
University College		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
University Graduate School		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
Undergraduate Education		
Faculty and Staff	0	0
Faculty	0	0
Staff	0	0
Unclassified		
Faculty and Staff	41	35
Faculty	2	2
Staff	39	33
NOTES		
1. Faculty includes: Department Chair, Tenured Faculty, Non-Tenured Lecturers		
2. Staff includes: Adjunct Staff, Departmental Staff, Administrative Staff. The total does not include student employees.		

Source: FIU Office of Institutional Research-Fall 2011

(2) **ANALYSIS REQUIREMENTS**
 a) **Projections Of Anticipated Academic Degree Programs For Year 2020**
 (no updates were provided from FIU)

Table 2.7 Proposed Academic Programs

PROGRAM	DEGREE
Adult and Continuing teacher Education	Ph.D
Applied Math/ Math Sciences	BA, MA
Asian Studies	BA
Construction Engineering	BS
Criminal Justice/ Law Enforcement Administration	MA
Early Childhood Education	BA
Education of the Emotionally Handicapped	BA
Education of the Mentally Handicapped	BA
Education of the Specific Learning Disabled	BA
Engineering	D.E.
Environmental Engineering	BS
Environmental Studies	PhD
Exercises Science/ Physiology/ Movement Studies	BS, MS
Foreign Languages Teacher Education	BS, MS
Forensic Science	MS
Human Resources Management	BBA
Industrial and Systems Engineering	PhD
Insurance Risk Management	BBA
International and Comparative Education	MS
Logistics and Material Management	B, M, PhD
Materials Engineering	MS
Museum Studies	MA
Meteorology/Atmospheric Sciences	BA
Music	DMA
Performing Arts Production	MA
Physician Assistant	MS
Recreation/ Leisure Service	BS, MS
School Psychology	Certificate
Special Education	PhD
Speech Pathology, Audiology	MS
Software Systems Engineering	MA
Technical Management	MS
Telecommunications/ Networking	MS
Trade and Industrial Education	BS, MS
Urban Education	MS
MIDCOURSE MODIFICATION RECOMMENDATIONS	
Computer Programming Technology	DMA
General Business	
Travel and Tourism Management	BS
Tourism Studies	BBA
Telecommunications	BS
Higher Education Administration	MS

Source: FIU Planning and Institutional Effectiveness, 2008

b) **Distribution of Projected FTE Enrollment by Campus, Undergraduate and Graduate for 2015, 2020 & Long-term**

Table 2.8 Projections for Future Student FTE Enrollment

University Enrollment By Campus Fulltime Equivalent	2015	2020
	FTE	FTE
MMC-Total		
<i>Enrollment</i>	22,139	24,650
<i>Undergraduate</i>	17,461	19,489
<i>Graduate</i>	4,678	5,161
BBC- Total		
<i>Enrollment</i>	3,267	3,906
<i>Undergraduate</i>	2,950	3,526
<i>Graduate</i>	317	380
EEC Total		
<i>Enrollment</i>	1,188	1,379
<i>Undergraduate</i>	979	1,137
<i>Graduate</i>	209	242
On-Line Total		
<i>Enrollment</i>	6,742	9,742
<i>Undergraduate</i>	5,663	8,182
<i>Graduate</i>	1,079	1,560
Total Undergraduate	27,053	32,334
Total Graduate	6,283	7,343
University Total	33,336	39,677

Source: Office of Planning and Institutional Research

c) **Anticipated Student Headcount Distributed By Campus for Year 2015, 2020 & Long-term Of the Planning Time Frame**

Table 2.9 Projections for Future Student Headcount Enrollment

University Enrollment By Campus Headcount	2015	2020
	HC	HC
MMC-Total		
<i>Enrollment</i>	36,084	37,719
<i>Undergraduate</i>	29,816	31,004
<i>Graduate</i>	6,268	6,715
BBC- Total		
<i>Enrollment</i>	7,838	9,055
<i>Undergraduate</i>	7,236	8,359
<i>Graduate</i>	602	696
EEC Total		
<i>Enrollment</i>	2,647	2,918
<i>Undergraduate</i>	2,093	2,302
<i>Graduate</i>	554	616
On-Line Total		
<i>Enrollment</i>	16,166	22,707
<i>Undergraduate</i>	14,230	19,996
<i>Graduate</i>	1,936	2,711
Total Undergraduate	53,375	61,661
Total Graduate	9,360	10,738
University Total	62,735	72,399

d) **From this projected headcount enrollment in Year 2020, 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 at this time. 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, known as University Park, 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 Ave and W. Flagler St.

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 a majority of 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 Ave and from SW 107th Street at SW 16th Street. Four secondary entrances feed into the Greenbelt. An additional entrance is located along SW 117th Avenue but is limited access to Carlos Finlay Elementary School. The housing complex also has a separate entrance on SW 107th Avenue, but is gated at the Greenbelt, limiting connectivity.

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

- Axial planning
- Open space development
- Continuity of design associations

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 within the campus core creates strong vistas and assists in wayfinding. The buildings within the core are organized along four major pedestrian axes:

- Avenue of the Students: Extends east from the Panther Garage to the Owa Ehan Building
- Avenue of the Professions: Extends east from the U.S. Century Bank

Arena to the Green Library, continuing along the Graham Center to the Greenbelt

- Avenue of the Arts: Extends north from the Performing Arts Center to the Graham Center
- Avenue of the Sciences: Extends diagonally (northeast) from the Panther Residence Hall / Everglades Hall housing district 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 feature axial planning:

- SW 112th Avenue Entrance (at SW 8th Street): 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.
- SW 16th Street Entrance (on SW 107th Avenue): 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 intersected by the Avenue of the Sciences, and is surrounded by four buildings, Charles Perry building (Primera Casa), Graham Center, Green Library and Deuxieme Maison. Also intersected by the Avenue of the Sciences, 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, the Avenue of the Students crosses through the north edge. 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-Ballart 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.

The majority 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



Figure 3.2 – Campus Spaces

ENGINEERING CENTER

The campus doesn't have a strong framework for spatial organization. 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

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.

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.



AVENUES (EXISTING)

— Major Axis

ENGINEERING CENTER CAMPUS

Figure 3.3
Axial Planning

P E R K I N S
+ W I L L

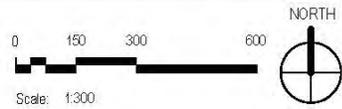


Figure 3.3 – Axial Planning

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:

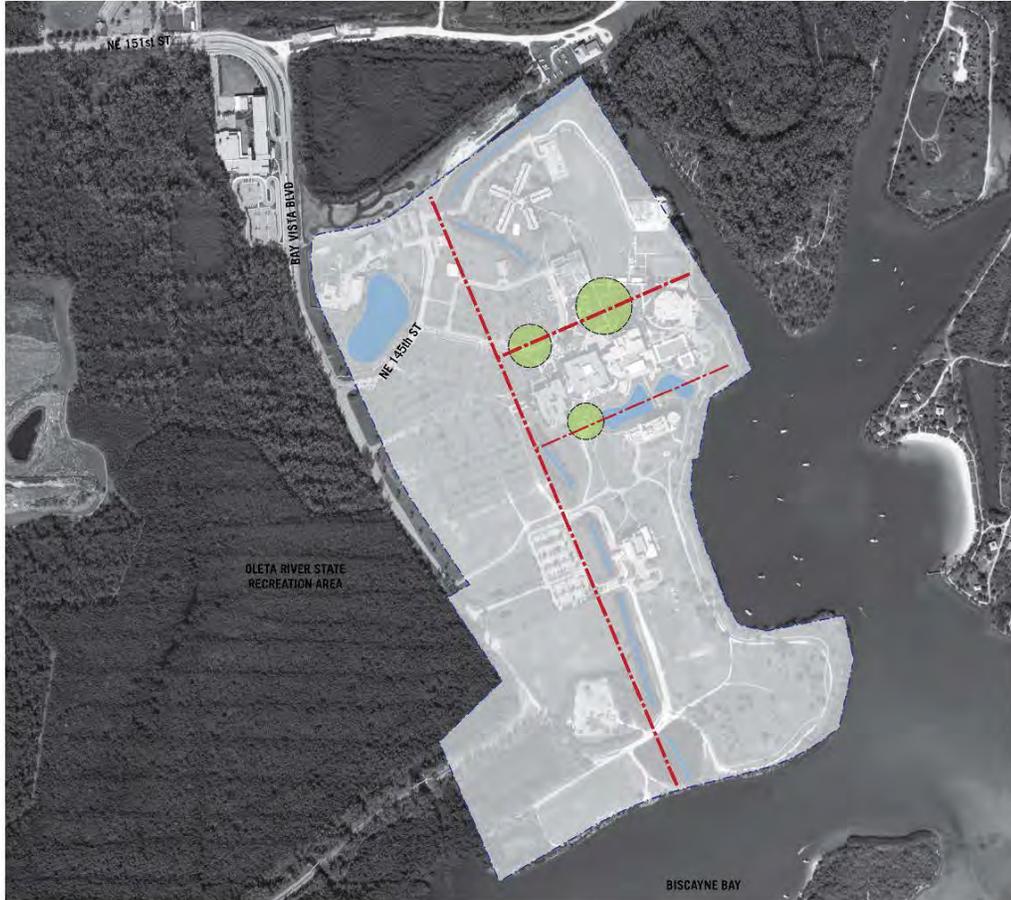
- The Hubert Library
- Academic One
- Academic Two
- Gregory B. Wolfe University Center
- Hospitality Management
- Marine Science Building

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.



- AVENUES (EXISTING)
- Major Axis
 - . - . Secondary Axis
 - Axis - series of spaces

BISCAYNE BAY CAMPUS

Figure 3.4
Axial Planning

P E R K I N S
+ W I L L

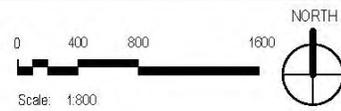


Figure 3.4 – Axial Planning



OPEN SPACE

- Major Axis
- Active recreation
- Courtyards
- Special purpose landscape
- Quads

BISCAYNE BAY CAMPUS

Figure 3.5
Campus Spaces

PERKINS
+ WILL

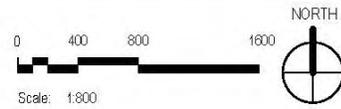


Figure 3.5 – Campus Spaces

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. Although the Campus Greenbelt near this boundary establishes the defined edge of the campus, there is not a clearly defined spatial separation between the county owned property and the campus. The space is predominately occupied by surface parking lots. The FIU Community Stadium and Herbert & Nicole Wertheim Performing Arts Center are also located along this edge.

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. Although the majority of this land is not utilized for buildings, much of this space is designated for recreational fields and campus parking. In several locations these spaces are interrupted by large structures such as U.S. Century Bank Arena, Campus Support Complex, NOAA National Hurricane Center, the Carlos Finlay Elementary School and the PG3/Panther Parking Garage. However, in terms of the overall spatial organization of the campus those buildings or groups of buildings appear as "objects-in-space", separate from the central group of structures and grouping patterns.

The northeastern area of the campus is beginning to develop in accordance with Academic Health Sciences master plan. The addition of the Nursing & Health Sciences buildings, construction of the Academic Health Center Building #4, the PG4/Red Parking Garage and the PG5/Market Station Parking Garage are transforming the existing edge of surface parking lots

into an academic and research district. A new satellite chiller plant is under construction in anticipation of serving the future energy needs for the District.

While the eastern perimeter of the campus is anticipated to become denser based on the pattern established by the Wertheim Performing Arts Center, PG1/Gold and PG2/Blue Parking Garages, the expansion of Graham Center, and Phi Gamma Delta Fraternity House several service parking lots remain. The University House (President's Residence) maintains a large amount of open space within the district and attractive 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 Hennington pond 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, eastern parking surface areas and will serve as the primary campus access from Greek housing. 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, known as Avenue of the Sciences, 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 U.S. Century Arena and the western parking areas.

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 some landscaping along SW 107th Ave a six lane arterial street with a median divide. Both streets are traditional commercial corridors with varying forms and ages of retail. 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.

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.

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 its 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 located 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 in close proximity to the Bay rather than centralized within the campus.

Entrances and Landscape Features

The vehicular entrances to the campus parking areas are located off of Bay Vista Blvd. 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. The interior pedestrian "street" that links the Wolfe University Center, Academic One and Academic Two buildings runs 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. It is separated from the core of the campus by two water bodies. Location of the campus core combined with the orientation of the main academic buildings and open spaces to the southeast, have maintained the waterfront views on the southern portion of the campus.

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

Visual Landmarks

The obvious visual landmark for the campus is the Biscayne Bay. The extensive shoreline and minimal development is 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 north west 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 Koven's 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
- Engineering and Computer Science
- Viertes Haus
- School of 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 to the Avenue of the Professions. South of the Engineering and Computer Sciences building 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 U.S. Century Bank Arena.

Several additional activity nodes occurs 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: These buildings include:

- PG5/Market Station Parking Deck
- Academic Health Center #3
- Chemistry & Physics Building

The Avenue of the Arts has pedestrian traffic coming from the parking lots adjacent to the Performing Arts Center and the PG1/Gold and PG2/Blue Parking Garages; activity concentrates at the plaza south of the Graham Center.

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:

- **Avenue of the Professions:** Extends from the U.S. Century Arena to the Green Library and continues easterly along the Graham Center to the Campus Greenbelt.
- **Avenue of the Sciences:** Extends in a diagonal direction from the residential housing complex to the campus core and continues to the intersection of SW 8th Street and SW 107th Street near University Apartments.
- **Avenue of the Arts:** Connects the Performing Arts Center and the PG1/Gold and PG/2 Blue Parking Garages to the Graham Center.
- **Avenue of the Students:** Extends from PG3/Panther Garage east to the Owa Ehan Building.

Pedestrian Circulation

Within 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 space. 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 patterns 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.

The Avenue of the Arts 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 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. The construction work on Academic Health Center 4 has temporarily closed walkways directly to the Chemistry and Physics building. Pedestrians use the Avenue of the Sciences or the service drive for Owa Ehan to connect with the parking garages and surface lots.

The majority of 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 St to move east of the campus; those heading to the ZEB 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. The Avenue of the Students and the Avenue of the Professions serve as the principal routes to access the campus core from the PG3/Panther Parking Garage and other parking lots in this area. There is minimal north-south pedestrian traffic.

Several of the new buildings on campus including PG5/Market Station Parking Garage and Academic Health Center 3 are utilizing arcades or awnings to create a network of covered pedestrian connections throughout the campus.

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. The Avenues as both functional and aesthetically pleasing circulation spines will enhance the overall appearance of the campus as well as address critical connections.

Vehicular Circulation

The primary vehicular circulation route within the Modesto A. Maidique Campus is the Campus Greenbelt, a loop road that encircles the majority of the campus. The Greenbelt provides access to perimeter parking decks and lots as well as connections to secondary roads and service drives within the campus. The Greenbelt 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. Most recently, at the northeast corner of the campus, the road was reconfigured to allow for a future quad to be developed as identified by the Academic Health Sciences Master Plan.

SW 14th St 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 of the Greenbelt to the surrounding community occurs through two main entrances and four secondary entrances.

Primary Entrances:

- SW 112th Avenue at SW 8th Street
- SW 16th Street at SW 107th Avenue

Secondary Entrances:

- SW 11th Street at SW 107th Avenue (gated)
- SW 17th Street at SW 107th Avenue
- SW 108th Avenue at SW 8th Street
- SW 109th Avenue at SW 8th Street
- SW 17th Street at SW 117th Avenue



Figure 3.6 – Walkability (Existing)



Figure 3.7 – Walkability (Opportunities)

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 of 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.



COVERED WALKWAYS - INVENTORY

- Major Axis
- Thru-bldg

ENGINEERING CENTER CAMPUS

Figure 3.8
Walkability - Existing

P E R K I N S
+ W I L L

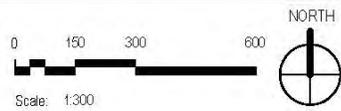


Figure 3.8 – Walkability (Existing)



COVERED WALKWAYS - ANALYSIS

- Major Axis
- Connections
- Opportunities

ENGINEERING CENTER CAMPUS

Figure 3.9
Walkability - Opportunity

P E R K I N S
+ W I L L

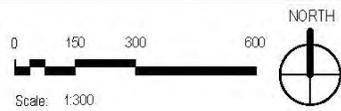


Figure 3.9 – Walkability (Opportunity)

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.



COVERED WALKWAYS - INVENTORY

- Major Axis
- Detached from building
- Building edge
- Landscape Allee
- Attached to building
- - - - - Thru-bldg

BISCAYNE BAY CAMPUS

Figure 3.10
Walkability - Existing

PERKINS
+ WILL

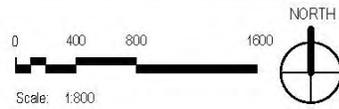


Figure 3.10 – Walkability (Existing)



COVERED WALKWAYS - ANALYSIS

- - - Major Axis
- Connections
- Opportunities

BISCAYNE BAY CAMPUS

Figure 3.11
Walkability - Opportunity

P E R K I N S
+ W I L L

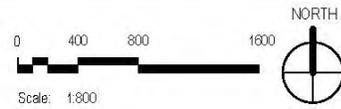


Figure 3.11 – Walkability (Opportunity)

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 north of 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 151th 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 actually 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. Biscayne Landing, a 183 acre tract located on the western edge of Oleta State Park, is currently proposed as a large retail center with residential uses. A potential vehicular connection was being considered that would connect the project to the Biscayne Bay Campus through the Oleta State Park. 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 U.S Century Arena, 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 U.S. Century Bank Arena 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.

Several projects were constructed from 2000 to 2010, while most were located adjacent to the emerging Academic Health Science District. New buildings included:

- College of Architecture
- Management and Advanced Research Center
- Rafael Diaz-Balart Hall
- Chemistry & Physics Building
- Academic Health Center #1
- Academic Health Center #2
- Recreation Center

Since the adoption of the 2015 Update, several projects have been 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 Ave and the improvements of the FIU Community Stadium. The Academic Health Center #4 is under construction. Academic Health Center #5 has just begun site improvement work. To support the development of the Academic Health Sciences District, the Satellite Chiller Plant is under construction and should be completed in 2013. An additional development is the new Parkview Housing adjacent to the Nature Preserve. The new housing includes 620 beds and structured parking. The project is unique in that it “bridges” the Campus Greenbelt.

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.

BISCAYNE BAY CAMPUS

Biscayne Bay Campus retains a more compact physical form than the Modesto A. 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 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.

The most recent buildings constructed on campus are Kovens Center, the Student Health and Wellness Center and the Marine Sciences Building. Kovens Center is located well to the south of the other existing structures. This remote location allows room for future expansion of academic facilities between the conference center and Academic Two. The Student Health and Wellness Center is located west of The Library. The Marine Sciences Building is located south of the Wolfe University Center

- 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 grand axes. Future campus growth consists of siting buildings along streets with an outward orientation to the host community as identified, Academic Health Sciences District Master Plan, the 2005-2015 Master Plan update and reiterated in the E.A.R findings. When

utilizing this planning scheme it will be important to overcome the perception that the building façade that faces the campus core is perceived as the back of the facility. 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 placing buildings on existing surface parking lots. This strategy has begun to be utilized at Modesto Maidique Campus during previous planning periods and with the implementation of the current Parkview Housing project. 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 vehicular roadways. This planning concept was used effectively at the Education Building and School of Architecture through the use of building entries and facades with fenestration. This strategy of design expands the campus core outward to the Campus Greenbelt. An important element in the success of this concept will require that building exposures oriented toward roadways have a consistency of design that addresses the street. This will slow vehicular traffic and add needed “eyes on the street” resulting in an enhanced 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. As identified in the E.A.R. findings and subsequent Urban Design/Architectural/Landscape focus group meetings, 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 an academic 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, S. 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. The preservation of open space

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 close 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, a large portion of the Modesto A. Maidique Campus has been developed. Physical expansion will continue outward and upward from the present campus core. 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 current plan for the Academic Health Sciences District will create a desirable gateway to the campus and a welcoming edge to the community, breaking down some of the perceived barriers between the campus and the hosting community. The desire by FIU to physically link the Modesto A. Maidique Campus to the Engineering Center will be determined by the ability of the community and FIU to implement creative solutions conducive to both parties.

Difficult site conditions such as those that face the Modesto A. Maidique Campus often require creative solutions. Aside from possible future land acquisitions one potential strategy to pursue within the host community includes access to off-campus housing. This might include the possibility of off-campus housing in the City of Sweetwater. However, this and other interaction within the context area requires improved linkage to furnish safe and dependable transportation across the physical vehicular boundaries that surround the campus on three sides.

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 2.b Table 2.9 and 2.c Table 2.10 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 2015 and 2020. 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”

FIGURES 4.1b, 4.2b and 4.3b are graphic representations of the overall campus space needs projected for 2015 and 2020. These were determined by the campus-level Space Needs Analysis. Future facility planning modules, including previous capital improvement planning projects, are shown to the scale and massing of current campus construction. 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.

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

Although the facility planning modules are colored to reflect their primary use, in actuality, 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 incorporates multi-purpose facilities and changed building usage over time.

The diagram indicates both Capital Improvement Projects (CIP) and the University’s projected space needs for 2015 and 2020. The CIP projects are assumed to be priority projects. The additional modules needed to meet projected needs are dependent on continued successful funding strategies, partnerships, and enrollment growth.

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:

- Tamiami Park
- 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.

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

- Engineer and Applied Science
- The Engineer Center
- Engineer Center
- Engineering Center

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 on the campus that are used for environmental studies and any research related to outdoor plant and wild life.

MODESTO A. MAIDIQUE

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

- Deuxieme Maison
- Viertes Haus
- Green Library
- Owa Ehan
- Chemistry & Physics
- Chemistry & Physics addition
- Engineering and Computer Science
- Ryder Business Building
- Sanford and Dolores Ziff Education Building
- Health And Life Science
- Health And Life Science Phase Two
- Paul Cejas School Of Architecture
- Sculpture Building
- Ceramics Building & Artist Studio
- Athletics Academic Fitness Center (Dedicated to provide classrooms, tutoring space, and academic support for student-athletes)
- College of Law
- Graduate School of Business (Phase One)
- Social Science Building
- Academic Health Science Center 3
- College of Business -Mango Building

Indoor Research Facilities:

- Management and Advanced Research Center
- Biology Greenhouse
- Academic Health Science Center 4- (currently under construction)
- Academic Health Science Center 5- (currently under construction)
- Stocker Astroscience Center- (currently under construction)
-

Outdoor Research Use

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

BISCAYNE BAY CAMPUS

There are five major academic facilities and four trailers that serve academic

functions (See Figure 4.3a: Campus Land Use Map):

- The Library
- Academic One
- Academic Two
- Hospitality Management
- Marine Biology Research Center

Indoor Research Facilities:

- Ecology Lab
- Marine Biology Fish Tanks

Outdoor Research Use

- Mangrove habitat restoration areas.

ENGINEERING CENTER (EC)

This is a facility with some academic use.

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

Outdoor Research: Construction experiment space east of Operation Utilities

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:

- Labor Center,
- Duplicating Center
- Tower (original Tamiami Airport Control Tower)
- The University Health Service Complex
- Campus Support Complex-Shops
- Campus Support Complex-Administration
- Central Utilities/ Chillers
- Career Service Building
- UP Information Center
- Children's Creative Learning Center

BISCAYNE BAY CAMPUS

Support facilities include:

- Student Health Clinic
- Wellness Center

- Biscayne Bay Campus Information Booth
- Public Safety
- Grounds
- Central Receiving
- PDC Administration

ENGINEERING CENTER (EC)

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

RESIDENTIAL 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 new housing and parking complex (currently under construction), 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.
- Phi gamma Delta Fraternity/Fiji: Fraternity housing
- Pi Kappa Alpha Fraternity: Fraternity housing

Proposed housing facilities include three additional Greek fraternity houses (Sigma Phi Epsilon, Sigma Alpha Mu, and Tau Kappa Epsilon). These projects have been approved and funded.

BISCAYNE BAY CAMPUS

The only housing facility at Biscayne Bay Campus is Bay Vista Housing. This is a four-story apartment style building with five wings. It is located on the northeastern corner of the campus.

ENGINEERING CENTER (EC)

There is no residential housing provided at this site.

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:

- US Century Bank Arena
- Baseball Stadium.
- FIU Community Stadium
- Recreation Complex
- Recreation Fields
- Women's Softball/Tennis Center

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:

- The Aquatic Center
- Outdoor Recreation Facilities: Tennis courts, basketball court and one multipurpose field.
- Fitness Center: Located inside the Wolfe University Center

ENGINEERING CENTER (EC)

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

UTILITIES USE

This land use designation refers to areas on campus that provide all the infrastructure necessary to support the University's electrical, storm water, sanitary sewer, potable water, chilled water, steam, natural gas, telecommunication and solid waste systems.

Utility provisions at Modesto A. Maidique Campus, Biscayne Bay Campus, the

Engineering Center, and The Wolfsonian 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 USE

This land use designation identifies those areas on campus that are appropriate for general parking in surface lots or garage structures.

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 five 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)

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.

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.

ENGINEERING CENTER (EC)

Surface parking is provided at the western and eastern portions of the site as well as below the building proper.

CONSERVATION AREAS

This land use designation identifies existing areas on the campus that shall be preserved and managed to protect natural features including topography, soil conditions, archaeological sites, plant and animal species, wildlife habitats, heritage trees and wetlands.

MODESTO A. MAIDIQUE

Modesto A. Maidique Campus is designated as a Wildlife Sanctuary by an agreement between FIU and the Audubon Society and, therefore, vegetative communities that serve as wildlife habitat are protected. However, no areas have been officially designated by the State for conservation. The area known as the "Natural Preserve" has been set aside by the University for Environmental Studies and natural open space. The latest environmental inspection conducted in 2001 revealed that most of the land on campus and in the preserve does not contain threatened or endangered fauna or protected wild life.

BISCAYNE BAY CAMPUS

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, an island immediately south of Biscayne Bay Campus.

The estuary at the north end of Biscayne Bay Campus has been designated as the Biscayne Bay Aquatic Preserve. The planting of mangroves at the southwestern end of campus was required as compensatory mitigation for the trimming of mangroves adjacent to Kovens Center. This mitigation site at the southwestern end of campus should be designated as a potential mitigation bank to prevent conflicts with future developments in this area.

ENGINEERING CENTER (EC)

No lands are designated for conservation.

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
- Wertheim Performing Arts Center

BISCAYNE BAY CAMPUS

No land use areas have been designated as Other Public facilities for Biscayne Bay Campus.

ENGINEERING CENTER (EC)

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

MULTI-USE

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.

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 (Excluding EC)

NAME	Acre	% of Total Acres
Academic + Research	59.6	17%
Multi-use	112.52	33%
Parking	14.43	4%
Recreation and Open Space	83.25	24%
Residential	38.1	11%
Support	25.18	7%
Other (non university)	9.12	3%
TOTAL	342.2	100%

ENGINEERING CENTER

NAME	Acre	% of Total Acres
Academic + Research	15.43	43%
Multi-use	7.66	21%
Recreation and Open Space	8.17	23%
Residential	0	0%
Support	4.74	13%
TOTAL	36	100%

BISCAYNE BAY CAMPUS

NAME	ACRE	% OF TOTAL ACRES
Academic + Research	49.57	25%
Conservation	39.27	20%
Multi-use	38.63	19%
Recreation and Open Space	48.37	24%
Residential	12.49	6%
Support	10.27	5%
TOTAL	198.6	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.

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 a 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.

ENGINEERING CENTER

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

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. **SECTION TO BE COMPLETED WHEN FUTURE LAND USE AREAS ARE FURTHER DEFINED.**

Table 4.5 Projected Land Requirements 2020– MODESTO A. MAIDIQUE

MODESTO A. MAIDIQUE (Excluding EC)

NAME	Acre	% of Total Acres
Academic & Research	50.29	18%
Community Interface	8.48	3%
Conservation	0	0
Mixed Use	114.85	41%
Parking	7.78	3%
Recreation and Open Space	69.43	24%
Residential	24.62	9%
Support	6.88	2%

ENGINEERING CENTER

NAME	Acre	% of Total Acres
Academic & Research	19.99	65%
Community Interface	0	0

Conservation	0	0
Mixed Use	4.04	13%
Parking	0	0
Recreation and Open Space	3.54	11%
Residential	0	0
Support	3.45	11%

BISCAYNE BAY CAMPUS

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– BISCAYNE BAY CAMPUS

NAME	ACRE	% OF TOTAL ACRES
Academic & Research	39.52	24%
Community Interface	0	0
Conservation	28.69	18%
Mixed Use	8.02	5%
Parking	0	0
Recreation and Open Space	56.90	35%
Residential	23.57	15%
Support	5.66	3%

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. The Miami Dade County Fair and Exposition site, located immediately south of Modesto A Maidique campus, is one of the possible sites that may 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 may 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)
- Airport Terminal Building – this is on the Modesto A. Maidique Campus proper.

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 the RS&H campus master plan update, on June 20, 2001, 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, low lawn areas and a portion of the preserve. No jurisdictional determination has been done for the campus. Campus expansion without a jurisdictional determination might result in need for mitigation or restoration that may not be necessary with prior jurisdictional determination. 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 water front parks. The campus shoreline has an unobstructed view to the state recreational area.)
- Oleta River Harbor (The shoreline makes up the southern boundary of the campus)
- Biscayne Bay Estuary and the Florida Intercoastal Waterway

Biscayne Bay Campus is located 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 a number of 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 Center
Hurricane Center (NOAA)
Carlos Finlay Elementary School
Patricia and Phillip Frost Museum
FIU Community Stadium

The stadium, located partially on FIU property and partially on Tamiami Park property, was 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 into 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 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 Biscayne Landing. The proposed reuse project will include a mix of residential, commercial, retail and recreation facilities, as well as a charter school—with full build-out projected by 2021. The developer of the project, Swerdlow Boca Development, will be responsible for the site's remediation as part of an 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.

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, 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 Biscayne Landing, 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.

Table 4.1 Modesto Maidique overall Inventory and projected space analysis

MODESTO A. MAIDIQUE CAMPUS		Fall 2011					HC	FTE	Under Construction	Year 2015			HC	FTE	Year 2020			HC	FTE	Projected'		
							Undergrad	15,412		Undergrad	17,461		Undergrad	19,489		Undergrad	24,650		Undergrad	24,650	Future Projects (in ASF)	
							Graduate	4,005		Grad	4,678		Grad	5,161		Grad	5,161		Grad	5,161		
							Total Students	19,417		Total Students	22,139		Total Students	24,650		Total Students	24,650		Total Students	24,650		
							E-Learning Students	5,985		E-Learning Students	6,742		E-Learning Students	9,742		E-Learning Students	9,742		E-Learning Students	9,742		
							Faculty FYE			Faculty FYE			Faculty FYE			Faculty FYE			Faculty FYE			
							Staff: Admin + Prof			Staff: Admin + Prof			Staff: Admin + Prof			Staff: Admin + Prof			Staff: Admin + Prof			
										Does not include CIP			Does not include CIP									
																					ASF	
Space Code	Florida Standard ^d	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)		Projected ASF ^b	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	ASF	
110	Classrooms (Office of Clsrn Mgmt)	12.08	126,867	6.53	10.64	206,692	(79,825)	9,994	136,861	235,667	(98,806)	136,861	262,397	(125,536)	136,861	262,397	(125,536)	136,861	262,397	(125,536)	61,860	
111	Classrooms (Departmentally Controlled)	12.08	17,100	0.88	1.42	27,631	(10,531)		17,100	31,504	(14,404)	17,100	35,078	(17,978)	17,100	35,078	(17,978)	17,100	35,078	(17,978)	0	
210	Teaching Labs + Service	13.77	166,744	8.59	13.77	267,372	(100,628)	7,511	174,255	304,854	(130,599)	174,255	339,431	(165,176)	174,255	339,431	(165,176)	174,255	339,431	(165,176)	28,410	
220	Open Labs		92,599	4.77	5.00	97,085	(4,486)		92,599	110,695	(18,096)	92,599	123,250	(30,651)	92,599	123,250	(30,651)	92,599	123,250	(30,651)	0	
250	Research Labs + Service	(9.88)	157,011	8.09	9.88	191,840	(34,829)	39,980	196,991	144,206	52,785	144,206	270,160	(125,954)	144,206	270,160	(125,954)	144,206	270,160	(125,954)	33,000	
300	Offices / Computer	36.88	576,016	29.67	29.00	563,093	62,965	92,027	724,220	642,031	82,189	724,220	714,850	9,370	724,220	714,850	9,370	724,220	714,850	9,370	135,738	
350	Conference	19.16 per Off	50,042	2.58	incl w/ Off	1:25-30	—	6,135	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	0
400	Study / Library	17.54	178,494	9.19	17.54	340,574	(162,080)	9,855	188,349	388,318	(199,969)	188,349	432,361	(244,012)	188,349	432,361	(244,012)	188,349	432,361	(244,012)	123,000	
520	Teaching Gymnasium	5.77	97,692	5.03	5.77	112,036	(14,344)		97,692	127,742	(30,050)	97,692	142,231	(44,539)	97,692	142,231	(44,539)	97,692	142,231	(44,539)	0	
530	Media Production	1.13	11,520	0.59	1.13	21,941	(10,421)	746	12,266	25,017	(12,751)	12,266	27,855	(15,589)	12,266	27,855	(15,589)	12,266	27,855	(15,589)	3,000	
540	Clinic		4,846	0.25	0.40	7,767	(2,921)		4,846	8,856	(4,010)	4,846	9,860	(5,014)	4,846	9,860	(5,014)	4,846	9,860	(5,014)	0	
541	Clinic- Medical		0			7,048	(7,048)		0	12,962	(12,962)	0	17,293	(17,293)	0	17,293	(17,293)	0	17,293	(17,293)	0	
550	Demonstration		4,033	0.21	0.10	1,942	2,091		4,033	2,214	1,819	4,033	2,465	1,568	4,033	2,465	1,568	4,033	2,465	1,568	0	
560	Field Buildings		0	0.00	0.00	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
570	Animal Quarters (off site ?)		3,117	0.16	0.00	0	3,117		3,117	0	3,117	3,117	0	3,117	0	3,117	0	3,117	0	3,117	0	
580	Greenhouses		4,842	0.25	0.50	9,709	(4,867)		4,842	11,070	(6,228)	4,842	12,325	(7,483)	4,842	12,325	(7,483)	4,842	12,325	(7,483)	0	
590	Other		1,601	0.08	0.08	1,553	48		1,601	1,771	(170)	1,601	1,972	(371)	1,601	1,972	(371)	1,601	1,972	(371)	19,020	
610	Assembly	3.00	55,614	2.86	3.00	58,251	17,179	7,869	63,483	66,417	16,882	63,483	73,950	9,349	63,483	73,950	9,349	63,483	73,950	9,349	7,600	
620	Exhibition		19,816	1.02	Incl w/ Assembly	—	—		19,816.00	Incl w/ Assembly	Incl w/ Assembly	19,816	—	Incl w/ Assembly	19,816	—	Incl w/ Assembly	19,816	—	Incl w/ Assembly	—	0
630	Food Service (HC basis)		44,668	2.30	5.00	165,995	(121,327)		44,668	180,420	(135,752)	44,668	188,595	(143,927)	44,668	188,595	(143,927)	44,668	188,595	(143,927)	0	
640	Day Care		0	0.00	0.00	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
650	Student Lounge		24,769	1.28	2.50	48,543	(23,774)		24,769	55,348	(30,579)	24,769	61,625	(36,856)	24,769	61,625	(36,856)	24,769	61,625	(36,856)	0	
660	Merchandising		39,984	2.06	2.21	42,912	(2,928)		39,984	48,927	(8,943)	39,984	54,477	(14,493)	39,984	54,477	(14,493)	39,984	54,477	(14,493)	0	
670	Recreation		35,984	1.85	1.50	29,126	6,859		35,984	33,209	2,776	35,984	36,975	(991)	35,984	36,975	(991)	35,984	36,975	(991)	0	
680	Meeting Room (other than 690)		38,350	—	3.00	58,251	(19,901)		38,350	66,417	(28,067)	38,350	73,950	(35,600)	38,350	73,950	(35,600)	38,350	73,950	(35,600)	0	
690	Student Academic Meeting Room		3,358	0.17	0.60	11,650	(8,292)	4,234	7,592	13,283	(5,691)	7,592	14,790	(7,198)	7,592	14,790	(7,198)	7,592	14,790	(7,198)	2,600	
710	Central Computer / Telecomm	24000 7.08	58,630	3.02	7.08	137,472	(78,842)	17,124	75,754	156,744	(80,990)	75,754	174,522	(98,768)	75,754	174,522	(98,768)	75,754	174,522	(98,768)	15,000	
711	E-Learning Support		0	0.00	0.00	0	0	13,000	13,000	0	13,000	13,000	0	13,000	0	13,000	0	13,000	0	13,000	0	
720	Shop / Central Service		Included in Cat 710		—	—	—		Included in Cat 710		—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0	
730	Central Storage		Included in Cat 710		—	—	—		Included in Cat 710		—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0	
740	Vehicle Storage (car parks not incl)		Included in Cat 710		—	—	—		Included in Cat 710		—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0	
750	Central Service		Included in Cat 710		—	—	—		Included in Cat 710		—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0	
760	Hazardous Materials		Included in Cat 710		—	—	—		Included in Cat 710		—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0	
800	Health Care		8,319	0.43	0.30	5,825	2,494		8,319	6,642	1,677	8,319	7,395	924	8,319	7,395	924	8,319	7,395	924	0	
TOTAL RECREATION SPACE			133,676	7	7	141,162	(7,486)		133,676	160,951	(27,275)	133,676	179,206	(45,530)	133,676	179,206	(45,530)	133,676	179,206	(45,530)		
TOTAL ACADEMIC/ RESERACH SPACE			738,815			1,131,194	(392,379)		806,155	1,215,245	(409,090)	753,370	1,462,676	(709,306)	753,370	1,462,676	(709,306)	753,370	1,462,676	(709,306)		
TOTAL SUPPORT SPACE			949,525			1,141,951	(192,426)		1,090,660	1,298,119	(207,459)	1,090,660	1,435,923	(345,263)	1,090,660	1,435,923	(345,263)	1,090,660	1,435,923	(345,263)		
TOTAL SPACE			1,822,016	91.86	120.43	2,414,307	(592,291)	208,475	2,030,491	2,674,314	(643,823)	1,977,706	3,077,804	(1,100,098)	1,977,706	3,077,804	(1,100,098)	1,977,706	3,077,804	(1,100,098)	429,228	
			2,378,806 = all 3 campuses						2,030,491					(1,100,098)								
			76.59%																			

