

Florida International University

MASTER PLAN

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Technical Analysis



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1.0 ACADEMIC MISSION OF THE UNIVERSITY ELEMENT

Florida International University has been a part of the State University System of Florida since 1965. When the University opened for classes in 1972, 6,000 students enrolled in upper division undergraduate and graduate programs. 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 University has developed into a "comprehensive, multi-campus urban research institution, committed to providing both excellence and access to all qualified students trying to pursue higher education." Currently there are over 25,000 students enrolled at FIU dispersed throughout the main University Park, a branch campus in North Miami, two instructional centers in Broward County as well as a wide range of continuing education programs that are held throughout the community. The North Miami Campus is classified as a branch facility, though it focuses primarily on upper division and graduate courses. The Broward campuses share facilities with Broward Community College and Florida Atlantic University. As these host centers expand their programs, it is the present understanding that after 1993, FIU will only offer non-duplicated programs at the Broward centers.

FIU now offers over 200 baccalaureate, master's and doctoral degree programs. 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 is a reflection of the University's mission statement.

The Mission Statement of Florida International University

Florida International University (FIU) is an urban, multicampus, doctoral-granting institution located in Miami, Florida's largest population center, with campuses at University Park and North Miami, selected programs offered in Davie and Fort Lauderdale, and off-campus continuing education programs. The mission of this state University is to serve the people of Southeast Florida, the state, the nation and the international community by imparting knowledge through excellent teaching, creating new knowledge through research, and fostering creativity and its expression.

Chartered by Florida Legislature in 1965, the University opened its doors in 1972 to the largest entering class in United States collegiate history. With strong undergraduate programs centered around a rigorous liberal arts core curriculum, FIU now offers more than 200 baccalaureate, master's and doctoral degree programs through its many Colleges and Schools: Arts and Sciences, Business Administration, Education, Engineering and Design, Health, Hospitality Management, Journalism and Mass Communication, Nursing, and Public Affairs and Services. The University's increasingly prominent art museum, its libraries, and specialized centers and institutes enhance these programs. The University continues to balance its programs for full- and part-time degree-seeking students and to address the special needs of lifelong learners,

1.0 ACADEMIC MISSION OF THE UNIVERSITY ELEMENT

traditionally and through distance learning. Campus life fosters a sense of community which provides for the intellectual, aesthetic, social, emotional, physical and moral development of students while providing opportunities for leadership training, awareness of cultural diversity, and a sensitivity to social issues and concerns.

Southeast Florida and FIU are alike in their explosive growth, rich ethnic and cultural diversity, and quest for excellence. FIU is a leading institution in one of the most dynamic, artistically expressive, and cosmopolitan cities in the United States, the gateway for Latin America and the Caribbean. The continued globalization of the world's economic, social and political systems adds to the importance of FIU's mission, and combines with our subtropical environment, and our strategic location to strengthen Southeast Florida's role as an information and transportation center.

From this unique setting we have derived four key strategic themes that guide the University's development: **International, Environmental, Urban, and Transportation and Information Systems**. We focus on these themes with a commitment to quality management and cultural diversity. To summarize the University priorities: first, to graduate a well educated, ethnically diverse student body by continuing to enhance our teaching and by broadening our graduate and professional programs; second, to promote research and creative activities by nurturing strategically selected disciplines which contribute to the social, artistic, cultural, economic, environmental and technological foundations for the 21st century; third, to solve critical health, social, educational, and environmental problems through applied research and service. These strategic themes and priorities guide our pursuit of recognition as one of America's top 25 urban public research universities by the end of this century.

University Mission Review and Modification

The mission of the University is reviewed every year following the "Florida International University Internal Planning Process" (Figure 1.1). As with other state universities, modifications of the University mission can be made very five years, following the process established by the Florida Board of Regents for the five-year planning process. After meetings and public review presentations of the BOR planning committee, modifications are approved by the Florida Board of Regents.

The University mission, approved by the Board of Regents in September 1993 was modified from the previous edition primarily by reflecting the pursuit of becoming a research university and by incorporating the strategic themes of "international," "Urban", "environment" and "transportation and information systems." Changes were made to update historical details, to reflect the current organizational structure, and to clarify the environmental setting.

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University Strategic Themes

Located in South Florida, FIU has the distinct advantage to be located in a truly international city, the gateway to Latin America and the Caribbean and a center for international trade and culture. It is because of this unique setting that four themes have been derived and have recently been added to the University Mission Statement. These themes are intended to guide the University's development and prioritize the needed infrastructure and organizational resources.

International Strategic Theme

This is currently the strongest of the four themes. Its focus is to promote international understanding through excellence in teaching, research and service by means of curriculum development, scholarship and policy-related and applied activities in the community and abroad.

Programs which could direct their emphasis into this theme are:

- Latin American and Caribbean Studies
- International Relations
- International Business
- Hospitality Management

Urban Strategic Theme

FIU is described in its mission statement as an "urban institution" with a mission to serve first of all, the people of Southeast Florida. As an urban university, FIU takes on the challenge of facing the problems of the immediate community by applying intellectual resources to those problems, through research, teaching and service that is relevant to an understanding of those problems.

Programs that are directly related to this urban theme are:

- Public Administration
- Education
- Sociology/Anthropology
- Landscape Architecture

Environmental Strategic Theme

This theme focuses on understanding the interrelationship and interactions of our natural and man-made environments which is necessary for their continued viability.

Programs that support the environmental theme are:

- Biological Sciences
- Environmental Studies
- Environmental Engineering
- Drinking Water Research

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- Mechanical Engineering
- Chemistry

Information and Transportation Systems Strategic Theme

The development of information and transportation systems in relation to our challenge and developing urban environments is the main challenge of this strategic theme.

The following programs support this theme:

- Journalism and Mass Communication
- Computer Science
- Intermodal Transportation

University Goals

One of the main goals of the University as described in the FIU report, Pursuing Research University Status of June 21, 1990, is to emerge as an internationally recognized research institution. The development of such research programs depends largely on outside funding and supplemental grants. In order to receive this funding, the "University must give priority to those disciplines which attract or have the potential to attract substantial federal grants." Most federal funding goes to engineering and science related studies, which are areas that should be investigated further for growth potential.

Future development of FIU is dependent on a clear vision of the future based on the priorities set by FIU in the May 13, 1994 report: FIU in the year 2001: Opportunities and Challenges. These priorities are:

1. To produce a well educated, ethnically diverse graduate body by continuing to enhance undergraduate teaching and by broadening graduate and professional programs.
2. To promote research and creative activities which contribute to the social, artistic, cultural, economic, environmental and technological foundations of the 21st century.
3. To solve critical social, educational, environmental, health and transportation problems through applied research and service.
4. To be recognized as one of the nation's top 25 urban public research universities by the year 2001 while maintaining the highest quality of undergraduate programs.

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In addition to these goals, various Academic goals have been set in the FIU 1992-1993 Academic Affairs Goals Statement dated March 3, 1993, which we can apply to the campus plan and are referenced throughout this analysis.

It is a combination of the University Mission, its goals and guiding strategic themes that help to define a vision for the future of FIU. This vision will, in turn, help focus and drive future campus activities in fulfilling its mission.

FIU's Role for the State University System

FIU's rapid increases in student enrollments and academic programs is evidence that FIU fulfills its role to become a major public university serving the diverse urban community of South Florida, as presented in the 1985 "Plan For a Comprehensive University Presence in Southeast Florida." This plan expanded the mission and scope of both FAU and FIU to allow person 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.

2.0 ACADEMIC PROGRAM ELEMENT

Florida International University provides a vast and rapidly expanding array of educational opportunities for the 22,387 students currently enrolled in FIU academic degree programs. The majority of these students take classes at University Park, 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.

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 1993

	Undergraduate	Graduate	Special	Total
University Wide	16,889	3,395	3,558	23,842 (1)
University Park	13,844	2,472	2,370	18,691
North Miami	4,304	808	943	6,055
Brow. Campuses	732	380	281	1,393
Other (2)	414	209	189	812

Source: FIU office of planning and Institutional Research 11/2/93
(1) Number represents non-duplicated total headcount for FIU.
(2) Off-campus and independent study students.

Fulltime Equivalent (FTE) Enrollment

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

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Table 2.2 Full Time Equivalent (FTE) Enrollment by Campus 1992-93

	Undergraduate	Graduate	Thesis	Total
University Wide	11597	2103	99	13799
University Park	8624	1265	81	9969
North Miami Campus	2386	434	12	2831
Broward Campuses	324	172	5	501
Other (1)	263	232	1	498

Note: (1) Off-campus and independent study students.

Source: FIU Office of Planning and Institutional Research 07-01-93

Student Enrollment by College

The University is made up of five academic colleges and four schools. Of these, the college of Arts and Sciences, Business Administration and Education have the highest full time and part time enrollment. Because FIU is a liberal arts based university, all students will participate in courses within the College of Arts and Sciences regardless of the campus in which they are enrolled. Similarly, many courses in the College of Business Administration and Education are duplicated at each campus. The schools of Hospitality Management, Nursing, and Public Affairs and Services, Journalism and Communications conduct the majority of their concentration courses at the North Miami Campus and those courses within the college of Engineering and Design and Health are conducted primarily at the University Park.

Table 2.3 presents the student headcount enrollment by college. In addition to the students associated with a college, there are "others" include advising (freshmen who have not declared a major), certificate, special and participants in the national student exchange. These "other" students make up approximately 36% of the total University headcount.

The SUS Master Plan Guideline requires this breakdown of enrollment by campus as well. This breakdown however would be exaggerated due to the fact that so many students take courses at more than one campus. Table 2.3 does however indicate where each college offers the majority of its courses.

2.0 ACADEMIC PROGRAM ELEMENT

Table 2.3 University Student Headcount Enrollment by College Fall 1993

	Fulltime	Parttime	Total
Arts and Sciences (D)	1,856	2,354	4,210
Business Admin. (D)	1,455	2,299	3,754
Education (D)	996	1,232	2,228
Engin. & Design (UP)	552	636	1,188
Health (UP)	405	222	627
Hospitality Mgmt.(NM)	581	231	812
Journalism / Communication (UP)	239	261	500
Nursing (NM)	168	250	418
Pub. Affairs/Serv.(NM)	597	834	1,431
Other *	4,473	4,201	8,674
Total	11,322	12,520	23,842

Source: FIU Office of Planning and Institutional Research 11-02-93

D: Duplicated programs on each campus

UP: Majority of courses offered at University Park Campus

NM: Majority of courses offered at North Miami Campus

* Includes advising, special, university college, certificate and national student exchange students.
(Totals are unduplicated headcounts)

Academic Degree Programs

Within the University structure, there are close to 200 academic programs at the bachelor's, masters, and doctorate degree level which are designed to respond to the changing needs of the growing metropolitan areas of South Florida and beyond. In addition to these existing programs, FIU will be adding 5 new programs at the baccalaureate level, 15 at the masters level and 15 at the doctorate level by the year 1988. The majority of the new programs are planned for masters and doctorate degrees in the College of Arts and Sciences.

2.0 ACADEMIC PROGRAM ELEMENT

Table 2.4 Inventory and Projection of Degree Programs by College

Key: E-Existing U-Under BOR consideration for 1993-98 L-Long Range
D-Duplicated programs on each campus
UP-Majority of courses offered at University Park
NM-Majority of courses offered at North Miami Campus

College of Arts & Sciences (D)

	Baccalaureate	Masters	Doctorate
Art	E		
Art History	U		
Biology	E	E	E
Chemistry	E	E	U
Computer Science	E	E	E
Creative Writing		E	
Dance	E		
Economics	E	E	E
English	E	U	L
Environmental Studies	E	U	
French	E	L	
Geography	U		
Geology	E	E	U
German	E		
History	E	E	U
Humanities	E		
International Relations	E		E
International Studies		E	
Italian	E		
Lat. Am. / Caribbean Studies		U	
Liberal Studies	E		

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	Baccalaureate	Masters	Doctorate
Linguistics		E	N
Mathematics	E		
Mathematical Sciences	E	E	
Music	E	L	
Philosophy	E	L	
Physics	E	E	L
Political Science	E	U	U
Portuguese	E		
Psychology	E	E	E
Religious Studies	E	U	
Sociology		E	E
Sociology / Anthropology	E		
Spanish	E	E	U
Statistics	E	U	L
Theatre	E		
Urban Studies	U	U	
Visual Arts		L	
Woman's Studies	U		

College of Business Administration (D)

	Baccalaureate	Master	Doctorate
Accounting	E	E	
Business Administration	E	E	E
Finance	E	E	
Insurance & Risk Management	E		
Management Info. Systems	E		

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	Baccalaureate	Master	Doctorate
Marketing	E		
Personnel Management	E		
Real Estate	E		
International Business	E	E	
Taxation		E	
Transportation Management	E		

College of Education (D)

	Baccalaureate	Master	Doctorate
Adult Ed./Human Resource Dev.		E	E
Art Education	E	E	
Community College Teaching			E
Counselor Education		E	
Curriculum and Instruction			E
Curriculum Specialist		E	
Early Childhood Education		E	
Educational Leadership		E	E
Educational Leadership Spec.		E	
Elementary Education	E	E	
Emotional Disturbance	E	E	
English Education	E	E	
Exceptional Student Education			E
Foreign Language Teacher Ed.	E	E	
Health Education	E	E	
Home Economics Education	E	E	
Industrial & Vocational Ed.	E	E	

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	Baccalaureate	Master	Doctorate
International Development		E	
Mathematics Education	E	E	
Mental Retardation	E	E	
Music Education	E	E	
Parks and Recreation Mgmt.	E	E	
Physical Education	E	E	
Reading		E	
School Psychology Specialist		E	
Science Education	E	E	
Social Studies Education	E	E	
Special Learning Disabilities	E	E	
Urban Education		E	

College of Engineering and Design (UP)

	Baccalaureate	Master	Doctorate
Architectural Technology	E		
Chemical Engineering	U		
Civil Engineering	E	E	L
Computer Engineering	E	E	
Construction Management	E	E	
Electrical Engineering	E	E	E
Engineering Management		U	
Environmental Engineering		E	
Environmental & Urban Systems	E	E	
Industrial Engineering		E	L
Industrial & Systems Engineering	E		

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	Baccalaureate	Master	Doctorate
Interior Design	E		
Landscape Architecture		E	
Mechanical Engineering	E	E	U

College of Health (UP)

	Baccalaureate	Master	Doctorate
Dietetics & Nutrition	E	E	U
Health Information Mgmt.	E		
Medical Laboratory Sciences	E	E	
Occupational Therapy	E	E	
Physical Therapy	E	E	
Prosthetics & Orthotics		E	
Public Health		E	L

School of Hospitality Management (NM)

	Baccalaureate	Master	Doctorate
Hotel & Food Service Mgmt.	E	E	

School of Journalism and Mass Communication (UP)

	Baccalaureate	Master	Doctorate
Mass Communication		E	

School of Nursing (NM)

	Baccalaureate	Master	Doctorate
Nursing	E	E	

2.0 ACADEMIC PROGRAM ELEMENT

School of Public Affairs and Services (NM)

	Baccalaureate	Master	Doctorate
Criminal Justice	E	E	
Health Services Administration	E	E	
Public Administration	E	E	E
Public Policy		L	
Social Welfare			E
Social Work	E	E	E

Professional

Law School		L	
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Source: (1) Office of Planning and Institutional Research 11/5/93
(2) FIU Office of Facilities Management

Law School

The long range plan of the University indicates the addition of a law school to the academic program to support the needs of the increasing and ethnically diverse communities of the South Florida area. "The State University System recognizes the importance of its role in providing the means to achieve educational and employment goals to all citizens and reaffirms its long-standing commitment to equal education and employment opportunities."

The law school enrollment has been projected by the University and reflects a small percentage of the total University enrollment.

Projected Law School Enrollment

Year 1	100 students
Year 2	200 students
Year 3	300 students
Year 4	400 students

2.0 ACADEMIC PROGRAM ELEMENT

Funding

With exception of the creation of a law library and certain overhead expenses the resources for the creation of a law school would be included in the University funding plan. The University would be reallocating existing resources to fund law school enrollment

Location

The inclusion of a law school into the University's academic program is a major addition to FIU that warrants a significant location and careful planning. The law school is currently envisioned for the University Park campus.

In addition to these degree programs the following academic programs are under consideration as noted in the 1992-93 Academic Affairs Goals.

Other

- Professional Certificate in Industrial Relations and Labor Studies
- Human Service Magnet School with Dade County Public Schools
- Peace Corps School / Community Development Corps with Dade County Public Schools
- Certificate Program in Actuarial Studies
- Certificate Program in Public Policy and Citizenship
- Certificate in Jewish Education
- Certificate in Labor Studies
- Minor in Women's Studies
- Consider the consolidation of existing Education doctoral programs into a unified doctoral program by 1995.
- Broaden Ph.D in Psychology

Continuing Education Programs

In accordance with the University mission, FIU has committed its self to providing a quality education to the South Florida area by offering programs at locations both on and off campus. The division of Continuing Education aims to do this by providing "a broad range of academic credit and non-credit courses, degree and certificate programs, training, consultancy, workshops, seminars, institutes and conferences serving business, industry, public agencies, the professions and cultural interests to provide lifelong learning opportunities to individuals and constituent groups." Table 2.5 shows the distribution of Continuing Education students in terms of FTE rather than headcount enrollment due to the availability of information.