Table 4.2 Engineering Center overall Inventory and projected space analysis

ENGINEERING CENTER																	
		Fall 2011					2015					2020					Projected Future Projects (in ASF)
		Undergrad	Graduate	HC	FTE	Undergrad	Graduate	HC	FTE	Undergrad	Graduate	HC	FTE				
Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt																	
Projected Exstg ASF = Existing + CIP/New Const - Demolition																	
Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"																	
		E-Learning Students					E-Learning Students					E-Learning Students					
		Staff: Admin + Prof General Staff					Staff: Admin + Prof General Staff					Staff: Admin + Prof General Staff					
		Under Construction															
Space Category	Florida Standard ^c	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)	Projected Exstg ASF ^b	Guideline ASF	Surplus (Deficit)	Projected Exstg ASF	Guideline ASF	Surplus (Deficit)	Projected Future Projects (in ASF)			
110 Classrooms (Office of Clstrm Mgmt)	12.08		12,022	11.40	12.08	12,744	(722)	12,022	13,538	(1,516)	# 12,022	16,658	(4,636)	0			
111 Classrooms (Departmentally Controlled)	12.08		0	0.00	0.00	0	0	0	0	0	0	0	0	0			
210 Teaching Labs + Service	13.77		13,230	12.54	13.77	14,527	(1,297)	13,230	14,898	(1,668)	13,230	18,989	(5,759)	0			
220 Open Labs			7,547	7.15	5.00	5,275	2,272	7,547	5,940	1,607	7,547	6,895	652	0			
250 Research Labs + Service	9.88		78,788	74.68	9.88	10,423	68,365	78,788	11,737	67,051	78,788	13,625	65,163	0			
300 Offices / Computer	36.88		61,172	57.98	29.00	30,595	35,811	66,406	34,452	31,954	66,406	39,991	26,415	0			
350 Conference Center	28.08 per Off		5,234	4.96	incl w/ Off	1:25-30	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	0			
400 Study / Library	17.54		987	0.94	17.54	18,505	(17,518)	987	20,838	(19,851)	987	24,188	(23,201)	0			
520 Teaching Gymnasium	0.00		0	0.00	0.00	0	0	0	0	0	0	0	0	0			
530 Media Production	1.13		0	0.00	1.13	1,192	(1,192)	0	1,342	(1,342)	0	1,558	(1,558)	0			
540 Clinic			0	0.00	0.40	422	(422)	0	475	(475)	0	552	(552)	0			
545 Clinic- Medical																	
550 Demonstration			0	0.00	0.10	106	(106)	0	119	(119)	0	138	(138)	0			
560 Field Buildings			0	0.00	—	—	—	—	—	—	—	—	—	0			
570 Animal Quarters			0	0.00	—	—	—	—	—	—	—	—	—	0			
580 Greenhouses			0	0.00	0.50	528	(528)	0	594	(594)	0	690	(690)	0			
590 Other			0	0.00	0.00	0	0	0	0	0	0	0	0	0			
610 Assembly	3.00		0	0.00	3.00	3,165	(3,165)	0	3,564	(3,564)	0	4,137	(4,137)	0			
620 Exhibition			0	0.00	incl w/ Assembly	cl w/ Assembly	w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	0			
630 Food Service (HC basis)			7,090	6.72	5.00	12,280	(5,190)	7,090	13,235	(6,145)	7,090	14,590	(7,500)	0			
640 Day Care			0	0.00	0.00	0	0	0	0	0	0	0	0	0			
650 Student Lounge			0	0.00	2.50	2,638	(2,638)	0	2,970	(2,970)	0	3,448	(3,448)	0			
660 Merchandising			0	0.00	2.21	2,332	(2,332)	0	2,625	(2,625)	0	3,048	(3,048)	0			
670 Recreation			0	0.00	1.50	1,583	(1,583)	0	1,782	(1,782)	0	2,069	(2,069)	0			
680 Meeting Room (other than 690)			1,005	0.95	3.00	3,693	(2,688)	1,005	3,564	(2,559)	1,005	4,137	(3,132)	0			
690 Student Academic Meeting Room			0	0.00	0.60	633	(633)	0	713	(713)	0	827	(827)	0			
710 Central Computer / Telecomm	7.08		0	3.03	7.08	7,469	(4,276)	3,193	8,411	(5,218)	3,193	9,763	(6,570)	0			
711 E-Learning Support														0			
720 Shop / Central Service			161	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
730 Central Storage			2,800	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
740 Vehicle Storage (ramps not incl)			0	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
750 Central Service			67	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
760 Hazardous Materials			165	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
800 Health Care			67	0.30	0.30	317	(250)	67	356	(289)	67	414	(347)	0			
TOTAL ACADEMIC/ RESEARCH SPACE			112,574	107	58	61,475	51,099	112,574	66,950	45,624	112,574	80,354	32,220				
TOTAL RECREATION SPACE			0	0	2	1,583	(1,583)	0	1,782	(1,782)	0	2,069	(2,069)				
TOTAL SUPPORT SPACE			77,761	74	55	65,368	12,393	11,337	55,682	(44,345)	11,337	63,862	(52,525)				
TOTAL SPACE			190,335	180.65	114.59	128,425	61,910	190,335	141,154	49,181	190,335	165,715	24,620	0			

Table 4.3 Biscayne Bay overall Inventory and projected space analysis

BISCAYNE BAY CAMPUS																		
		Fall 2011						Under Construction			2015			2020			Projected Future Projects (in ASF)	
		Undergrad		Graduate		HC	FTE	Undergrad		Graduate		HC	FTE	Undergrad		Graduate		
		Total Students		Total Students		Total Students	Total Students	Total Students		Total Students		Total Students	Total Students	Total Students		Total Students		
		E-Learning Students		E-Learning Students		E-Learning Students		E-Learning Students		E-Learning Students		E-Learning Students		E-Learning Students		E-Learning Students		
		Staff: Admin + Prof		Staff: Admin + Prof		Staff: Admin + Prof		Staff: Admin + Prof		Staff: Admin + Prof		Staff: Admin + Prof		Staff: Admin + Prof		Staff: Admin + Prof		
		General Staff		General Staff		General Staff		General Staff		General Staff		General Staff		General Staff		General Staff		
														ASF				
CV	Space Category	Florida Standard	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)	Existing	Projected Exstg ASF ^b	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	ASF			
110	Classrooms (Office of Clsm Mgmt)	11.84	38,458	13.28	11.84	34,277	4,181	8,000	46,458	38,681	7,777	46,458	46,247	211	8,000			
111	Classrooms (Departmentally Controlled)	11.84	0	0.00	0.00	0	0		0	0	0	0	0	0	0			
210	Teaching Labs + Service		43,490	15.02	9.73	28,168	15,322		43,490	31,788	11,702	43,490	38,005	5,485	0			
220	Open Labs		20,168		5.00	14,475	5,693		20,168	16,335	3,833	20,168	19,530	638	0			
250	Research Labs + Service	13.08	25,240	8.72	13.08	37,867	(12,627)	8,000	33,240	42,732	(9,492)	33,240	51,090	(17,850)	8,000			
300	Offices / Computer	29.08	99,686	34.43	26.00	75,270	32,627	16,800	124,697	84,942	39,755	124,697	101,556	23,141	16,800			
350	Conference Rooms	20.94 per Off	8,211	2.84	Incl w/ 300				Incl w/ Office	Incl w/ Office	Incl w/ Office	Incl w/ Office	Incl w/ Office	Incl w/ Office	0			
400	Study / Library	17.54	35,084	12.12	17.54	50,778	(15,694)	6,000	41,084	57,303	(16,219)	41,084	68,511	(27,427)	6,000			
520	Teaching Gymnasium	0.00	8,887	3.07	0.00	0	8,887		8,887	0	8,887	8,887	0	8,887	0			
530	Media Production	0.50	1,956	0.68	0.50	1,448	509	800	2,756	1,634	1,123	2,756	1,953	803	0			
540	Clinic		209	0.07	0.40	1,158	(949)		209	1,307	(1,098)	209	1,562	(1,353)	0			
545	Clinic- Medical		0			0			0	0		0		0				
550	Demonstration		0	0.00	0.10	290	(290)		0	327	(327)	0	391	(391)	0			
560	Field Buildings		0	0.00					0						0			
570	Animal Quarters		0	0.00					0						0			
580	Greenhouses		0	0.00	0.50	1,448	(1,448)		0	1,634	(1,634)	0	1,953	(1,953)	0			
590	Other		49	0.00			49	400	449	449	0	449	449	0	400			
610	Assembly	3.00	15,485	5.35	3.00	8,685	7,505		16,190	9,801	6,389	16,190	11,718	4,472	0			
620	Exhibition		705	Incl w/ Assembly					Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly	0			
630	Food Service (HC basis)		7,984	2.76	5.00	36,365	(28,381)		7,984	39,190	(31,206)	7,984	45,275	(37,291)	0			
640	Day Care		0						0						0			
650	Student Lounge		9,059	3.13	2.50	7,238	1,822		9,059	8,168	892	9,059	9,765	(706)	0			
660	Merchandising		0	0.00	2.21	6,398	(6,398)		0	7,220	(7,220)	0	8,632	(8,632)	0			
670	Recreation		673	0.23	1.50	4,343	(3,670)		673	4,901	(4,228)	673	5,859	(5,186)	0			
680	Meeting Room (other than 690)		28,866	9.97	3.00	19,602	9,264		28,866	9,801	19,065	28,866	11,718	17,148	0			
690	Student Academic Meeting Room		1,737	0.00	0.60	1,737	0		1,737	1,960	(223)	1,737	2,344	(607)	1,600			
710	Central Computer / Telecomm		726	6.67	7.08	20,497	(1,200)		19,297	23,130	(3,833)	19,297	27,654	(8,357)	0			
711	E-Learning Support		0						0					0.00	0			
720	Shop / Central Service		5,799	Included in Cat 710					Included in Cat 710			Included in Cat 710			0			
730	Central Storage		12,296	Included in Cat 710					Included in Cat 710			Included in Cat 710			0			
740	Vehicle Storage (ramps not incl)		306	Included in Cat 710					Included in Cat 710			Included in Cat 710			0			
750	Central Service		0	Included in Cat 710					Included in Cat 710			Included in Cat 710			0			
760	Hazardous Materials		170	Included in Cat 710					Included in Cat 710			Included in Cat 710			0			
800	Health Care		1,211	0.42	0.30	869	343		1,211	980	231	1,211	1,172	39	0			
TOTAL ACADEMIC/ RESEARCH SPACE			162,440	49	57	165,565	(3,125)		184,440	186,840	(2,400)	184,440	223,384	(38,944)				
TOTAL RECREATION SPACE			9,560	3	2	4,343	5,218		9,560	4,901	4,660	9,560	5,859	3,701				
TOTAL SUPPORT SPACE			194,455	63	51	181,002	13,453		212,455	190,542	21,913	212,455	226,142	(13,687)				
TOTAL SPACE			366,455	119	109.88	350,910	15,545	40,000	406,455	382,282	24,173	406,455	455,385	(48,930)	40,800			

5.0 ACADEMIC AND RESEARCH FACILITIES ELEMENT

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 111 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. Open laboratories (220) are not generally formally scheduled. Research laboratories (250) are used for research, experimentation or creative activity and are not scheduled.

Assumptions

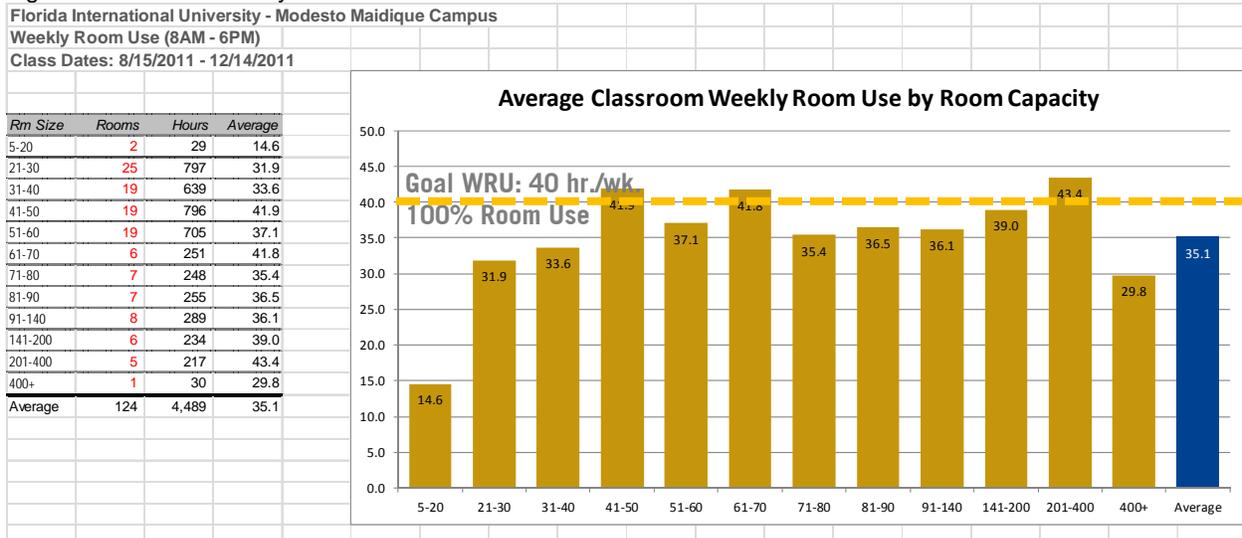
- Space utilization analysis and space needs projections were performed based on Florida Board of Governors document titled, '*Space Standards for Fixed Capital Outlay Needs Generation Formula*'. Where no Florida standard existed, Council of Educational Facility Planners International (CEFPI) guidelines were utilized. Florida International University provided actual head count (HC) and full time equivalent (FTE) projections from which the growth rates of 14% FOR 2015 AND 11.34% FROM 2015-2020 were projected. These numbers will be used as the basis of enrollment projections and resultant modeling of space needs for both target dates.

(1) DATA REQUIREMENTS

b) Existing Building Spaces Inventory

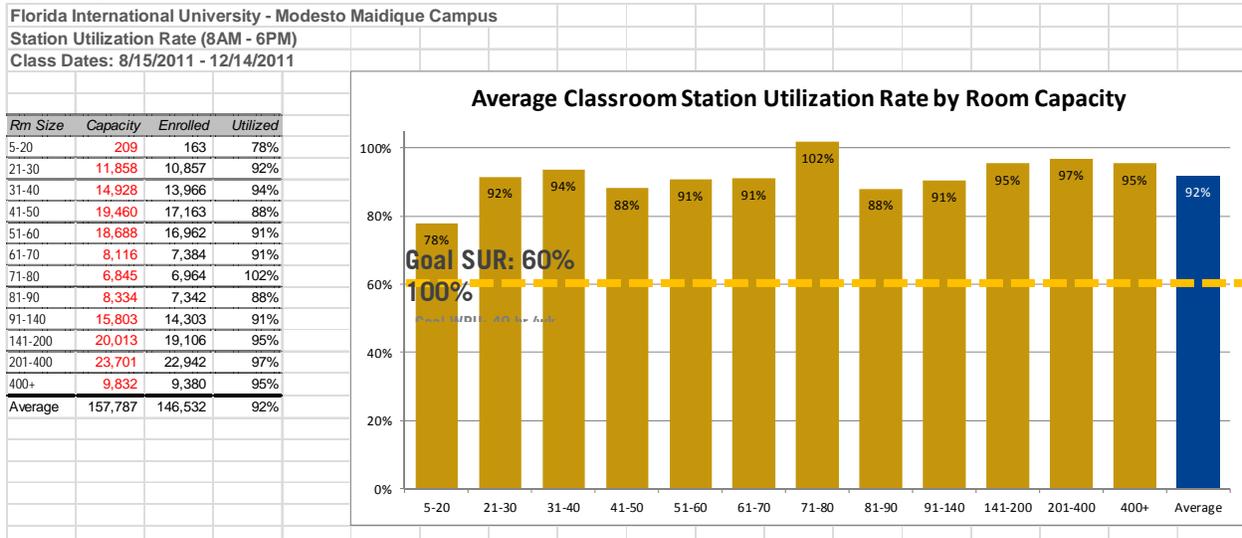
Tables, 5.2, 5.3 and 5.4: Show an inventory of existing academic spaces at Modesto A. Maidique, Engineering Center and Biscayne Bay Campuses.

Figure 5.5a-c Modesto A Maidique Campus Existing Classroom Space Utilization
 Figure 5.5 a WRU- Weekly Room use



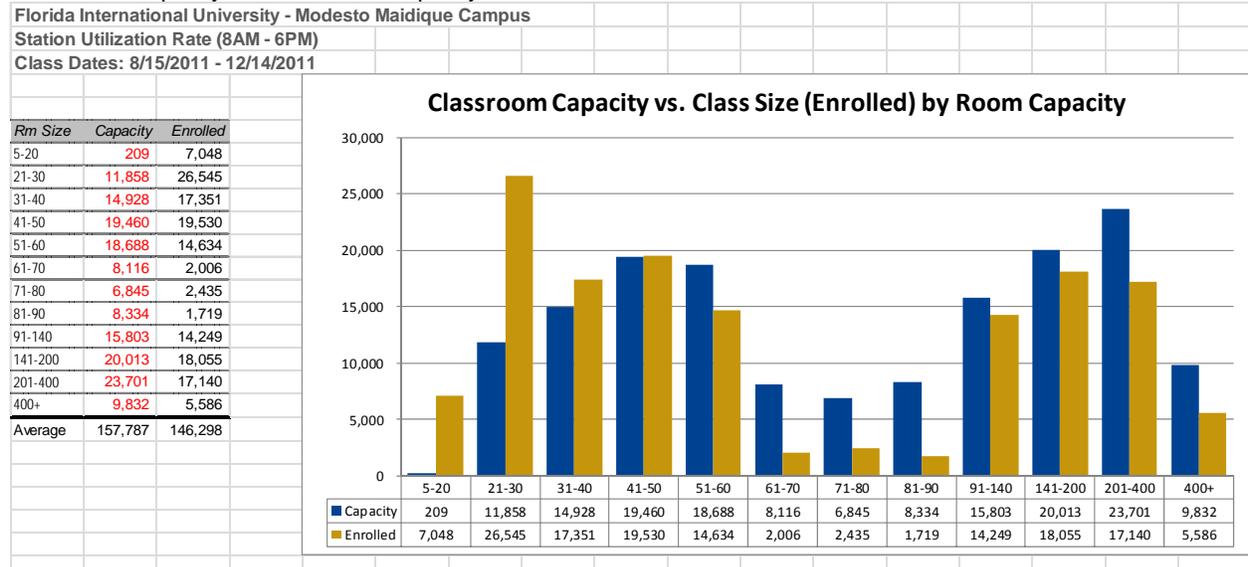
Average Hours Used per Week by Room Capacity Range
 Maximum number of hours per week: 50 hours
 FIU Goal number of hours per week: 40 hours (80%)

Figure 5.5b
 SUR- Station Utilization Rate



Average Station Utilization per Week by Room Capacity Range
 FIU Goal Station Utilization Rate: 60%

Figure 5.5 c
Classroom Capacity vs. Enrollment Capacity

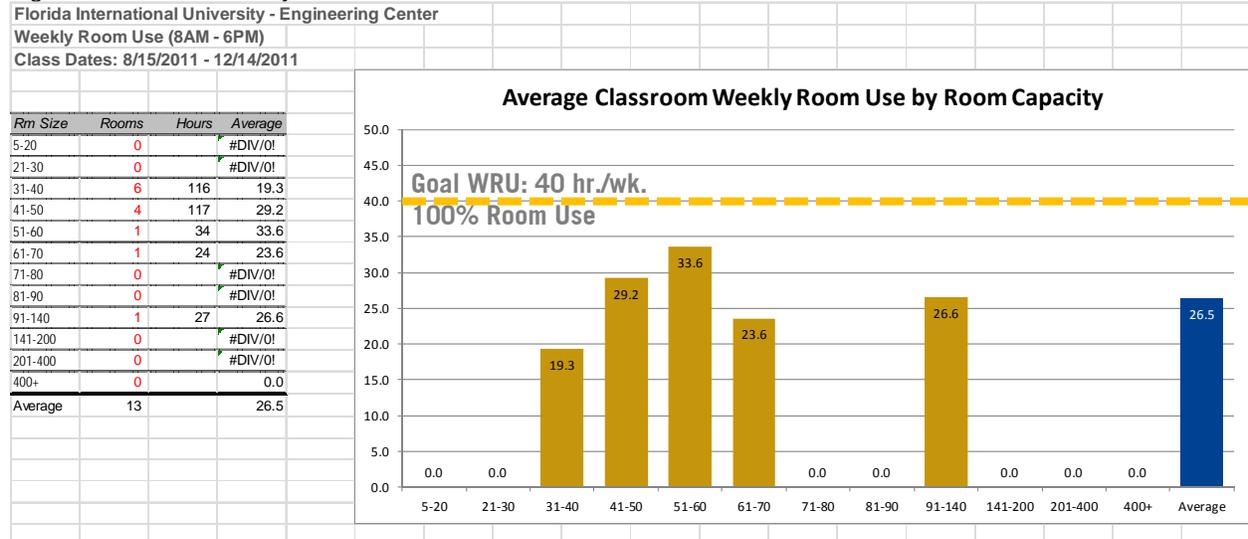


Capacity: Total Maximum Count of Seats per Classroom by Room Capacity

Enrolled: Total number of seats based on actual enrolled students by Room Capacity

Figure 5.6 a-c Engineering Center Campus Existing Classroom Space Utilization

Figure 5.6 a WRU- Weekly Room use



Average Hours Used per Week by Room Capacity Range

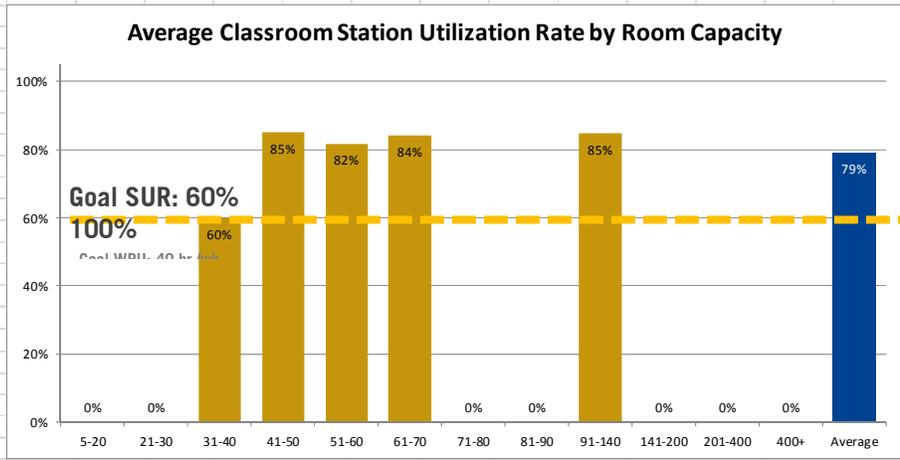
Maximum number of hours per week: 50 hours

FIU Goal number of hours per week: 40 hours (80%)

Figure 5.6 b SUR- Station Utilization Rate

Florida International University - Engineering Center
 Station Utilization Rate (8AM - 6PM)
 Class Dates: 8/15/2011 - 12/14/2011

Rm Size	Capacity	Enrolled	Utilized
5-20	0		#DIV/0!
21-30	0		#DIV/0!
31-40	2,554	1,530	60%
41-50	2,980	2,535	85%
51-60	1,015	829	82%
61-70	1,036	871	84%
71-80			#DIV/0!
81-90			#DIV/0!
91-140	827	701	85%
141-200			#DIV/0!
201-400			#DIV/0!
400+			#DIV/0!
Average	8,412		79%



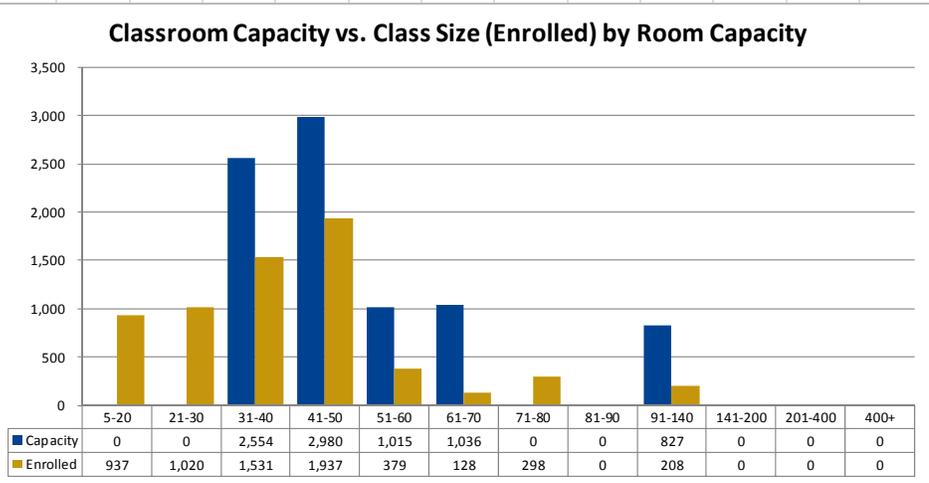
Average Station Utilization per Week by Room Capacity Range

FIU Goal Station Utilization Rate: 60%

Figure 5.6c Classroom Capacity vs. Enrollment Capacity

Florida International University - Engineering Center
 Station Utilization Rate (8AM - 6PM)
 Class Dates: 8/15/2011 - 12/14/2011

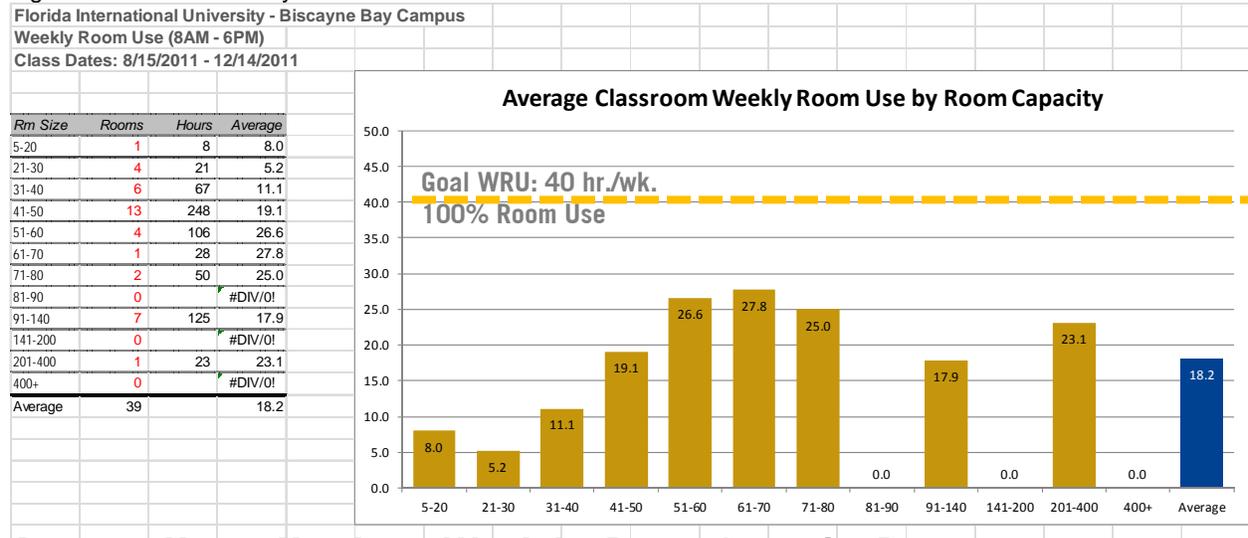
Rm Size	Capacity	Enrolled
5-20	0	937
21-30	0	1,020
31-40	2,554	1,531
41-50	2,980	1,937
51-60	1,015	379
61-70	1,036	128
71-80	0	298
81-90	0	0
91-140	827	208
141-200	0	0
201-400	0	0
400+	0	0
Average	8,412	6,438



Capacity: Total Maximum Count of Seats per Classroom by Room Capacity
Enrolled: Total number of seats based on actual enrolled students by Room Capacity

Figure 5.7a-c Biscayne Bay Campus Existing Space Utilization

Figure 5.7a WRU- Weekly Room use

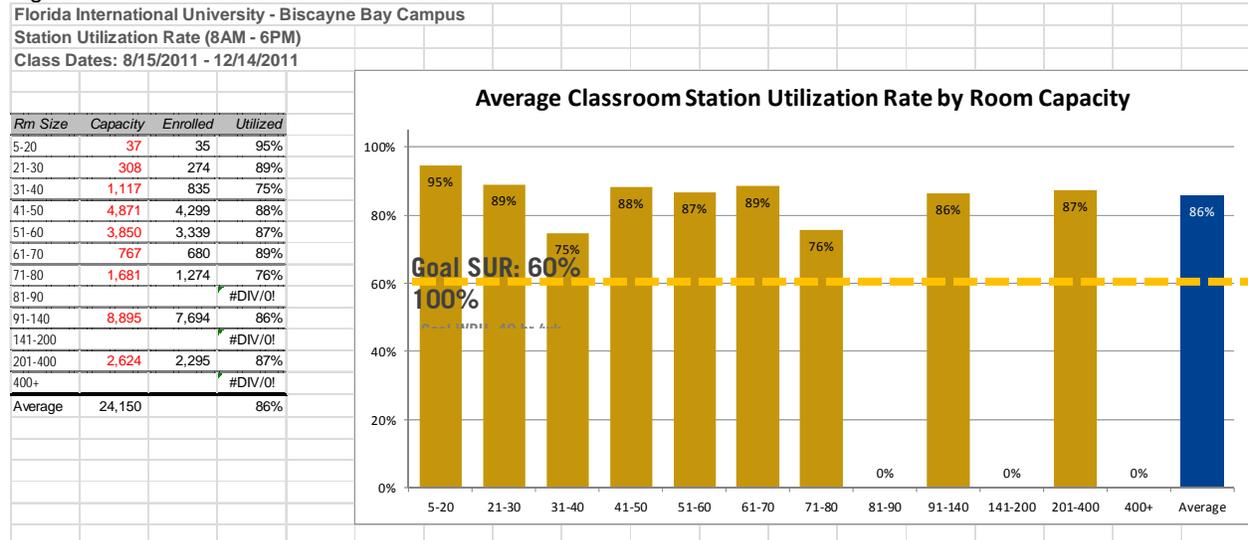


Average Hours Used per Week by Room Capacity Range

Maximum number of hours per week: 50 hours

FIU Goal number of hours per week: 40 hours (80%)

Figure 5.7 b SUR- Station Utilization Rate



Average Station Utilization per Week by Room Capacity Range

FIU Goal Station Utilization Rate: 60%

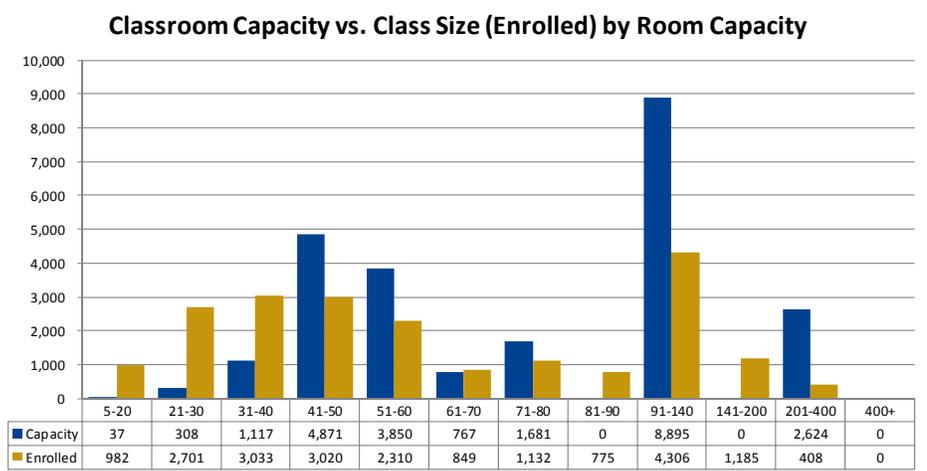
Figure 5.7c Classroom Capacity vs. Enrollment Capacity

Florida International University - Biscayne Bay Campus

Station Utilization Rate (8AM - 6PM)

Class Dates: 8/15/2011 - 12/14/2011

Quantity of Seats		
Rm Size	Capacity	Enrolled
5-20	37	982
21-30	308	2,701
31-40	1,117	3,033
41-50	4,871	3,020
51-60	3,850	2,310
61-70	767	849
71-80	1,681	1,132
81-90	0	775
91-140	8,895	4,306
141-200	0	1,185
201-400	2,624	408
400+	0	0
Average	24,150	20,701



Capacity: Total Maximum Count of Seats per Classroom by Room Capacity
Enrolled: Total number of seats based on actual enrolled students by Room Capacity

d) **SUS -Space Use Standards**

Table 5.8 MMC/ EC Campus Use Standards for Academic Space type

Florida Space Standards from FIU Educational Plant Survey 2010 + CEFPI Standards for Categories not included		
FIU		
MMC / EC Campus		
P+W FICM NO	P+W FICM NAME	NASF/ FTE
110	Classrooms (Office of Clsrm Mgmt)	12.08
111	Dedicated Classrooms + Service (.1347)	12.08
210	Teaching Labs + Service	13.77
220	Open Labs	5.00
250	Research Labs + Service	9.88
310	Offices / Computer	36.88 Is FIU Standard used instead-29
350	Conference	incl w/ Off
400	Study / Library	17.54
520	Teaching Gymnasium	5.77
530	Media Production	1.13
540	Clinic	0.40
550	Demonstration	0.10
560	Field Buildings	0.00
570	Animal Quarters (off site ?)	0.00
580	Greenhouses	0.50
590	Other	0.08
610	Assembly	3.00
620	Exhibition	Incl w/ Assembly
630	Food Service	6.00
640	Day Care	0.00
650	Student Lounge	2.50
660	Merchandising	2.21
670	Recreation	1.50
680	Meeting Room (other than 690)	3.00
690	Student Academic Meeting Room	0.60
710	Central Computer / Telecomm	7.08
711	E-Learning Support	Refer to University Report
720	Shop / Central Service	included in 710
730	Central Storage	included in 710
740	Vehicle Storage (ramps not incl)	included in 710
750	Central Service	included in 710
760	Hazardous Materials	included in 710
800	Health Care	Core 2,000 +0.3 > 2,000 FTE
	Gold Box are Florida Space Standards from FIU Educational Plant Survey	
	Grey Boxes are CEFPI Standards + P+W Benchmarks	

Table 5.9 BBC Campus Space Use Standards for Academic Space

Florida Space Standards from FIU Educational Plant Survey 2010 + CEFPFI Standards for Categories not included		
FIU		
BBC Campus		
P+W FICM NO	P+W FICM NAME	NASF/ FTE
110	Classrooms (Office of Clsrm Mgmt)	11.84
111	Dedicated Classrooms + Service (.1347)	0.00
210	Teaching Labs + Service	9.73
220	Open Labs	5.00
250	Research Labs + Service	13.08
310	Offices / Computer	29.08 Is FIU Standard used instead-26
350	Conference	incl w/ Off
400	Study / Library	16.51
520	Teaching Gymnasium	0.00
530	Media Production	0.50
540	Clinic	0.40
550	Demonstration	0.10
560	Field Buildings	—
570	Animal Quarters (off site ?)	—
580	Greenhouses	0.5
590	Other	—
610	Assembly	3.00
620	Exhibition	—
630	Food Service	6.00
640	Day Care	—
650	Student Lounge	2.50
660	Merchandising	2.21
670	Recreation	1.50
680	Meeting Room (other than 690)	3.50
690	Student Academic Meeting Room	0.60
710	Central Computer / Telecomm	7.08
711	E-Learning Support	Refer to University Report
720	Shop / Central Service	included in 710
730	Central Storage	included in 710
740	Vehicle Storage (ramps not incl)	included in 710
750	Central Service	included in 710
760	Hazardous Materials	included in 710
800	Health Care	Core 2,000 +0.3 > 2,000 FTE
	Gold Box are Florida Space Standards from FIU Educational Plant Survey	
	Grey Boxes are CEFPFI Standards + P+W Benchmarks	

Notes:

- a) All space categories include supporting service space
- b) Space Standards Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"
- c) Space Standards not listed by Florida Bd of Governors used a hybrid of CEFPFI Standards and P+W benchmark data

e) **Existing Total Credit Hours total academic year 2011-2012**

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

CAMPUS	STUDENT CREDIT HOURS
Modesto A. Maidique	777,192
Biscayne Bay	113,587
Pines Center	18,151
Other	274,757
UNIVERSITY WIDE	1,183,687

Source: FIU 2011 Fact Book: SCH By Campus
 Academic Year 2011 - 2012 reflects preliminary Spring 12 data (data subject to change)
 *Doesn't include data for college of medicine

(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 2015 and 2020

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 2015 and 2020

c) Future Space Utilization Assumptions

Table 5.12 Future Space utilization assumptions and goals

Classrooms	40 HPW
Teaching Laboratories	WRU- Weekly Room use Maximum number of hours per week: 50 hours FIU Goal number of hours per week: 20 hours (40%) SUR- Station Utilization Rate FIU Goal Station Utilization Rate: 80%
Research Laboratories	No Vacant Space
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 2015 and 2020. 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 2015 (Blue Column) and 2020 (Pink Column), in Tables 5.013 – 5.15.