2.0 ACADEMIC PROGRAM ELEMENT

Table 2.5 Continuing Education 1992-93 FTE Enrollment

Academic Credit Courses	Undergraduate	Graduate
Arts/Sciences	181	13
Business	338	179
Education	73	211
Engineering	12	31
Health	13	03
Hospitality	0	00
Journalism	7	29
Nursing	15	00
Public Affairs	10	79
Total	649	545
OTHER PROGRAMS	Programs	Enrollment
1992-93 Non-Credit Programs	351	7,959
1992-93 Study Abroad - Credit and Non-Credit	7	257

Source: FIU Division of Continuing Education 8/20/93

Facility and Staff Distribution

FIU employs approximately 4,000 persons of various status throughout its many educational sites. Employees are classified as either fulltime (40 hours per week), parttime (fewer than 40 hours per week) or temporary. While full and parttime employees work for a period of nine or twelve months, temporary employees have a more limited employment at FIU. These temporary employees are usually adjunct professors, graduate assistants, work study students and student assistants.

The University has stated in the Academic Affairs Goals for 1992-1993 that it plans to "seek to improve teaching, advising, research and service through an energetic program of faculty development by recruiting exceptional faculty members and improving the quality of academic instruction." Tables 2.6 and 2.7 show the distribution of faculty and staff through each campus. This is useful to understand the status, quantity, and location of employees at FIU.

2.0 ACADEMIC PROGRAM ELEMENT

Table 2.6 University Park Distribution of Full-time and Part-time Employees Fall 1992

	Full-time	Part-time	Temporary Staff	Total
President's Office	10	0	4	14
Academic Affairs	47	3	64	114
Arts & Sciences	325	6	278	609
Computer Science	25	1	33	59
Business Administration	101	2	59	162
Education	94	3	72	169
Engineering & Design	106	5	74	185
Health	48	5	17	70
Hospitality Management	0	0	0	0
Journalism / Mass	0	0	0	0
Nursing	0	0	0	0
Public Affairs & Services	0	0	0	0
Continuing Education	0	0	0	0
Graduate Studies	4	0	2	6
Undergraduate Studies	16	0	27	43
Library	60	7	78	145
Centers & Institutes	37	3	59	99
Budget & Support Svcs.	72	1	16	89
Business & Finance	247	1	56	304
Student Affairs	167	1	166	334
University Relations /	29	1	7	37
Auxiliaries	15	2	6	23
Contracts & Grants	76	7	269	350
College Work Study	0	0	164	164
Total	1,479	46	1,451	2,976

2.0 ACADEMIC PROGRAM ELEMENT

Table 2.7 North Miami Distribution of Full-time and Part-time Employees Fall 1992

	Full-time	Part-time	Temporary Staff	Total
President's Office	0	0	0	0
Academic Affairs	9	0	24	33
Arts & Sciences	52	3	58	113
Computer Science	1	0	0	1
Business Administration	15	0	4	19
Education	7	0	4	11
Engineering & Design	0	0	0	0
Health	8	0	10	18
Hospitality Management	37	2	4	43
Journalism/Communication	22	0	17	39
Nursing	20	0	9	29
Public Affairs & Services	59	2	52	113
Continuing Education	14	0	41	55
Graduate Studies	0	0	0	0
Undergraduate Studies	5	0	1	6
Library	22	1	25	48
Centers & Institutes	8	0	6	14
Budget & Support Svcs.	4	0	2	6
Business & Finance	70	0	16	86
Student Affairs	44	3	61	105
University Relations	0	0	0	0
Auxiliaries	2	0	0	2
Contracts & Grants	40	1	51	92
College Work Study	0	0	58	58
Total	439	12	440	891

Source: FIU Office of Institutional Research, Distribution of Full-time and Part-time Employees 08-19-93.

2.0 ACADEMIC PROGRAM ELEMENT

Projected Distribution of Future FTE Enrollment

The distribution of student enrollment has been projected in both headcount and FTE for the year 5 and year 10. These projections indicate the expected growth of FIU focusing primarily on the University Park and North Miami Campuses. Table 2.8 indicates significant growth in each campus while North Miami Campus more than doubles its current enrollment by the end of the planning period.

Table 2.8 Projected Distribution of Projected FTE Enrollment

	1993-94	(5 Year) 1998-99	(10 Year) 2003-04
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University Park Campus

Lower	2,312	3,438	4,532
Upper	7,540	9,072	10,850
Graduate	1,705	2,070	2,448
Thesis	124	198	313
Total FTE	11,680	14,778	18,193

North Miami Campus

Lower	595	884	1,165
Upper	2,160	3,396	5,150
Graduate	458	733	1,124
Thesis	20	38	71
Total FTE	3,233	5,051	7,510

Source: FIU Office of Institutional Research 08-12-93.

2.0 ACADEMIC PROGRAM ELEMENT

Table 2.9 Projected Distribution of Projected Headcount

	Fall 1993	(5 Year) 1998-99	(10 Year) 2003-04
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University Park

Lower	4,673	5,307	6,333
Upper	9,176	12,442	14,848
Graduate	2,472	3,139	3,746
Special	2,370	3,200	3,819
Total	18,691	24,088	28,745

North Miami Campus

Lower	1,678	2,142	2,755
Upper	2,626	4,337	5,577
Graduate	809	1,145	1,473
Special	943	1,720	2,211
Total	6,055	9,344	12,016

Source: FIU Office of Institutional Research 11-02-93.

2.0 ACADEMIC PROGRAM ELEMENT

Projected Headcount Distribution by College

Using the existing distribution of students by college found in Table 2.3 and the projected headcount enrollment found in Table 2.10, the projected distribution by college has been made to show the magnitude of growth within the various areas of the University.

Table 2.10 Projected University Headcount Distribution by College

		1993-94	1998-99	2003-04
Arts and Sciences	18%	4,210	5,501	6,553
Business Administration	16%	3,754	4,905	5,843
Education	9%	2,228	2,911	3,468
Engineering & Design	5%	1,188	1,552	1,849
Health	3%	627	819	976
Hospitality Management	3%	812	1,061	1,264
Journalism	2%	500	653	778
Nursing	2%	418	546	651
Public Affairs/Service	6%	1,431	1,870	2,227
Other	36%	8,674	11,334	13,501
Total	100%	23,842	31,153	37,111

Source: FIU office of Institutional Research 11-02-93

3.0 URBAN DESIGN ELEMENT

Campus Development Sequence

University Park

The first increment of development at the University Park campus occurred in the period 1972-75, with the construction of five major buildings: Primera Casa, Deuxieme Maison, Viertes Haus, the Athenaeum and Ernest R. Graham University Center. These structures were grouped in the south-central section of the overall campus property and formed a compact campus core with a central pedestrian courtyard located between Primera Casa and the Athenaeum.

The construction of Viertes Haus to the north of the Athenaeum established a northerly direction for future growth. The construction of Owa Ehan in the period 1976-85, followed by the construction of the Chemistry and Physics building and Engineering and Computer Science building 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 the Golden Panther Arena, located in the west central part of the campus, away from the then - existing academic buildings.

In 1992 the Business Administration building was completed. Located between the previously constructed academic buildings to the east, and the Golden Panther Arena to the west, this structure occupies the southern end of the newly - constructed formal automobile entrance from S.W. 8th Street. This entrance establishes a new organizing element for the campus, apart from the "quadrangles" and courtyards established in earlier development. The Education building currently in design will further define the space along the new entry mall.

On the eastern side of the campus the Health and Life Science building and additional student housing are committed for construction and will provide a new organizing element for campus expansion toward the northeast.

North Miami Campus

Because of its smaller academic program, the North Miami Campus retains a more compact physical form than University Park. Development of the campus began in the late 1970's with construction of the Student Center, the Academic I and Academic II buildings. The Hospitality Management building 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 University Park campus, in which buildings were organized around a central circulation courtyard, the first buildings at the North Miami Campus were organized around an internal circulation linkage concept. Consequently the Student Center,

3.0 URBAN DESIGN ELEMENT

Academic I, and Academic II 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 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 with them by a two-level pedestrian walkway.

The one new building currently committed for construction at North Campus is the conference center. This building is planned to be located well to the south of the other existing structures, in conformance with the previously prepared Master Plan. This remote location allows room for future expansion of academic facilities between the conference center and Academic II.

Activity Framework

University Park

The activity "center" of the University Park campus includes three of the first group of buildings constructed on campus. Primera Casa is the focus of administration functions; the Athenaeum is the library and the Graham Center is the student activity center. The importance of the courtyard between these buildings as a pedestrian activity area is reflected in the location of building service areas at the outside edges of the structures facing this space. One consequence of this building orientation is that the service areas for Primera Casa and the Graham Center face out toward the campus loop road.

North Miami Campus

The Library, Student Activity Center and Academic I buildings are the major focus of activity at this campus. As at the University Park campus, the building service areas are located on the sides of the buildings facing the campus entry road. However, the service area for the Student Center and Academic I buildings is a completely enclosed area screened from view by the central utility plant.

Also of interest at this campus is the location of the aquatic center. Placed adjacent to the Student Center and Hospitality Management Building, this facility faces the waterfront and provides views out across the bay from the pool deck. It is however separated from the other athletic courts on campus.

3.0 URBAN DESIGN ELEMENT

Pedestrian Movement Framework

University Park

The diagram of pedestrian movement facilities illustrates the existing and committed pedestrian walkways on-campus. The diagram also includes exterior walkways on the ground floor levels of existing structures. The concentration of pedestrian activity between the Graham Center, Athenaeum and Primera Casa is clearly reflected by the amount of paved pedestrian walkways in the south - central portion of the campus. Pedestrian linkages to other parts of the campus are also evident in the diagram. East - West movement is organized along 2 main walkways which are continuous from one side of the central campus to the other. The southern of these two links passes directly through the Athenaeum. Also clearly evident is the diagonal walkway planned to link the central academic area with the student housing to be built at the northeast corner of the campus.

Of interest within the central campus is that the pedestrian circulation pattern changes between the north and south portions of the core. The southern portion - between the Athenaeum and Primera Casa, is characterized by pedestrian movement facilities and patterns that extend through the space. The northern portion - between the Athenaeum and the Engineering and Computer Science Building is characterized by pedestrian movement facilities that are organized around the perimeter of the space. In this part of the campus pedestrian movement is accommodated within the buildings or in covered outdoor walkways such as in Owa Ehan.

Another feature of the pedestrian movement system are the walkways linking parking to the central academic core. The two large parking lots on the south side of campus have separate pedestrian walkways connecting them directly with the main campus activity center (Athenaeum, Graham Center, Primera Casa). The parking lot on the northeast side of campus has similar, though not as strongly expressed connections to the academic core. The parking lot at the northwest corner of the campus has a continuous walkway connecting it to the north side of the academic core. However, connections from this lot to the library and Graham Center at the south side of the academic core are not yet fully developed.

The northwest parking lot and the lot located in the southwest part of the campus are linked by a walkway which follows the campus loop road. Although not completely encircling the academic core, this sidewalk currently extends around the entire western end of the campus, and across the edge of the northeast parking lot.

3.0 URBAN DESIGN ELEMENT

North Miami Campus

Because of the compact form of development at the North Miami Campus, the major pedestrian activity is concentrated in a relatively small area as reflected in the Pedestrian Movement Framework diagram. One of the important distinguishing features of this campus is that the Student Center and two main academic buildings are closely linked by an interior pedestrian "street" which provides a continuous covered connection among these buildings. This interior "street" is reflected on the exterior by a continuous walkway extending along the south side of the buildings. This walkway, which incorporates generous paved areas, trees and pedestrian lighting faces the adjacent lake and Biscayne Bay in the distance.

Although the library is located approximately 300 feet from the student center, it is provided with a 2-level pedestrian walkway offering a protected link between those two buildings. The library is also linked by a ground-level covered walkway to the Hospitality Management Building. At present, the Hospitality Management building is not connected by covered walkway with the nearby Student Center.

Another distinctive feature of the North Miami Campus is the large paved entrance plazas located between the parking lots and the Academic I and II buildings. The large paved areas with 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 II for example has pedestrian walks along both sides 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.

Visual Framework

University Park

The perimeter of the University Park campus is characterized by several different conditions that exist outside the campus. On the west and northwest the Florida Turnpike and entrance/exist ramps at SW 8th Street create a definite functional and visual edge to the campus. On the north the campus is bounded by SW 8th Street, a 4/5 lane arterial street. Because the residential development along this street is set behind a canal running parallel to the road, this corridor has a much more open character than other urban arterial streets in the area: SW 107 avenue, which

3.0 URBAN DESIGN ELEMENT

is a six-lane divided arterial running along the east side of the campus is lined with commercial development creating a more urban character along this side of the campus.

Immediately south of the campus is Tamiami Park. Although the campus road running along this boundary establishes the current functional edge of the campus, there is not a strong spatial separation between the Park and University.

One of the significant features of the University Park Campus itself is the large land area that remains relatively open. Although much of this land is occupied by play fields and parking lots, these features do not, by themselves, contribute to the overall definition of campus spaces. As a result, the overall impression of the campus is of a central cluster of buildings surrounded by large open areas. In several locations these spaces are interrupted by large structures such as the Golden Panther Arena on the west side of campus or the cluster of student housing on the east. 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.

The peripheral open spaces around the academic core are also distinguished in several locations by distinctive landscape features. The lake, native tree canopy and landscaped berms along the entrance from SW 107 Avenue create a distinctive entry experience. On the north side of campus the recently completed formal entrance mall landscaping provides the framework for a dramatic entrance to the campus. However, because of the large scale of the space, it will be a number of years before the allees of oak trees on either side of the road reach the size necessary to create the intended enclosed open space.

While there are numerous pedestrian "entrances" to the central academic core, two of them are more clearly defined than the others. The pedestrian plaza located between the Graham Center and Primera Casa is the location of the on-campus bus stop and is the pedestrian entrance from the largest parking lot. This space is enclosed on two sides by Primera Casa and the Graham Center, and is characterized by large paved areas leading toward the central courtyard between Primera Casa and the Athenaeum.

On the west side of Primera Casa is a pedestrian entrance which provides access to the central courtyard from the second large parking lot on the south side of campus. This entrance is distinctive because it is characterized by its mature landscaping rather than by large paved areas.

In addition to the distinctive spaces and entrances to the campus there are several distinctive buildings that stand out from the others. These include the Golden Panther Arena, the Business Administration Building and the recently completed Greenhouse. The Golden Panther Arena is distinctive because it is set far from other campus buildings and because the glass exterior of the structure contrasts sharply with the concrete exterior that is predominant on other campus

3.0 URBAN DESIGN ELEMENT

buildings. The Business Administration Building is distinctive in part because of its axial location at the end of the new campus entry mall, and in part because of the glass enclosed

atrium which projects out from the main building facade. The greenhouse is an all-glass structure which contrasts with the concrete exterior of the adjacent Engineering and Computer Science Building.

Although these structures are not "landmarks" in a historical or legal sense, they do provide a sense of orientation as one moves around the campus.

North Miami Campus

A distinctive feature of the North Miami Campus is that it is bounded on three sides by undeveloped land and by Biscayne Bay on the remainder. This provides 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 University Park Campus which is bounded on all sides by urban conditions, the North Miami Campus has a distinct linear orientation that is the result of the Biscayne Bay waterfront on the east, and forested land on the west.

Although the bay provides a unique visual resource for the campus, the actual automobile entrance to the campus parking areas is set back from the Bayfront, and views of the water are screened by the placement of the buildings between the road and bayfront. Consequently, one is not fully aware of the extensive shoreline of the campus until having walked past, or through, the buildings and arriving at the open space that stretches along the waters' edge.

It is also of interest that the interior "street" that links the Student Center, Academic I and Academic II buildings runs perpendicular to the bay front rather than parallel to the waters' edge.

As at the University Park campus development on the North Miami campus is concentrated in a relatively compact area toward the northern end of the property. This combined with the orientation of the main academic buildings and the open quality of the landscape toward the southeast, provide long waterfront views to the southern end of the University property. From the campus waterfront one also has unobstructed views east to the Oleta River State Recreation Area and beyond to North Miami Beach.

Like the University Park campus, North Miami has two lakes on the campus which are distinctive visual features. The lake located south of the academic buildings is significant because it visually extends the waters' edge from the bayfront into the central portion of the site.

3.0 URBAN DESIGN ELEMENT

Context Area Visual Character

University Park

The University Park campus context area is a completely urbanized, developed area. Development consists primarily of single and multi family residential uses along with strips of 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.

The perception of the area can to a large extent be described in terms of the character of development along the major roadways. Southwest 8th Street, SW 107th Avenue and SW 24th Street are the major through-streets in the context area. While SW 8th Street and SW 24th Street are characterized primarily by residential development, SW 107th Avenue is characterized by commercial development along the east side of the campus.

North Miami Campus

Although the North Miami Campus is in a part of 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 in part the result of zoning in which portions of these lands are designated for parks and recreation use.

Although there are two entrance roads into the campus, only the northern road is currently in use. As a result, the automobile entrance to the campus actually exists at US 1 (Biscayne Boulevard) located approximately 3/4 mile west of the University buildings. U.S. 1 in this portion of the county is characterized by nearly continuous commercial development. Other portions of the context area are characterized primarily by single family residential development. Because these areas were originally developed many years ago, the residential areas are organized on the grid street system typical of older areas of the county. All development adjacent to the campus is low-rise in scale.