Academic Space is directly analyzed in the following rows:

FICM numbers 110, 111 are classroom space

FICM numbers 210 220 are Teaching and Open Labs

FICM number 250 are Research Labs

FICM number 400 are Library 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 P+W benchmark data was used. (See tables 5.4 and 5.5 above)

Table 5.13 Modesto Maidique Campus-Future projected net academic space needs

MODESTO A. MAIDIQUE CAMPUS			<i>Year 2015</i>			<i>Year 2020</i>		
	HC	FTE		HC	FTE		HC	FTE
	Undergrad	29,816	17,461		Undergrad	31,004	19,489	
	Grad	6,268	4,678		Grad	6,715	5,161	
	<i>Total Students</i>	36,084	22,139		<i>Total Students</i>	37,719	24,650	
	<i>E-Learning Students</i>	16,166	6,742		<i>E-Learning Students</i>	22,707	9,742	
	Faculty FYE				Faculty FYE			
	Staff: Admin + Prof				Staff: Admin + Prof			
	Does not include CIP				Does not include CIP			
<i>Space Code</i>	<i>Projected ASF^b</i>	<i>Guideline ASF</i>	<i>Surplus (Deficit)</i>	<i>Projected ASF</i>	<i>Guideline ASF</i>	<i>Surplus (Deficit)</i>		
110	Classrooms (Office of Clsmg Mgmt)	136,861	235,667	(98,806)	136,861	262,397	(125,536)	
111	Classrooms (Departmentally Controlled)	17,100	31,504	(14,404)	17,100	35,078	(17,978)	
210	Teaching Labs + Service	174,255	304,854	(130,599)	174,255	339,431	(165,176)	
220	Open Labs	92,599	110,695	(18,096)	92,599	123,250	(30,651)	
250	Research Labs + Service	196,991	144,206	52,785	196,991	270,160	(73,169)	
400	Study / Library	188,349	388,318	(199,969)	188,349	432,361	(244,012)	
	<i>TOTAL ACADEMIC/ RESERACH SPACE</i>	806,155	1,215,245	(409,090)	806,155	1,462,676	(656,521)	

NOTES:

- a) Projections based on 2011 FTE and FIU FTE projections for Years 2015 and 2020
- b) Space Standards Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"
- c) Space Standards not listed by Florida Bd of Governors used a hybrid of CEFPI Standards and P+W benchmark data
- d) All space categories include supporting service space
- e) Existing ASF per FIU building inventory document
- f) Proposed CIP projects source: 2012 CIP Plan

- d) All space categories include supporting service space
- e) Existing ASF per FIU building inventory document
- f) Proposed CIP projects source: 2012 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 5.16-18. The NASF for each FICM category is divided by these factors to create specific overall building need gross square footages (GSF) Tables 5.16-5.18 Show future Gross SF for FIU by campus.

Table 5.16 Modesto A. Maidique Campus--Future projected GSF academic space needs

MODESTO A. MAIDIQUE CAMPUS			Grossing	GSF	GSF
			Factor	2015	2020
			By		
			FICM		
			Category		
^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt					
^b Projected Exstg ASF = Existing + CIP/New Const - Demolition					
^c Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"					
<i>Space Code</i>					
110	Classrooms (Office of Clsrn Mgmt)		0.65	(152,010)	(193,132)
111	Classrooms (Departmentally Controlled)		0.65	(22,161)	(27,658)
210	Teaching Labs + Service		0.60	(217,665)	(275,293)
220	Open Labs		0.60	(30,160)	(51,085)
250	Research Labs + Service		0.58	91,009	(217,162)
400	Study / Library		0.75	(266,625)	(325,349)
				GSF total by type	GSF total by type
		Classroom,Class lab,Open lab, Study		(526,271)	(775,110)
		Research Lab		91009	(217162)

ENGINEERING CENTER				
		<i>Grossing</i> Factor	<i>GSF</i> 2015	<i>GSF</i> 2020
^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt				
^b Projected Exstg ASF = Existing + CIP/New Const - Demolition		By		
^c Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"		FICM		
		CATEGORY		
<i>Space Ccc</i>				
<i>Space Category</i>				
110	Classrooms (Office of Clsrm Mgmt)	0.65	(2,332)	(7,133)
111	Classrooms (Departmentally Controlled)	0.65	0	0
210	Teaching Labs + Service	0.60	(2,780)	(9,598)
220	Open Labs	0.60	2,678	1,087
250	Research Labs + Service	0.58	115,604	112,351
400	Study / Library	0.75	(26,467)	(30,934)
			GSF total by type	GSF total by type
Classroom,Class lab,Open lab, Study			(30934)	(40578)
Research Lab			115604	112351

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.

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 or multi-person stations or seats, 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 and conference rooms.

The 500 Series are Special Use Support Facilities 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 would be media production, clinic, demonstration, field buildings, animal quarters and greenhouses.

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, Exhibition, Food -Service, Daycare, Student Lounge, Merchandising and Meeting Rooms.

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, telecommunications, physical plant operations and hazardous material storage.

For all inventory and analysis sections for university owned or managed intercollegiate athletic facilities, intramural athletic facilities and recreation facilities, including FICM Sections 520- 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, other FIU sites not included are; the FIU Wolfsonian and Wolfsonian Annex, Brickle and The Pine Center. Tables 6.1-6.3 contain an inventory of existing support spaces by function for each campus.

Table 6.1 Modesto A Madique Inventory of Existing Spaces for Support Facilities (in ASF-Assignable Square Feet)

MODESTO A. MAIDIQUE CAMPUS				Fall 2011		HC	FTE	
				Undergrad		27,662	15,412	
				Graduate		5,537	4,005	
				<i>Total Students</i>		33,199	19,417	
				<i>E-Learning Students</i>		14,998	5,985	
				Faculty FYE				
				Staff: Admin + Prof				
^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt ^b Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"								
Space Code		Florida Standard ^c	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)
300	Offices / Computer	36.88		576,016	29.67	29.00	563,093	62,965
350	Conference	19.16 per Off		50,042	2.58	incl w/ Off	1:25-30	—
530	Media Production	1.13		11,520	0.59	1.13	21,941	(10,421)
540	Clinic			4,846	0.25	0.40	7,767	(2,921)
541	Clinic- Medical			0			7,048	(7,048)
550	Demonstration			4,033	0.21	0.10	1,942	2,091
560	Field Buildings			0	0.00	0.00	0	0
570	Animal Quarters (off site ?)			3,117	0.16	0.00	0	3,117
580	Greenhouses			4,842	0.25	0.50	9,709	(4,867)
590	Other			1,601	0.08	0.08	1,553	48
610	Assembly	3.00		55,614	2.86	3.00	58,251	17,179
620	Exhibition			19,816	1.02	Incl w/ Assembly	—	—
630	Food Service (HC basis)			44,668	2.30	5.00	165,995	(121,327)
640	Day Care			0	0.00	0.00	0	0
650	Student Lounge			24,769	1.28	2.50	48,543	(23,774)
660	Merchandising			39,984	2.06	2.21	42,912	(2,928)
680	Meeting Room (other than 690)			38,350	—	3.00	58,251	(19,901)
690	Student Academic Meeting Room			3,358	0.17	0.60	11,650	(8,292)
710	Central Computer / Telecomm	24000	7.08	58,630	3.02	7.08	137,472	(78,842)
711	E-Learning Support			0	0.00	0.00	0	0
720	Shop / Central Service			Included in Cat 710		—	—	—
730	Central Storage			Included in Cat 710		—	—	—
740	Vehicle Storage (car parks not incl)			Included in Cat 710		—	—	—
750	Central Service			Included in Cat 710		—	—	—
760	Hazardous Materials			Included in Cat 710		—	—	—
800	Health Care			8,319	0.43	0.30	5,825	2,494
TOTAL SUPPORT SPACE				949,525			1,141,951	(192,426)

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

ENGINEERING CENTER									
				<i>Fall 2011</i>			HC	FTE	
							Undergrad	1,942	864
							Graduate	514	191
							<i>Total Students</i>	2,456	1,055
^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt									
				<i>E-Learning Students</i>					
^c Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"				Staff: Admin + Prof General Staff					
<i>Space Cdc</i>	<i>Space Category</i>		Florida Standard ^c	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)
300	Offices / Computer		36.88	▪	61,172	57.98	29.00	30,595	35,811
350	Conference Center	28.08	per Off		5,234	4.96	incl w/ Off	1:25-30	incl w/ Off
530	Media Production		1.13	▪	0	0.00	1.13	1,192	(1,192)
540	Clinic				0	0.00	0.40	422	(422)
545	Clinic- Medical								
550	Demonstration				0	0.00	0.10	106	(106)
560	Field Buildings				0	0.00	—	—	—
570	Animal Quarters				0	0.00	—	—	—
580	Greenhouses				0	0.00	0.50	528	(528)
590	Other				0	0.00	0.00	0	0
610	Assembly		3.00	▪	0	0.00	3.00	3,165	(3,165)
620	Exhibition			▪	0	0.00	incl w/ Assembly	cl w/ Assembly	w/ Assembly
630	Food Service (HC basis)				7,090	6.72	5.00	12,280	(5,190)
640	Day Care				0	0.00	0.00	0	0
650	Student Lounge				0	0.00	2.50	2,638	(2,638)
660	Merchandising				0	0.00	2.21	2,332	(2,332)
680	Meeting Room (other than 690)			▪	1,005	0.95	3.00	3,693	(2,688)
690	Student Academic Meeting Room			▪	0	0.00	0.60	633	(633)
710	Central Computer / Telecomm		7.08	▪	0	3.03	7.08	7,469	(4,276)
711	E-Learning Support								
720	Shop / Central Service			▪	161	Included in Cat 710		—	—
730	Central Storage			▪	2,800	Included in Cat 710		—	—
740	Vehicle Storage (ramps not incl)			▪	0	Included in Cat 710		—	—
750	Central Service			▪	67	Included in Cat 710		—	—
760	Hazardous Materials			▪	165	Included in Cat 710		—	—
800	Health Care				67	0.30	0.30	317	(250)
	TOTAL SUPPORT SPACE				77,761	74	55	65,368	12,393

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

b) Inventory of all University-owned Athletic Facilities

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

c) Projections for Future Student FTE Enrollment

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

University Enrollment By Campus Fulltime Equivalent	2015	2020
	FTE	FTE
MMC-Total		
Enrollment	22,139	24,650
Undergraduate	17,461	19,489
Graduate	4,678	5,161
BBC- Total		
Enrollment	3,267	3,906
Undergraduate	2,950	3,526
Graduate	317	380
EEC Total		
Enrollment	1,188	1,379
Undergraduate	979	1,137
Graduate	209	242
On-Line Total		
Enrollment	6,742	9,742
Undergraduate	5,663	8,182
Graduate	1,079	1,560
Total Undergraduate	27,053	32,334
Total Graduate	6,283	7,343
University Total	33,336	39,677

d) 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

2010 Educational Plant Survey.

e) 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 growth rate of 14% FOR 2015 AND 11.34% FROM 2015-2020 be used as the basis of enrollment projections and resultant modeling of space needs for both target dates. FIU provided actual headcount and full time equivalent (FTE) projections for the years 2015 and 2020.
- 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.

Table 6.8 –Modesto Maidique Campus Projected Support Space Needs

MODESTO A. MAIDIQUE CAMPUS			Year 2015			HC	FTE	Year 2020			HC	FTE
			Undergrad	29,816	17,461	Undergrad	31,004	19,489				
^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt			Grad	6,268	4,678	Grad	6,715	5,161				
^b Projected Exstg ASF = Existing + CIP/New Const - Demolition			Total Students	36,084	22,139	Total Students	37,719	24,650				
^c Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"			E-Learning Students	16,166	6,742	E-Learning Students	22,707	9,742				
			Faculty FYE			Faculty FYE						
			Staff: Admin + Prof			Staff: Admin + Prof						
			Does not include CIP			Does not include CIP						
Space Code			Projected ASF ^b	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)				
300	Offices / Computer		724,220	642,031	82,189	724,220	714,850	9,370				
350	Conference	19.16	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off				
530	Media Production		12,266	25,017	(12,751)	12,266	27,855	(15,589)				
540	Clinic		4,846	8,856	(4,010)	4,846	9,860	(5,014)				
541	Clinic- Medical		0	12,962	(12,962)	0	17,293	(17,293)				
550	Demonstration		4,033	2,214	1,819	4,033	2,465	1,568				
560	Field Buildings		0	0	0	0	0	0				
570	Animal Quarters (off site ?)		3,117	0	3,117	3,117	0	3,117				
580	Greenhouses		4,842	11,070	(6,228)	4,842	12,325	(7,483)				
590	Other		1,601	1,771	(170)	1,601	1,972	(371)				
610	Assembly		63,483	66,417	16,882	63,483	73,950	9,349				
620	Exhibition	19,816.00	Incl w/ Assembly	Incl w/ Assembly		19,816	—	Incl w/ Assembly				
630	Food Service (HC basis)		44,668	180,420	(135,752)	44,668	188,595	(143,927)				
640	Day Care		0	0	0	0	0	0				
650	Student Lounge		24,769	55,348	(30,579)	24,769	61,625	(36,856)				
660	Merchandising		39,984	48,927	(8,943)	39,984	54,477	(14,493)				
680	Meeting Room (other than 690)		38,350	66,417	(28,067)	38,350	73,950	(35,600)				
690	Student Academic Meeting Room		7,592	13,283	(5,691)	7,592	14,790	(7,198)				
710	Central Computer / Telecomm	24000	75,754	156,744	(80,990)	75,754	174,522	(98,768)				
711	E-Learning Support		13,000	0	13,000	13,000	0	13,000				
720	Shop / Central Service		Included in Cat 710		—	Included in Cat 710	Incl above	—				
730	Central Storage		Included in Cat 710		—	Included in Cat 710	Incl above	—				
740	Vehicle Storage (car parks not incl)		Included in Cat 710		—	Included in Cat 710	Incl above	—				
750	Central Service		Included in Cat 710		—	Included in Cat 710	Incl above	—				
760	Hazardous Materials		Included in Cat 710		—	Included in Cat 710	Incl above	—				
800	Health Care		8,319	6,642	1,677	8,319	7,395	924				
TOTAL SUPPORT SPACE			1,090,660	1,298,119	(207,459)	1,090,660	1,435,923	(345,263)				

Table 6.9 – Engineering Center Projected Support Space Needs

			2015			2020		
			Undergrad	HC	FTE	Undergrad	HC	FTE
			2,093	554	979	2,302	616	1,137
			Graduate		209	Graduate		242
			<i>Total Students</i>	<i>2,647</i>	<i>1,188</i>	<i>Total Students</i>	<i>2,918</i>	<i>1,379</i>
^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt								
^b Projected Exstg ASF = Existing + CIP/New Const - Demolition								
^c Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"								
			<i>E-Learning Students</i>			<i>E-Learning Students</i>		
			Staff: Admin + Prof General Staff			Staff: Admin + Prof General Staff		
<i>Space Cdc</i>	<i>Space Category</i>		Projected Exstg ASF ^b	Guideline ASF	Surplus (Deficit)	Projected Exstg ASF	Guideline ASF	Surplus (Deficit)
300	Offices / Computer		66,406	34,452	31,954	66,406	39,991	26,415
350	Conference Center	28.08	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off
530	Media Production		0	1,342	(1,342)	0	1,558	(1,558)
540	Clinic		0	475	(475)	0	552	(552)
545	Clinic- Medical							
550	Demonstration		0	119	(119)	0	138	(138)
560	Field Buildings		—	—	—	—	—	—
570	Animal Quarters		—	—	—	—	—	—
580	Greenhouses		0	594	(594)	0	690	(690)
590	Other		0	0	0	0	0	0
610	Assembly		0	3,564	(3,564)	0	4,137	(4,137)
620	Exhibition		Incl w/ Assembly	Incl w/ Assembly	incl w/ Assembly	Incl w/ Assembly	incl w/ Assembly	incl w/ Assembly
630	Food Service (HC basis)		7,090	13,235	(6,145)	7,090	14,590	(7,500)
640	Day Care		0	0	0	0	0	0
650	Student Lounge		0	2,970	(2,970)	0	3,448	(3,448)
660	Merchandising		0	2,625	(2,625)	0	3,048	(3,048)
680	Meeting Room (other than 690)		1,005	3,564	(2,559)	1,005	4,137	(3,132)
690	Student Academic Meeting Room		0	713	(713)	0	827	(827)
710	Central Computer / Telecomm		3,193	8,411	(5,218)	3,193	9,763	(6,570)
711	E-Learning Support							
720	Shop / Central Service		Included in Cat	Included in Cat 710	—	Included in Cat	Included in Cat 710	—
730	Central Storage		Included in Cat	Included in Cat 710	—	Included in Cat	Included in Cat 710	—
740	Vehicle Storage (ramps not incl)		Included in Cat	Included in Cat 710	—	Included in Cat	Included in Cat 710	—
750	Central Service		Included in Cat	Included in Cat 710	—	Included in Cat	Included in Cat 710	—
760	Hazardous Materials		Included in Cat	Included in Cat 710	—	Included in Cat	Included in Cat 710	—
800	Health Care		67	356	(289)	67	414	(347)
<i>TOTAL SUPPORT SPACE</i>			<i>11,337</i>	<i>55,682</i>	<i>(44,345)</i>	<i>11,337</i>	<i>63,862</i>	<i>(52,525)</i>

Table 6.10 –Biscayne Bay Campus Projected Support Space Needs

BISCAYNE BAY CAMPUS			2015			2020		
			Undergrad	HC	FTE	Undergrad	HC	FTE
			Graduate			Graduate		
			<i>Total Students</i>			<i>Total Students</i>		
			<i>E-Learning Students</i>			<i>E-Learning Students</i>		
			Staff: Admin + Prof			Staff: Admin + Prof		
			General Staff			General Staff		
cv	Space Category		Projected Exstg ASF ^b	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)
300	Offices / Computer		124,697	84,942	39,755	124,697	101,556	23,141
350	Conference Rooms	20.94	Incl w/ Office	Incl w/ Office	Incl w/ Office	Incl w/ Office	Incl w/ Office	Incl w/ Office
530	Media Production		2,756	1,634	1,123	2,756	1,953	803
540	Clinic		209	1,307	(1,098)	209	1,562	(1,353)
545	Clinic- Medical		0	0		0		0
550	Demonstration		0	327	(327)	0	391	(391)
560	Field Buildings		0	—	—	—	—	—
570	Animal Quarters		0	—	—	—	—	—
580	Greenhouses		0	1,634	(1,634)	0	1,953	(1,953)
590	Other		449	449	0	449	449	0
610	Assembly		16,190	9,801	6,389	16,190	11,718	4,472
620	Exhibition		Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly	Incl w/ Assembly
630	Food Service (HC basis)		7,984	39,190	(31,206)	7,984	45,275	(37,291)
640	Day Care		0	—	—	—	—	—
650	Student Lounge		9,059	8,168	892	9,059	9,765	(706)
660	Merchandising		0	7,220	(7,220)	0	8,632	(8,632)
680	Meeting Room (other than 690)		28,866	9,801	19,065	28,866	11,718	17,148
690	Student Academic Meeting Room		1,737	1,960	(223)	1,737	2,344	(607)
710	Central Computer / Telecomm		19,297	23,130	(3,833)	19,297	27,654	(8,357)
711	E-Learning Support		0					0.00
720	Shop / Central Service		Included in Cat 710	—	—	Included in Cat 710	—	—
730	Central Storage		Included in Cat 710	—	—	Included in Cat 710	—	—
740	Vehicle Storage (ramps not incl)		Included in Cat 710	—	—	Included in Cat 710	—	—
750	Central Service		Included in Cat 710	—	—	Included in Cat 710	—	—
760	Hazardous Materials		Included in Cat 710	—	—	Included in Cat 710	—	—
800	Health Care		1,211	980	231	1,211	1,172	39
	TOTAL SUPPORT SPACE		212,455	190,542	21,913	212,455	226,142	(13,687)

Projected Future Land Area Requirement for Athletic Facilities

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

e) Projection of Future Support Facility Gross Building Area Needs.

Table 6.11 Modesto A Maidique Projection of Future Support Facility Gross Building Area Needs

MODESTO A. MAIDIQUE CAMPUS			Grossing	GSF	GSF
			Factor	2015	2020
			By		
			FICM		
			Category		
<small>^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt</small> <small>^b Projected Exstg ASF = Existing + CIP/New Const - Demolition</small> <small>^c Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"</small>					
<i>Space Code</i>					
300	Offices / Computer		0.65	126,445	14,415
350	Conference	19.16	0.65	'incl w/ Off	'incl w/ Off
530	Media Production		0.65	(19,617)	(23,982)
540	Clinic		0.60	(6,683)	(8,357)
541	Clinic- Medical			(16,851)	(22,480)
550	Demonstration		0.60	3,032	2,613
560	Field Buildings		0.75	0	0
570	Animal Quarters (off site ?)		0.55	5,667	5,667
580	Greenhouses		0.80	(7,784)	(9,354)
590	Other		0.60	(284)	(618)
610	Assembly		0.65	25,972	14,383
620	Exhibition		0.55	Incl w/ Assembly	Incl w/ Assembly
630	Food Service (HC basis)		0.65	(208,849)	(221,426)
640	Day Care		0.65	0	0
650	Student Lounge		0.60	(50,964)	(61,427)
660	Merchandising		0.60	(14,905)	(24,154)
680	Meeting Room (other than 690)		0.65	(43,180)	(54,769)
690	Student Academic Meeting Room		0.65	(8,756)	(11,074)
710	Central Computer / Telecomm	24000	0.85	(95,282)	(116,198)
711	E-Learning Support		0.65	20,000	20,000
720	Shop / Central Service		0.85	Included in Cat 710	Included in Cat 710
730	Central Storage		0.95	Included in Cat 710	Included in Cat 710
740	Vehicle Storage (car parks not incl)		0.95	Included in Cat 710	Included in Cat 710
750	Central Service		0.85	Included in Cat 710	Included in Cat 710
760	Hazardous Materials		0.70	Included in Cat 710	Included in Cat 710
800	Health Care		0.65	2,580	1,422
	TOTAL SUPPORT SPACE				
	TOTAL SPACE		0.68	(926,035)	(1,650,059)
			Average Gross Factor		
				GSF total by type	GSF total by type
				(190,643)	(474,022)
				(23,534)	(30,837)
				(75,282)	(96,198)

f) Analysis Translating 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 descriptions of how building area requirements were translated into building modules.

g) Assessment of the adequacy of the existing intercollegiate, intramural and casual use athletic facilities to meet the future needs.

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

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 one hundred and eight six (3,186). This includes the 600 beds currently under construction at Parkview Phase 1 building. Table 7.1b indicates future housing bed counts to year 2020. See Figure 7.1: Housing Facilities for the location of housing.

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

Location	Existing Total	Type of Student
University Park Towers	481	Upper Classmen, Graduate
4-Bedroom Single		
2-Bedroom Single		
Studio Single		
Handicap Accessible units	On site	
Panther Hall	396	Freshman, Upper Classmen, Graduate
2-Bedroom Double		
2-Bedroom Single		
Handicap Accessible units	On site	
Lakeview Hall	800	Freshman, Soph, Upper Classmen
2-Bedroom Double		
4-Bedroom Single		
Handicap Accessible units	On site	
Everglades Hall	372	Upper Classmen
3-Bedroom Single		
Handicap Accessible units	On site	
University Park Apartments	537	Upper Classmen, Graduate, Married
Studio Single		
Efficiency Single		
1-Bedroom Double		
2-Bedroom B Double		
2-Bedroom B Single		
2-Bedroom Quad		
2-Bedroom Quad Single		
4-Bedroom Single		
Handicap Accessible units	On site	
Total Current Beds	2586	
Parkview Phase I (under construction)	600	Freshman, Soph, Upper Classmen
Handicap Accessible units	On site	
Total Beds after Parkview is complete	3,186	

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

	2015		2020	
First Year	1242		1634	
Second Year	678		892	
Upper Division	1072		1409	
Graduate	258		340	
Married	0		0	
Total	3250	2015	4275	2020
Total Existing	3186	TOTAL NEW SF	3250	TOTAL NEW SF
Total New	64	20,800 SF	1025	333,125 SF
New Apt. Style SF/UNIT ASSUMED= 325	48	15,600 SF	769	249,925 SF
New Suite Style SF/UNIT ASSUMED= 325	16	5,200 SF	256	83,200 SF
New Dorm Style	0	0	0	0
HC Accommodations				

BISCAYNE BAY CAMPUS

As indicated on Table 7.2, the current total number of bed spaces at Biscayne Bay Campus equates to two hundred seventy two (272). Due to staffing arrangements, twelve (12) existing bed spaces are not rented, leaving a total of two hundred eighty four (284) rentable spaces at Biscayne Bay Campus. See Figure 7.2: Housing Facilities for the location of housing.

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

Location	Existing Total	Type of Student
Bay Vista Housing	272	Freshman, Upper Classmen, Married
Studio Single		
1-Bedroom Single (P)		
Efficiency Single (S)		
1-Bedroom Single(S)		
2-Bedroom Single (S)		
Total Beds	272	

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

	2015- BED COUNTS	2015- TOTAL NEW SF	2020	2020- TOTAL NEW SF
First Year	210		277	
Second Year	115		151	
Upper Division	181		239	
Graduate	44		58	
Married	0		0	
Total	550		725	
Total Existing	272		550	
Total New	278	90,350 SF	175	56,875 SF
New Apt .Style SF/UNIT ASSUMED= 325	208	67,600 SF	131	42,575 SF
New Suite Style SF/UNIT =325	70	22,750 SF	44	22,750 SF
New Dorm Style	0	0	0	0
HC				

Accommodations				
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Source: FIU Student Life Dept.

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 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. 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 amount 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 addition 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 been considered primarily a commuter college. Many of the students at this campus are considered non-traditional students that are employed in the day and attend college in the evenings.

Bay Vista housing is currently the only housing currently provided at Biscayne Bay Campus. The facility is a four-story apartment-style building of five wings. Due to this building's age there are limited amenities associated with this residence hall. The building's siting and configuration does not capitalize on views to Biscayne Bay.

In addition to international residents, 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 programs.

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 the year 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.

1. Approximately ninety-four (94) percent of the total student headcount are considered to live in some type of off-campus facility.
2. 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.

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. 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.

INVENTORY AND NEEDS PROJECTIONS OF UNIVERSITY OWNED RECREATIONAL FACILITIES MODESTO A. MAIDIQUE

Table 8.1 Modesto Maidique Inventory of Existing Spaces for Recreation Facilities (in ASF)

MODESTO A. MAIDIQUE CAMPUS				Fall 2011						
				HC			FTE			
				Undergrad	27,662			15,412		
				Graduate	5,537			4,005		
				<i>Total Students</i>	33,199			19,417		
				<i>E-Learning Students</i>	14,998			5,985		
				Faculty FYE						
				Staff: Admin + Prof						
Space Code		Florida Standard ^c	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)		
520	Teaching Gymnasium	5.77		97,692	5.03	5.77	112,036	(14,344)		
670	Recreation			35,984	1.85	1.50	29,126	6,859		
	<i>TOTAL RECREATION SPACE</i>			133,676	7	7	141,162	(7,486)		

Table 8.6 Biscayne Bay Projected need of Spaces for Recreation Facilities (in ASF)

BISCAYNE BAY CAMPUS			2015			2020		
			Undergrad	HC	FTE	Undergrad	HC	FTE
			Graduate			Graduate		
			Total Students			Total Students		
			<i>E-Learning Students</i>			<i>E-Learning Students</i>		
			Staff: Admin + Prof General Staff			Staff: Admin + Prof General Staff		
			Projected Exstg ASF ^b			Projected ASF		
			Guideline ASF			Guideline ASF		
			Surplus (Deficit)			Surplus (Deficit)		
520	Teaching Gymnasium		8,887	0	8,887	8,887	0	8,887
670	Recreation		673	4,901	(4,228)	673	5,859	(5,186)
	TOTAL RECREATION SPACE		9,560	4,901	4,660	9,560	5,859	3,701

^a Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt
^b Projected Exstg ASF = Existing + CIP/New Const - Demolition
^c Per Florida Bd of Governors, "Space Standards for Fixed Capital
 Outlay Needs Generation Formula"

TABLE 8.7 ASSESMENT OF UNIVERSITY OWNED PASSIVE RECREATIONAL OPEN SPACE SITES

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 8.8 Inventory of all University-owned Athletic Facilities –Biscayne Bay Campus

BISCAYNE BAY CAMPUS	Number of Facilities	Estimated Usage	Total Acreage
RECREATION FACILITIES			
Par Course	22 stations	N/A	42,057 SF
Swimming Pool	1	N/A	0.2
Tennis Courts	6	N/A	1.4
Multipurpose Fields	1	N/A	5.4
Basketball Courts	1	N/A	0.3
Fitness Center	1	N/A	1.5
Running Track	1	N/A	-
		Total Acres	8.8
OPEN SPACE AND LAKES			
Open Spaces			XXX
Lakes	4 Lakes		XXX

Table 8.11 Recreation and Open Space Facilities Level of Service Standard

Year	Student Headcount	Acres	LOS
University Wide			
CURRENT	42,928	118.05	2.75 acres/1000 students
2015	46,569	232.85	5.0 acres/1000 students
2020	49,692	154.05	3.1 acres/1000 students
Modesto A. Maidique			
CURRENT	33,199	91.30	2.75 acres/1000 students
2015	36,084	122.70	3.5 acres/1000 students
2020	37,719	86.75	2.3 acres/1000 students
Engineering Center			
CURRENT	2,456	6.75	2.75 acres/1000 students
2015	2,647	22.76	8.6 acres/1000 students
2020	2,918	22.76	7.8 acres/1000 students
Biscayne Bay Campus			
CURRENT	7,273	20.00	2.75 acres/1000 students
2015	7,838	67.40	8.6 acres/1000 students
2020	9,055	70.63	7.8 acres/1000 students
Recommended LOS			2.75 acres/1000 students

Student headcount numbers do not include on-line students
 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. It should be noted, however, that by 2020 Modesto A. Maidique will be at its maximum capacity. However when recreation space is calculated using the NIRSA Standards for Recreational Spaces there currently is not enough space on campus to meet minimum requirements currently.

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 96.26 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 8.8. 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 Board of Education, Division of Colleges and Universities and are completely maintained by the University. These facilities include a football stadium, completed in 1998, and subsequently enlarged in 2009 and 2012. The stadium serves the University, Tamiami Park, and Miami-Dade County Public high schools for football games. 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 8.12 Recreational Facilities within the FIU Service Areas – MODESTO A. MAIDIQUE

PARK FACILITIES	TYPES OF USES PROVIDED	TYPES OF RECREATION FACILITIES	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
Fountainbleau Country Club	Activity	18 Hole Golf Course (2)	152.28
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 64.6 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. 9. 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 State University System 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 8.13 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

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

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, the need for 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 8.14 NIRSA Standards Calculations – MODESTO MAIDIQUE CAMPUS

MODESTO MAIDIQUE 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 COURTS	26	0.15	4	3.5	0
FLAG FOOTBALL FIELD	26	0.25	7	2	5
SOCCER FIELD	26	0.25	7	Same Field as Soccer	2
				Same Field as Flag Football	5
SOFTBALL FIELD	26	0.2	5	2	3
TENNIS COURT	26	0.5	13	6	7
VOLLEYBALL COURT	26	0.15	4	1	3

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 field sports and intramural /club sport activities. Currently the University has four fields, in addition to the tennis courts, baseball stadium and football stadium. As the University continues to grow, the available land on campus will be developed to support academic, research and support 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 Panther Arena, 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 8.15 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 programs 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 that were lost at Biscayne Bay Campus due to the construction of the new Marine Science Building.

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)

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

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.

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, where there has been an amendment to change the land use on the golf course to allow for 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.

MODESTO A. MAIDIQUE CAMPUS

Miami-Dade County has approved an amendment to the Comprehensive Plan that changed the land use designation of Fountainbleu Country Club (152.28-acres containing two private golf courses) from “Parks and Recreation” to “Medium Density Residential.” This has reduced the open space in the host community and increased the density of the area.

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

BISCAYNE BAY CAMPUS

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

ENGINEERING CENTER (EC)

During the next five years, the City of Sweetwater plans to construct an additional park in order 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.

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 - 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,
- The parking lot north of the Engineering and Computer Science building,
- 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

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, and
- The US Century Bank Arena (GPA) area.

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 Insurance Rate Map, Community Panel Numbers 120635-0288L and 120635-0269L (with effective date of September 11, 2009), the campus mostly lies within Zone AH (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), with flood depths ranging from 1 to 3 feet. 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 two (2) out falls located on the north and east sides of the site. The north out fall system consists of a 42-inch culvert and the east out fall consists of an 8"x 12" culvert.

On Site Lakes and Exfiltration Trench Drainage System:

As shown on Figure 9.3a - 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) 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 Insurance Rate Map, Community Panel Numbers 120655-0142L and 120655-0144L (with effective date of September 11, 2009), 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

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 - 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 Insurance Rate Map, Community Panel Number 120635-0288L (with effective date of September 11, 2009), the campus mostly lies within Zone X, which is an area determined to be outside the 0.2% annual chance floodplain (500-year flood). All new construction must abide by hazard mitigation standards.

1. Existing Facility Capacity Analysis

i. Existing Conditions

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) 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 of 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, 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.

ii. Projected Facility Demand and Capacity Analysis

The planning time frame extends to 2020. 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.

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.

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.

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) 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 have to 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, 40E-40, and 40E-400, 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 is able to 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 2010 Florida Building Code (FBC) and ASCE 24-05. 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 coast line.

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 and public 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-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 and a 12-inch main also abuts the site along SW 107th Avenue. There is a 16-inch main, which runs along the main entrance of SW 8th Street, which is connected to the secondary lines, composed of 8-inch and 12-inch mains. All these water mains are owned and operated by M-D WASD. All water consumption is measured by the use of water meters.

Additionally, water extension permits 20120-WAT-EXT-00098, 2011-WAT-EXT-00037 and 2012-WAT-EXT-00132 have been issued by the Water and Wastewater Engineering Section of the Division of Environmental Resources Management, of the Department of Regulatory and Economic Resources (DRER). However, none of these permits have been certified.

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 irrigation quality, treated effluent from the North District Wastewater Treatment Plant. The North District Wastewater Treatment Plant is owned and operated by M-D WASD.