CAMPUS DEVELOPMENT NORTH MIAMI CAMPUS

1976-81
ACADEMIC ONE (1)
STUDENT CENTER (8)
HOSPITALITY MANAGEMENT (11)

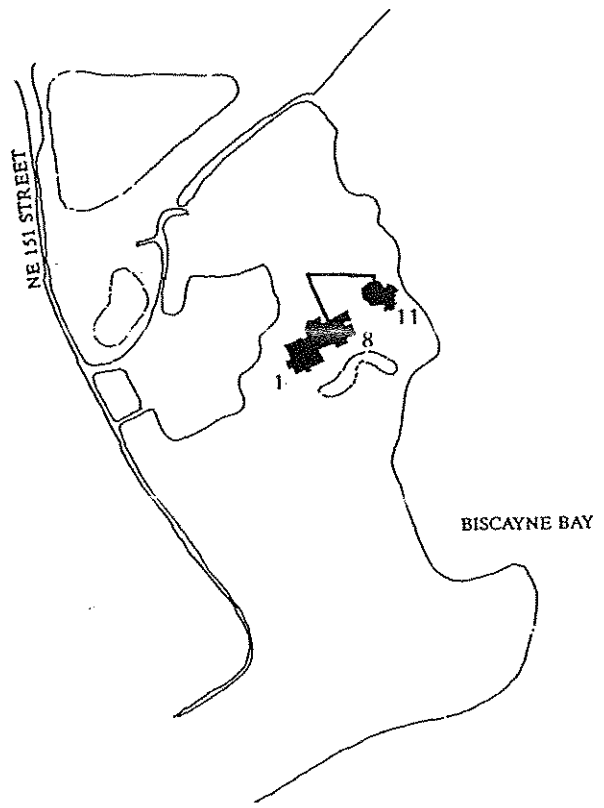
1982-93
ACADEMIC TWO (2)
LIBRARY (14)
STUDENT HOUSING (15)
SUPPORT SERVICES 24/25/26
AQUATIC CENTER (12)
OUTDOOR RECREATION
ANCILLARY FACILITIES

COMMITTED BUILDINGS
CONFERENCE CENTER
HEALTH CLINIC
STUDENT CENTER ADDITION

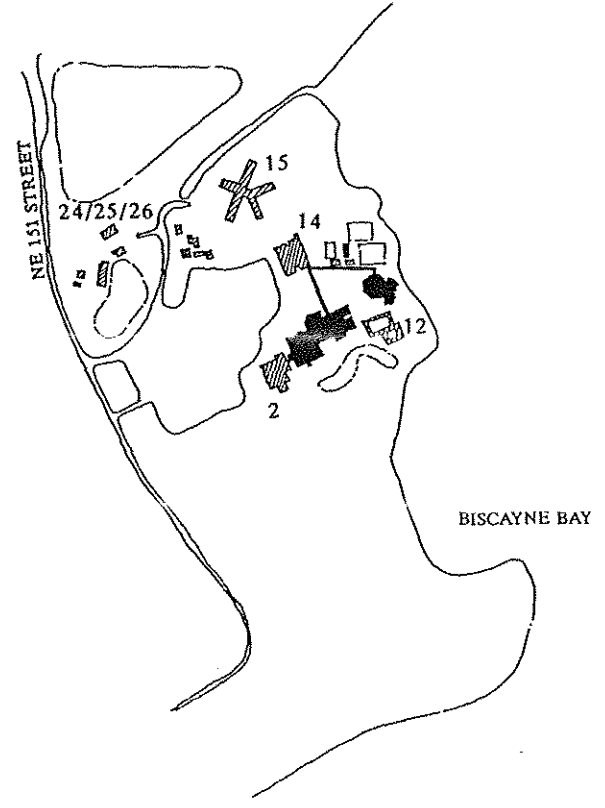
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DAVID FLEMMER & ASSOCIATES, INC.	CORAL GABLES, FL.
GRAY & GARY, INC.	MIAMI, FL.
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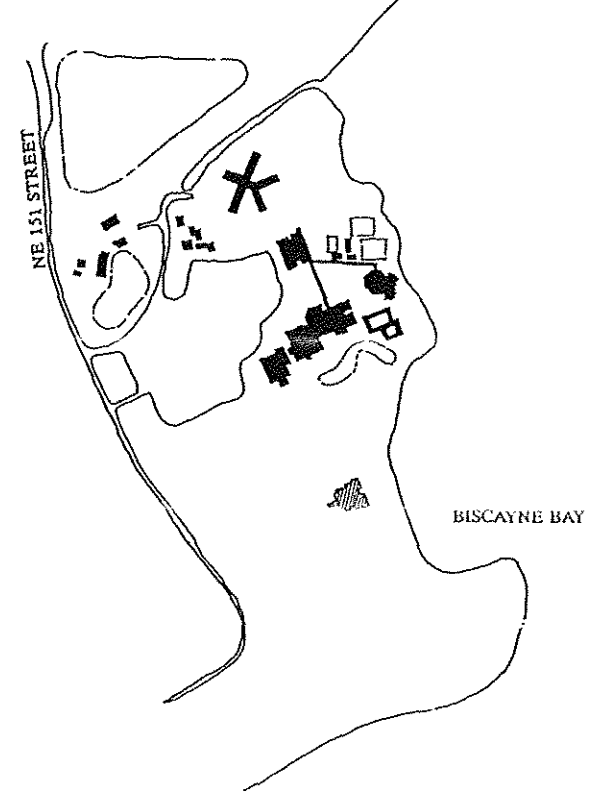
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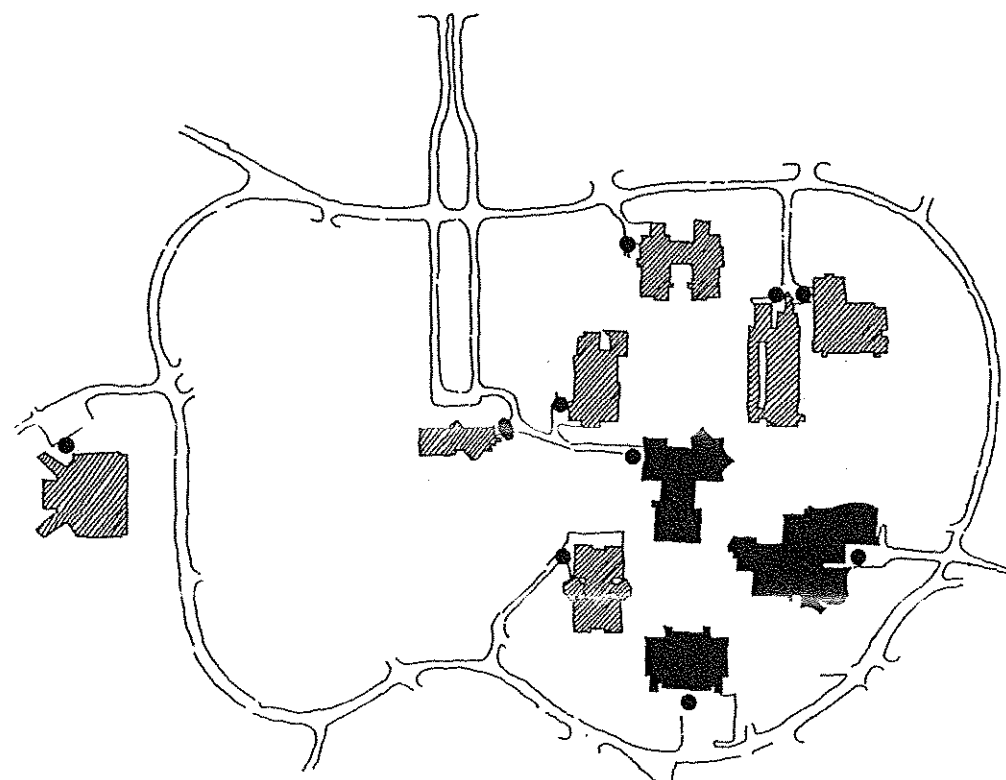
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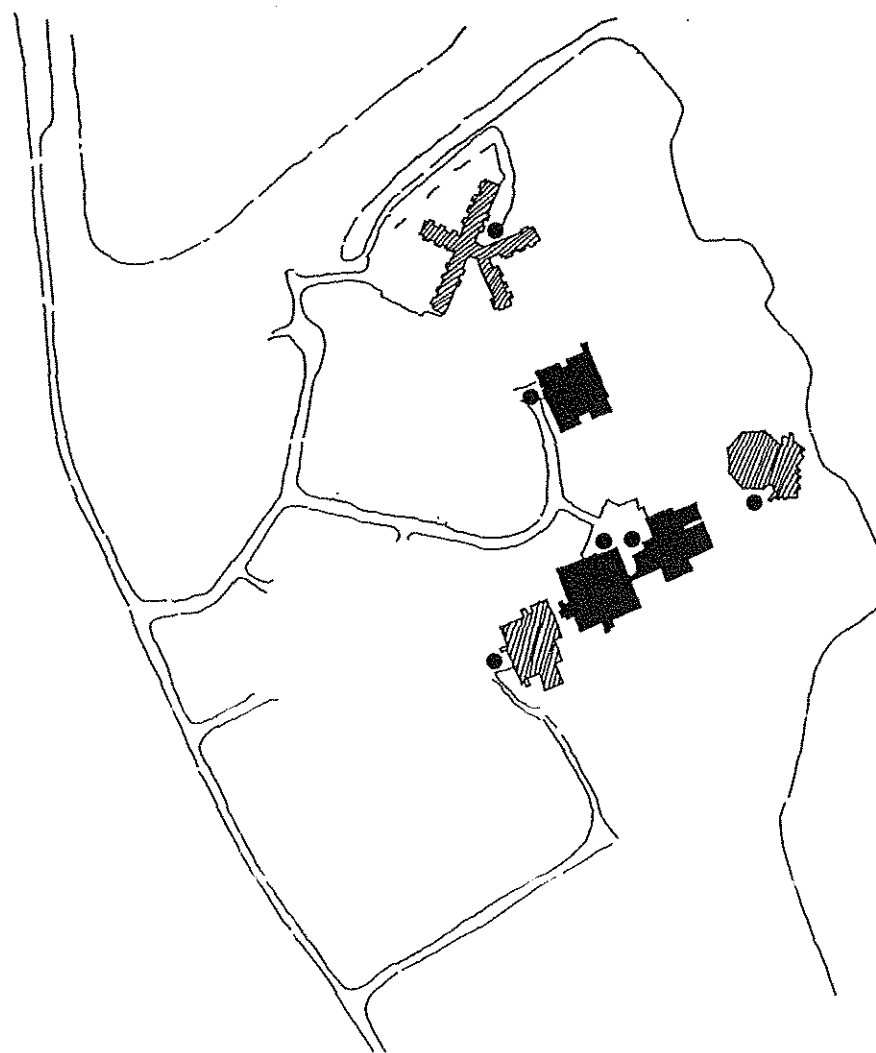
1982-93