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 of 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-year Water 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 2011-12)

Building		Annual Consumption	Average GPD
CU	Chilled Water I	26,892,844	73,679
CU Expansion	Chilled Water II	30,211,720	82,772
GC I	ERNEST R. GRAHAM UNIV. CTR.	10,657,576	29,199
GC II	ERNEST R. GRAHAM UNIV. CTR.	1,263,372	3,461
GC III	ERNEST R. GRAHAM UNIV. CTR.	841,500	2,305
ENGINEERING & COMPUTER SCIENCE	ENGINEERING & COMPUTER SCIENCE	1,523,676	4,174
CBC	COLLEGE OF BUSINESS COMPLEX	1,679,460	4,601.26
W5 / W6	WEST 5 & 6	14,232,196	38,992.32
TWR I	TOWER (PUBLIC SAFETY)	102,476	280.76
TWR II	TOWER (PUBLIC SAFETY)	80,036	219.28
TWR III	TOWER (PUBLIC SAFETY)	98,736	270.51
VIERTES HAUS	VIERTES HAUS	962,640	2,637.37
DEUXIEME MAISON	DEUXIEME MAISON	2,075,736	5,686.95
CHARLES E. PERRY PRIMERA CASA	CHARLES E. PERRY PRIMERA CASA	3,424,818	9,383.06
CP	CHEMISTRY & PHYSICS	3,394,130	9,298.99
OE	OWA EHAN	2,136,288	5,852.84
OE Sprinkler	OWA EHAN	7,480	20.49
DC	DUPLICATING CENTER	61,336	168.04
GPA	U.S. CENTURY BANK ARENA	3,949,440	10,820.38
	Fire Lines	118,932	325.84
UHSC	UNIVERSITY HEALTH SVC. COMPLEX	179,432	491.59
	BIOCLIMATE	102,476	280.76
RB	RYDER BUSINESS BUILDING	856,136	2,345.58
RB Sprinkler	RYDER BUSINESS BUILDING	1,946,954	5,334.12
MMCIC	INFORMATION BOOTH	26,928	73.78
SANDFORD & DOLORES ZIFF EDU.	SANDFORD & DOLORES ZIFF EDU.	523,600	1,434.52

GL I	STEVEN & DOROTHEA GREEN LIB.	1,029,996	2,821.91
GL II	STEVEN & DOROTHEA GREEN LIB.	1,401,004	3,838.37
GL Sprinkler	STEVEN & DOROTHEA GREEN LIB.	2,199,120	6,024.99
PCA	PAUL CEJAS ARCHITECTURE	1,186,328	3,250.21
W01/W03/W01A/W01B/W02	WEST 1/WEST 1 A/WEST 1 B/WEST 2/WEST 3	6,985,572	19,138.55
WC	WERTHEIM CONSERVATORY	178,024	487.74
WPAC I	HERBERT & NICOLE WERTHEIM CTR.	223,652	612.75
WPAC II	HERBERT & NICOLE WERTHEIM CTR.	111,452	305.35
CS	Campus Support Complex	497,664	1,363.46
CS	Campus Support Complex	2,401,080	6,578.30
CS	Campus Support Complex	341,836	936.54
ACH1 & ACH2	ACADEMIC HEALTH CENTER 1 & 2	2,233,528	6,119.25
RH	RONALD W. REAGAN PRES. HOUSE	1,347,178	3,690.90
M01	RECREATION TRAILER	55,360	151.67
RDB	RAFAEL DIAZ-BALART HALL	764,456	2,094.40
PPFAM	PATRICIA&PHILLIP FROST MUSEUM	202,708	555.36
AHC3	ACADEMIC HEALTH CENTER 3	738,724	2,023.90
SIPA	SCHOOL INTER. & PUBLIC AFFAIRS	1,366,596	3,744.10
Aux (Housing/Park/MARC/REC)	*Note: Breakout by building not available	17,660,381	48,384.61
TOTAL		148,274,577	406,231.72

Source: Water Consumption and Sewage Report for 2011-2012, Facilities Management

Table 9.3 Potable Water Consumption – Biscayne Bay Campus (FY 2011-12)

Building		Annual Consumption	Average GPD
HM	HOSPITALITY MANAGEMENT	874,000	2,395
HM II	HOSPITALITY MANAGEMENT	0	0
	IRRIGATION	36,000	99
	IRRIGATION II	436,000	1,195
AC1	ACADEMIC ONE	11,076,000	30,345
WUC	GREGORY B. WOLFE UNIV. CTR	1,339,000	3,668
S03	PHYSICAL PLANT	643,000	1,762
AC2	ACADEMIC TWO	370,000	1,014
AC2	ACADEMIC TWO	394,000	1,079
HL	GLENN HUBERT LIBRARY	592,000	1,622
	FIRELINES	0	0
P04	PDC-Administration	0	0
AQRC	AQUATIC RECREATION CENTER	1,366,000	3,742
KCC I	ROZ&CAL KOVENS CONFERENCE CTR.	980,725	2,687
KCC II	ROZ&CAL KOVENS CONFERENCE CTR.	0	0
P09	BBC WELLNESS CENTER	65,000	178
MSB	MARINE SCIENCES	720,000	1,973
Aux (Housing/Park/MARC/REC)	*Note: Breakout by building not available	8,727,000	23,910
TOTAL		27,618,725	75,668

Source: Water Consumption and Sewage Report for 2011-2012, Facilities Management

Table 9.4 Potable Water Consumption –Engineering Center (EC) (FY 2011-12)

Building		Annual Consumption	Average GPD
EC I	ENGINEERING CENTER	8,756,088	23,989
EC II	ENGINEERING CENTER	4,645,148	12,726
	FIRELINES	2,992	8
TOTAL		13,404,228	36,724

Source: Water Consumption and Sewage Report for 2011-2012, Facilities Management

ii. Projected Facility Demand and Capacity Analysis

Below are the projected levels of service for 2020 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 GPD
2010-11	34,065	374,715
2011-12	39,087 ⁽¹⁾	406,232 ⁽²⁾
2012-13	39,936	414,935
2013-14	40,786	423,767
2014-15	41,635 ⁽³⁾	432,588
2015-16	42,484	441,409
2016-17	42,965	446,406
2017-18	43,447	451,414
2018-19	43,927	456,402
2019-20	44,409 ⁽³⁾	461,410
Average Gallons per Capita per Day		10.4

- (1) Source: FIU Enrollment Matrix
 (2) Source: Water Bill readings for 2011-2012, Facilities Management
 (3) Source: FIU Enrollment Matrix; HC was not provided for faculty/staff for 2014-2015 and 2019-2020. Therefore faculty/staff HC was calculated based on the faculty/staff to student ratio for 2011-2012.

Table 9.6 Projected Needs for Potable Water at Engineering Center

Year	Head Count	Average GPD
2010-11	2,489	36,076
2011-12	2,538 ⁽¹⁾	36,724 ⁽²⁾
2012-13	2,587	37,512
2013-14	2,637	38,237
2014-15	2,686 ⁽³⁾	38,947
2015-16	2,735	39,658
2016-17	2,805	40,673
2017-18	2,875	41,688
2018-19	2,945	42,703
2019-20	3,015 ⁽³⁾	43,718
Average Gallons per Capita per Day		14.5

- (1) Source: FIU Enrollment Matrix
 (2) Source: Water Bill readings for 2011-2012, Facilities Management
 (3) Source: FIU Enrollment Matrix; HC was not provided for faculty/staff for 2014-2015 and 2019-2020. Therefore faculty/staff HC was calculated based on the faculty/staff to student ratio for 2011-2012.

Table 9.7 Projected Needs for Potable Water at Biscayne Bay Campus

Year	Head Count	Average GPD ⁽⁴⁾
2010-11	7,583	75,580
2011-12	7,592 ⁽¹⁾	75,668 ⁽²⁾
2012-13	7,740	77,145
2013-14	7,887	78,610
2014-15	8,035 ⁽³⁾	80,085
2015-16	8,182	81,550
2016-17	8,500	84,720
2017-18	8,817	87,879
2018-19	9,135	91,049
2019-20	9,452 ⁽³⁾	94,208
Average Gallons per Capita per Day		10

(1) Source: FIU Enrollment Matrix

(2) Source: Water Bill readings for 2011-2012, Facilities Management

(3) Source: FIU Enrollment Matrix; HC was not provided for faculty/staff for 2014-2015 and 2019-2020. Therefore faculty/staff HC was calculated based on the faculty/staff to student ratio for 2011-2012.

(4) 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 2011-2012 was approximately 189 million gallons (provided by FIU Facilities Management; does not include 44 million gallons from reclaimed water at BBC). Based on the total number of full-time students, faculty and staff at FIU (42,928 students and 6,289 faculty & staff), it is estimated that the water consumed per student/faculty/staff was eleven (11) gallons per day (gpd).

Table 9.8 Level of Service by University Site

FIU SITE SERVED BY FACILITY	WATER CONSUMPTION FY 2011-12	HEAD COUNT⁽¹⁾	LOS AT FIU SITE 2011-12
Modesto A. Maidique Campus	148,274,577 Gallons	39,087	10.4 Gallons per Capita per day
Engineering Center	13,404,228 Gallons	2,538	14.5 Gallons per Capita per day
Biscayne Bay Campus	27,618,725 Gallons	7,592	10 Gallons per Capita per day ⁽²⁾
Total	189,297,530	49,217	11 Gallons per Capita per day

Source: Water Consumption and Sewage Report for 2011-2012, Facilities Management

(1) LOS at FIU is based on Head Count for 2011-2012. 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 Water-Use permit no. 13-00017-W, re-issued on July 16, 2012.

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 of the main distribution lines are owned and operated by the City.

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.

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 has a term of forty (40) years from the date it was executed (July 1, 1975). At the end of the term (July 1, 2015), the lease agreement between the Florida Board of Regents and M-D WASD will automatically renew unless either party gives a 30-day advance notice of an intent not to renew. This is currently being negotiated.

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, re-issued on July 16, 2012.

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

UNIVERSITY SITE	HOST COMMUNITY	DEMAND
Modesto A. Maidique Campus	Miami-Dade County	Alexander Orr: 214.7 MGD in 2012
Engineering Center	Miami-Dade County	Hialeah Preston: 225 MGD in 2012
Biscayne Bay Campus	City of North Miami	Winson Water Plant: 9.3 MGD

(b) 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.

(c) 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 WASH 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.

(d) Reclaimed Water Use

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

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

BISCAYNE BAY CAMPUS

The Biscayne Bay Campus had an annual consumption (FY 2011-12) of reclaimed water of 44,609,972 Gallons for irrigation.

(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 WASH) franchised sanitary sewer service area. The closest WASH 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 WASH 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 WASH. 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), the Phi Gamma Delta (GH1) fraternity house and the Pi Kappa Alpha (GH2) fraternity house; 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). These 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). These 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.

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 City of North Miami has upgraded the existing sanitary sewer force main leaving the FIU pump station. A visual review of the pump station was performed by MEP Structural Engineers & Inspectors, Inc. (MEP), on November 5, 2012. Based on the review, MEP found that the equipment appeared to be less than five (5) years old, and identified low level severity maintenance repairs totaling to an estimated cost of \$800.00. In addition, MEP identified the lack of water service or operable hose bib as an issue of concern, which is necessary for cleaning/washing of the equipment.

ENGINEERING CENTER

The sanitary sewer system is in good condition. No master infiltration or inflow problems exist at this time and no major repairs have been warranted over the last several years.

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	Average GPD
2010-11	34,065	284,443
2011-12	39,087 ⁽¹⁾	326,187 ⁽²⁾
2012-13	39,936	333,466
2013-14	40,786	340,563
2014-15	41,635 ⁽³⁾	347,652
2015-16	42,484	354,741
2016-17	42,965	358,757
2017-18	43,447	362,782
2018-19	43,927	366,790
2019-20	44,409 ⁽³⁾	370,815
Gallons per Capita per Day		8.4

(1) Source: FIU Enrollment Matrix

(2) Source: Water Bill readings for 2011-2012, Facilities Management

(3) Source: FIU Enrollment Matrix; HC was not provided for faculty/staff for 2014-2015 and 2019-2020. Therefore faculty/staff HC was calculated based on the faculty/staff to student ratio for 2011-2012.

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	Average GPD
2010-11	2,489	35,991
2011-12	2,538 ⁽¹⁾	36,724 ⁽²⁾
2012-13	2,587	37,408
2013-14	2,637	38,131
2014-15	2,686 ⁽³⁾	38,840
2015-16	2,735	39,548
2016-17	2,805	40,560
2017-18	2,875	41,573
2018-19	2,945	42,585
2019-20	3,015 ⁽³⁾	43,597
Gallons per Capita per Day		14.5

(1) Source: FIU Enrollment Matrix

(2) Source: Water Bill readings for 2011-2012, Facilities Management

(3) Source: FIU Enrollment Matrix; HC was not provided for faculty/staff for 2014-2015 and 2019-2020. Therefore faculty/staff HC was calculated based on the faculty/staff to student ratio for 2011-2012.

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	Average GPD
2010-11	7,583	75,603
2011-12	7,592 ⁽¹⁾	75,660 ⁽²⁾
2012-13	7,740	77,168
2013-14	7,887	78,633
2014-15	8,035 ⁽³⁾	80,109
2015-16	8,182	81,575
2016-17	8,500	84,745
2017-18	8,817	87,905
2018-19	9,135	91,076
2019-20	9,452 ⁽³⁾	94,236
Gallons per Capita per Day		10

(1) Source: FIU Enrollment Matrix

(2) Source: Water Bill readings for 2011-2012, Facilities Management

(3) Source: FIU Enrollment Matrix; HC was not provided for faculty/staff for 2014-2015 and 2019-2020. Therefore faculty/staff HC was calculated based on the faculty/staff to student ratio for 2011-2012.

2. Existing Performance Evaluation

MODESTO A. MAIDIQUE CAMPUS

The design of sanitary sewer facilities is based on a specific service area and sewage flows. For excess capacity to be available, some master planning would have been required. The major limitation to the sewage collection system is the depth of the gravity sewer mains and pump station which affects service area. The sanitary sewer subsystems, except Pump Stations LS-1 and LS W-1, are limited in the way of changes from current operation. However, LS-1 and LS W-1 should have flexibility since they operate as the

master pump stations for the campus.

An Engineering Master Plan for the East Campus Sanitary Sewer System was prepared in April 2011 by C3TS. 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 2011-2012)

FLOW METER	WASTE GENERATED FY 2011-12	AVERAGE GPD
MODESTO A. MAIDIQUE CAMPUS	119,058,412	326,187

SOURCE: FIU Water Bills 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 2011-2012)

FLOW METER	WASTE GENERATED FY 2011-12	AVERAGE GPD
BISCAYNE BAY CAMPUS	27,616,000	75,660

SOURCE: FIU Water Bills readings provided by Facilities Management

ENGINEERING CENTER

Table 9.15 Sanitary Waste Generations – Engineering Center (FY 2011-2012)

FLOW METER	WASTE GENERATED FY 2011-12	AVERAGE GPD
ENGINEERING CENTER	13,404,228	36,724

SOURCE: FIU Water Bills readings provided by Facilities Management

3. Host Community

All of 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	M-D WASD FACILITY 12 MONTH AVERAGE (MGD)	M-D WASD FACILITY PLANNED CAPACITY (MGD)
South District Wastewater Treatment Plant	Modesto A. Maidique Campus	87.6	131.25
South District Wastewater Treatment Plant	Engineering Center	87.6	131.25
North District Wastewater Treatment Plant thru the City of North Miami	Biscayne Bay Campus	74.7	135

Source: Miami-Dade County Evaluation and Appraisal Report: 2003

(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	CONTANERS	SIZE CONTAINER (YD)	ESTIMATED FREQUENCY OF SERVICE (DAYS/WEEK)	DAYS OF SERVICE
<i>Modesto A. Maidique Campus (MMC)</i>				
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
Pi Kappa Alpha	1	4	2	M, W
Phi Gamma Delta	1	4	2	M, W
FIU Baseball Stadium (BBS)	2	6	3	M, TH, SAT

& FIU Community Stadium (FIUS)				
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	4	6	M-SAT
Panther Residence Hall (PH)	1	2	6	M-SAT
	3	4	6	M-SAT
	1	2	6	M-SAT
Lakeview Housing North (LVN)	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
<i>ENGINEERING CENTER (EC)</i>	2	6	6	M-SAT
	3	20	On Call	On Call

Source: FIU Facilities Management

Table 9.18 Trash Collection Facilities - Biscayne Bay Campus

<i>BISCAYNE BAY CAMPUS (BBC)</i>				
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	8	3	M, W, F
	2	20	On Call	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 2012 there are currently over 4,500 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 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, Biohazards and Radioactive Wastes: The current waste disposal procedures consist of collection from generator departments throughout the University by the Environmental Health & Safety staff, which then stores it at the Hazardous Waste Shed located on the West side of the Modesto A. Maidique Campus to await pick-up. and the waste is then picked-up and disposed of by hazardous waste disposal companies. Waste may also be directly picked-up from the point of generation by the selected waste disposal company, such as the large volumes of waste generated by the Chemistry Department. Waste generated at the Biscayne Bay Campus is stored at Academic Center 1 (AC1). Material classified as hazardous waste is picked

up by a hazardous waste disposal company. The volume of hazardous waste generated at the Biscayne Bay Campus is very small compared to that generated at the Modesto A. Maidique Campus.

- **Biohazardous Waste:** Biohazardous waste is in most part picked up from the point of generation by the disposal company. There is currently one outside storage container at the Modesto A. Maidique Campus and at the Biscayne Bay Campus from which waste is picked up once per month. Pick-up from the points of generation (labs and clinics) takes place on a periodicity convenient for the generators and ranges from one to two week periods. Biohazardous waste is generated at both campuses.
- **Radioactive:** Radioactive waste materials are currently stored in a room at the Owa Ehan (OE) building at the Modesto A. Maidique Campus 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. At Biscayne Bay Campus, radioactive waste is kept at the generator's lab to await pick up by an approved waste disposal company. The Marine Science (MS) building will have a designated room for the storage of radioactive waste.

The volume and types of wastes (hazardous, biohazardous and radioactive wastes) generated by departments throughout the University fluctuates and often depends on the time of the semester, the number of students registered for a course and the amount of research activity.

As a rule, hazardous waste is disposed of every 180 days and is picked up by a waste disposal company that has met basic insurance and other permit requirements and which has submitted a competitive quote.

It is anticipated that as the University grows and the volume and diversity of research activities increase, the volume and types of hazardous waste will increase and will require planning for additional storage facilities.

Solid Waste Generation:

Table 9.19 indicates the amount of solid waste generated by campus. The amounts shown include all mixed solid waste, including waste that was recycled (average of 30% of solid waste stream is recycled by the University)

Table 9.19 Solid Waste Generation 2011-2012

Campus	Tons/Year	Tons/Day
MODESTO A. MAIDIQUE CAMPUS	5,727	15.69
ENGINEERING CENTER	334	0.92
BISCAYNE BAY CAMPUS	936	2.56
TOTAL	6,997	19.17

Source: FIU Facilities Management

1. Existing Facility Capacity Analysis

i. 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.

Below is an account of the solid waste and recycling material generated by each FIU site. Per results from RecycleMania Competition 2011, FIU recycled 27.74% of its total waste stream.

Table 9.20 Solid Waste and Recycling Material Generated by FIU Site: July 1 2011-June 30 2012

FIU Site	Solid Waste (Tons)	Single Stream Recycling (Tons)	Total Tons
<u>Modesto A. Maidique Campus</u>	4,138	1,589	5,727
<u>Engineering Center</u>	241	93	334
<u>Biscayne Bay Campus</u>	676	260	936
Total	5,055	1,942	6,997

Source: FIU Facilities Management & RecycleMania Competition 2011 results

ii. 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 9.21 Solid Waste and Recycling Level of Service: July 1 2011- June 30 2012

FIU Site	FTE ⁽¹⁾	Solid Waste ⁽²⁾	Recycling ⁽³⁾
Modesto A. Maidique Campus	24,427	0.93 lbs per capita per day	0.35 lbs per capita per day
Engineering Center	1,129	1.17 lbs per capita per day	0.45 lbs per capita per day
Biscayne Bay Campus	3,160	1.17 lbs per capita per day	0.45 lbs per capita per day
Total	28,716	0.96 lbs per capita per day	0.37 lbs per capita per day

(1) Source: FIU Enrollment Matrix

(2) Source: FIU Facilities Management

(3) Source: RecycleMania Competition 2011 results

Table 9.22 indicates the projected five and ten-year solid waste generation for the University, and it is based on the estimated total pounds per full time equivalent (FTE) student and faculty/staff, per day calculated for each campus on Table 9.21.

Table 9.22 Projected Solid Waste and Recycling Material Generation 2011-2012

2011-2012			
	FTE's	TONS/YEAR	TONS/DAY
MODESTO A. MAIDIQUE CAMPUS	24,427 ⁽¹⁾	5,727 ⁽²⁾	15.69
ENGINEERING CENTER	1,129 ⁽¹⁾	334 ⁽²⁾	0.92
BISCAYNE BAY CAMPUS	3,160 ⁽¹⁾	936 ⁽²⁾	2.56
TOTAL	28,716	6,997	19.17
2014-2015			
MODESTO A. MAIDIQUE CAMPUS	27,850 ⁽³⁾	6,503	17.82
ENGINEERING CENTER	1,272 ⁽³⁾	376	1.03
BISCAYNE BAY CAMPUS	3,567 ⁽³⁾	1,055	2.89
TOTAL	32,689	7,934	21.74
2019-2020			
MODESTO A. MAIDIQUE CAMPUS	30,990 ⁽³⁾	7,239	19.83
ENGINEERING CENTER	1,476 ⁽³⁾	436	1.20
BISCAYNE BAY CAMPUS	4,265 ⁽³⁾	1,261	3.45
TOTAL	36,731	8,936	24.48

(1) Source: FIU Enrollment Matrix

(2) Source: FIU Facilities Management

(3) Source: FIU Enrollment Matrix; FTE was not provided for faculty/staff for 2014-2015 and 2019-2020. Therefore faculty/staff HC was first calculated based on the faculty/staff to student ratio for 2011-2012. Faculty/staff FTE was then calculated based on faculty/staff HC to FTE ratio for 2011-2012.

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 9.23 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 11 th 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 September 2012 for 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 2010 and FY 2011. As shown in Table 9.21, there are opportunities to further reduce waste generation at the Biscayne Bay Campus and Engineering Center, which generate an average of 1.17 pounds per capita per day of solid waste, in comparison to 0.93 pounds per capita per day of solid waste generated at the Modesto A. Maidique Campus.

The University should identify factors at the Biscayne Bay Campus and Engineering Center which are causing the increased solid waste generation, and provide strategies for reducing the solid waste generation. This may include enhanced recycling campaigns, evaluation of recycling bin locations, and modifications to processes which may be generating additional waste.

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 look into 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 and resulting 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 in order 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 in order 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 a number of 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 in order to protect the environment. (Source: Miami-Dade County Comprehensive Plan).

10.0 UTILITIES ELEMENT

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

(1) **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.**

MODESTO A. MAIDIQUE CAMPUS

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	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

Designation	Manufacturer	Capacity	Current Status
Chiller #1A	Carrier	1,500 Tons	Operational
Chiller #2A	Carrier	1,500 Tons	Operational
Chiller #3A	TBD	1,500 Tons	Future
Current Main Chiller Plant Capacity		3,000 Tons	
Available Future Capacity		1,500 Tons	
Full Build-Out Capacity of Plant		4,500 Tons	

Plant #3 – NE Satellite Chilled Water Plant

Designation	Manufacturer	Capacity	Current Status
Chiller #1B	TBD	1,500 Tons	Operational
Chiller #2B	TBD	1,500 Tons	Operational
Chiller #3B	TBD	1,500 Tons	Future
Chiller #4B	TBD	1,500 Tons	Future
Chiller #5B	TBD	1,500 Tons	Future
Current Main Chiller Plant Capacity		3,000 Tons	
Available Future Capacity		4,500 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 NE Satellite Chilled Water Plant is currently under construction. New plant was designed to house five (5) new chillers, five (5) cooling towers, five (5) primary chilled water pumps and five (5) condenser water pumps. However initial installation will only have two (2) chiller, two (2) cooling towers, two (2) primary chilled water pumps and two (2) condenser water pumps and space will be allocated for future equipment. New satellite plant will be provided with 18” cross-connect to existing campus chilled water distribution piping.

Table 10.1 Existing Chilled Water System – MODESTO A. MAIDIQUE CAMPUS

Building	Conditioned SF	Approximate A/C Tonnage
Viertes Haus (VH)	56,000	233
Engineering & Computer Science	65,200	189
Owa Ehan	140,800	587
Chemistry & Physics	176,800	737
Graham Center – East	96,800	457
Graham Center – West	70,400	426
Ryder Business Building	41,200	167
Deuxiem Maison (DM)	100,000	418

Perry Building (PC)	162,000	675
Health Care Wellness Center	11,600	38
Ziff Education Building	41,200	173
Panther Residence Hall	80,000	350
Wertheim Performing Arts Center –East	48,400	201
Wertheim Performing Arts Center –West	52,000	217
Green Library	208,400	869
Labor Center	17,600	74
College of Health	8,000	28
Conservatory & Greenhouse	5,000	17
University Tower	195,000	561
MARC	75,000	363
Everglades Hall	135,000	403
Health & Life Science I & II	195,000	1210
School of Architecture	48,000	336
Health Care Wellness Center Expansion	23,000	56
Recreation Center I	45,000	170
College of Nursing & Health Sciences		
Science Classroom Complex	130,000	1,200
Law School		467
Lake View		373
Art Museum		183
Graduate Business		346
Total		13,224

SOURCE: FIU Central Chilled Water System Engineering Study December, 2009 and as-builts

A set of three primary transport 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 University 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	1,200 Tons	Operational
Chiller #2	Trane	1,280 Tons	Operational
Chiller #3	McQuay	600 Tons	Out of Service
Current BBC Chiller Plant Capacity		2,480 Tons	

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.

Table 10.2 shows the buildings, which are served by the chilled water system.

Table 10.2 Existing Chilled Water System – BISCAYNE BAY CAMPUS

Building	Conditioned SF	Approximate A/C Tonnage
Wolfe University Center	87,658	219
Academic One	78,667	197
Academic Two	55,786	140
Hospitality Management	46,222	116
The Library	82,332	206
Student Health & Wellness	15,000	38
Student Health Clinic	1,567	4
Kovens Conference Center	57,604	144
Marine Biology	48,000	191
Total	472,836	1255

SOURCE: Facilities Operations

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, except the Kovens Conference Center.

OTHER UNIVERSITY SITES

Engineering Center

The Engineering Center has three (3) chillers:two (2) 1,300.00 ton and one (1) 1000.00 ton. All three circuits are presently stand alone with it's 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.

OTHER UNIVERSITY SITES

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.

OTHER UNIVERSITY SITES

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 Table 10.3.

Table 10.3 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	TBD	Parallel
Plant #3 – NE Plant	2B	1,500	TBD	Parallel
Total Current Chiller Capacity		13,500*		

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 10.4.

Table 10.4 Available Chiller Expansion Capacity – MODESTO A. MAIDIQUE CAMPUS

Plant	Number	Tons	Arrangement
Plant #1 – Main	N/A	0	N/A
Plant #2 – Sub/Sec	3A	1500	Parallel
Plant #3 – NE Plant	3B	1,500	Parallel
Plant #3 – NE Plant	4B	1,500	Parallel
Plant #3 – NE Plant	5B	1,500	Parallel
Total Available Chiller Expansion Capacity		6,000*	

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+1 redundancy of one 1,500 Ton chiller, the available capacity with full build-out of all future planned chillers is 18,000 Tons.

BISCAYNE BAY CAMPUS

Cooling capacity of the plant is indicated in Table 10.5.

Table 10.5 Chiller Capacity – BISCAYNE BAY CAMPUS

Number	Tons	Manufacturer	Arrangement
1	1,200	Carrier	Parallel
2	1,280	Trane	Parallel
3	600	McQuay	Parallel
Total	2,480		

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.

OTHER UNIVERSITY SITES

Engineering Center

Cooling capacity of the plant is indicated in Table 10.6.

Table 10.6 Chiller Capacity – ENGINEERING CENTER

Number	Tons	Manufacturer	Arrangement
1	1,300	Trane	Parallel
2	1,300	Trane	Parallel
3	1,000	York	Parallel
Total	3,600		

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;

MODESTO A. MAIDIQUE CAMPUS

The estimated chilled water peak demand including the Science Classroom Complex and the Stempel Complex is 12,000 Tons which serves approximately 3 million square feet of conditioned space. 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 1,200 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.

OTHER UNIVERSITY SITES

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.

OTHER UNIVERSITY SITES

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.

(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 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 to support 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 the chiller plant. The existing Chiller #3 may be replaced to provide the additional capacity required to accommodate the planned campus expansion.

OTHER UNIVERSITY SITES

Engineering Center

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.

The buildings under design are: .

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.

OTHER UNIVERSITY SITES

Engineering Center

- b) The general performance of existing chilled water 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.**

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.

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 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.

OTHER UNIVERSITY SITES

Engineering Center

The existing chillers, Chiller 1 and 2, are in excellent condition and Chiller 3 is in good condition.

- 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 an 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, the feedback controls are not provided to control the speed of the pumps. This offers opportunities to increase the efficiency of the chiller plant.

Biscayne campus may be branded as the environmental campus.

OTHER UNIVERSITY SITES

Engineering Center

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 presently consists of five primary voltage (13.2 KV) feeders. Three 13.2 KV feeders originate from the International Substation located on the southwest corner of campus and serves the majority of buildings within the campus core. One overhead feeder is routed on SW 117th Ave also originating from the International Substation and serves the FIU Arena, Sports Fields, Parking Garages and Modular Classrooms located on the west portion of campus. The fifth feeder is a 13.2 KV overhead feeder routed on SW 107th Ave originating from the Tropical Substation and currently serves the housing district located on the east portion of campus. The Tropical Substation is fully built out.



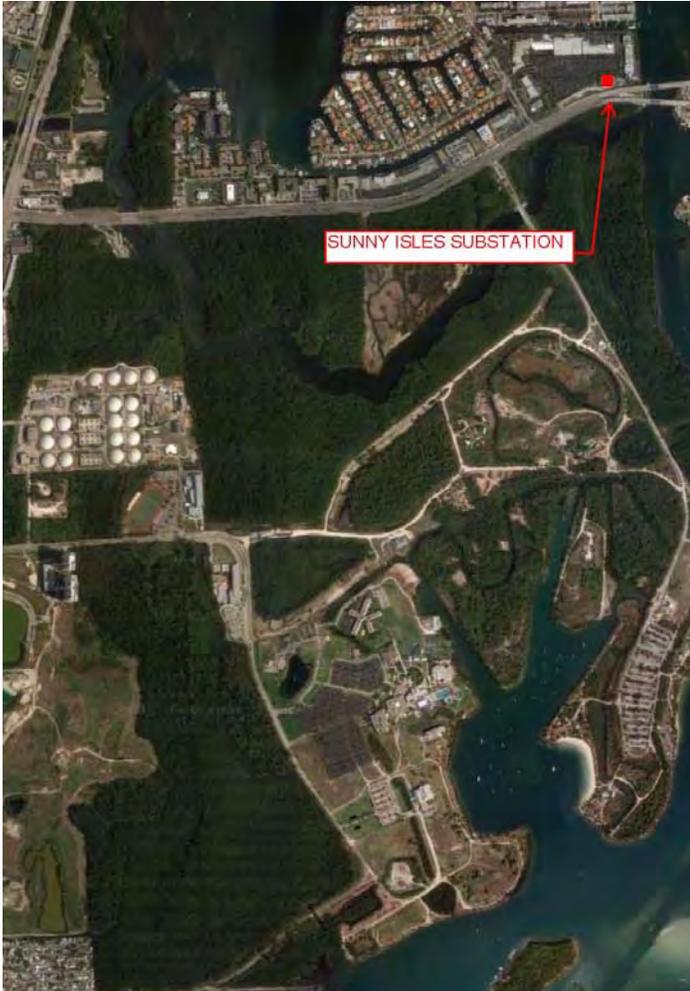
The underground ductbank system is provided with strategically placed intermediate manholes to allow for taps and extensions to service the campus expansions.

FP&L is planning the distribution to serve the Medical Research District located on the NE portion of campus. The new Medical Research District is planned to be served from one of the three underground feeders originating from the International Substation. The Tropical Substation feeder is planned to remain to serve as a back-up feeder for the Medical Research District. FP&L is considering a new feeder from the Flagami Substation to replace the Tropical Substation feeder as a back-up for the new Medical Research District.



BISCAYNE BAY CAMPUS

The electrical transmission and distribution system serving Biscayne Bay Campus consists of two primary voltage (13.2 KV) feeders originating from the Sunny Isles Substation routed through an underground conduit ductbank network. The entry route of these feeders trains the existing entry road to the Central Utilities Building. Each feeder has the rated capacity to individually handle the electrical consumption of the entire campus. However, one feeder is designated as the main service, while the second feeder is designated as a backup circuit, which is interconnected via an automatic throwover mechanism within the transformer vaults to automatically come on line in the event of a main service feeder failure.



In addition to the two primary feeders described above, there is an existing primary voltage overhead feeder which is dead ended near the southeast region of the campus at 135th Street. If required, this feeder could be routed down a riser underground and extended into the campus network to develop a second service loop. However, since only one line is available, it would not provide the reliability of the throw over back-up service.

OTHER UNIVERSITY SITES

Engineering Center

The electrical distribution system serving Engineering Center, consists of two primary voltage (13.2KV) feeders routed through an underground ductbank network originating from two separate substations, Flagami Substation and Sweetwater Substation to serve the Main Classroom Building. These feeders enter the OU Building and terminate at the main Switchgear. Each feeder has the rated capacity to individually handle the electrical consumption to the entire campus. Both circuits are available for service. At the main switchgear in the OU Building, one feeder is designated as the

main service and the second feeder as a backup, which is interconnected manually via a tie breaker in the event of a main feeder failure.



The Wall of Wind is served from a single feeder originating from the Flagami Substation.

- 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 generators located on campus, that backup the electrical system in the event of a blackout. These generators are located at the following buildings: Engineering and Computer Sciences, Wertheim Conservatory, Owa Ehan, Chemistry and Physics, Tower, Herbert and Nicole Wertheim Performing Arts Center, Management and Advanced Research Center, Deuxiem Maison, Health and Life Sciences, Everglades Hall, Cenral Utilities, Viertes Haus, Charles E. Perry, Parking Garage 3, Parking Garage 4, Ernest R. Graham Center and at various Campus Support buildings.

Fuel storage and distribution facility is located is located at the Campus Support Complex Vechicle Services Facility. The storage facility has a 6000 gallon gasoline tank and a 6000 gallon tank diesel tank. In addition, for distribution, it has a trailer mounted 500 gallon diesel tank.

BISCAYNE BAY CAMPUS

There are two emergency generators located on campus, that backup the electrical system in the event of a blackout. One generator serves the Academic One, part of

the Wolfe University Center, and part of the Central Utility building. Another generator is located at the Kovens Conference Center, it backups the lighting, elevators, and computer room outlets.

The Biscayne Bay Campus houses marine research which include marine tanks and vivarium. Back-up power must be provided for research spaces to ensure continuity and integrity of the research.

OTHER UNIVERSITY SITES

Engineering Center

- 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;

MODESTO A. MAIDIQUE CAMPUS

Florida Power and Light provides services to Modesto A. Maidique Campus.

BISCAYNE BAY CAMPUS

Florida Power and Light provides services to Biscayne Bay Campus.

OTHER UNIVERSITY SITES

Engineering Center

Florida Power and Light provides services to Engineering Center.

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.

OTHER UNIVERSITY SITES

Engineering Center

3. The design capacity of the facility;

MODESTO A. MAIDIQUE CAMPUS

The design capacity of the facility is managed by FP&L. Based on conversations with FP&L, there is sufficient capacity to serve the entire campus from the International Substation alone.

BISCAYNE BAY CAMPUS

The design capacity of the facility is not available. Electrical design is done on a per building basis, rather than considering the impact on the entire campus. In order to calculate the electrical design capacity, an in-depth analysis of the electrical design (riser diagrams) for each building must be done. Therefore, further analysis is required to compute the design capacity of the campus.

OTHER UNIVERSITY SITES

Engineering Center

4. The current demand on the capacity of the facility;

MODESTO A. MAIDIQUE CAMPUS

The annual peak demand recorded between July 2011 and June 2012 was 23,670 KW (April 2012). The current electrical distribution has sufficient capacity for future campus growth. FP&L will ensure appropriate level of service to all campus buildings. The current electrical distribution serves approximately 6.5 million square feet of buildings. Therefore, the current campus electrical demand density is approximately 3.6 watts per square foot.

BISCAYNE BAY CAMPUS

FP&L will ensure appropriate level of service to all campus buildings.

OTHER UNIVERSITY SITES

Engineering Center

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

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,**

MODESTO A. MAIDIQUE CAMPUS

The current electrical distribution system is adequate for the existing and short-term program improvements.

BISCAYNE BAY CAMPUS

The current electrical distribution system 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.**

MODESTO A. MAIDIQUE CAMPUS

The electrical transmission and distribution system serving Modesto A. Maidique Campus presently consists of two primary voltage (13.2 KV) underground feeders.

Since each feeder originates at a different substation, and each has the rated capacity to energize all campus loads, the campus intrinsically has flexibility and back-up capabilities in the event that any one feeder should fail.

In addition, a third primary voltage feeder which originates from the new FPL substation built on an easement located at the southwest corner of the campus is completed. This underground ductbank is provided with strategically placed intermediate manholes to allow for taps and extensions to service the campus expansions. This transmission and distribution system provide the campus with unmatched service reliability against possible brownouts.

BISCAYNE BAY CAMPUS

The electrical transmission and distribution system serving Biscayne Bay Campus consists of two primary voltage (13.2 KV) feeders. Each feeder has the rated capacity to individually handle the electrical consumption of the entire campus. However, one feeder is designated as the main service, while the second feeder is designated as a backup circuit, which is interconnected via an automatic throwover mechanism within the transformer vaults to automatically come on line in the event of a main service feeder failure. This design provides the highest level of service reliability to the campus.

In addition to the two primary feeders described above, there is an existing primary voltage overhead feeder which is dead ended near the southeast region of the campus at 135th Street. If required, this feeder could be routed down a riser underground and extended into the campus network to develop a second service loop. However, since only one line is available, it would not provide the reliability of the throwover back-up service.

- 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.**

MODESTO A. MAIDIQUE CAMPUS

As previously noted, the existing five primary voltage feeders designed to service Modesto A. Maidique 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, energy efficient lighting such as T-8, compact fluorescent lamps, electronic ballast, automated building lighting control systems and the ongoing conversion of parking garage lighting to LED.

The energy efficient technologies described above will be expanded upon in upcoming sections of this report when alternative plans are discussed.

BISCAYNE BAY CAMPUS

Presently, the existing primary voltage feeders can accommodate sufficient capacity to expand upon and service the projected growth at Biscayne Bay Campus. Therefore, electrical service for planned building expansions would tie into and extend the existing primary feeders to either transformer vaults or padmounted transformers to provide the utilization voltage required.

In order to maximize the existing feeder's capabilities to their fullest potential, all new building designs should incorporate energy conservation programs favored by FPL to both reduce the overall KW consumption and acquire favorable KW per KWH usage rates. These energy conservation programs would include automatic lighting control, energy efficient T-8 lamps, electronic ballasts, LED exit signs, compact fluorescent lighting, and thermal energy storage.

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.**

MODESTO A. MAIDIQUE CAMPUS

Electrical power distribution system should be extended to all long-term program improvements through the above master electrical feed systems. Specific routing and sizing should be evaluated when more details are known about these long-term program improvements.

FIU's goal is 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. 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 Florida Power 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.

BISCAYNE BAY CAMPUS

Electrical power distribution system should be extended to all long-term program improvements through the above master electrical feed systems. Specific routing and sizing should be evaluated when more details are known about these long-term program improvements.

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. Telephone;

MODESTO A. MAIDIQUE CAMPUS

The Campus main telephone feeder originates at 107th Avenue and enters into 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 also provides the voice communications via a new Voice over Internet Protocol (VoIP) system.

BISCAYNE BAY CAMPUS

A single communication 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.

OTHER UNIVERSITY SITES

Engineering Center

Engineering Center voice communications system is serviced by Bell South "ESSX" service. The site main telephone feeder originates at 107th Avenue and enters in to the cable plant located at the Utilities building. This cable plant, which consists of copper provides voice communication as well as dedicated circuits throughout the site, is owned and maintained by BellSouth, which

provides it as part of the ESSX service rate.

2. Computer network(s);

MODESTO A. MAIDIQUE CAMPUS

The data communications system at Modesto A. Maidique Campus is comprised of two networks: the FIUnet and the Administration Network. The FIUnet system is a fiber-optic cable based transmission system which links Primera Casa, Deuxieme Maison, Owa Ehan, Engineering & Computer Science, Viertes Haus, Graham Center, Green Library, Health Wellness Center, and Physical Science. The operation, maintenance and management of this fiber network is the responsibility of the University. The Administrative Network which services the end users is a twisted pair, copper cable based, dedicated data circuit system. The data circuits required to run or expand the system are leased from Bell South via the cable plant located at the Primera Casa building

The data communications system at the Engineering site is comprised of two networks: FIUnet and EICnet. The FIUnet system is a fiber-optic cable based transmission system, which links both the CEAS and Utility buildings. The operation, maintenance and management of this network are the responsibility of the University. The EICnet system is a fiber-optic cable as well as twisted copper pair cabling based transmission system, which links all users within the EICnet system. The operation, maintenance and management of this network are the responsibility of the College of Engineering (see Figure 10.8: Existing Telecommunications Network).

BISCAYNE BAY CAMPUS

The data communications system is divided into two networks: FIUnet and the Administration Network. FIUnet is a fiber-optic cable based distribution system which expands to the following buildings: Academic One, Hospitality Management, The Library, and Wolfe University Center. This fiber network is owned, operated, maintained and managed by the University.

The Administrative Network is a twisted pair copper cable based, dedicated data circuit system to service the end users. Although the University owns the cable plant, the required number of lines are leased from Bell South (see Figure 10.9: Existing Telecommunications Network).

3. Radio

Radio systems are used by campus police, facilities maintenance and the FIU student FM stations.

- b) **An inventory of electromagnetic fields (if any) emanating from any telecommunications transmitter that pose a hazard to persons or equipment.**

Information was not available to complete the required response.

(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.**

MODESTO A. MAIDIQUE CAMPUS

Network technology has undergone a rapid evolutionary process over the course of the last decade. Today, organizations still rely on separate network infrastructures to transmit data and voice traffic. The challenge of integrating voice and data networks is becoming a rising priority for many organizations. Modesto A. Maidique Campus plans to take advantage of the synergies gained by converging data and voice onto a single multiservice IP network. An IP-based network that integrates data and voice introduces the opportunity to a new world of technologies that increases productivity and provides a more efficient allocation of resources. This multiservice network will serve Modesto A. Maidique Campus's communication needs well into the future.

In order to achieve the multiservice network, the communication conduit infrastructure needs to be reevaluated. A proposed conduit layout of four-inch communication conduit duct-banks will provide redundancy among core buildings on the campus and a single conduit path for the boundary buildings on the campus. The conduit layout could be made more robust by providing redundancy to every building on campus.

BISCAYNE BAY CAMPUS

Network technology has undergone a rapid evolutionary process over the course of the last decade. Today, organizations still rely on separate network infrastructures to transmit data and voice traffic. The challenge of integrating voice and data networks is becoming a rising priority for many organizations. Biscayne Bay Campus plans to take advantage of the synergies gained by converging data and voice onto a single multiservice IP network. An IP-based network that integrates data and voice introduces the opportunity to a new world of technologies that increases productivity and provides a more efficient allocation of resources. This multiservice network will serve Biscayne Bay Campus's communication needs well into the future.

In order to achieve the multiservice network, the communication conduit infrastructure needs to be reevaluated. A proposed conduit layout of four-inch communication conduit duct-banks will provide redundancy among core buildings on the campus and a single conduit path for the boundary buildings on the campus. The conduit layout could be made more robust by providing redundancy to every building on campus.

- 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) show 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 4,810 surface parking spaces and 6,845 multilevel parking spaces are provided on this campus. The majority of the parking spaces are allocated to students/residents (70%). Faculty and staff occupy 16% of the available spaces and the remaining 14% 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) show 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 717 surface parking spaces are provided on this campus. The majority of parking spaces are allocated to students (70%). Faculty and staff occupy 20% of the available spaces and the remaining 10% are allocated among executive, administrative, disabled, visitors (metered), 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) show the parking layout at the Biscayne Bay Campus. Table 11.3 contains detailed counts of spaces by type for each lot. A total of 2257 surface parking spaces are provided at this campus. Parking spaces are allocated to students/residents (74%), faculty and staff occupy 15%, and the remaining 11% 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																			File Name: MMC.PC
Modesto A. Maidique Campus - Parking Lot Counts By Space Type																			
LOT #	SPACE TYPE																	TOTAL	
	EXECUTIVE	ADMIN.	FAC./STAFF	STUDENT	RESIDENT	RESERVE	DISABLED	METERED SINGLE SP	METERED MULTI SP	CARPOOL	VALET	MOTOR BIKE	STATE VEHICLE	FIU POLICE	SERVICE DELIVERY	TIME LIMIT	CAR WASH		
1 - West of PG-4	0	14	48	136	0	0	0	0	0	17	0	2	10	0	0	0	0	227	
2 - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3 - Bookstore/GC	0	4	98	378	0	1	4	0	58	14	0	2	0	0	0	0	0	559	
4 - East of PG-2	0	0	0	164	0	0	0	8	0	0	0	0	6	0	0	0	0	178	
5 - East of PAC	0	3	24	506	0	0	0	0	0	0	0	0	0	0	2	0	0	535	
6 - Student Housing	0	0	15	0	365	0	0	6	0	0	0	0	0	0	0	0	0	386	
7 - East of W-2	2	4	80	271	0	0	7	6	0	1	0	2	3	0	0	0	0	376	
8 - South of REC	1	11	117	21	0	8	9	10	0	9	0	1	3	0	0	0	0	190	
9 - West of ZEB	7	46	194	240	0	3	13	28	0	18	0	1	0	0	5	1	0	556	
10 - South of PG-3	0	0	7	202	0	0	2	5	0	0	0	1	0	0	0	1	0	218	
11 - Arena Loading Area	0	9	20	0	0	0	4	0	0	0	0	0	3	0	0	0	0	36	
12 - West Panther Hall	0	0	23	0	213	0	3	0	0	0	0	1	0	0	0	0	0	240	
13 - North Univ Towers	0	20	0	0	66	0	4	2	0	0	0	1	0	0	0	0	0	93	
14 - Apartments	0	0	14	0	351	0	10	2	0	0	0	3	0	0	0	0	0	380	
15 - Tower	1	0	0	0	0	0	0	0	0	0	0	0	3	20	0	0	0	24	
16 - West of Green Lib	3	0	0	0	0	0	6	0	0	0	0	0	3	0	0	3	0	15	
17 - Central Utilities	0	0	0	0	0	0	0	0	0	0	0	0	25	0	4	0	0	29	
18 - West of ESC	3	0	0	0	0	0	10	2	0	0	0	0	0	0	5	0	0	20	
19 - North of OE	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
20 - Loading Area GC	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	5	
21 - Loading Area PC	2	0	0	0	0	2	2	2	0	0	0	0	9	0	0	3	0	20	
22 - Loading Area PAC	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
23 - Greek Housing	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7	
24 - E & W side FIU Stad.	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19	
25 - W-2 Compound	0	0	0	0	0	0	0	0	0	0	0	0	37	0	0	0	0	37	
26 - CSC Staff Lot	2	29	116	0	0	4	4	11	0	0	0	0	20	0	0	0	0	186	
27 - CSC Compound	0	0	22	0	0	0	1	0	0	0	0	0	54	0	0	1	0	78	
28 - North of W-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	
29 - East of W-10	0	0	7	47	0	0	1	0	0	0	0	0	11	0	0	0	0	66	
30 - South of W-9	0	0	17	0	0	0	4	2	0	0	0	0	2	0	0	0	0	25	
31 - East of W-5 & W-6	0	0	9	65	0	0	2	0	0	0	0	0	2	0	0	0	0	78	
32 - South of AHC1	1	0	0	0	0	0	7	0	0	0	0	0	2	0	0	0	0	10	
33 - GC Space-by-Space	3	0	0	0	0	0	8	0	56	0	0	0	2	0	0	0	0	69	
34 - President House	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	56	
35 - Between Lot 32 & 33	20	9	0	0	0	20	0	33	0	0	0	0	0	0	0	0	0	82	
PG-1 GOLD	12	136	212	554	0	4	14	0	16	27	0	4	4	0	0	0	21	1004	
PG-2 BLUE	0	36	318	586	0	0	6	0	52	2	0	0	0	2	0	0	0	1002	
PG-3 PANTHER	0	21	45	1343	0	0	8	0	16	3	0	2	5	5	0	0	0	1448	
PG-4 RED	0	55	298	994	0	0	8	0	32	18	0	3	13	5	0	0	15	1441	
PG-5 MARKET STATION	6	28	204	1604	0	0	27	8	26	0	0	0	8	18	0	21	0	1950	
TOTAL	63	425	1888	7186	1002	45	172	127	256	109	0	23	225	50	18	30	36	11655	

Source: FIU Department of Parking and Transportation, July 2011

Table 11.2 Parking Lot Counts by Stall Type – ENGINEERING CENTER

UPDATED 07/2011

Florida International University Parking and Transportation																		
Engineering Center - Parking Lot Counts By Space Type																		File Name: EC-PC
LOT #	SPACE TYPE																	TOTAL
	EXECUTIVE	ADMIN.	FAC./STAFF	STUDENT	RESIDENT	RESERVE	DISABLED	METERED SINGLE SP	METERED MULTI SP	CARPOOL	VALET	MOTOR BIKE	STATE VEHICLE	FIU POLICE	SERVICE DELIVERY	TIME LIMIT	CAR WASH	
1-107 Ave Entrance	0	0	17	153	0	0	10	17	0	0	0	0	2	0	0	0	0	199
2 - East of Building	0	0	61	114	0	0	0	0	0	0	0	0	0	0	0	0	0	175
3 - East of lot 2	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	200
4 - West of OU	0	0	0	25	0	0	1	0	0	0	0	0	2	0	0	0	0	28
5 - East of OU	0	0	3	5	0	0	0	0	0	0	0	0	2	0	0	0	0	10
6 - Cover Area	6	25	61	0	0	0	8	0	0	0	0	2	3	0	0	0	0	105
TOTAL	6	25	142	497	0	0	19	17	0	0	0	2	9	0	0	0	0	717

Source: FIU Department of Parking and Transportation, July 2011

Table 11.3 Parking Lot Counts by Stall Type – BISCAYNE BAY CAMPUS

UPDATED 07/2011

Florida International University Parking and Transportation																		
Biscayne Bay Campus - Parking Lot Counts By Space Type																		File Name: BBC-PC
LOT #	SPACE TYPE																	TOTAL
	EXECUTIVE	ADMIN.	FAC./STAFF	STUDENT	RESIDENT	RESERVE	DISABLED	METERED SINGLE SP	METERED MULTI SP	CARPOOL	VALET	MOTOR BIKE	STATE VEHICLE	FIU POLICE	SERVICE DELIVERY	TIME LIMIT	CAR WASH	
1 - W. of Library	4	7	178	200	0	0	12	4	39	1	0	3	3	0	2	0	0	453
2 - West of AC-1	3	8	52	275	0	0	11	0	55	5	0	3	0	0	0	0	0	412
3 - West of AC-2	0	0	0	203	0	0	0	0	0	0	0	0	2	0	0	0	0	205
4 - West of AC-2	0	0	23	540	0	0	7	0	0	0	0	1	0	0	0	0	0	571
5 -West of Koven	0	0	34	187	0	0	11	0	0	0	0	0	0	0	0	0	0	232
6 - Housing Lot	0	0	5	0	228	0	8	2	0	0	0	2	0	0	0	0	0	245
7 - E. of Central Rec.	0	0	29	27	0	0	0	6	0	0	0	0	0	0	0	0	0	62
8 - Pub. Safety	0	1	1	0	0	0	2	1	0	0	0	0	2	10	2	0	0	19
9 - So. Phys. Plant	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	16
10 - Central Utilities	2	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	7
11 - E. Aquatic Cntr	2	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0	8
12 -South Koven	4	1	19	0	0	0	0	0	0	0	0	0	0	0	3	0	0	27
TOTAL	15	17	341	1432	228	1	56	13	94	6	0	9	23	10	12	0	0	2257

Source: FIU Department of Parking and Transportation, July 2011

Existing University Parking Permit System:

Decals/permits are required for all lots except designated visitor lots, which are metered. These decals are issued to all members of the University community who request them. Different decal categories and lot designations exist on the Modesto A. Maidique, Engineering Center and Biscayne Bay Campuses. All enrolled students pay an access fee for parking. This access fee entitles each student to one (1) initial decal. A description of the various decals currently issued is shown in Table 11.4. Specialized parking requirements are accommodated on an as-needed basis. Parking for service vehicles is located adjacent to the buildings. Visitor parking is controlled by meters located throughout the campuses, at which University permit holders are forbidden to park. Americans with Disabilities Act (ADA) parking spaces are located adjacent to various buildings on campus. In addition, visitors attending temporary events, special events, meetings, and seminars can obtain special permits to park in most available parking spaces that are assigned to students and faculty/staff.

University Parking Fees:

A description of the fees charged for the different types of decals/permits are shown in Table 11.4 along with the cost of the parking permits.

Table 11.4 Existing Parking Fee Structure as of 2012

Decal/Permit Type	Fee with Tax	Comments
Executive	\$1040.59	President Approval
Duplicate Executive	\$32.10	
Administrative	\$478.27	Director of P&T Approval
Duplicate Administrative	\$21.40	
Faculty/Staff Annual	\$271.89	\$45,000 & over – Annual Salary
Faculty/Staff Annual	\$242.23	\$35,000 to \$45,000 – Annual Salary
Faculty/Staff Annual	\$165.60	\$25,000 to \$35,000 - Annual Salary
Faculty/Staff Annual	\$142.12	\$25,000 & under - Annual Salary
Duplicate Faculty/Staff Annual	\$16.05	
Faculty/Staff Semester	\$150.07	\$45,000 & over - Annual Salary
Faculty/Staff Semester	\$133.47	\$35,000 to \$45,000 - Annual Salary
Faculty/Staff Semester	\$107.52	\$25,000 to \$35,000 - Annual Salary
Faculty/Staff Semester	\$88.98	\$25,000 & Under - Annual Salary
Duplicate Faculty/Staff Semester	\$16.05	
AFSCME	\$113.49	Annual
Alumni	\$278.07	
Duplicate Alumni	\$16.05	
Student	\$0.00	One original per academic year included in tuition

Decal/Permit Type	Fee with Tax	Comments
Duplicate Student	\$16.05	One Year Hangtag
Annual permit (Student)	\$285.48	
Semester Permit (Student)	\$95.16	Fall or Spring Semester
Semester Permit (Student)	\$87.75	Summer Semester
Semester Housing Sticker (Student)	N/C	
Contract Daily Permit	\$2.00	Surface Lots
Vendor/Contractor	\$28.89	30 Day Permit
Vendor/Contractor	\$48.15	60 Day Permit
Vendor/Contractor	\$69.55	90 Day Permit
Volunteer	\$5.35	30 Day Permit
Volunteer	\$10.70	60 Day Permit
Volunteer	\$16.05	90 Day Permit
Temporary	\$28.89	30 Day Permit
Temporary	\$48.15	60 Day Permit
Temporary	\$69.55	90 Day Permit

Source: FIU Department of Parking and Transportation, 2012

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 U.S. Century 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 athletic events and special events has not exceeded parking capacity.

The Miami-Dade County Fair and Exposition is an 18-day event at the end of March. Daily attendance averages nearly 50,000 people. Parking for the Fair is provided in Tamiami Park, but spillover into FIU parking lots often occurs when the fair lots are full. The fair's short duration has made the spillover parking demand tolerable. However, should the duration of the Fair lengthen or future attendance rise significantly, the cooperation of the Miami-Dade County Fair and Exposition officials would be requested to seek means to satisfy excessive parking demand within the Park's fairgrounds.

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. However, additional parking capacity needs to be provided for year 2035 demands.

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. However, additional parking capacity needs to be provided for year 2035 demands.

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 decals. The number of parking decal holders is the number of parking decals issued to students, faculty, staff, and others, which were obtained from the FIU Department of Parking and Transportation. Table 11.5 summarizes number of users, number of spaces, and ratio of users to spaces. Average ratios of 2.4 students/space and 2.1 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 11.5 Existing Parking Ratios (2011) – MODESTO A. MAIDIQUE CAMPUS

Type of User	Number of Users	• *Number of Spaces	Ratio of Users/Space
Students (FTE)	**19,417	• 8,188	2.4
Faculty/Staff/Misc (FTE)	**5,010	• 2376	2.1

* Source: FIU Parking & Transportation, updated 7/2011

** Enrollment Matrix (FIU)

Parking Utilization - On Campus:

The peak parking demand occurs between 10:00 am and 4:00 pm. Parking utilization at all parking lots were surveyed at 10:00 am and 4:00 pm. Utilization of student parking lots ranges from 42% at parking lot #5 to 100% at parking lots #1, #3, #4, #8, and #9, and the Blue Garage. The average utilization during this time was 85%. Faculty parking utilization of individual lots was lower, ranging

from 26% in Parking Lot #10 to 100% at parking lots #1, #3, #8 and #9, and the Blue Garage. The average faculty parking utilization during this time was 77%.

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. 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 4,930 (year 2020) full-time enrollees living in campus housing.

Future Needs Projections:

Total parking for planning periods (2015, 2020 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 11.6 Future Parking Needs Projections – MODESTO A. MAIDIQUE CAMPUS

	2015	2020	2035
Students⁽⁶⁾			
FTE (x)	22,139	24,650	34,339
FTE in campus housing (y) (Residents)	4,428	4,930	6,868
HC	36,084	37,719	48,750
Faculty & Staff (FTE)⁽⁸⁾	5,440	5,687	7,350
Faculty & Staff (HC)⁽⁷⁾	6,400	6,690	8,647
Total Population⁽⁴⁾	42,484	44,409	57,397
FIU Total Parking Demand Methodology⁽¹⁾	9,741	10,846	15,109
Express Bus Adjustment (10%)⁽²⁾	974	1,084	1,511
FIU Adjusted Parking Demand⁽⁹⁾	8,767	9,762	13,598
Parking Capacity (Students, Faculty & Staff)⁽³⁾	11,951	11,951	11,951
FIU Methodology Available Capacity⁽⁵⁾	3,184	2,189	-1,647

- (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) Express Bus adjustment (at MMC and Eng. Campuses) based upon programmed construction
- (3) 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
- (4) Total Population includes: Headcount (HC) for Students and Faculty & Staff
- (5) Available capacity = (3) – (9). positive number indicates excess capacity & negative number indicates additional spaces needed to satisfy parking demand for year 2035
- (6) Source: FIU enrollment matrix
- (7) **Faculty/Staff (HC)** was unavailable and is projected utilizing the current students (2012 HC =33,199) to faculty/staff (2012 HC = 5,888) ratio.
 HC ratio = 33,199/5,888 = 5.638.
 Based on this HC ratio, Projections for Year 2015 (36,084 (Students-HC)/5.638 = **6,400**),
 Year 2020 (37,719 (Students-HC)/5.638 = **6,690**), and
 Year 2035 (48,750 (Students-HC)/5.638 = **8,647**)
- (8) **Faculty/Staff (FTE)** was unavailable and is projected utilizing the current faculty/staff FTE (2012 FTE=5,010) to faculty/staff HC (2012 HC = 5,888) ratio.
 FTE ratio = 5,010/5,888 = 0.85.
 Based on this FTE ratio Projections for Year 2015 (0.85 x 6,400 (Faculty/Staff HC) = **5,440**),
 Year 2020 (0.85 x 6,690 (Faculty/Staff HC) = **5,687**), and
 Year 2035 (0.85 x 8,647 (Faculty/Staff HC) = **7,350**).

ENGINEERING CENTER

Existing Parking Ratios:

The total number of decals issued to students, faculty, staff, and others was obtained from the University's Parking Department. Table 11.7 summarizes number of users, number of spaces, and ratio of users to spaces at the Engineering Center. The average ratios of 2.1 students/space and 0.5 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 11.7 Existing Parking Ratios (2011) – ENGINEERING CENTER

Type of User	Number of Users	Number of Spaces	Ratio of Users/Space
Students (FTE)	*1,055	**497	2.1
Faculty/Staff (FTE)	*74	**173	0.5

* Source: FIU Enrollment Matrix

** Source: FIU Parking & Transportation, updated 7/2011

Parking Utilization - On Campus:

A parking survey of the parking lots at the Engineering Center was conducted during the peak parking demand period between 10:00 am and 4:00 pm. Utilization of student parking spaces ranged from 75% at parking lot #3 to 100% at parking lots #1, #2 and #4. The average utilization of student parking observed was 95% during this period. Faculty parking utilization was observed at between 85% and 100% at all lots, with an average utilization of 96%.

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 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 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 (2015, 2020 & 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 11.8 Future Parking Needs Projections – ENGINEERING CENTER

	2015	2020	2035
Students⁽⁵⁾			
FTE (x)	1,188	1,379	1,894
FTE in campus housing (y) (Residents)	NA	NA	NA
HC	2,647	2,918	3,552
Faculty & Staff (FTE)⁽⁷⁾	75	83	101
Faculty & Staff (HC)⁽⁶⁾	88	97	119
Total Population⁽⁴⁾	2,735	3,015	3,671
FIU Total Parking Demand Methodology⁽¹⁾	404	469	644
Parking Capacity (Students, Faculty & Staff)⁽³⁾	639	639	639
FIU Methodology Available Capacity⁽²⁾	235	170	-5

(1) Parking demand based upon parking equations provided by FIU:

$$P = 0.34x + 0.5y \quad (x = \text{Full Time Enrollees}, y = \text{Full Time Enrollees living in campus housing})$$

(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)** was unavailable and is projected utilizing the current students (2012 HC =2,456) to faculty/staff (2012 HC = 82) ratio.
 HC ratio = $2,456/82 = 29.95$.

Based on this HC ratio, Projections for Year 2015 (2,647 (Students-HC)/ 29.95= **88**),

Year 2020 (2,918 (Students-HC)/ 29.95 = **97**), and

Year 2035 (3,552 (Students-HC)/ 29.95 = **119**)

(7) **Faculty/Staff (FTE)** was unavailable and is projected utilizing the current faculty/staff FTE (2012 FTE=74) to faculty/staff HC (2012 HC = 82) ratio.
 FTE ratio = $74/82 = 0.90$.

Based on this FTE ratio Projections for Year 2015 (0.90 x 88(Faculty/Staff HC) = **75**),

Year 2020 (0.90 x 97 (Faculty/Staff HC) = **83**), and

Year 2035 (0.90 x 119 (Faculty/Staff HC) = **101**).

NA – not available

BISCAYNE BAY CAMPUS

Existing Parking Ratios:

The total number of decals issued to students, faculty, staff, and others was obtained from the Department of Parking and Transportation. Table 11.9 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 11.9 Existing Parking Ratios (year 2011) – BISCAYNE BAY CAMPUS

Type of User	Number of Users	Number of Spaces	Ratio of User/Space
Students (FTE)	*2,895	**1660	1.7
Faculty/Staff (FTE)	*265	**373	0.7

* Source: FIU enrollment matrix

** Source: FIU Parking & Transportation (7/2011)

Parking Utilization - On Campus:

Parking utilization was surveyed between 10:00am and 4:00pm, the peak parking periods. Student parking utilization ranged from 25% in lot #5 to 100% in Lots #1 and #2. The average student parking utilization was 73%. Faculty parking utilization ranged from 62% to 100% with an average utilization of 84%.

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 (2015, 2020 & 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 11.10 Future Parking Needs Projections – BISCAYNE BAY CAMPUS

	2015	2020	2035
Students⁽⁵⁾			
FTE (x)	3,267	3,906	5,238
FTE in campus housing (y) (Residents)	653	781	1,048
HC	7,838	9,055	16,000
Faculty & Staff (FTE)⁽⁷⁾	293	338	597
Faculty & Staff (HC)⁽⁶⁾	344	397	702
Total Population⁽⁴⁾	8,182	9,452	16,702
FIU Total Parking Demand Methodology⁽¹⁾	1,437	1,719	2,305
Parking Capacity (Students, Faculty & Staff)⁽³⁾	2,001	2,001	2,001
FIU Methodology Available Capacity⁽²⁾	564	282	-304

(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)** was unavailable and is projected utilizing the current students (2012 HC =7,273) to faculty/staff (2012 HC = 319) ratio.

HC ratio = $7,273/319 = 22.8$.

Based on this HC ratio, Projections for Year 2015 (7,838 (Students-HC)/ 22.8= **344**),

Year 2020 (9,055 (Students-HC)/ 22.8= **397**), and

Year 2035 (16,000 (Students-HC)/ 22.8= **702**)

(7) **Faculty/Staff (FTE)** was unavailable and is projected utilizing the current faculty/staff FTE (2012 FTE=265) to faculty/staff HC (2012 HC = 319) ratio.

FTE ratio = $265/319 = 0.83$.

Based on this FTE ratio Projections for Year 2015 (0.83×344 (Faculty/Staff HC) = **293**),

Year 2020 (0.83×397 (Faculty/Staff HC) = **338**), and

Year 2035 (0.83×702 (Faculty/Staff HC) = **597**).

4. Management Policies That May Reduce Parking Demand

i. 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.

ii. 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.

iii. 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.

iv. 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 parking facilities, 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 Agency (MDTA) bus terminal is located on campus, east of Lot #5 (Figure 11.1A, Appendix 11.1). Four 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.

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 (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 Golden Panther Express Shuttle is available to students traveling between Modesto A. Maidique and the Biscayne Bay Campuses. Table 11.15 give the service frequency, route alignment, and service hours of the Golden Panther Express Shuttle.

Future 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.

Table 11.11 Public Transit Routes – MODESTO A. MAIDIQUE CAMPUS

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
8	10-15 minutes	From Miami Dade College Downtown Campus to Modesto A. Maidique Terminal	4:39am-11:07pm (Eastbound)
			6:13am-10:59pm (Westbound)
11	15-30 minutes	From Metro-Dade Government Center to Modesto A. Maidique Terminal	24 hours (Eastbound)
			24 hours (Westbound)
24	30-40 minutes	From SW 26 th Street and SW 153rd Court to SW 1 st Street and SW 1 st Avenue	5:34am-11:52am (Eastbound)
24	40 minutes	From SW 1 st Street and SW 1 st Avenue to SW 26 th Street and SW 153rd Court	5:47am-11:52pm (Westbound)
71	30 minutes	From Miami Dade College South to Dolphin Mall	7:04am-7:51pm (Northbound)
71	30 minutes	From Dolphin Mall to Miami Dade College South	6:33am-8:10pm (Southbound)

Source: Miami-Dade Transit Agency, 2012

ENGINEERING CENTER

Three (3) bus routes serve the Engineering Center daily. Table 11.12 provide 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.

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 (Figure 11.1 B, Appendix 11.1). Table 11.13 summarizes the frequency of service, route alignment, and service hours. Vans used for CATS have a seated capacity of 15 passengers.

Table 11.12 Public Transit Routes – ENGINEERING CENTER

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
11	15-30 minutes	From Metro-Dade Government Center to Modesto A. Maidique Terminal	24 hours (Eastbound)
			24 hours (Westbound)
51 Flagler MAX	15-30 minutes	From SW 8 th Street and SW 13 th Avenue to SW 1st Street and Miami Avenue	5:22am-7:35pm (Eastbound)
			6:31am-8:57pm (Westbound)
212 Sweetwater Circulator	30 minutes	From SW 2nd Street and SW 109 th Avenue to NW 2nd Street and NW 117 th Avenue	9:13am-3:13am (Eastbound)
			9:21am-2:51pm (Westbound)

Source: Miami-Dade County Transit Agency, 2012

Table 11.13 Campus Area Transit System (CATS) – MODESTO A. MAIDIQUE CAMPUS and ENGINEERING CENTER

Route #	Frequency during Peak hours	Route Alignment	Service Hours
Blue Bus	45 minutes	From Engineering Center to Modesto A. Maidique Campus	6:35am-10:35pm
Gold Bus	45 minutes	From Modesto A. Maidique Campus to Engineering Campus	6:15am-10:00pm

Source: FIU Department of Parking and Transportation, 2012

BISCAYNE BAY CAMPUS

MDTA bus shelters are located south of the library and east of parking lot #1 (Figure 11.1C, Appendix 11.1). Two bus routes terminate at the Biscayne Bay Campus. Four buses serve the campus daily 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 is included which 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 Golden Panther Express Shuttle is available to students traveling between Modesto A. Maidique and the Biscayne Bay Campuses. Table 11.15 give the service frequency, route alignment, and service hours of the Golden Panther Express Shuttle.

Table 11.14 Public Transit Routes – BISCAYNE BAY CAMPUS

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
3	15-20 minutes	From Downtown Miami Bus Terminal to Aventura Mall	5:55am-4:40pm (Northbound)
3	15-20 minutes	From Aventura Mall to Downtown Miami Bus Terminal	4:45am-4:15am (Southbound)
75	30-40 minutes	From Miami Lakes Technical Education Center to FIU Biscayne Bay Campus	6:37am-10:11pm (Eastbound)
75	30-40 minutes	From FIU Biscayne Bay Campus to Miami Lakes Technical Education Center	5:20am-10:29pm (Westbound)
93 Biscayne MAX	15-20 minutes	From Downtown Miami Bus Terminal to Aventura Mall	6:23am-8:00pm (Northbound)
93 Biscayne MAX	15-20 minutes	From Aventura Mall to Downtown Miami Bus Terminal	6:16am-6:35pm (Southbound)
135 183 Street MAX	30minutes	From Hialeah MetroRail Station to FIU Biscayne Bay Campus	6:53am-10:12pm (Eastbound)
135 183 Street MAX	15-30 minutes	From FIU Biscayne Bay Campus to Hialeah MetroRail Station	5:07am-8:32pm (Westbound)
NOMI Express Red Route	60 minutes	Keystone Park to Biscayne Boulevard and 128 th Street	7:00am–8:00pm

Source: Miami-Dade County Transit Agency, 2012
City of North Miami, 2012

Table 11.15 Campus Transit Route – MODESTO A. MAIDIQUE CAMPUS and BISCAYNE BAY CAMPUS

Route #	Frequency during Peak Hours	Route Alignment	Service Hours
Golden Panther Express	60 minutes	From Modesto A. Maidique Campus to Biscayne Bay Campus	6:45am-12:00am

Source: FIU Department of Parking and Transportation, 2012

(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. Outside the campus loop road, six (6) parking lots and three (3) parking garages are provided. Figure 11.1D (Appendix 11.1) 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 buildings is provided by covered and uncovered walkways. Walkway widths vary between 6' and 14'. Pedestrian walkways are also provided north and south of the campus loop road, leading to parking lots/garages, on the east leading to student and Greek housing, and the west leading to athletic, support and academic facilities. Surface material of these walkways consists of cast-in-place concrete and asphalt.

Crosswalks:

There are crosswalks on the eastern half of the campus loop road, connecting academic facilities located in the center of the campus to parking lots on the north side of the campus and student/Greek housing on the east side of the campus. Throughout the day, pedestrian activities on the eastern half of the loop road are significant and impacts vehicular traffic. Crosswalks also exist on the western half of the loop road. Most pedestrian activity on the western half of campus occurs near the Arena and the Panther parking garage.

In addition to significant crosswalks, the University has initiated improvements to help minimize pedestrian and vehicular conflicts. Three signals have been installed at locations adjacent to PG5 and the Panther parking garage.

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 80 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, an official 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 (Appendix 11.1).

ENGINEERING CENTER

The Engineering Campus consists of one (1) primary educational building with parking areas on the East and West sides. 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 (Appendix 11.1). 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 #2 and #3. 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 (Appendix 11.1).

BISCAYNE BAY CAMPUS

Biscayne Bay Campus consists of a group of academic buildings on the east side of the campus, student housing on the north, and parking lots on the western areas of the campus. One main entrance provides vehicular access to the campus. The general configuration of pedestrian and non-vehicular circulation is shown in Figure 11.1F (Appendix 11.1). 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'. Three paths 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. Walkways are made of cast-in-place concrete and asphalt as surface material.

Crosswalks:

Crosswalks are provided along key pedestrian crossings on NE 145th Street and North 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 lot and the support facilities located on the northwest portion of the campus.

Bikeways:

Bicycle racks are currently located in the courtyards of the residential housing dormitories on the campus. The Biscayne Bay campus currently contains ten (10) 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. In an effort 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 (Appendix 11.1).

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. However, designated bike lanes are not found within the context areas of these campuses.

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. There is a non-continuous bike lane along NE 151st Street and Bay Vista Boulevard to the main entrance of the Biscayne Bay Campus. This sidewalk and bike lane is the primary non-vehicular links between the Biscayne Bay Campus and the residential neighborhoods in the cities of North Miami and North Miami Beach. 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 the Planning Study Area.

According to the Miami-Dade Metropolitan Planning Organization 2013 Transportation Improvement Program, no pedestrian projects are currently placed within the planning study area of the FIU campuses. However, improvements to the SW 8th Street and SW 107th Avenue intersection does consider pedestrian and bicycle improvements.

(d) Inventory and Assessment of Opportunities to Implement Transportation Demand 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 are being improved on FIU's campuses include;

- Parking strategies and facilities,
- Carpooling/Ridesharing services,
- Public transit connectivity,
- University-provided inter/intra campus transit,
- Bicycle and pedestrian facilities, and Operational improvements.

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.

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 the proposed 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. By providing a transit hub such as this at the Modesto A. Maidique Campus and / or the Engineering Center would

provide a key catalyst for the desired TOD's to occur within the planning study area and host community of Sweetwater.

(d) Inventory and Assessment of On-Campus Transportation System Safety

1. Traffic Crash Data for Bicycles, Pedestrians and Motor vehicles

MODESTO A. MAIDIQUE CAMPUS

Traffic crash data for SW 8th Street, SW 107th Avenue and the Homestead Extension of Florida's Turnpike (HEFT) were obtained. The crash data in the context area recorded for the three-year period (2009-2011) are summarized in Table 11.16. The crash data on SW 8th Street from SW 127th Avenue to SW 97th Avenue are summarized by sections bounded by 127th Avenue, HEFT, SW 112th Avenue (entrance), SW 109th Avenue (entrance), and SW 107th Avenue. The limits on SW 107th Avenue and Florida's Turnpike are SW 8th Street and SW 40th Street. Over the three-year analysis period, the average number of crashes was 616 crashes per year on SW 8th Street, 186 crashes per year on the study sections of SW 107th Avenue, and an average of 73 crashes per year on the HEFT between SW 8th Street and SW 40th Street.

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, there was a total of 502 crashes on the Modesto A. Maidique Campus, averaging 201 crashes per year.