COMMITTED BUILDINGS



UNIVERSITY PARK CAMPUS



NORTH MIAMI CAMPUS

ACTIVITY FRAMEWORK

 BUILDING SERVICE AREA

 MODERATE ACTIVITY AREA

UNIVERSITY PARK CAMPUS
 VIERTES HAUS
 OWA EHAN
 DEUXIEME MAISON
 ENGINEERING & COMP.
 BUSINESS ADMIN.
 CHEMISTRY & PHYSICS
 GOLDEN PANTHER ARENA

NORTH MIAMI CAMPUS
 ACADEMIC II
 HOSPITALITY MGMT.
 STUDENT HOUSING

 HIGH ACTIVITY AREA

UNIVERSITY PARK CAMPUS
 ATHIENEUM
 GRAHAM CENTER
 PRIMER CASA

NORTH MIAMI CAMPUS
 ACADEMIC I
 LIBRARY
 STUDENT CENTER

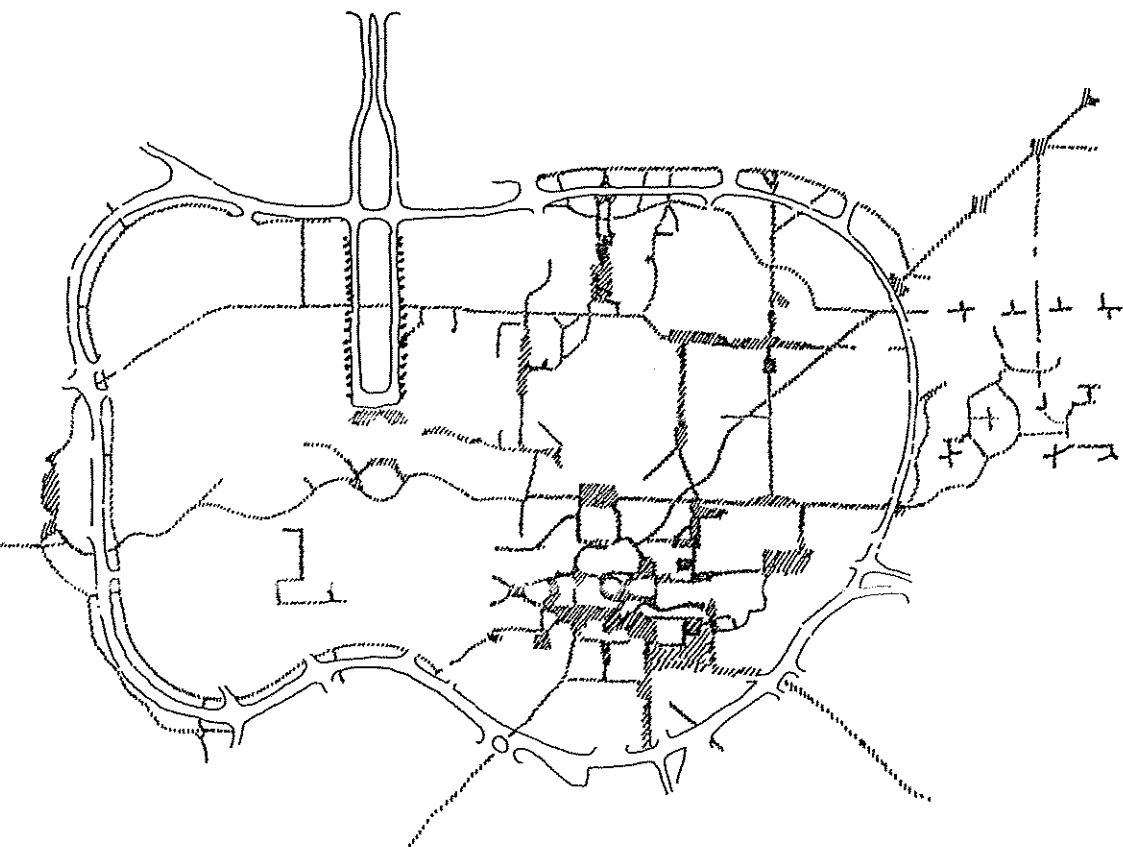
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UNIVERSITY PARK CAMPUS



NORTH MIAMI CAMPUS

PEDESTRIAN MOVEMENT FRAMEWORK

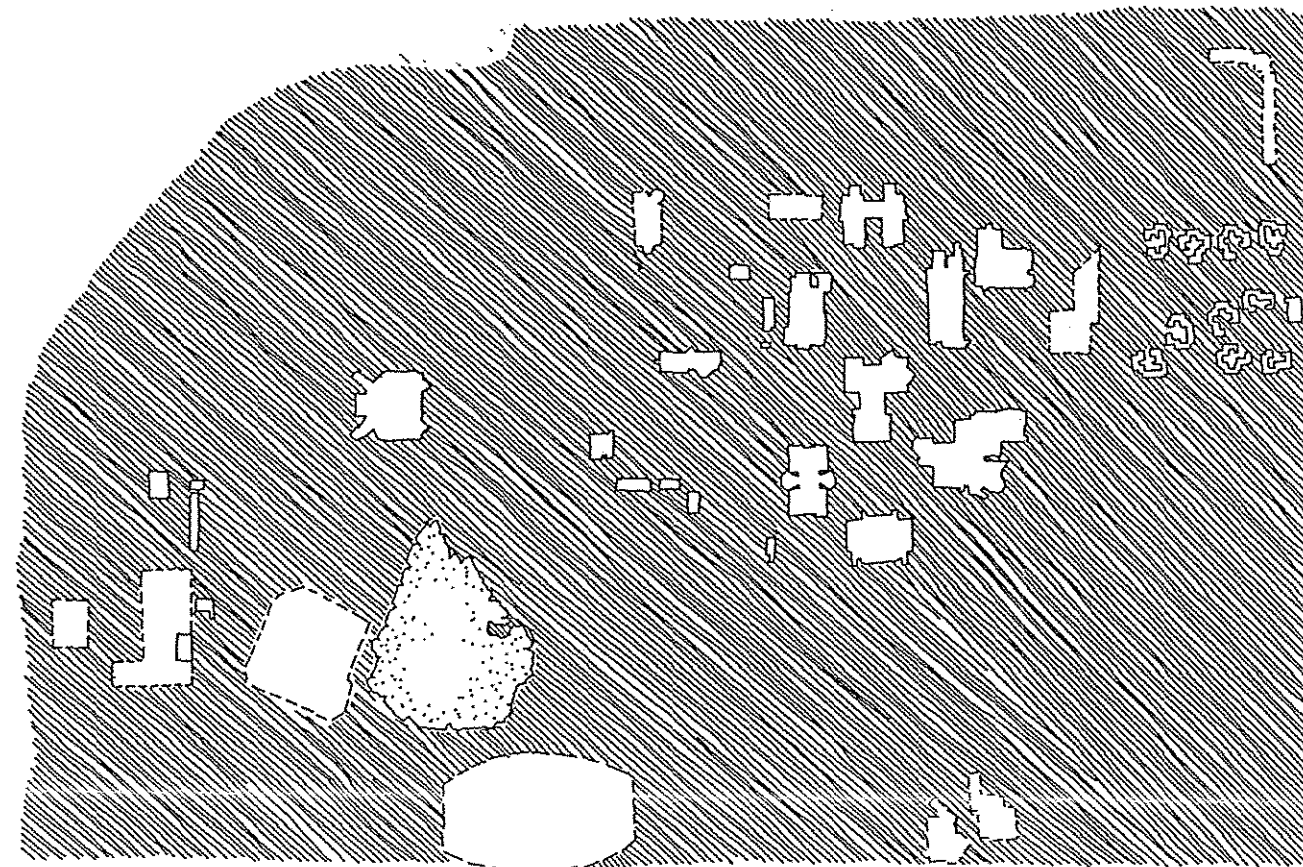
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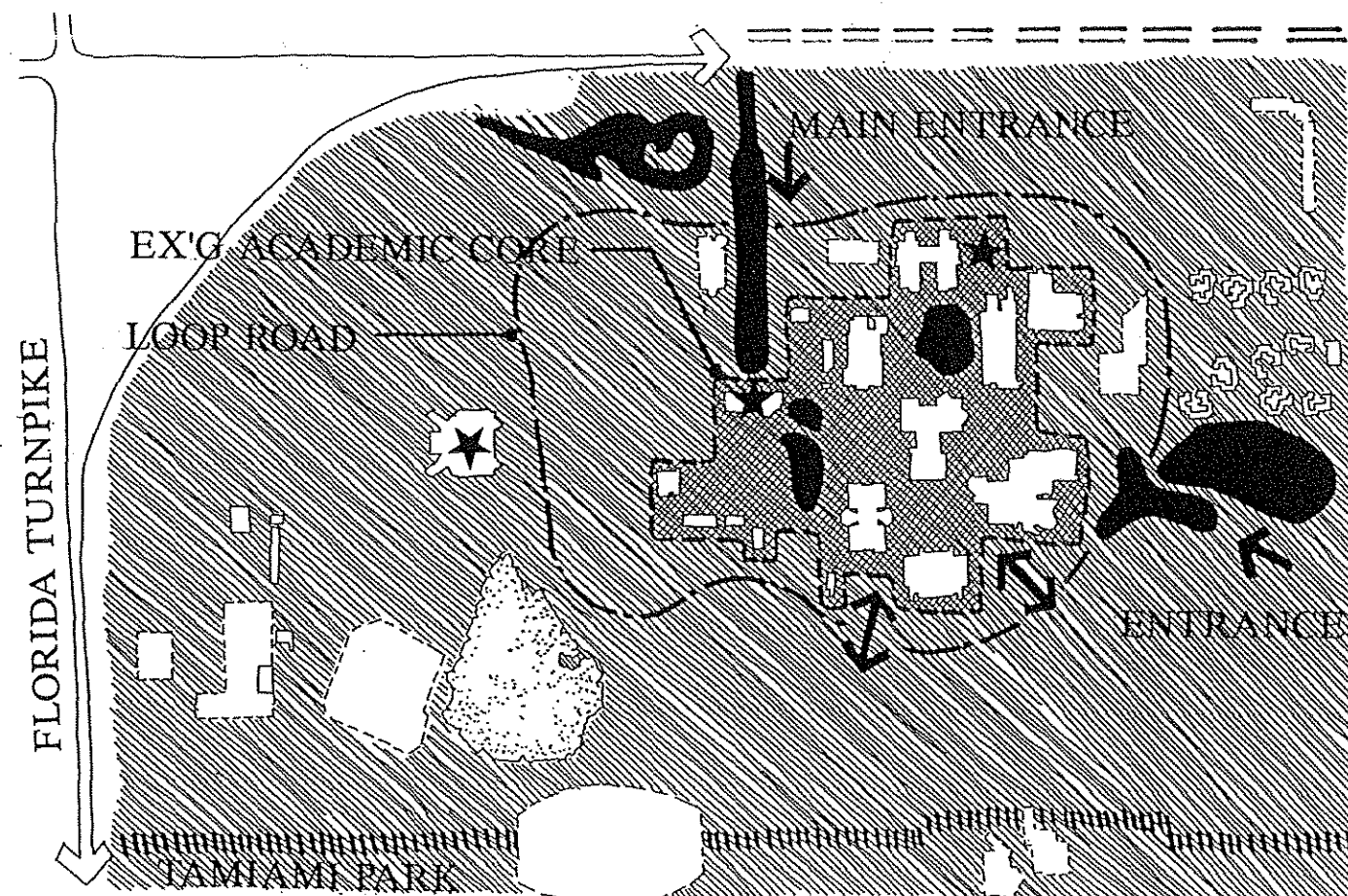
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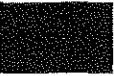

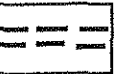



EXISTING
PATTERN OF
BUILDINGS
& SPACES



VISUAL
FRAMEWORK

VISUAL FRAMEWORK UNIVERSITY PARK

-  ENTRY POINTS
-  VISUAL FEATURES
-  FIU/TAMIAMI PARK LIMITS
-  HEAVY TRAFFIC/ NOISE
-  DISTINCTIVE BUILDINGS

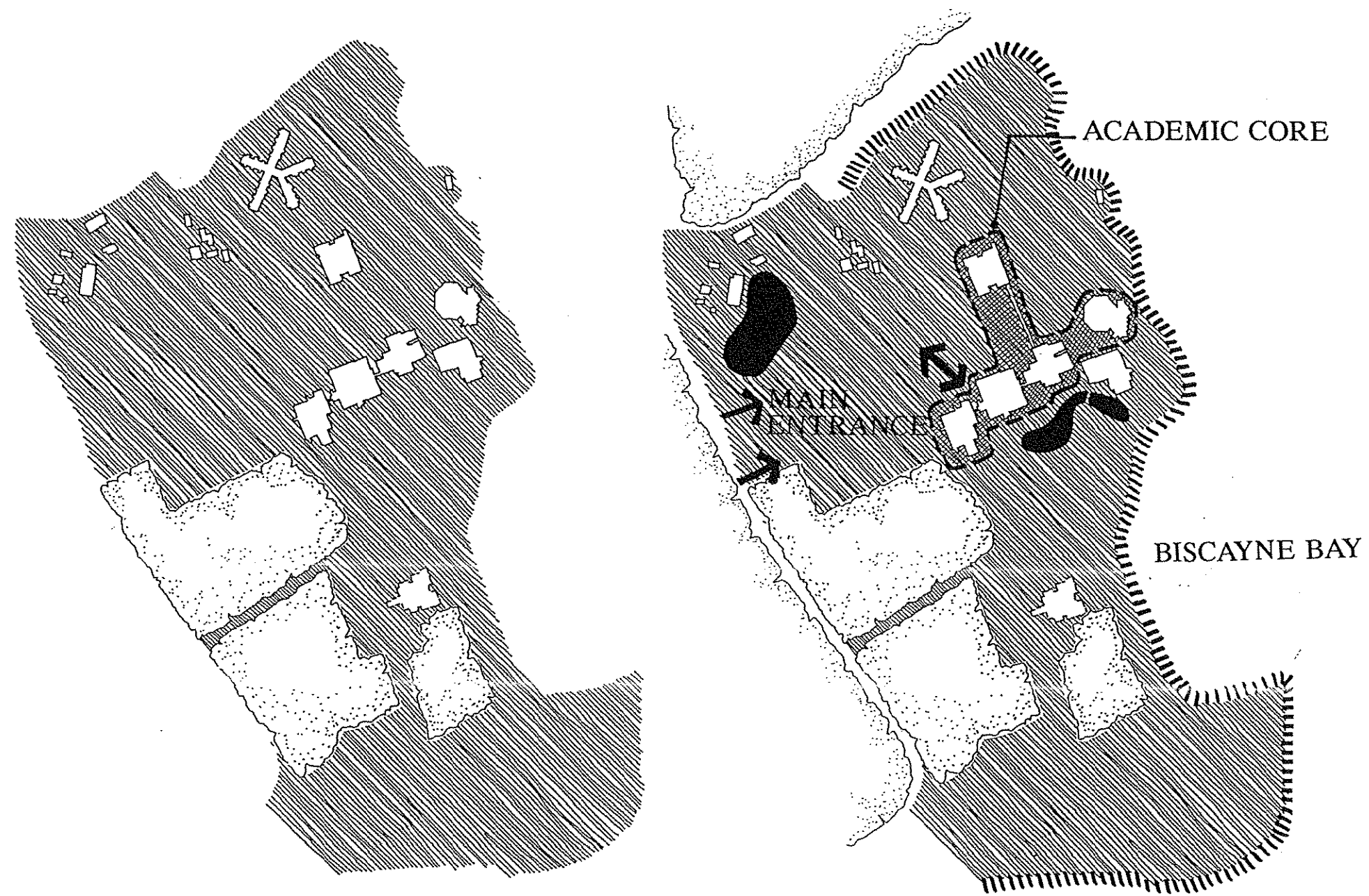
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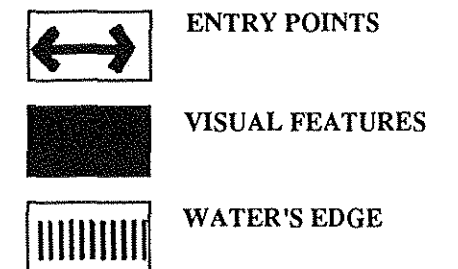