Table 11.16 Traffic Crash Data (Segment) – MODESTO A. MAIDIQUE CAMPUS

		Fatal Crashes			Injury Crashes		Property Damage	*Total Crashes		
LOCATION	YR	No. of Crashes	No. of Fatalities	No. of Injuries	No. of Crashes	No. of Injuries	No. of Crashes	No. of Crashes	No. of Fatalities	No. of Injuries
SW 8th St.(US 41) (SR 90) from SW 127 th Ave. to NB HEFT	2009	1	1	1	84	158	98	183	1	159
	2010	0	0	0	89	175	110	199	0	175
	2011	2	3	3	77	153	136	215	3	156
SW 8th St.(US 41) (SR 90) from NB HEFT to SW 112 th Ave. Gate	2009	0	0	0	57	112	58	115	0	112
	2010	1	1	1	62	106	73	136	1	107
	2011	0	0	0	40	86	89	129	0	86
SW 8th St.(US 41) (SR 90) from SW 112 th Ave. Gate to SW 109 th Ave. Gate	2009	0	0	0	19	29	17	36	0	29
	2010	0	0	0	28	54	28	56	0	54
	2011	0	0	0	18	30	42	60	0	30
SW 8th St.(US 41) (SR 90) from SW 109 th Ave. Gate to SW 107 th Ave.	2009	1	1	1	35	69	52	88	1	70
	2010	0	0	0	56	99	55	111	0	99
	2011	0	0	0	37	55	66	103	0	55
SW 8th St.(US 41) (SR 90) from SW 107 th Ave. to SW 97 th Ave.	2009	2	2	2	63	123	82	147	2	125
	2010	2	2	1	63	115	77	142	2	116
	2011	0	0	0	42	67	86	128	0	67
SW 107th Ave. (SR 985) from SW 8 th St. to SW 40 th St.	2009	1	1	1	65	121	92	158	1	122
	2010	2	2	5	94	153	105	201	2	158
	2011	2	2	2	75	116	141	218	2	118

Source: FDOT CARS Database, November 2012, Appendix 11.2.

* Total crashes is the sum of the (Fatal+Injury+Property Damage) crashes

Table 11.17 Intersection Crashes– MODESTO A. MAIDIQUE CAMPUS

Year	LOCATION	NUMBER OF ACCIDENTS
2009	Unidentified Location	29
2009	Parking Garages	14
2009	Parking Lots	19
2009	SW 11 th Street	1
2009	SW 107 th Avenue & SW 16 th Street	2

Year	LOCATION	NUMBER OF ACCIDENTS
2009	SW 107 th Avenue & SW 17 th Street	1
2009	SW 108 th Avenue	1
2009	SW 108 th Avenue & SW 16 th Street	7
2009	SW 17 th Street	2
2009	SW 109 th Avenue & SW 8 th Street	3
2009	SW 109 th Avenue & SW 11 th Street	1
2009	SW 109 th Avenue & SW 16 th Street (circle)	7
2009	SW 111 th Avenue & SW 14 th Street	1
2009	SW 112 th Avenue & SW 8 th Street	5
2009	SW 112 th Avenue	1
2009	SW 113 th Avenue & SW 10 th Street	3
2009	SW 113 th Avenue	1
2009 SUBTOTAL		98
2010	Unidentified Location	50
2010	Parking Garages	32
2010	Parking Lots	58
2010	SW 11 th Street	1
2010	SW 107 th Avenue & SW 17 th Street	1
2010	SW 108 th Avenue	8
2010	SW 10 th Street	2
2010	SW 16 th Street	10
2010	SW 108 th Avenue & SW 16 th Street	8
2010	SW 17 th Street	3
2010	SW 109 th Avenue & SW 8 th Street	9
2010	SW 109 th Avenue	6
2010	SW 109 th Avenue & SW 16 th Street (circle)	6
2010	SW 110 th Avenue & SW 12 th Street	1
2010	SW 110 th Avenue & SW 14 th Street	4
2010	SW 112 th Avenue & SW 8 th Street	1
2010	SW 112 th Avenue & SW 9 th Street	2
2010	SW 112 th Avenue & SW 10 th Street	2
2010	SW 112 th Avenue	2
2010	SW 113 th Avenue & SW 10 th Street	2
2010	SW 113 th Avenue	3
2010 SUBTOTAL		211

Year	LOCATION	NUMBER OF ACCIDENTS
2011	Unidentified Location	7
2011	Parking Garages	41
2011	Parking Lots	51
2011	SW 107 th Avenue & SW 12 th Street	1
2011	SW 107 th Avenue & SW 15 th Street	3
2011	SW 107 th Avenue & SW 17 th Street	1
2011	SW 108 th Avenue (Unidentified location)	3
2011	SW 108 th Avenue & SW 9 th Street	1
2011	SW 108 th Avenue & SW 10 th Street	1
2011	SW 108 th Avenue & SW 12 th Street	1
2011	SW 108 th Avenue & SW 16 th Street	11
2011	SW 108 th Avenue & SW 17 th Street	1
2011	SW 109 th Avenue (Unidentified location)	1
2011	SW 109 th Avenue & SW 8 th Street	11
2011	SW 109 th Avenue & SW 9 th Street	1
2011	SW 109 th Avenue & SW 15 th Street	4
2011	SW 109 th Avenue & SW 16 th Street (circle)	9
2011	SW 110 th Avenue (Unidentified location)	1
2011	SW 111 th Avenue & SW 14 th Street	1
2011	SW 112 th Avenue (Unidentified location)	3
2011	SW 112 th Avenue & SW 8 th Street	6
2011	SW 112 th Avenue & SW 10 th Street	1
2011	SW 112 th Avenue & SW 12 th Street	2
2011	SW 112 th Avenue & SW 17 th Street	3
2011	SW 113 th Avenue	3
2011	SW 113 th Avenue & SW 10 th Street	7
2011	SW 113 th Avenue & SW 11 th Street	1
2011	SW 114 th Avenue & SW 18 th Street	1
2011	SW 115 th Avenue	2
2011	SW 115 th Avenue & SW 12 th Street	1
2011	SW 12 th Street (Unidentified location)	1
2011	SW 14 th Street (Unidentified location)	2
2011	SW 15 th Street (Unidentified location)	1
2011	SW 16 th Street (Unidentified location)	6
2011	SW 17 th Street (Unidentified location)	3
2011 SUBTOTAL		193

Source: FIU Police Department, 2012

MODESTO A. MAIDIQUE CAMPUS AND ENGINEERING CENTER

Traffic crash data for SW 107th Avenue and the HEFT were obtained from the FDOT District VI Traffic Operations Office for the three-year period of 2009-2011. The crash data for the context area are summarized in Table 11.18. The average number of crashes is 192 crashes per year on 107th Avenue between SW 8th Street and NW 7th Street over the analysis period. An average of 63 crashes per year was recorded on the HEFT between SW 8th Street and W. Flagler Street during the same three-year period.

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 were 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 11.18 Traffic Crash Data (Segment) – ENGINEERING CENTER

		Fatal Crashes			Injury Crashes		Property Damage	* Total Crashes		
LOCATION	YR	No. of Crashes	No. of Fatalities	No. of Injuries	No. of Crashes	No. of Injuries	No. of Crashes	No. of Crashes	No. of Fatalities	No. of Injuries
SW 107 th Ave. (SR 985): From SW 8 th St.(US 41)(SR 90) to NW7 th St./Fontainebleau Blvd	2009	1	1	1	50	81	116	167	1	82
	2010	0	0	0	63	108	169	232	0	108
	2011	0	0	0	41	56	135	176	0	56
HEFT (SR 91): From SW 8 th St.(US 41)(SR 90) to W Flagler St. (SR 968)	2009	0	0	0	28	43	24	52	0	43
	2010	1	1	0	32	40	42	75	1	40
	2011	0	0	0	25	35	36	61	0	35

Source: FDOT CARS Database, November 2012, Appendix 11.2

* Total crashes is the sum of the (Fatal+Injury+Property Damage) crashes

Table 11.19 Intersection Crashes— ENGINEERING CENTER

Year	LOCATION	NUMBER OF ACCIDENTS
2009	SW 107 th Avenue (SR 985) & W. Flagler Street (SR 968)	0
2009	SW 105 th Place & W. Flagler Street (SR 968)	2
2009 SUBTOTAL		2
2010	SW 107 th Avenue (SR 985) & W. Flagler Street (SR 968)	2
2010	SW 105 th Place & W. Flagler Street (SR 968)	0
2010 SUBTOTAL		2
2011	SW 107 th Avenue (SR 985) & W. Flagler Street (SR 968)	0
2011	SW 105 th Place & W. Flagler Street (SR 968)	2
2011 SUBTOTAL		2

Source: FIU Police Department, 2012

BISCAYNE BAY CAMPUS

Traffic crash data for US 1 and NE 163rd Street were obtained from the FDOT District VI Traffic Operations Office. Traffic crash data recorded for the three-year period of 2009-2012 are summarized in Table 11.20. Over the three-year analysis period, the average number of crashes recorded on the US1 study sections was 235 crashes per year and an average of 39 crashes per year for the 163rd Street study area.

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 11.20 Traffic Crash Data (Segment) – BISCAYNE BAY CAMPUS

LOCATION	YR	Fatal Crashes			Injury Crashes		Property Damage	* Total Crashes		
		No. of Crashes	No. of Fatalities	No. of Injuries	No. of Crashes	No. of Injuries	No. of Crashes	No. of Crashes	No. of Fatalities	No. of Injuries
US 1 (SR 5) (Biscayne Blvd) from NE 163 rd St.(SR 826) to NE 123 rd St.(SR 922)	2009	0	0	0	71	103	113	184	0	103
	2010	2	2	0	62	92	132	196	2	92
	2011	1	1	0	87	122	237	325	1	122
NE 163rd St. (SR 826) from US 1 (SR 5) (Biscayne Blvd) to Interama Blvd.	2009	0	0	0	7	9	10	17	0	9
	2010	0	0	0	8	13	23	31	0	13
	2011	0	0	0	21	39	48	69	0	39

Source: FDOT CARS Database, November 2012, Appendix 11.2

*Total crashes is the sum of the (Fatal+Injury+Property Damage) crashes

Table 11.21 Intersection Crashes for Year 2009-2011 – BISCAYNE BAY CAMPUS

Year	LOCATION	NUMBER OF ACCIDENTS
2009	NE 145 th Street and N University Dr	4
2009	Bay Vista Blvd (Unidentified location)	1
2009	NE 144th Street and Bay Vista Blvd.	1
2009	NE 147 th Street (Unidentified location)	1
2009	NE 145th Street and Bay Vista Blvd.	1
2009 SUBTOTAL		8
2010	NE 147 th Street and NE 28th Avenue	2
2010	NE 145 th Street and N University Dr	8
2010 SUBTOTAL		10
2011	NE 144 th Street and N University Dr	7
2011	NE 145 th Street (Unidentified location)	7
2011 SUBTOTAL		14

Source: FIU Police Department, 2012

2. Lighting Assessment for Bicycle and Pedestrian Facilities

MODESTO A. MAIDIQUE CAMPUS

The campus loop roadway lighting is fairly 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 a shoe box type fixture on a tall, twenty-four foot post. The pedestrian areas appear adequately lit with a mixture of globe type fixtures, clear and opaque balls. Bollard type lighting fixtures are also found on this campus.

Additional lighting for pedestrian walkways is provided by architectural pedestrian fixtures. These fixtures are typically associated with recent construction projects and are mounted on twelve-foot posts. 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 fairly consistent, using a shoe box type fixture on a twenty-four foot post tall Cobra-head lights are used along NW 107th Avenue and W Flagler Street.

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 short twelve foot post. Some areas within the surface parking lots were observed with potentially low light levels. This will need to be studied more thoroughly to ensure safe conditions.

Tall Cobra-head lights are used along Bay Vista Boulevard.

Principal lighting that occurs in the academic core and along most walkways is a pedestrian scale light, which was deemed adequate for its use. Another pedestrian light used in the quad adjacent to the Library, Hospitality Management and Wolfe University Center is an aluminum bollard style light with a dark bronze finish. Although the intensity of illumination for some areas of campus is occasionally insufficient, the continuity of style and quality of materials is exemplary.

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. In an effort to alleviate this, the University has made modifications to this traffic circle to improve ease of use.

With the addition of PG5, a significant increase in the number of crashes has occurred along 109th Avenue. With the additional parking facilities being planned for this area of the campus, this crash data 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, and #3 respectively.

All other campuses are not experiencing significant crash concerns.

(e) Inventory Planned New Roads, Road Modifications, and Other Planned Transportation System Modifications

The Miami-Dade Metropolitan 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 11.22 and Appendix 11.6 outline these proposed MPO transportation improvement program projects.

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	2017
4124793	SW 107 Ave	SW 12th Street	SW 4th Street	Add Lanes and Pavement Rehabilitation	\$ 15	2016
4311771	SW 107 Ave	SW 24th Street	1100 Block	Resurfacing	\$1.2	2015
4291623	SW 8th St	SW 127th Avenue	HEFT on-Ramp	Resurfacing	\$2.5	2014
4291901	US 1/Biscayne Blvd	Ne 121 Street	NE 151 Street	Resurfacing	\$4.5	2014
4291902	US 1/Biscayne Blvd	NE 135 Street	NE 135 Street	Intersection Improvements	\$0.55	2014

(f) 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 2012 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, with the exception of 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 11.23 Existing Roadway Segment Level of Service (LOS) Analysis 2012 PM Peak Hour – MODESTO A. MAIDIQUE CAMPUS

Location	Direction	Lanes (3)	LOS E Capacity (1)	Traffic Volumes (2)	LOS (4)
SW 117 th Avenue, S/O SW 17 th Street	NB	1	-	540	D
	SB	1	-	877	D
SW 17 th Street, E/O SW 117 th Avenue	EB	1	-	217	C
	WB	1	-	643	C
SW 117 th Avenue, N/O SW 17 th Street	NB	1	-	595	C
	SB	1	-	506	C
SW 8 th Street, W/O SW 109 th Avenue	EB	3	-	2163	B
	WB	3	-	2333	C
SW 109 th Avenue, S/O SW 8 th Street	NB	2	-	726	A
	SB	2	-	535	A
SW 8 th Street, E/O SW 109 th Avenue	EB	3	-	2240	C
	WB	3	-	2038	B
SW 109 th Avenue, N/O SW 8 th Street	NB	1	-	442	C
	SB	1	-	623	C
SW 8 th Street, W/O SW 112 th Avenue	EB	3	-	2520	C
	WB	3	-	2967	C
SW 112 th Avenue, S/O SW 8 th Street	NB	2	-	678	A
	SB	2	-	717	A
SW 8 th Street, E/O SW 112 th Avenue	EB	3	-	2353	C
	WB	3	-	2839	C
SW 107 th Avenue, N/O SW 12 th Street	NB	3	-	2170	B
	SB	3	-	2067	B
SW 12 th Street, W/O SW 107 th Avenue	EB	1	-	745	D
	WB	1	-	542	D
SW 12 th Street, E/O SW 107 th Avenue	EB	1	-	227	A
	WB	1	-	0	A
SW 107 th Avenue, S/O SW 12 th Street	NB	3	-	2215	B
	SB	3	-	1941	B
SW 16 th Street, W/O SW 107 th Avenue	EB	2	-	820	A
	WB	2	-	679	A
SW 16 th Street, E/O SW 107 th Avenue	EB	2	-	531	A
	WB	2	-	798	A

Location	Direction	Lanes (3)	LOS E Capacity (1)	Traffic Volumes (2)	LOS (4)
SW 107 th Ave N/O SW 16 th Street	NB	3	-	1465	B
	SB	3	-	1571	B
SW 107 th Ave S/O SW 16 th Street	NB	3	-	1258	A
	SB	3	-	1772	B
SW 108 TH Ave, W/O SW 107 th Avenue	EB	2	-	97	A
	WB	2	-	116	A
SW 107 th Ave S/O SW 108 TH Ave	NB	3	-	1613	B
	SB	3	-	1869	B
SW 107 th Ave N/O SW 108 TH 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 11.24 Existing Intersection Level of Service (LOS) Year 2012 PM Peak Hour MODESTO A. MAIDIQUE CAMPUS

SIGNALIZED INTERSECTIONS		
Location	OPTIMIZED TIMINGS (1)	
	Average Stopped Delay (secs/veh)	LOS
SW 107 th Avenue and SW 12 th Street	29.3	C
SW 107 th Avenue and SW 16 th Street	65.8	E
SW 107 th Avenue and SW 8 th Street (2)	-	-
SW 107 th Avenue and SW 1700 Block (SW 108 th Ave)	9.7	A
SW 109 th Avenue and SW 8 th Street	76.1	E
SW 112 th Avenue and SW 8 th Street	31.2	C
SW 117 th Avenue and SW 17 th 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 of 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 11.25 Existing Roadway Segment Level of Service Analysis PM Peak Hour ENGINEERING CENTER – Year 2012

Location	Direction	Lanes (3)	LOS E Capacity (1)	Traffic Volumes (2)	LOS (4)
NW 107 th Ave (SR 985) S/O EC Entrance	NB	3	-	1281	A
	SB	2	-	1546	C
NW 107 th 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 11.26 Existing Intersection Level of Service (LOS) Analysis 2012 PM Peak Hour – ENGINEERING CENTER

SIGNALIZED INTERSECTION			
LOCATION	OPTIMIZED TIMINGS		
	Average Stopped Delay (secs/veh)		LOS
SW 105 th Pl and W Flagler St (SR 968)	33.8		C
UNSIGNALIZED INTERSECTION			
		Control Delay (secs/veh)	LOS
NW 107 th Street and EC Entrance	WBR only (Stop Control)	16.4	C
	SBL	14.4	B
	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 of the roadway segments currently operate above the adopted LOS “E” as presented in Table 11.27.

Table 11.27 Existing Roadway Segment Level of Service (LOS) Analysis 2012 PM Peak Hour – BISCAYNE BAY CAMPUS

Location	Direction	Lanes (3)	LOS E Capacity (1)	Traffic Volumes (2)	LOS (4)
Bay Vista Boulevard, (NE151 st St) N/O NE 145 Street	NB	2	-	311	A
	SB	2	-	256	A
Bay Vista Boulevard (NE 151 st St) E/O Biscayne Blvd	EB	2	-	580	A
	WB	2	-	782	A
Campus Entrance (NE 145 th St) E/O Bay Vista Boulevard(NE 151 st 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 11.28 Existing Intersection Level of Service (LOS) 2012 PM Peak Hour – BISCAYNE BAY CAMPUS

SIGNALIZED INTERSECTIONS		
	OPTIMIZED TIMINGS	
LOCATION	Average Stopped Delay (secs/veh)	LOS
US 1 (Biscayne Blvd) and NE 151 st Street	72.2	E
UNSIGNALIZED INTERSECTION		
Bay Vista Boulevard(NE 151 st St) and Campus Entrance (NE 145 th 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/markings 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 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)

1. Add intersection turning lanes.
2. Optimize traffic signal phasing and timings.
3. Improve signal progression.
4. Modify an interchange by following the Department's Interchange Modification Report Procedure.
5. Implement incident management programs.
6. 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 as a result 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.

(g) 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 located 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. Transportation Demand Management (TDM) 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 - Working with MDT to provide more direct routes to the campuses from all regions of Miami-Dade County, key multi-modal transit hubs as well as efficient linkages and transfer locations from Broward County. Currently an Express bus route system operated jointly by MDT, Miami-Dade

Expressway Authority and Florida Department of Transportation is being considered with the Modesto Maidique campus as a key hub.

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 new Campus Bike Shop that has opened 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 in order 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 – The introduction of real time parking area availability status via information boards at key transportation decision points on campus would allow for more efficient commuting from the point of campus entry to available campus parking facilities. This would help minimize traffic on the

campuses by commuters driving through heavy pedestrian areas to find parking. This information could also be linked to a wireless network and made available to commuters' wireless or smart phone devices.

Transit 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) - Introduce transit oriented development in the planning study areas. Transit oriented development refers to residential and commercial centers designed to maximize access by transit and non-motorized transportation, with features to encourage transit ridership. Providing a transit station at Modesto A. Maidique Campus and/or the Engineering Center would provide transit access to the surrounding area.

4. 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 11.29 Fall 2015 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 11.30 Fall 2020 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).

5. 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 11.31 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 11.32 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.

Table 11.33 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 11.34 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:

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.

Table 11.35 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 135 th 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 ELEMENT

(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 (2010-2020).

Table 12.1 Host Community Government Agencies

CITY	REGIONAL
City of Miami	South Florida Water Management District (SFWMD)
City of Sweetwater	
City of North Miami	STATE Florida Board of Education, Board of Governors Florida Department of Community Affairs (DCA) Florida Department of Environmental Protection (DEP) Florida Department of Transportation (DOT), District 6 Florida Department of State Florida Fish and Wildlife Conservation Commission
City of North Miami Beach	
City of Miami Beach	
COUNTY	
Miami-Dade County Commission	
Miami-Dade County Department of Regulatory and Economic Resources (DRER)– Division of Planning	FEDERAL U.S. Army Corps of Engineers (ACOE) U.S. Environmental Protection Agency (USEPA) Federal Highway Administration (FHA)
Miami-Dade County Department of Regulatory and Economic Resources (DRER)-Division of Environmental Resources Management	
Miami-Dade Water and Sewer Department (WASD)	
Miami-Dade Transit (MDT)	
Miami-Dade Metropolitan Planning Organization	

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

In order 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 in close proximity to 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 2020.

Description

Due the finite land resources available for University expansion and recognizing that the Modesto A. Maidique Campus is constrained from any potential expansion by major roadways and existing land uses on the northern, eastern

and western boundaries, the University already has initiated short and long term agreements for the use of Tamiami Park for University facility purposes. The University may also consider potential expansion in the areas surrounding the campus. The projected buildout of the Modesto A. Maidique Campus resulting from the implementation of this Master Plan is 2020.

Primary Entities

Florida Board of Education's Board of Governors
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 at this time. 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 at this time.

Subject 3. Miami-Dade County Transit

Description

The University works closely with Miami-Dade Transit and other transportation agencies to assure adequate transit service for the FIU community. Existing transit facilities include a bus terminal at Modesto A. Maidique and a bus stop at Biscayne Bay Campus. The County has looked the option to build a Metrorail station near Modesto A. Maidique Grounds in the future but no plan to do so currently exists.

Primary Entities

State of Florida Department of Transportation
Federal Highway Administration
Miami-Dade Transit
Miami-Dade Metropolitan Planning Organization
City of North Miami

Secondary Entities

FIU Facilities Planning

Coordination Mechanisms

Miami-Dade Public Hearing Process

Miami-Dade Metropolitan Planning Organization

Nature of the Relationship

No formal relationship exists at this time.

Subject 4. Sanitary Sewage Collection and Treatment Capacity

Description

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 A. 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 A. 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.

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
City of North Miami
Florida International University 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 state wide 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 fare 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 Metropolitan Planning Organization

South Florida Water Management District

Department of Economic Opportunity

Florida State University System and Board of Governors

Secondary Entities

South Florida Regional Planning Council

Florida Department of Environmental Protection

Florida Department of Transportation

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 Education's Division of Colleges and Universities 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 Metro-Dade Transit 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 such permitting/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 Public Safety Department 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 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, so the Primera Casa can be converted into educational uses within a period of five days. 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.

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

The elements of the Campus Master Plan identified two areas that could benefit from enhanced intergovernmental coordination:

- **Modesto A. Maidique Buildout by 2020:** Additional land is needed for expansion, as a result, formal agreements with Miami-Dade County and the City of Sweetwater may be necessary. The City of Sweetwater would enable the University to expand north. It may also be possible to expand south by working with the Miami-Dade County Fair and Exposition and Tamiami Park.
- **Sanitary Sewer Service:** In order to assure uninterrupted acceptance of sanitary sewage generated by the existing and future campus development, the University should request a letter of allocation from DERM for treatment capacity for the flows expected to be generated through 2005-2015. This allocation should come from that capacity which is presently reserved for

governmental purposes.

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 is amending its Comprehensive plan to create 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. The intent of the City is to create a College Town by developing off-campus housing and other facilities to attract the university community. As the city moves forward this plan, FIU should work closely with Sweetwater.
- **2005 Growth Management Legislation:** Senate Bill 360, approved in 2005, requires greater coordination related to water management. The regulations call for adequate water supply to be in place no later than certificate of occupancy. They also require consultation on population projections, timing of development, and any issue that may impact water supply.

c) Inventory and Assessment of All Previous Fair Share Payments Made by the 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 122th 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.

Wetlands:

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.

Sweet bay-dominated hardwood hammock: 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 122th 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.

Wetland soils: 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 of 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 lebeck		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
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 busic	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

Table 13.1 Preliminary Plant Species List (continued)

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
<i>Spurge</i>	Chamaesyce hypericifolia	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
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
Variiegated tiger claw*	Erythrina variegata		X		X
Gum tree*	Eucalyptus spp.		X		X
White stopper	Eugenia axillaris	X			X
Surinam cherry*	Eugenia uniflora		X		X

Table 13.1 Preliminary Plant Species List (continued)

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
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
	Ficus carica		X		X
Indian rubber tree	Ficus elastica		X		X
Strangler fig	Ficus microcarpa		X		X
Cuban laurel*	Ficus nitida		X		X
Yellowtops	Flaveria linearis	X		X	X
Forestiera*	Forestiera segregata	X			X
Lignum vitae*	Guaiacum sanctum	X			X
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 verschaffeltii		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 mimosaeifolia		X		X
Rush	Juncus megacephalus	X			X
Southern red cedar*	Juniperus silicicola	X			X
Life plant	Kalanchoe sp.		X	X	
Golden rain tree*	Koeleruteria 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

Table 13.1 Preliminary Plant Species List (continued)

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Sapodilla*	Manilkara zapota		X		X
Mastic	Mastichodendron foetidissimum	X		X	
Melaleuca*	Melaleuca quinquevneria		X	X	X
Melanthera	Melanthera nivea	X		X	
Small-leaved cat tongue	Melanthera parvifolia	X			X
Creeping cucumber	Melothria pendula	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
Guava*	Psidium guajava		X		X
Whisk fern	Psilotum nudum	X		X	

Table 13.1 Preliminary Plant Species List (continued)

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
Wild coffee	Psychotria nervosa	X			X
Pineland brake fern	Pteris vittata	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
	Randia aculeata	X			X
Travellers palm*	Ravenala 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/ylow*	Tabebuia caraiba		X		X
Silver trumpet-tree/pink*	Tabebuia heterophylla		X		X
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

Table 13.1 Preliminary Plant Species List (continued)

COMMON NAME	SCIENTIFIC NAME	PRESENCE			
		N	E	BBC	MMC
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
	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 11, 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 Hennington 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

Table 13.2 Animals-Threatened and Endangered Species System(TESS)/Florida

Caracara, Audubon's crested FL pop.	<i>Polyborus pancus audubonii</i>	T	N/A
Crane, whooping U.S.A.	<i>Grus americana</i>	E	N/A
Crocodile, American	<i>Crododylus acutus</i>	E	N/A
Darter, Okaloosa	<i>Etheostoma okaloosae</i>	E	N/A
Deer, key	<i>Odocoileus virginianus clavium</i>	E	N/A
Eagle, bald lower 48 States	<i>Haliaeetus leucocephalus</i>	T	N/A
Jay, Florida scrub	<i>Aphelocoma coerulescens</i>	T	N/A
Kite, Everglade snail FL pop.	<i>Rostrhamus sociabilis plumbeus</i>	E	N/A
Manatee, West Indian	<i>Trichechus manatus</i>	E	BBC
Moccasinshell, Gulf	<i>Medionidus penicillatus</i>	E	N/A
Moccasinshell, Ochlockonee	<i>Medionidus simpsonianus</i>	E	N/A
Mouse, Anastasia Island beach	<i>Peromyscus polionotus phasma</i>	E	N/A
Mouse, Choctawhatchee beach	<i>Peromyscus polionotus allophrys</i>	E	N/A
Mouse, Key Largo cotton	<i>Peromyscus gossypinus allapaticola</i>	E	N/A
Mouse, Perdido Key beach	<i>Peromyscus polionotus trissyllepsis</i>	E	N/A
Mouse, southeastern beach	<i>Peromyscus polionotus niveiventris</i>	T	N/A
Mouse, St. Andrew beach	<i>Peromyscus polionotus peninsularis</i>	E	N/A
Panther, Florida	<i>Puma(=Felis)concolor coryi</i>	E	N/A
Pigtoe, oval	<i>Pleurobema pyriforme</i>	E	N/A
Plover	<i>Chardrius melodus</i>	T	N/A
Pocketbook, shinyrayed	<i>Lampsilis subangulata</i>	E	N/A
Puma (=mountain lion) FL	<i>Puma(=Felis) concolor (all subsp. Exp.coryi)</i>	T	N/A
Rabbit, Lower Keys marsh	<i>Sylvilagus palustris hefneri</i>	E	N/A
Rice rat lower FL Keys	<i>Oryzomys palustris natator</i>	E	N/A
Salamander, flatwoods	<i>Ambystome cingulatum</i>	T	N/A
Sawfish, smalltooth U.S.A.	<i>Pristis pectinata</i>	E	N/A
Sea turtle, green FL,	<i>Chelonia Mydas</i>	E	N/A
Sea turtle, green	<i>Chelonia Mydas</i>	T	N/A
Sea turtle, hawksbill	<i>Eretmochelys imbricata</i>	E	N/A
Sea turtle, Kemp's ridley	<i>Lepidochelys kempii</i>	E	N/A
Sea turtle, leatherback	<i>Dermochelys coriacea</i>	E	N/A
Sea turtle, loggerhead	<i>Caretta caretta</i>	T	N/A
Seal, Caribbean monk	<i>Monacus tropicalis</i>	E	N/A
Shrimp, Squirrel Chimney Cave	<i>Palaemonetes cummingi</i>	T	N/A
Skink, bluetail mole	<i>Eumeces egregius lividus</i>	T	N/A
Skink, sand	<i>Neoseps reynoldsi</i>	T	N/A
Slabshell, Chipola	<i>Elliptio chipolaensis</i>	T	N/A
Snail, Stock Island tree	<i>Orthalicus reses</i>	T	N/A
Snake, Atlantic salt marsh	<i>Nerodia clarkii taeniata</i>	T	N/A
Snake, eastern indigo	<i>Drymarchon corais couperi</i>	T	N/A
Sparrow, Cape Sable seaside	<i>Ammodramus maritimus mirabilis</i>	E	N/A
Sparrow, Florida grasshopper	<i>Ammodramus savannarum floridanus</i>	E	N/A
Stork, wood AL, FL, GA, SC	<i>Mycteria american</i>	E	N/A
Sturgeon, gulf	<i>Acipenser oxyrinchus desotoi</i>	T	N/A
Sturgeon, shortnose	<i>Acipenser brevirostrum</i>	E	N/A

Table 13.2 Animals-Threatened and Endangered Species System(TESS)/Florida

Tern, roseate	<i>Sterna dougallii dougallii</i>	T	N/A
Three-ridge, fat (mussel)	<i>Amblema neislerii</i>	E	N/A
Vole, Florida salt marsh	<i>Microtus pennylvanicus dukecampbelli</i>	E	N/A
Whale, finback	<i>Balaenoptera physalus</i>	E	N/A
Whale, humpback	<i>Magaptera novaeangliae</i>	E	N/A
Whale, right	<i>Balaena glacialis</i>	E	N/A
Wolf, red except where XN	<i>Canis rufus</i>	E	N/A
Woodpecker, red-cockaded	<i>Picoides borealis</i>	E	N/A
Woodrat, Key Largo	<i>Neotoma floridana smalli</i>	E	N/A

Plants-Threatened and Endangered Species System(TESS)/Florida

Scientific Name	Common Name	Status	FIU
<i>Amorpha crenulata</i>	crenulated lead-plant	E	N/A
<i>Asimina tetramera</i>	four-petal pawpaw	E	N/A
<i>Bonamia grandiflora</i>	Florida bonamia	T	N/A
<i>Campanula robinsiae</i>	Brooksville bellflower	E	N/A
<i>Cereus eriophorus</i> var. <i>fragrans</i>	fragrant prickly-apple	E	N/A
<i>Cereus robinii</i>	Key tree-cactus	E	N/A
<i>Chamaesyce deltoidea</i> ssp. <i>deltoidea</i>	deltoid spurge	E	N/A
<i>Chamaesyce garberi</i>	Garber's spurge	T	N/A
<i>Chionanthus pygmaeus</i>	pygmy fringe tree	E	N/A
<i>Chrysopsis floridana</i>	Florida golden aster	E	N/A
<i>Cladonia perforata</i>	Florida perforate cladonia	E	N/A
<i>Clitoria fragrans</i>	pigeon wings	T	N/A
<i>Conradina brevifolia</i>	short-leaved rosemary	E	N/A
<i>Conradina etonia</i>	Etonia rosemary	E	N/A
<i>Conradina glabra</i>	Apalachicola rosemary	E	N/A
<i>Crotalaria avonensis</i>	Avon Park harebells	E	N/A
<i>Cucurbita okeechobeensis</i> ssp. <i>okeechobeensis</i>	Okeechobee gourd	E	N/A
<i>Deeringothamnus pulchellus</i>	beautiful pawpaw	E	N/A
<i>Deeringothamnus rugelii</i>	Rugel's pawpaw	E	N/A
<i>Dicerandra christmanii</i>	Garrett's mint	E	N/A
<i>Dicerandra cornutissima</i>	longspurred mint	E	N/A
<i>Dicerandra frutescens</i>	scrub mint	E	N/A
<i>Dicerandra immaculata</i>	Lakela's mint	E	N/A
<i>Eriogonum longifolium</i> var. <i>gaphalifolium</i>	scrub buckwheat	T	N/A
<i>Eryngium cuneifolium</i>	snakeroot	E	N/A
<i>Euphorbia telephioides</i>	Telephus spurge	T	N/A
<i>Galactia smallii</i>	Small's milkpea	E	N/A
<i>Halophila johnsonii</i>	Johnson's seagrass	T	N/A
<i>Harperocallis flava</i>	Harper's beauty	E	N/A
<i>Hypericum cumulicola</i>	Highlands scrub hypericum	E	N/A
<i>Jacquemontia reclinata</i>	beach jacquemontia	E	N/A

Plants-Threatened and Endangered Species System(TESS)/Florida			
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 do 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	<i>Podylimbus podiceps</i>	X		pc
Dble-crested Cormorant	<i>Phalacrocorax auritus</i>	X	X	c/f
Anhinga	<i>Anhinga anhinga</i>	X		pc
Great blue heron	<i>Ardea herodias</i>	X	/f	
Little blue heron	<i>Egretta caerulea</i>	X	/l	
Cattle egret	<i>Bubulcus ibis</i>	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 ^p	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
er	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*

Table 13.3 Preliminary Bird Species List for the FIU Campuses (continued)

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	
	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 rhomboides	X	
Bluegill	Lepomis macrochirus		X
Tarpon	Megalops atlantica	X	
Largemouth bass	Micropterus salmoides		X
Mullet	Mugil curema	X	
Tillapia sp.	Oreochromis spp.		X
Barracuda	Sphyræna barracuda	X	
Mangrove snapper	Serranidae	X	

Needlefish	Belontiidae	X	
Silversides	Atherinidae	X	

Table 13.4 Animal Species (Excluding Birds) Observed or Reported at the FIU Campuses and in the Surrounding Context Areas (continued)

COMMON NAME	SCIENTIFIC NAME	Presence	
		BBC	MMC
Pufferfish		X	
AMPHIBIAN SPECIES:			
Cane toad	Bufo marinus		X
East. Narw-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. Tree islands are scattered throughout Modesto A. Maidique.

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 and planted "butterfly garden" vegetation. 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. However, it should be noted that an inspection of the site in 2001 did not reveal the presence of any threatened or endangered fauna or nests during the site inspection. Due to these findings and the scarcity of developable land at Modesto A. Maidique, FIU has placed a 10-year limit on the "conservation" designation of the area. If within the next ten years funding cannot be identified to develop the zone as recommended in the 2003 Charette, the university will reconsider the "conservation" status. The Faculty Senate has committed to raising the funds. A thorough inspection of this area of the campus should be conducted to determine existence of threatened or endangered plant species.

Littoral zone and submerged vegetation associated with lakes: Modesto A. Maidique contains 15 ponds and lakes, all apparently artificial. 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 Hennington 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 Hennington Island, which is apparently intended to serve as a "rainforest island". Design team personnel were unable to access the island, but visual examination of Hennington 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 (Acoelorrhaphe 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 didia, 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.

Periodically inundated lawn areas overgrown with wetland vegetation:
The northwest corner of Modesto A. Maidique is somewhat lower than the rest of the site and consequently experiences some degree of ponding during the rainy season. Two general areas have been identified in this portion of the campus where marshy areas have been undisturbed (i.e., unmowed) long enough to develop a reasonable wetland vegetative cover.

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 of 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 Munisport 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 A. 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:

1. 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 snorkling 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 mangrove 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.

2. Available And Practical Opportunities And Methods For Protection Or Restoration Of Resources Identified In (1) A)

Rivers, lakes, bays, wetlands (including estuarine marshes), and bottom lands:

Rivers and lakes:

MODESTO A. MAIDIQUE

Protective measures: Protective measures for lakes are discussed in Section (2) 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 the 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.

3. 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 National Ambient 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, river and 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 Munisport 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.

4. 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.

5. 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.

6. Opportunities or Available and Practical Technologies to Reduce Universities Energy Consumption

This component is addressed in the utilities element.

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.

1. 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 14.1a, Table 14.1b, and Table 14.1c.

Table 14.1a Modesto A. Maidique Campus overall Inventory and projected space analysis

MODESTO A. MAIDIQUE CAMPUS		Fall 2011		HC	FTE	Under Construction	Year 2015		HC	FTE	Year 2020		HC	FTE	Projected ¹	
				Undergrad	27,662	15,412			Undergrad	29,816	17,461	Undergrad		31,004	19,489	Projected ¹ Future Projects (in ASF)
				Graduate	5,537	4,005			Grad	6,268	4,678	Grad		6,715	5,161	
				Total Students	33,199	19,417			Total Students	36,084	22,139	Total Students		37,719	24,650	
				E-Learning Students	14,998	5,985			E-Learning Students	16,166	6,742	E-Learning Students		22,707	9,742	
				Faculty FYE					Faculty FYE			Faculty FYE				
				Staff: Admin + Prof					Staff: Admin + Prof			Staff: Admin + Prof				
								Does not include CIP				Does not include CIP				
Space Code	Florida Standard	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)	Projected ASF ^b	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	ASF		
110	Classrooms (Office of Clsm Mgmt)	12.08	126,867	6.53	10.64	206,692	(79,825)	136,861	235,667	(98,806)	136,861	262,397	(125,536)	61,860		
111	Classrooms (Departmentally Controlled)	12.08	17,100	0.88	1.42	27,631	(10,531)	17,100	31,504	(14,404)	17,100	35,078	(17,978)	0		
210	Teaching Labs + Service	13.77	166,744	8.59	13.77	267,372	(100,628)	174,255	304,854	(130,599)	174,255	339,431	(165,176)	28,410		
220	Open Labs		92,599	4.77	5.00	97,085	(4,486)	92,599	110,695	(18,096)	92,599	123,250	(30,651)	0		
250	Research Labs + Service	(9.88)	157,011	8.09	9.88	191,840	(34,829)	196,991	144,206	52,785	144,206	270,160	(125,954)	33,000		
300	Offices / Computer	36.88	576,016	29.67	36.88	716,099	(90,041)	724,220	816,486	(92,266)	724,220	909,092	(184,872)	135,738		
350	Conference	19.16 per Off	50,042	2.58	incl w/ Off	1,25,30	—	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	0		
400	Study / Library	17.54	178,494	9.19	17.54	340,574	(162,080)	188,349	388,318	(199,969)	188,349	432,361	(244,012)	123,000		
520	Teaching Gymnasium	5.77	97,692	5.03	5.77	112,036	(14,344)	97,692	127,742	(30,050)	97,692	142,231	(44,539)	0		
530	Media Production	1.13	11,520	0.59	1.13	21,941	(10,421)	12,266	25,017	(12,751)	12,266	27,855	(15,589)	3,000		
540	Clinic		4,846	0.25	0.40	7,767	(2,921)	4,846	8,856	(4,010)	4,846	9,860	(5,014)	0		
541	Clinic- Medical		0			7,048	(7,048)	0	12,962	(12,962)	0	17,293	(17,293)	0		
550	Demonstration		4,033	0.21	0.10	1,942	2,091	4,033	2,214	1,819	4,033	2,465	1,568	0		
560	Field Buildings		0	0.00	0.00	0	0	0	0	0	0	0	0	0		
570	Animal Quarters (off site ?)		3,117	0.16	0.00	0	3,117	3,117	0	3,117	3,117	0	3,117	0		
580	Greenhouses		4,842	0.25	0.50	9,709	(4,867)	4,842	11,070	(6,228)	4,842	12,325	(7,483)	0		
590	Other		1,601	0.08	0.08	1,553	48	1,601	1,771	(170)	1,601	1,972	(371)	19,020		
610	Assembly	3.00	55,614	2.86	3.00	58,251	17,179	63,483	66,417	16,882	63,483	73,950	9,349	7,600		
620	Exhibition		19,816	1.02	Incl w/ Assembly	—	—	19,816.00	Incl w/ Assembly	Incl w/ Assembly	19,816	—	Incl w/ Assembly	0		
630	Food Service (HC basis)		44,668	2.30	5.00	165,995	(121,327)	44,668	180,420	(135,752)	44,668	188,595	(143,927)	0		
640	Day Care		0	0.00	0.00	0	0	0	0	0	0	0	0	0		
650	Student Lounge		24,769	1.28	2.50	48,543	(23,774)	24,769	55,348	(30,579)	24,769	61,625	(36,856)	0		
660	Merchandising		39,984	2.06	2.21	42,912	(2,928)	39,984	48,927	(8,943)	39,984	54,477	(14,493)	0		
670	Recreation		35,984	1.85	1.50	29,126	6,859	35,984	33,209	2,776	35,984	36,975	(991)	0		
680	Meeting Room (other than 690)		38,350	—	3.00	58,251	(19,901)	38,350	66,417	(28,067)	38,350	73,950	(35,600)	0		
690	Student Academic Meeting Room		3,358	0.17	0.60	11,650	(8,292)	7,592	13,283	(5,691)	7,592	14,790	(7,198)	2,600		
710	Central Computer / Telecomm	24000 7.08	58,630	3.02	7.08	137,472	(78,842)	75,754	156,744	(80,990)	75,754	174,522	(98,768)	15,000		
711	E-Learning Support		0	0.00	0.00	0	0	13,000	0	13,000	13,000	0	13,000	0		
720	Shop / Central Service		Included in Cat 710			—	—	Included in Cat 710			Included in Cat 710	Incl above		0		
730	Central Storage		Included in Cat 710			—	—	Included in Cat 710			Included in Cat 710	Incl above		0		
740	Vehicle Storage (car parks not incl)		Included in Cat 710			—	—	Included in Cat 710			Included in Cat 710	Incl above		0		
750	Central Service		Included in Cat 710			—	—	Included in Cat 710			Included in Cat 710	Incl above		0		
760	Hazardous Materials		Included in Cat 710			—	—	Included in Cat 710			Included in Cat 710	Incl above		0		
800	Health Care		8,319	0.43	0.30	5,825	2,494	8,319	6,642	1,677	8,319	7,395	924	0		
TOTAL ACADEMIC SPACE			1,822,016	91.86	128.31	2,567,312	(745,296)	2,030,491	2,848,769	(818,278)	1,977,706	3,272,046	(1,294,340)	429,228		
			2,378,806	= all 3 campuses				2,030,491					(1,294,340)			
			76.59%													

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:

- Direct service Organization Financing:
 - *Public Education Capital Outlay (PECO)
 - *Capital Improvement Trust Fund (CITF)
- Auxiliary Enterprises:
 - *Revenue Bonds (housing, parking, etc.)
 - *Parking Decal Fees
 - *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 for the future, as shown in Table 14.3.

TABLE 14-3: Projected Operating Costs

Projected Operating	2011	2015	2020
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Capital Improvements Table

STATE UNIVERSITY SYSTEM
Five-Year Capital Improvement Plan (CIP-2) and Legislative Budget Request
 Fiscal Years 2013-14 through 2017-18

Florida International University

BOG Final
8/1/2012

PECO-ELIGIBLE PROJECT REQUESTS

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or Other Programs to Benefit from Projects	Net Assignable Square Feet (NASF)	Gross Square Feet (GSF)	Project Cost	Project Cost Per GSF (Proj. Cost/ GSF)	Educational Plant Survey Recommended Date/Rec No.	Approved by Law - Include GAA reference
1	FACILITIES INFRASTRUCTURE /CAPITAL RENEWAL - LW (P,C,E)	\$10,500,000	\$10,500,000	\$10,500,000	\$10,500,000	\$10,500,000	All	n/a	n/a	\$52,500,000	n/a	06/21/11	
2	STUDENT ACADEMIC SUPPORT CENTER - MMC, BT-882 (C,E)	\$7,853,025					All	50,000	80,000	\$28,000,000	\$ 350	06/21/11	
3	STRATEGIC LAND ACQUISITION - LW (A)	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	All	n/a	n/a	n/a	n/a	06/21/11	n/a
4	SATELLITE CHILLER PLANT EXPANSION - MMC (P,C,E)	\$7,000,000					All	0	0	\$7,000,000	n/a	06/21/11	
5	HUMANITIES CTR., (ARTS & SCIENCES) - MMC (P,C)(C,E)	\$23,370,000	\$6,000,000				Humanities	48,500	77,600	\$29,370,000	\$ 378	06/21/11	n/a
6	REMODEL /RENOV. OF EXIST. EDUC. SPACE - MMC (P,C,E)(P,C,E)		\$20,000,000	\$8,000,000			All	117,306	117,306	\$28,000,000	\$ 239	06/21/11	n/a
7	GREEN LIBRARY ADDITION - MMC (P)(C)(E)		\$13,500,000	\$26,000,000	\$6,250,000		All	88,000	123,200	\$45,750,000	\$ 371	06/21/11	n/a
8	CLASSROOM/OFFICE, (ACADEMIC III) - BBC (P,C)(C,E)		\$3,385,000	\$15,400,000	\$6,215,000		All	40,000	64,000	\$25,000,000	\$ 391	06/21/11	n/a
9	GRADUATE SCHOOL OF BUSINESS, Phase II - MMC (P,C)(C,E)(C,E)		\$2,710,000	\$14,000,000	\$10,000,000	\$5,290,000	Business	55,820	89,312	\$32,000,000	\$ 358	06/21/11	n/a
10	SCIENCE LABORATORY COMPLEX - MMC (P,C)(C)(C,E)				\$29,750,000	\$21,250,000	Sciences	79,500	127,200	\$51,000,000	\$ 401	06/21/11	n/a
11	REMODEL /RENOV. OF STUDENT ACADEMIC SUPPORT - BBC (P,C,E)(P,C,E)				\$20,500,000	\$2,500,000	All	97,000	97,000	\$23,000,000	\$ 237	06/21/11	n/a
12	REMODEL /RENOV. OF ACADEMIC DATA CENTER - MMC (P,C,E)(P,C,E)				\$12,775,000	\$7,557,500	All	24,000	24,000	\$20,332,500	\$ 847	06/21/11	n/a
13	ENGINEERING BUILDING - EC (P,C)(C,E)				\$1,000,000	\$11,500,000	Cons. Mgt./Eng.	17,400	27,840	\$12,500,000	\$ 449	06/21/11	n/a
14	TRAINING COMPLEX - MMC (P,C)(P,C,E)				\$1,200,000	\$13,200,000	All	25,270	40,432	\$14,400,000	\$ 356	06/21/11	n/a
15	HONORS COLLEGE - MMC (P,C)(C,E)				\$2,000,000	\$25,000,000	Honors	49,100	78,560	\$27,000,000	\$ 344	06/21/11	n/a
16	SOCIAL SCIENCE, Phase II - MMC (P,C)(C,E)				\$10,500,000	\$12,000,000	Int'l Studies	35,678	57,085	\$22,500,000	\$ 394	06/21/11	n/a
TOTAL		\$50,723,025	\$58,095,000	\$75,900,000	\$112,690,000	\$110,797,601							

CITF PROJECT REQUESTS

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or to Benefit from Projects	Net Square Feet (NASF)	Gross Feet (GSF)	Project Cost	Project Cost (Proj. Cost/ GSF)	Committee Date
1	GRAHAM UNIVERSITY CENTER - MMC (P,C,E)	\$7,500,000					All					
2	RECREATION CENTER EXPANSION - MMC (P,C,E)	\$7,500,000					All					
3	WOLF UNIVERSITY CENTER RENOVATIONS - BBC (P,C,E)	\$2,900,000					All					
TOTAL		\$17,900,000	0	0	0	0						

REQUESTS FROM OTHER STATE SOURCES

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or to Benefit from Projects	Net Square Feet (NASF)	Gross Feet (GSF)	Project Cost	Project Cost (Proj. Cost/ GSF)
1	PARKVIEW HOUSING II - MMC (P,C,E)						Resident Life				
2	PG-6 - MMC, (P,C,E)						All				
3	RESEARCH 1 - MMC, (P,C,E)						Research				
TOTAL		0	0	0	0	0					

REQUESTS FROM NON-STATE SOURCES, INCLUDING DEBT

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or to Benefit from Projects	Net Square Feet (NASF)	Gross Feet (GSF)	Project Cost	Project Cost (Proj. Cost/ GSF)	Expected Funding (if known)	Master Plan Date
1	MEDICAL ARTS PAVILION - MMC, (P,C,E)						COM					M-Dade/Private	09/24/10
2	CONFERENCE CENTER - MMC (P,C,E)						All						09/24/10
TOTAL		0	0	0	0	0							

Costs			
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.

Table 14.1a Modesto A. Maidique Campus overall Inventory and projected space analysis

MODESTO A. MAIDIQUE CAMPUS		Fall 2011					HC	FTE	Under Construction	Year 2015			HC	FTE	Year 2020			HC	FTE	Projected'			
							Undergrad	15,412		Undergrad	17,461		Undergrad	19,489		Undergrad	19,489		Undergrad	19,489	Future Projects (in ASF)		
							Graduate	4,005		Grad	4,678		Grad	5,161		Grad	5,161		Grad	5,161			
							Total Students	19,417		Total Students	22,139		Total Students	24,650		Total Students	24,650		Total Students	24,650			
							E-Learning Students	5,985		E-Learning Students	6,742		E-Learning Students	9,742		E-Learning Students	9,742		E-Learning Students	9,742			
							Faculty FYE			Faculty FYE			Faculty FYE			Faculty FYE			Faculty FYE				
							Staff: Admin + Prof			Staff: Admin + Prof			Staff: Admin + Prof			Staff: Admin + Prof			Staff: Admin + Prof				
							Does not include CIP			Does not include CIP			Does not include CIP			Does not include CIP							
							ASF			ASF			ASF			ASF							
Space Code	Florida Standard ^d	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)		Projected ASF ^b	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	Projected ASF	Guideline ASF	Surplus (Deficit)	ASF		
110	Classrooms (Office of Clsrn Mgmt)	12.08	126,867	6.53	10.64	206,692	(79,825)	9,994	136,861	235,667	(98,806)	136,861	262,397	(125,536)	136,861	262,397	(125,536)	136,861	262,397	(125,536)	61,860		
111	Classrooms (Departmentally Controlled)	12.08	17,100	0.88	1.42	27,631	(10,531)		17,100	31,504	(14,404)	17,100	35,078	(17,978)	17,100	35,078	(17,978)	17,100	35,078	(17,978)	0		
210	Teaching Labs + Service	13.77	166,744	8.59	13.77	267,372	(100,628)	7,511	174,255	304,854	(130,599)	174,255	339,431	(165,176)	174,255	339,431	(165,176)	174,255	339,431	(165,176)	28,410		
220	Open Labs		92,599	4.77	5.00	97,085	(4,486)		92,599	110,695	(18,096)	92,599	123,250	(30,651)	92,599	123,250	(30,651)	92,599	123,250	(30,651)	0		
250	Research Labs + Service	(9.88)	157,011	8.09	9.88	191,840	(34,829)	39,980	196,991	144,206	52,785	144,206	270,160	(125,954)	144,206	270,160	(125,954)	144,206	270,160	(125,954)	33,000		
300	Offices / Computer	36.88	576,016	29.67	29.00	563,093	62,965	92,027	724,220	642,031	82,189	724,220	714,850	9,370	724,220	714,850	9,370	724,220	714,850	9,370	135,738		
350	Conference	19.16 per Off	50,042	2.58	incl w/ Off	1:25-30	—	6,135	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	0	
400	Study / Library	17.54	178,494	9.19	17.54	340,574	(162,080)	9,855	188,349	388,318	(199,969)	188,349	432,361	(244,012)	188,349	432,361	(244,012)	188,349	432,361	(244,012)	123,000		
520	Teaching Gymnasium	5.77	97,692	5.03	5.77	112,036	(14,344)		97,692	127,742	(30,050)	97,692	142,231	(44,539)	97,692	142,231	(44,539)	97,692	142,231	(44,539)	0		
530	Media Production	1.13	11,520	0.59	1.13	21,941	(10,421)	746	12,266	25,017	(12,751)	12,266	27,855	(15,589)	12,266	27,855	(15,589)	12,266	27,855	(15,589)	3,000		
540	Clinic		4,846	0.25	0.40	7,767	(2,921)		4,846	8,856	(4,010)	4,846	9,860	(5,014)	4,846	9,860	(5,014)	4,846	9,860	(5,014)	0		
541	Clinic- Medical		0			7,048	(7,048)		0	12,962	(12,962)	0	17,293	(17,293)	0	17,293	(17,293)	0	17,293	(17,293)	0	0	
550	Demonstration		4,033	0.21	0.10	1,942	2,091		4,033	2,214	1,819	4,033	2,465	1,568	4,033	2,465	1,568	4,033	2,465	1,568	0		
560	Field Buildings		0	0.00	0.00	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0		
570	Animal Quarters (off site ?)		3,117	0.16	0.00	0	3,117		3,117	0	3,117	3,117	0	3,117	0	3,117	0	3,117	0	3,117	0		
580	Greenhouses		4,842	0.25	0.50	9,709	(4,867)		4,842	11,070	(6,228)	4,842	12,325	(7,483)	4,842	12,325	(7,483)	4,842	12,325	(7,483)	0		
590	Other		1,601	0.08	0.08	1,553	48		1,601	1,771	(170)	1,601	1,972	(371)	1,601	1,972	(371)	1,601	1,972	(371)	19,020		
610	Assembly	3.00	55,614	2.86	3.00	58,251	17,179	7,869	63,483	66,417	16,882	63,483	73,950	9,349	63,483	73,950	9,349	63,483	73,950	9,349	7,600		
620	Exhibition		19,816	1.02	Incl w/ Assembly	—	—		19,816.00	Incl w/ Assembly	Incl w/ Assembly	19,816	—	Incl w/ Assembly	19,816	—	Incl w/ Assembly	19,816	—	Incl w/ Assembly	—	0	
630	Food Service (HC basis)		44,668	2.30	5.00	165,995	(121,327)		44,668	180,420	(135,752)	44,668	188,595	(143,927)	44,668	188,595	(143,927)	44,668	188,595	(143,927)	0		
640	Day Care		0	0.00	0.00	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0		
650	Student Lounge		24,769	1.28	2.50	48,543	(23,774)		24,769	55,348	(30,579)	24,769	61,625	(36,856)	24,769	61,625	(36,856)	24,769	61,625	(36,856)	0		
660	Merchandising		39,984	2.06	2.21	42,912	(2,928)		39,984	48,927	(8,943)	39,984	54,477	(14,493)	39,984	54,477	(14,493)	39,984	54,477	(14,493)	0		
670	Recreation		35,984	1.85	1.50	29,126	6,859		35,984	33,209	2,776	35,984	36,975	(991)	35,984	36,975	(991)	35,984	36,975	(991)	0		
680	Meeting Room (other than 690)		38,350	—	3.00	58,251	(19,901)		38,350	66,417	(28,067)	38,350	73,950	(35,600)	38,350	73,950	(35,600)	38,350	73,950	(35,600)	0		
690	Student Academic Meeting Room		3,358	0.17	0.60	11,650	(8,292)	4,234	7,592	13,283	(5,691)	7,592	14,790	(7,198)	7,592	14,790	(7,198)	7,592	14,790	(7,198)	2,600		
710	Central Computer / Telecomm	24000	58,630	3.02	7.08	137,472	(78,842)	17,124	75,754	156,744	(80,990)	75,754	174,522	(98,768)	75,754	174,522	(98,768)	75,754	174,522	(98,768)	15,000		
711	E-Learning Support		0	0.00	0.00	0	0	13,000	13,000	0	13,000	13,000	0	13,000	13,000	0	13,000	13,000	0	13,000	0		
720	Shop / Central Service		Included in Cat 710		—	—	—		Included in Cat 710	—	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0		
730	Central Storage		Included in Cat 710		—	—	—		Included in Cat 710	—	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0		
740	Vehicle Storage (car parks not incl)		Included in Cat 710		—	—	—		Included in Cat 710	—	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0		
750	Central Service		Included in Cat 710		—	—	—		Included in Cat 710	—	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0		
760	Hazardous Materials		Included in Cat 710		—	—	—		Included in Cat 710	—	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	Included in Cat 710	Incl above	—	0		
800	Health Care		8,319	0.43	0.30	5,825	2,494		8,319	6,642	1,677	8,319	7,395	924	8,319	7,395	924	8,319	7,395	924	0		
TOTAL RECREATION SPACE			133,676	7	7	141,162	(7,486)		133,676	160,951	(27,275)	133,676	179,206	(45,530)	133,676	179,206	(45,530)	133,676	179,206	(45,530)			
TOTAL ACADEMIC/ RESERACH SPACE			738,815			1,131,194	(392,379)		806,155	1,215,245	(409,090)	753,370	1,462,676	(709,306)	753,370	1,462,676	(709,306)	753,370	1,462,676	(709,306)			
TOTAL SUPPORT SPACE			949,525			1,141,951	(192,426)		1,090,660	1,298,119	(207,459)	1,090,660	1,435,923	(345,263)	1,090,660	1,435,923	(345,263)	1,090,660	1,435,923	(345,263)			
TOTAL SPACE			1,822,016	91.86	120.43	2,414,307	(592,291)	208,475	2,030,491	2,674,314	(643,823)	1,977,706	3,077,804	(1,100,098)	1,977,706	3,077,804	(1,100,098)	1,977,706	3,077,804	(1,100,098)	429,228		
			2,378,806 = all 3 campuses						2,030,491														
			76.59%																				

Table 14.1b Engineering Center overall inventory and projected space analysis

ENGINEERING CENTER																	
		Fall 2011					2015					2020					Projected Future Projects (in ASF)
		Undergrad	Graduate	HC	FTE	Undergrad	Graduate	HC	FTE	Undergrad	Graduate	HC	FTE				
Exstg ASF spreadsheet forwarded by FIU Dept of Space Mgmt																	
Projected Exstg ASF = Existing + CIP/New Const - Demolition																	
Per Florida Bd of Governors, "Space Standards for Fixed Capital Outlay Needs Generation Formula"																	
		E-Learning Students					E-Learning Students					E-Learning Students					
		Staff: Admin + Prof General Staff					Staff: Admin + Prof General Staff					Staff: Admin + Prof General Staff					
Space Category	Florida Standard ^c	FIU Cats	Existing ASF ^a	Exstg ASF/FTE	Guideline ASF/FTE	Guideline ASF	Surplus (Deficit)	Projected Exstg ASF ^b	Guideline ASF	Surplus (Deficit)	Projected Exstg ASF	Guideline ASF	Surplus (Deficit)	Projected Future Projects (in ASF)			
110 Classrooms (Office of Clstrm Mgmt)	12.08		12,022	11.40	12.08	12,744	(722)	12,022	13,538	(1,516)	# 12,022	16,658	(4,636)	0			
111 Classrooms (Departmentally Controlled)	12.08		0	0.00	0.00	0	0	0	0	0	0	0	0	0			
210 Teaching Labs + Service	13.77		13,230	12.54	13.77	14,527	(1,297)	13,230	14,898	(1,668)	13,230	18,989	(5,759)	0			
220 Open Labs			7,547	7.15	5.00	5,275	2,272	7,547	5,940	1,607	7,547	6,895	652	0			
250 Research Labs + Service	9.88		78,788	74.68	9.88	10,423	68,365	78,788	11,737	67,051	78,788	13,625	65,163	0			
300 Offices / Computer	36.88		61,172	57.98	29.00	30,595	35,811	66,406	34,452	31,954	66,406	39,991	26,415	0			
350 Conference Center	28.08 per Off		5,234	4.96	incl w/ Off	1:25-30	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	incl w/ Off	0			
400 Study / Library	17.54		987	0.94	17.54	18,505	(17,518)	987	20,838	(19,851)	987	24,188	(23,201)	0			
520 Teaching Gymnasium	0.00		0	0.00	0.00	0	0	0	0	0	0	0	0	0			
530 Media Production	1.13		0	0.00	1.13	1,192	(1,192)	0	1,342	(1,342)	0	1,558	(1,558)	0			
540 Clinic			0	0.00	0.40	422	(422)	0	475	(475)	0	552	(552)	0			
545 Clinic- Medical																	
550 Demonstration			0	0.00	0.10	106	(106)	0	119	(119)	0	138	(138)	0			
560 Field Buildings			0	0.00	—	—	—	—	—	—	—	—	—	0			
570 Animal Quarters			0	0.00	—	—	—	—	—	—	—	—	—	0			
580 Greenhouses			0	0.00	0.50	528	(528)	0	594	(594)	0	690	(690)	0			
590 Other			0	0.00	0.00	0	0	0	0	0	0	0	0	0			
610 Assembly	3.00		0	0.00	3.00	3,165	(3,165)	0	3,564	(3,564)	0	4,137	(4,137)	0			
620 Exhibition			0	0.00	incl w/ Assembly	cl w/ Assembly	w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	incl w/ Assembly	0			
630 Food Service (HC basis)			7,090	6.72	5.00	12,280	(5,190)	7,090	13,235	(6,145)	7,090	14,590	(7,500)	0			
640 Day Care			0	0.00	0.00	0	0	0	0	0	0	0	0	0			
650 Student Lounge			0	0.00	2.50	2,638	(2,638)	0	2,970	(2,970)	0	3,448	(3,448)	0			
660 Merchandising			0	0.00	2.21	2,332	(2,332)	0	2,625	(2,625)	0	3,048	(3,048)	0			
670 Recreation			0	0.00	1.50	1,583	(1,583)	0	1,782	(1,782)	0	2,069	(2,069)	0			
680 Meeting Room (other than 690)			1,005	0.95	3.00	3,693	(2,688)	1,005	3,564	(2,559)	1,005	4,137	(3,132)	0			
690 Student Academic Meeting Room			0	0.00	0.60	633	(633)	0	713	(713)	0	827	(827)	0			
710 Central Computer / Telecomm	7.08		0	3.03	7.08	7,469	(4,276)	3,193	8,411	(5,218)	3,193	9,763	(6,570)	0			
711 E-Learning Support														0			
720 Shop / Central Service			161	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
730 Central Storage			2,800	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
740 Vehicle Storage (ramps not incl)			0	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
750 Central Service			67	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
760 Hazardous Materials			165	Included in Cat 710		—	—	Included in Cat 710	Included in Cat 710	—	Included in Cat 710	Included in Cat 710	—	0			
800 Health Care			67	0.30	0.30	317	(250)	67	356	(289)	67	414	(347)	0			
TOTAL ACADEMIC/ RESEARCH SPACE			112,574	107	58	61,475	51,099	112,574	66,950	45,624	112,574	80,354	32,220				
TOTAL RECREATION SPACE			0	0	2	1,583	(1,583)	0	1,782	(1,782)	0	2,069	(2,069)				
TOTAL SUPPORT SPACE			77,761	74	55	65,368	12,393	11,337	55,682	(44,345)	11,337	63,862	(52,525)				
TOTAL SPACE			190,335	180.65	114.59	128,425	61,910	190,335	141,154	49,181	190,335	165,715	24,620	0			

Table 14.2 Capital Improvements

STATE UNIVERSITY SYSTEM
Five-Year Capital Improvement Plan (CIP-2) and Legislative Budget Request
 Fiscal Years 2013-14 through 2017-18

Florida International University

BOG Final
8/1/2012

PECO-ELIGIBLE PROJECT REQUESTS

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or Other Programs to Benefit from Projects	Net Assignable Square Feet (NASF)	Gross Square Feet (GSF)	Project Cost	Project Cost Per GSF (Proj. Cost/ GSF)	Educational Plant Survey Recommended Date/Rec No.	Approved by Law - Include GAA reference
1	FACILITIES INFRASTRUCTURE /CAPITAL RENEWAL - LW (P,C,E)	\$10,500,000	\$10,500,000	\$10,500,000	\$10,500,000	\$10,500,000	All	n/a	n/a	\$52,500,000	n/a	06/21/11	
2	STUDENT ACADEMIC SUPPORT CENTER - MMC, BT-882 (C,E)	\$7,853,025					All	50,000	80,000	\$28,000,000	\$ 350	06/21/11	
3	STRATEGIC LAND ACQUISITION - LW (A)	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	All	n/a	n/a	n/a	n/a	06/21/11	n/a
4	SATELLITE CHILLER PLANT EXPANSION - MMC (P,C,E)	\$7,000,000					All	0	0	\$7,000,000	n/a	06/21/11	
5	HUMANITIES CTR., (ARTS & SCIENCES) - MMC (P,C)(C,E)	\$23,370,000	\$6,000,000				Humanities	48,500	77,600	\$29,370,000	\$ 378	06/21/11	n/a
6	REMODEL/RENOV. OF EXIST. EDUC. SPACE - MMC (P,C,E)(P,C,E)		\$20,000,000	\$8,000,000			All	117,306	117,306	\$28,000,000	\$ 239	06/21/11	n/a
7	GREEN LIBRARY ADDITION - MMC (P)(C)(E)		\$13,500,000	\$26,000,000	\$6,250,000		All	88,000	123,200	\$45,750,000	\$ 371	06/21/11	n/a
8	CLASSROOM/OFFICE, (ACADEMIC III) - BBC (P,C)(C,E)		\$3,385,000	\$15,400,000	\$6,215,000		All	40,000	64,000	\$25,000,000	\$ 391	06/21/11	n/a
9	GRADUATE SCHOOL OF BUSINESS, Phase II - MMC (P,C)(C,E)(C,E)		\$2,710,000	\$14,000,000	\$10,000,000	\$5,290,000	Business	55,820	89,312	\$32,000,000	\$ 358	06/21/11	n/a
10	SCIENCE LABORATORY COMPLEX - MMC (P,C)(C)(C,E)				\$29,750,000	\$21,250,000	Sciences	79,500	127,200	\$51,000,000	\$ 401	06/21/11	n/a
11	REMODEL/RENOV. OF STUDENT ACADEMIC SUPPORT - BBC (P,C,E)(P,C,E)				\$20,500,000	\$2,500,000	All	97,000	97,000	\$23,000,000	\$ 237	06/21/11	n/a
12	REMODEL/RENOV. OF ACADEMIC DATA CENTER - MMC (P,C,E)(P,C,E)				\$12,775,000	\$7,557,500	All	24,000	24,000	\$20,332,500	\$ 847	06/21/11	n/a
13	ENGINEERING BUILDING - EC (P,C)(C,E)				\$1,000,000	\$11,500,000	Cons. Mgt./Eng.	17,400	27,840	\$12,500,000	\$ 449	06/21/11	n/a
14	TRAINING COMPLEX - MMC (P,C)(P,C,E)				\$1,200,000	\$13,200,000	All	25,270	40,432	\$14,400,000	\$ 356	06/21/11	n/a
15	HONORS COLLEGE - MMC (P,C)(C,E)				\$2,000,000	\$25,000,000	Honors	49,100	78,560	\$27,000,000	\$ 344	06/21/11	n/a
16	SOCIAL SCIENCE, Phase II - MMC (P,C)(C,E)				\$10,500,000	\$12,000,000	Int'l. Studies	35,678	57,085	\$22,500,000	\$ 394	06/21/11	n/a
TOTAL		\$50,723,025	\$58,095,000	\$75,900,000	\$112,690,000	\$110,797,501							

CITF PROJECT REQUESTS

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or to Benefit from Projects	Net Square Feet (NASF)	Gross Feet (GSF)	Project Cost	Project Cost (Proj. Cost/ GSF)	Committee Date
1	GRAHAM UNIVERSITY CENTER - MMC (P,C,E)	\$7,500,000					All					
2	RECREATION CENTER EXPANSION - MMC (P,C,E)	\$7,500,000					All					
3	WOLF UNIVERSITY CENTER RENOVATIONS - BBC (P,C,E)	\$2,900,000					All					
TOTAL		\$17,900,000	0	0	0	0						

REQUESTS FROM OTHER STATE SOURCES

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or to Benefit from Projects	Net Square Feet (NASF)	Gross Feet (GSF)	Project Cost	Project Cost (Proj. Cost/ GSF)
1	PARKVIEW HOUSING II - MMC (P,C,E)						Resident Life				
2	PG-6 - MMC, (P,C,E)						All				
3	RESEARCH 1 - MMC, (P,C,E)						Research				
TOTAL		0	0	0	0	0					

REQUESTS FROM NON-STATE SOURCES, INCLUDING DEBT

Priority No.	Project Title	2013-14	2014-15	2015-16	2016-17	2017-18	Academic or to Benefit from Projects	Net Square Feet (NASF)	Gross Feet (GSF)	Project Cost	Project Cost (Proj. Cost/ GSF)	Expected Funding (if known)	Master Plan Date
1	MEDICAL ARTS PAVILION - MMC, (P,C,E)						COM					M-Dade/Private	09/24/10
2	CONFERENCE CENTER - MMC (P,C,E)						All						09/24/10
TOTAL		0	0	0	0	0							

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).

(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.**

The campuses have seen four distinct development periods. Utilizing these periods, buildings and spaces can be understood and analyzed within this framework.

These four periods can be identified as follows:

- | | |
|-----------------|--------------|
| I. Formative | 1969-1977 |
| II. Development | 1982-1986 |
| III. Identity | 1990-1998 |
| IV. Masterplan | 2000-present |

finish buildings (see Photographs 15.1 and 15.2). As buildings have been further developed the introduction of other architectural elements has been included, more noticeably the use of 90-degree arches and keystone finishes. These elements are evident in the entranced archway and in various buildings such as the Graham Center.

The design of some of these original buildings were monumental in proportion and in their relationship with their surroundings. They had minimum amount of fenestration and drew day lighting and ventilation thru the use of interior open courtyards, which can be seen at Deuxime Maison and the Owa Ehan. In later buildings introduced colonnades, more fenestrations, and a variation in scale.

Later Buildings have seen a more diverse level of utilization of materials and more significantly the creation of outdoor learning environments as well as a green roof, sustainable best practices and student life enhancements.



Photograph 15.1 Ernest R. Graham University Center



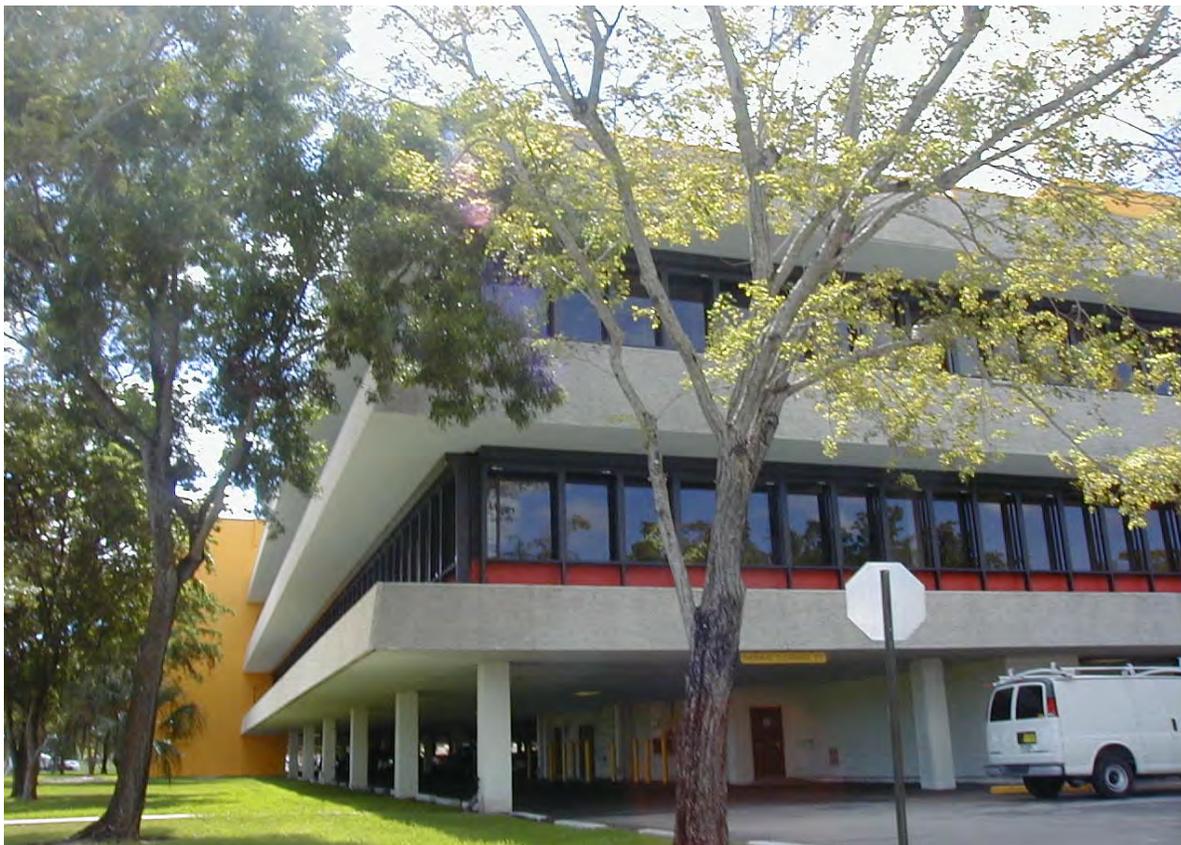
Photograph 15.2 Primera Casa
BISCAYNE BAY CAMPUS



Biscayne Bay Campus is located directly on the bay, generating excellent views by the water. It is reached by a single road, which leads to the entrance of the campus. It serves a student population that is limited due to the limited amount of academic courses that it offers. Its location is prime for many reasons, not only the views, but it is located on the northern side of the county close to the densely populated Broward / Dade county line. It's potential for being a very important campus is tremendous, it can serve as a key point for Miami-Dade and Broward County communities.

Hospitality Management was the first building built when this site was previously to be used as a trade and amusement center. The original academic buildings, Academic One, Academic Two, and Wolfe University Center (see Photograph 15.4) were laid out in a stepping pattern, which are interconnected by aligned interior corridors, establishing a mall theme. Bay Vista Housing is located within wooded areas hidden from any possible views to the bay.

The original academic buildings began to establish a similarity in architectural scale and form, the primary materials used were pre-cast with embedded aggregates, cast-in-place concrete, and some fluted and split face block. Glass areas are primarily storefront glass, there is some use of metal shading louvers at Hospitality Management. The more recent buildings are primarily stucco painted finish exteriors with the use of storefront type glass. The colors used on buildings is mostly low key palette, the use of more aggressive colors is found only on the metal work, such as railings, and some accent tile work.



Photograph 15.3 Engineering Center



Photograph 15.4 Wolfe University Center

This campus should focus its architectural direction in taking the most advantageous views of the bay. The location also lends itself to create a more secluded educational environment away from the more urban settings. 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. The views towards the bay have to be taken into consideration due to the mangroves along the bay edge. As they mature, views will only be possible from the second level and above. There are recent buildings, such as the Kovens Center, which represent a very different architectural approach that departs from some of the more prevailing themes at the campus. Strong consideration needs to be given to creating 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 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. 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 (highlighted in blue above) was recently been upgraded in 2012.

b) A description of architecturally significant historic buildings including style, age, etc.

MODESTO A. MAIDIQUE CAMPUS

The original building on site, prior to the University acquiring the property, is the aviation tower that was built when this site was known as the Tamiami Airport. This building may have some possible historic value, but as of date this is not documented (see Photograph 15.5).

BISCAYNE BAY CAMPUS

This campus was opened in 1973; the original building on this site, prior to FIU acquiring the property is Hospitality Management, previously known as the Trade Center.



Photograph 15.5 Aviation Tower

OTHER UNIVERSITY SITES

Engineering Center

There are no architecturally significant historical buildings at this site.

Miami Beach

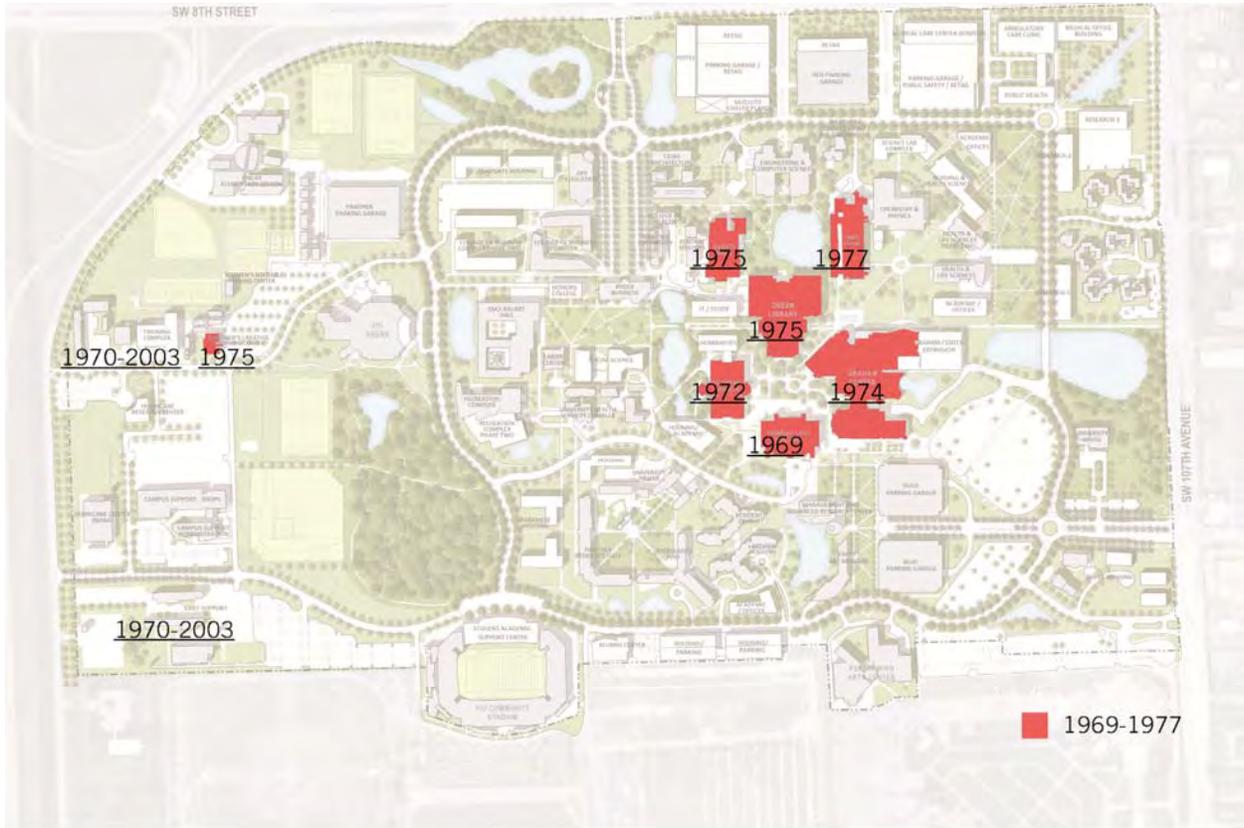
There are several historic properties on Miami Beach that are maintained by FIU that include: Wolfsonian, Wolfsonian Annex, Miami Beach Women's Club and the Jewish Museum.

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**

MODESTO A. MAIDIQUE CAMPUS

MMC 1969 – 1977



P.15.6



P.15.7



P.15.8



P.15.9



P.15.10



P.15.11

1. Materials

- Monolithic exposed concrete finish

- Fluted and split face block
- Minimal glass

2. Color

- Neutral colors based on building materials as well as shades of grey and yellow are heavily used in the campus core
- Colors have been added throughout to develop to the campus “Panther” theme

3. Architectural Detailing

- Patterned facades and the use of construction lines are used to relate to the human scale
- The base of buildings are generally open with integrated colonnades that create sheltered pedestrian circulation
- All buildings have flat roofs with parapets

4. Scale

- The scale of buildings ranges from 2 stories to 12 stories

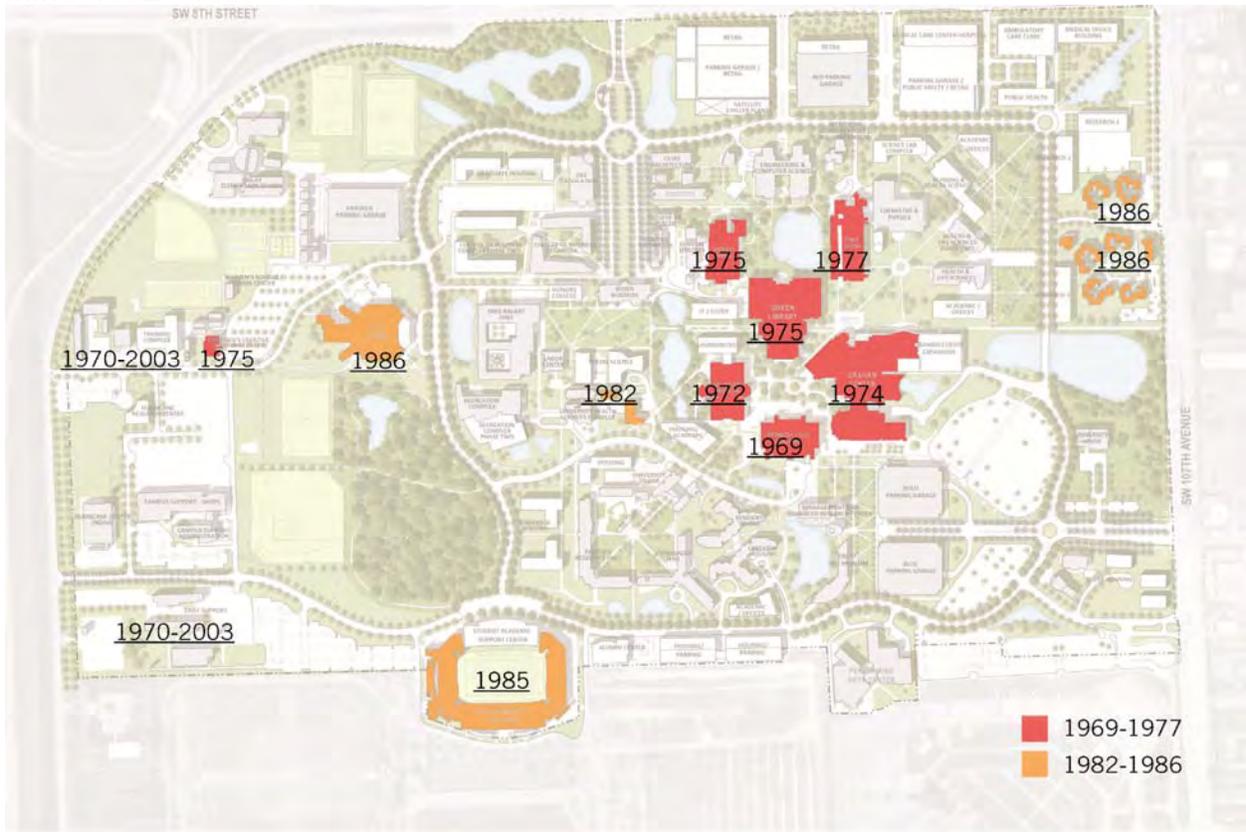
5. Transparency

- Window opening are used throughout for daylighting
- Storefront glass walls are used minimally

6. Siting and Image

- The placement of the buildings created a centrally located courtyard 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.

MMC 1982 - 1986



P.15.12



P.15.13



P.15.14

1. Materials

- Monolithic exposed concrete finish
- Steel construction
- Minimal glass

2. Color

- University colors have been incorporated to add to the campuses vernacular

3. Architectural Detailing

- The student housing complex are simple flat roof structures, with punched windows
- The Golden Panther Arena is a contemporary building with fluctuating geometries giving hierarchy to the entrance (P.15.14)
- The sporting structures 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 Golden Panther 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

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

4. Scale

- 2 to 6 stories

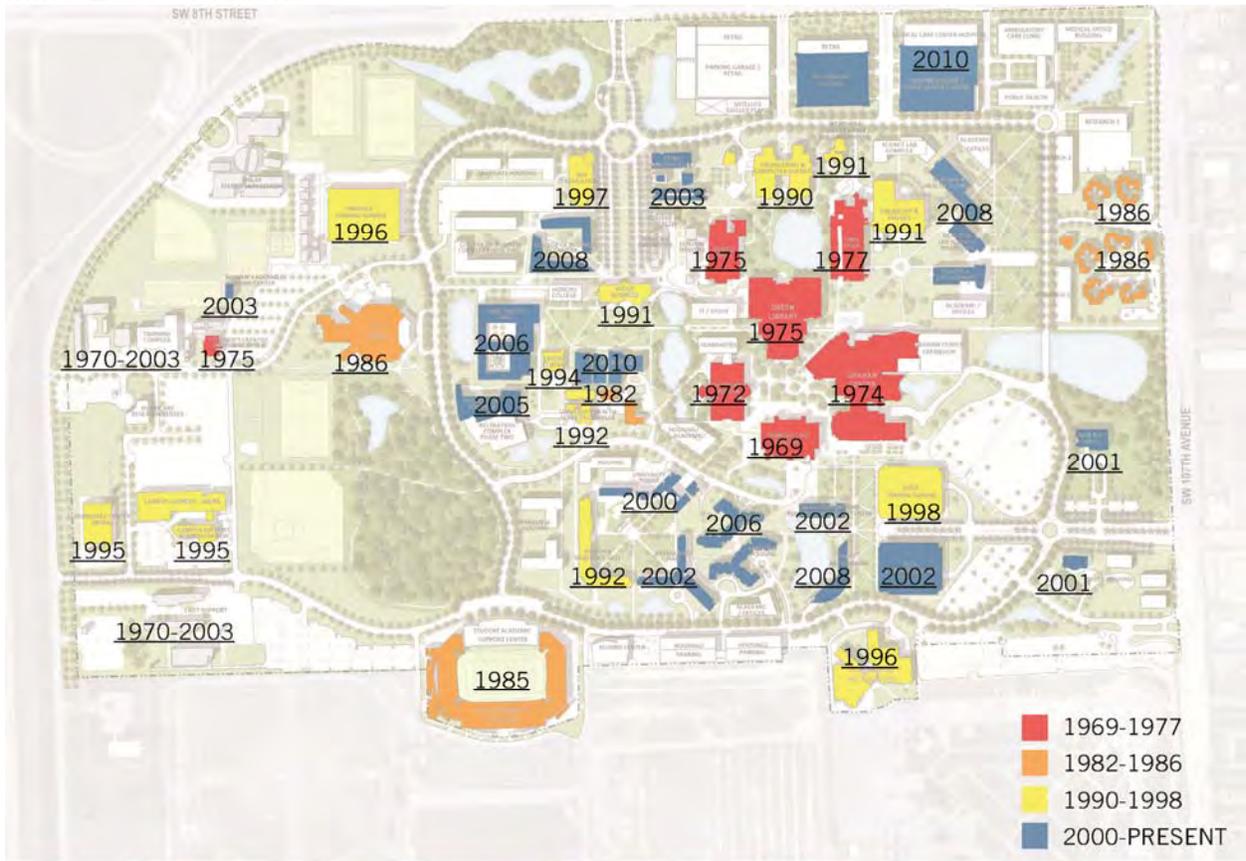
5. Transparency

- 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.

MMC 2000 - Present



P.15.20



P.15.21



P.15.22



P.15.23



P.15.24

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)

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 to maximize daylighting and minimize thermal exposure
- Through their consistency of design and repetition of patterns, textures, colors and shapes continue to establish a visual theme in the campus appearance.

BISCAYNE BAY CAMPUS **BBC 1976 - 1979**



P.15.25



P.15.26



P.15.27

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

- 4 to 6 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 oriented facing the water for optimal exterior views
- Through their consistency of design and repetition of patterns, textures, colors and shapes begin to establish a visual theme in the campus appearance.

BBC 1980 - 1987



P.15.28



P.15.29



P.15.30

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 (P.15.28, P.15.29)
- Buildings such as the Hubert Library have incorporated color into the design
- Color is not consistent with context or use

3. Architectural Detailing

- Pedestrian bridge with arcade below connects the library with the campus core (P. 15.30)
- Roof lines are flat and articulated with architectural elements (P.15.28) or color
- Patterned facades and the use of construction lines are used to relate to the human scale

4. Scale

- 4 to 6 stories

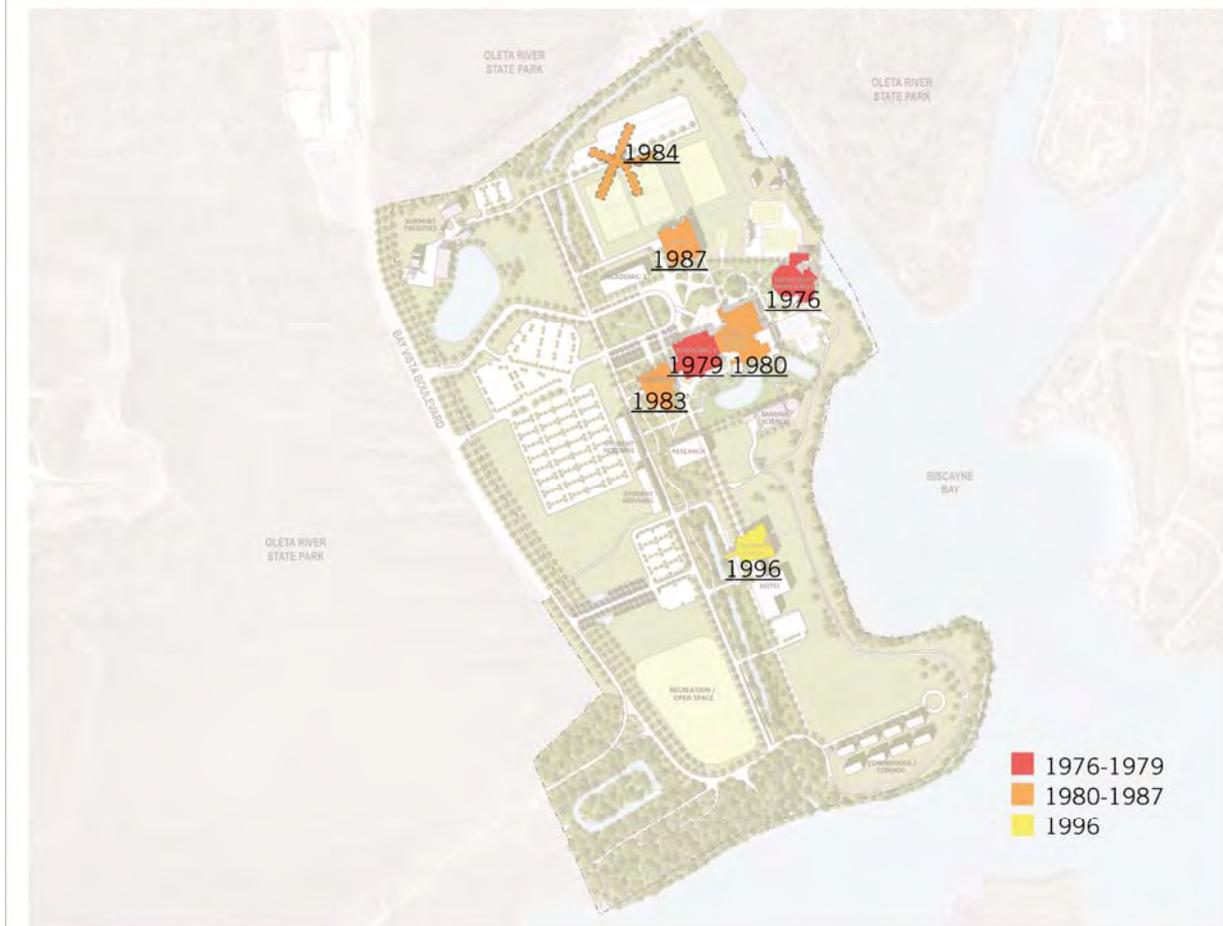
5. Transparency

- Curtain wall on north facades to maximize daylighting (P.15.28)
- Window openings throughout
- Use of building voids to create outdoor spaces and building transparency

6. Siting and Image

- Buildings are oriented facing the water for optimal exterior views
- Through their consistency of design and repetition of patterns, textures, colors and shapes continue to establish a visual theme in the campus appearance.

BBC 1996



P.15.31



P.15.32

1. Materials

- Monolithic exposed concrete finish
- Punched windows with some shading devices

2. Color

- Neutral colors, 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

BBC 2000 - Present



P.15.33



P.15.34

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

ENGINEERING CENTER
EC 1984



P.15.35



P.15.36



P.15.37



P.15.38



P.15.39

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

- North-South orientation of building to maximize daylighting and minimize thermal gain

(2) ANALYSIS REQUIREMENTS. This element shall be based, at a minimum, on the following analyses:

- a) **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 criteria 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.

b) An assessment of the accessibility of University buildings to disabled persons.

All buildings on all FIU campuses are built in accordance with the "Accessibility Requirements Manual" Florida Board of Building Codes and Standards 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.

(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. MAIDIUE CAMPUS

The existing vehicular circulation consists primarily of the Campus Greenbelt, two major entrances and five 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 and enclose 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. The realigned 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.

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. The primary campus entryway off of SW 107th Avenue

repeats the theme of a grand campus gateway. The focal point of the entrance is the Argosy sculpture by Alexander Liberman. A double row of Royal Palms planted on each side of the street frame sidewalks that penetrate the southeastern quadrant of the campus.



Photograph 16.1 – Campus Entry at 8th St.



Photograph 16.2 – Campus Entry at Ryder Business Building



Photograph 16.3 – Campus Greenbelt



Photograph 16.4 – Campus Entry at BBC

BISCAYNE BAY CAMPUS

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 an existing forest of Australian Pines and 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.

An alley 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.

2. Parking Facilities

MODESTO A. MAIDIQUE CAMPUS

The majority 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 ESC 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 have been placed on the northern edge of the deck to help screen the structure from SW 8th St.

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 buildings 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 canopy 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.

Parking Lot 1: (Located across the Greenbelt between ESC and the School of Architecture, west of the S.W. 8th Street and 109th Avenue entrance). The layout of the surface parking lot's aisles allows pedestrian circulation to access to a perimeter sidewalk. Much of the planting occurs at the end aisles and along the perimeter walk that is planted with Gumbo Limbo trees. The more mature trees are located between the parking perimeter and the Campus Greenbelt. A ficus hedge has been planted along the perimeter walk to screen vehicles. There are plans to develop a new parking structure with hotel and other amenities at this location.

University Apartments Parking – Parking Lot 2: (Located at SW 11th Street and SW 107th Avenue). These parking areas consist of a parking lot across the Greenbelt from the Academic Health Center 3 building and parking for the University Apartments. This area is currently used for staging for campus construction including the new Satellite Chiller Plant. Long term these lots shall be redeveloped as part of the Academic Health Sciences District.

Parking Lots 3, 4, & Presidential House: (Located on the southeastern section of the campus: Lot 3 is to the east of the PG/1 Gold Garage, 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 evergreen 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 Silver Buttonwood. An allee of Royal Palms are planted on each drive of the entryway to the building.

Parking Lots 5, 6 & 7: (Located along the southern boundary of the campus). Lot 5 is on the southeast corner of the campus. Lot 6 is across from Everglades Hall

and Panther Hall. Lot 7 is located on the southwestern section of the campus in front of the Baseball stadium. Parking Lots 5 & 6 have a continuous sidewalk and a Silver Buttonwood hedge that connects them to Wertheim Performing Arts Center and FIU Community Stadium. They have minimal tree canopies to provide shading and offer vegetative screening of vehicles from the Greenbelt.

Parking Lots 8 and 13: (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 is located between the Recreation Complex and the University Health Services Complex. It has a perimeter sidewalk associated with the Greenbelt along with flowering trees planted between the sidewalk and the perimeter of the surface parking. This lot has continuous interior grassed medians with plantings of modest canopy trees. There are plans to build phase two of the Recreation Complex on a portion of this parking lot.

Parking Lot 9: (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 mounded to diminish visibility to the lot's broad expanses of pavement. There are plans to build the Graduate School of Business and additional housing on this lot.

Parking Lot 10: (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.

Parking Lot 34: 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.

Parking Lots 12-30: (Located at various locations throughout campus). Most of these are small parking lots that serve the campus support system. The landscaping for these lots vary.

ENGINEERING CENTER

Parking Lots 1, 2, 3, 4, and 5 have terminal medians. Occasional interior medians are grassed and planted with canopy trees.

BISCAYNE BAY CAMPUS

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 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 and 6 landscape treatments consist of trees provided in scattered parking medians and end medians. 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. In addition 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

MODESTO A. MAIDIQUE CAMPUS

Major Walkways:

There are four major pedestrian axial walkways that cross the central campus core from the Campus Greenbelt and beyond:

- **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 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.
- **Avenue of the Arts:** Extends from the Performing Arts Center north to the Graham Center.
- **Avenue of the Students:** Extends from PG3/Panther Garage east to the Owa Ehan Building.

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.

The landscape treatment of the east/west walkway, Avenue of the Professions, that links the University Apartments to U.S. Century Bank Arena 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.

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 NHS 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 allee of Royal Palms and small shade trees.

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.

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 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. 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 will in time 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.

Crosswalks:

Crosswalks are normally striped with white paint and in many cases vehicular speed tables. 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. With the increase in density and urban qualities of the district, slowing vehicular traffic is essential to maintaining pedestrian safety. One particular crossing in the south area of the campus along the Greenbelt links surface parking to Panther Hall. This area has a high concentration of vehicle and pedestrian traffic. The crossing includes a significantly marked intersection and vehicular speed tables. As this walkway passes near the adjacent lakes, it is framed by an allee of Royal Palms.

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, 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 16.5 – Avenue of the Arts



Photograph 16.6 – Covered connection to PG1/Gold Parking Garage



Photograph 16.7 – Campus walkway approaching The Green Library



Photograph 16.8 – Avenue of the Students at Engineering & Science Building

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 Seagrape 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 16.9 – Campus walkway adjacent to Wolfe Center



Photograph 16.10 – Elevated Walkway between Wolfe Center and the Library

4. Bicycle Facilities

MODESTO A. MAIDIQUE CAMPUS

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.

BISCAYNE BAY CAMPUS

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 shore line of the campus.

ENGINEERING CAMPUS

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. 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.

BISCAYNE BAY CAMPUS

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.

ENGINEERING CAMPUS

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.

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.

BISCAYNE BAY 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.

7. Planted Areas

MODESTO A. MAIDIQUE CAMPUS

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 appear to be adequately 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 has been an effective means of differentiating individual facilities while offering exterior spaces for rest and reflection with some being more effective than others.

The existing tree cover on the campus also varies with heavier concentration of shading in central gathering areas, Nature Preserve, Hennington 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.



Figure 16.1 – Campus Spaces

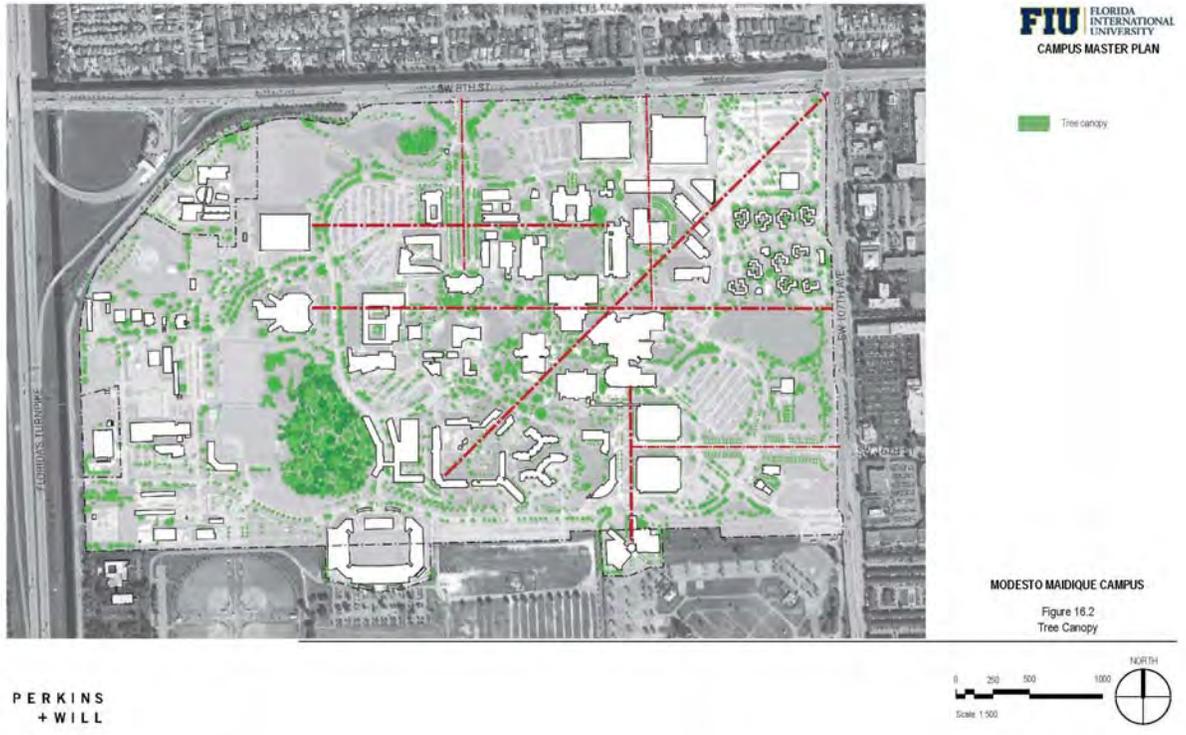


Figure 16.2 – Tree Canopy

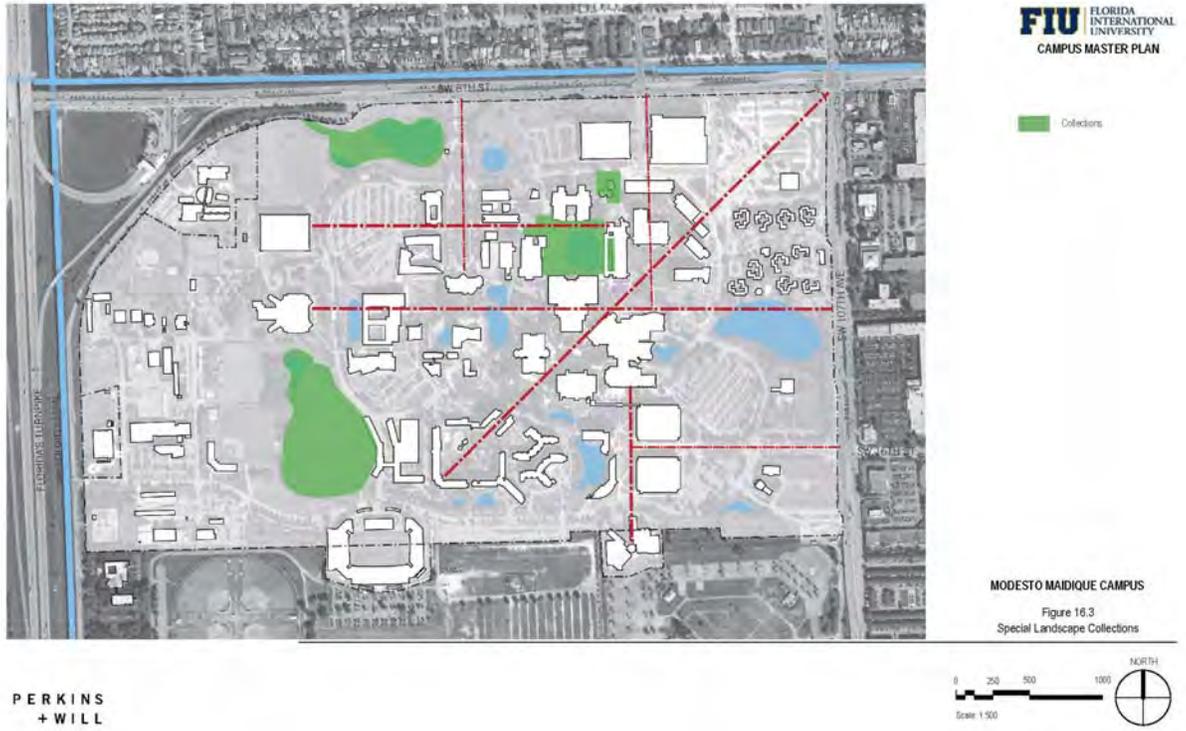


Figure 16.3 – Special Landscape Collections



 Tree canopy

ENGINEERING CENTER CAMPUS

Figure 16.4
Tree Canopy

**P E R K I N S
+ W I L L**

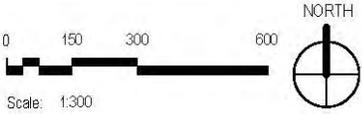


Figure 16.4 – Tree Canopy

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 alley of Royal Palms.

U.S. Century Bank 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 the paved plaza area. A cypress wetland has been established just north of the facility.

Viertes Haus and Central Utilities Building 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 / Rafeal 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.

Foundation 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, Seagrape) with ferns such as foptail fern, foliage plants, accents and other ground covers (such as Flax Lily, Ti plant, Dwarf Schefflera).

Viertes Haus / Green Library / Owa Ehan / Engineering and Computer Science: 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 Engineering and Computer Science 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 will 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 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.

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 planting 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 planted 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 16.11 – Founders Court



Photograph 16.12 – Plaza at Rafael Diaz-Balart Hall



Photograph 16.13 – Courtyard at the Campus Support Complex



Photograph 16.14 – Water body to the west of the Graham Center



Photograph 16.15 – Plaza as U.S. Century Arena

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.



- OPEN SPACE
- Major Axis
 - Courtyards
 - Quads
 - Active recreation
 - Special purpose landscape

BISCAYNE BAY CAMPUS

Figure 16.5
Campus Spaces

**P E R K I N S
+ W I L L**

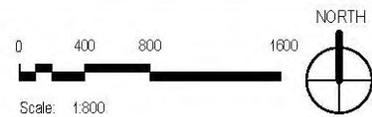


Figure 16.5 – Campus Spaces



 Tree canopy

BISCAYNE BAY CAMPUS

Figure 16.6
Tree Canopy

PERKINS
+ WILL

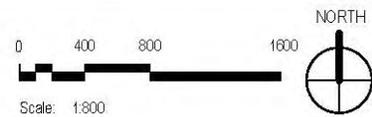


Figure 16.6 – Tree Canopy



 Collections

BISCAYNE BAY CAMPUS

Figure 16.7
Special Landscape Collections

PERKINS
+ WILL

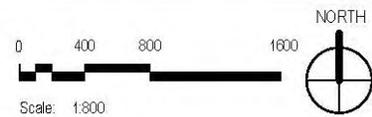


Figure 16.7 – Special Landscape Collections

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. The large expanse of paving southeast of Academic Two and at the southwest corner of Academic One does not furnish niches for planting nor create quality exterior spaces for gathering. These plaza areas are deficient of canopy trees to provide much needed shade for outdoor use in the warmer seasons. Substantial planting areas with more diversified plant palettes should be introduced along the front and back of these facilities in conjunction with improved plaza design and site furnishings.

Another 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 and suffers similar shortcomings as discussed for Academic One and Academic Two. 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.

The Marine Biology building delineates the southeastern edge of the developing south quad. Landscape includes palms to the southern and eastern 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 adjacent conference center. Some understory plantings would work well in softening this edge.

Housing and Recreation: Landscape treatments and site furnishings for Bay Vista Housing are insufficient, a contributing factor to the perceived lack of a quality of life that fosters a desire to reside on campus. 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.

Marine Biology Laboratory: An unattractive area on campus is the landscape associated with the Marine Biology Laboratory. While the facility is a research focused, remedial landscaping for these facilities should, at a minimum, ensure an established turf and basic vegetative screening along with a well delineated parking areas and associated planting edge treatments.

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 a background of invasive Australian Pines with 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 16.16 – Campus Plaza at Academic Two



Photograph 16.17 – 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. The majority 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. A number of the 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 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 Athletic / 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, Seagrape 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" located between Panther 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 Engineering & Computer Sciences building, Vierta Haus, Owa Ehan and the Green Library includes a palm collection established in the early 1990's. The Natural Preserve and Hennington Island offer varying natural landscapes used for teaching and research. The Wertheim Conservatory is home to a collection of over 400 rain forest plant species.



Photograph 16.18 – Palm collection adjacent to Green Library



Photograph 16.19 – 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 allee of Royal Palms that border the entrance roadway.

e) An inventory of the existing types of outdoor furnishings and graphics 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. Recently installed bicycle facilities include slotted concrete bike racks and steel 'ribbon' style racks as well as single bike loops.
- **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 a canvas umbrella for the table. This varies across campus. type of site furniture is a gray, composite wood picnic table and two benches with red trim edge of table and benches.

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 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 tan 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 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.
- **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 Presidential 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.
- 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 Signs: 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 alleys 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.



Photograph 16.20 – Avenue of the Students at the Education Building



Photograph 16.21 – Avenue of the Sciences south of Founder's Court

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 creates an amenity unmatched in the region. Funding will be an issues, 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 dead zones 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.



Photograph 16.22 – Walkway between Kovens Center and Academic Buildings



Photograph 16.23 – Walkway between Library and Bay Vista Housing

- 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.

The majority of 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.

The majority of 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.

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.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) requires adherence to guidelines to ensure buildings, facilities and vehicles are accessible to individuals with disabilities. The ADA guidelines set forth standards for architecture, design, transportation and communication. The University adheres to the guidelines outlined in the ADA Accessibility Requirements Manual, issued by the Department of Community Affairs Florida Board of Building Codes and Standards. The University also adheres to the standards developed through an ADA Facilities Compliance Workbook developed May 30, 1994, commissioned by the State of Florida Board of Regents.

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 last 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 in order 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. Because Modesto A. Maidique is located on uplands at the western developed fringe of Dade County, it is not considered vulnerable to storm surge. In fact, due to its relatively protected location, the largest campus building serves as a shelter for evacuees for hurricanes with intensities up to and including Category 5.

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 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 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 the 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 after Monroe County Emergency Management or the American Red Cross contacts FIU Public 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.

Shoreline accretion and/or erosion trends: 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 for university 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 Section 18 (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.