EXISTING PATTERNS OF BUILDINGS & SPACES

VISUAL FRAMEWORK

VISUAL FRAMEWORK NORTH MIAMI CAMPUS



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DATE:



4.0 FUTURE LAND USE ELEMENT

4.1 Overview: Location and Jurisdictions

The two principal campuses of Florida International University lie within Metro-Dade County. The largest campus, University Park, lies in the west central section of the County at the southeast quadrant of the intersection of the Homestead Extension of Florida's Turnpike (S.R. 821) and Tamiami Trail (U.S. 41). This campus is now virtually surrounded by the sprawling suburban development pattern of west Dade County, characterized by low density single family residential development in a rectilinear grid, with strip commercial and multifamily homes and apartments lining major arterial roads. Due to the highly "committed" and built-out development patterns to the east, north and west these are considered "hard" edges to the campus. Similarly the Florida Turnpike to the west and the Tamiami Trail / Tamiami canal corridor to the north act as major barriers, restricting direct vehicular access and minimizing visual or other land use conflicts along these edges. However, due to the fact that University Park shares the former Tamiami Airport site with Tamiami Park and the Dade County Youth Fair, the southern boundary of the campus is considered a "soft" edge, where a certain flexibility may exist concerning future opportunities for shared uses and, perhaps for expanded FIU activity.

The North Miami Campus, formerly considered a "branch" campus due to its smaller size and more limited course offering is located within the city of North Miami in northeast Dade County. The site is strategically located on a 200 acre parcel on Biscayne Bay formerly designated for an international trade and exposition center (INTERAMA) in the 1950's and 1960's. Located to the southeast of the intersection of U.S. 1 (Federal Highway) and State Road 826 (Sunny Isles Boulevard) the campus is surrounded by open space and public facilities, namely Oleta River State Recreation Area and the "Munisport" site owned by the City of North Miami.

4.2 Campus History

University Park

During World War II Dade County purchased a 640 acre parcel located some 11 miles west of the Miami city limits for the development of an airport intended for student instruction and general (non-commercial carrier) aviation. Built with three runways in 1947, by 1958 there were 1100 to 1300 flight operations per day, requiring the placement of a control tower, relocated from Miami International 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 its re-creation as New Tamiami Airport in Southwest Dade County. After closure 340 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 Dade County Youth Fair.

4.0 FUTURE LAND USE ELEMENT

North Miami Campus

It is interesting to note that the site of the North Miami Campus was also part of a scheme to build an airport during World War II. In 1945 the 1707 acre Graves Tract was purchased for the construction of a major metropolitan airport. However 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 a legacy of financial and political miscues and misdeeds doomed the project. The only remnant of the project, other than hundreds of acres of filled bayfront wetlands is the original Trade Center building which is now Hospitality Management at the North Miami Campus. The property was divided between the City of North 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 Bay Vista Campus and development proceeded rapidly over the next 18 years. In 1986 the State of Florida opened the Oleta River State Recreation Area, just east of the campus, a facility which is now one of the State's most important urban waterfront parks.

While the development of the FIU North Miami Campus and Oleta River State Recreation Area met with success, the City of North Miami experience with their portion of the site continued the problematic legacy of Interama. In 1972 the City of North Miami hired Munisport, Inc. to operate a profit-making sanitary landfill as a means to create the land and the funding necessary to support a multi-use recreation complex of golf courses, tennis, Olympic pools and related facilities. During the period 1972 through 1981 the Munisport landfill received several million tons of solid waste including domestic garbage, refuse, construction debris and some evidence of medical wastes. During the period of operation environmental regulations on landfills stiffened and conflicts arose between state and federal agencies over whether the landfill had sufficient operating permits. Subsequently leachates were discovered and due to suspected contamination of groundwater and Biscayne Bay, operations were halted in 1981. The failure of Munisport Inc., left the City of North Miami with a major alleged liability for EPA-ordered environmental cleanup. Later in 1983 the EPA named the landfill to its national priorities (Superfund) list. By 1987 the EPA concluded that proper landfill closure procedures and regulations had not been followed. In 1993 the environmental cleanup of the site has not been completed, nor has the ultimate use of the City of North Miami site been determined.

4.0 FUTURE LAND USE ELEMENT

4.3 Context Area Land Uses

University Park

As depicted on Figure 4.1, the principal land use type in the approximate one mile radius context area surrounding the campus is 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 arterials in the vicinity; Tamiami Trail to the north, S.W. 107 Avenue to the east and Coral Way (S.W. 24 Street) and Bird Road (S.W. 40 Street) to the south.

North Miami Campus

As depicted in Figure 4.2, the principal land use type in the context area immediately surrounding the North Miami campus 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 the Biscayne Bay shoreline. In addition, substantial public facilities exist nearby including a North Miami sewage treatment plant and the Munisport landfill area, currently closed and cited as an EPA national priority site for environmental cleanup. Beyond this 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, lies a major regional activity generator, Haulover Park and Marina, as well as the Sunny Isles hotel / motel corridor lining the beachfront.

4.4 Socioeconomic Characteristics

With a total population of some 1,986,000 persons in 1992, Dade County remains Florida's most populous county with more than 14% of the total state population. Over the past decade population growth has remained high in part due to the continued, but unpredictable, influx of immigrants from Cuba, Haiti and various countries in Central America. In fact immigration remains the principal component of population growth, counterbalancing an "out-migration" trend which began in the early 1980's.

Second in importance to the disproportionate immigration growth component and an ever-increasing ethnic diversity, is the age and fertility factor. Since the 1970's the birthrate has dramatically increased at an annual rate of 45 births per thousand. This is, in part, due to the substantial increase in the 18-34 age category, which again reflects high immigration rates for

4.0 FUTURE LAND USE ELEMENT

persons in this age range. This then is an indicator of potential "peaks" in college age persons in Dade County through the first and second decades of the twenty first century.

Over the past thirty years Dade County has experienced one of the nation's most dramatic changes in the ethnic composition. In 1960, 80% of Dade residents were non-Hispanic white, while only 5% were Hispanic. By 1990 Hispanics represented nearly 50% of the population, with 19% non-Hispanic Black and only 32% non-Hispanic white.

While continued Hispanic and Haitian immigration beyond 1990 is probable based on past trends, the levels may continue to fluctuate widely, making projections highly speculative. However a 1980-1990 Census comparison contains indicators of greater immigration of Europeans and East Europeans, particularly among Russians, Scottish, Dutch, Swedish and Norwegians. The opening of the Communist Bloc, coupled with the emergence of Miami as an international trade and finance center indicates that Dade County will increasingly become cosmopolitan in ethnic and cultural diversity, thus enhancing the "international" significance of Florida International University.

Of equal significance to the growth and cultural diversity of the Dade County population are the factors of age and educational attainment. During the period 1960 through 1980 Dade County reflected an age structure weighted heavily to retirees, relative to national and statewide averages. However, 1990 age characteristics indicates a reversal of this pattern, with Dade County becoming "younger" and the nation as a whole becoming older. Most significant is the decline in the Dade County average age (34.2 in 1990, from 34.7 in 1980), caused by the rise in the young adult (18-34) group (from 21% in 1960 to 27.1% in 1990) coupled with a more recent drop in the over 65 category from 15.7% in 1980 to 14.0% in 1990.

Comparable to the dynamic growth and changes in the makeup of the Dade population are the changes occurring in educational attainment among residents. In 1960 less than half the Dade population attained a high school diploma and only 5% had a four year college degree. By 1990 65% of residents had a high school diploma and the proportion with a college degree grew to 18 percent. While these growth rates were steady and moderate for Hispanics and whites, African Americans in Dade showed the greatest proportional growth in educational attainment. Most significant is the exponential growth of Black college graduates from 1,157 in 1960 to 21,409 in 1990.

As indicated by the table below total Dade County population is projected to grow by some 571,000 persons over the 1992-2010 period. It is significant to note that this net additional population is larger than the most populous city of Florida in 1993.

4.0 FUTURE LAND USE ELEMENT

Table 4.1 Dade County Population Projections 1992-2010

Year	Population	Cumulative Net Increase
1992	1,986,000	-
1995	2,102,000	116,000
2000	2,260,000	274,000
2005	2,412,000	426,000
2010	2,557,000	571,000

Source: Demographic projections by sub-area 1990-2010, Research Division, Metro - Dade Planning Department, March 1992.

While this rate of growth will be exceeded in many other, less populous, areas of Florida the total additional population expected to reside in Dade County remains staggering.

While FIU enrollments will be impacted by this total growth throughout the host community it is useful to note the relative growth rates anticipated in the context areas immediately surrounding the two campuses.

Countywide growth projections are "distributed" geographically by adjusting past growth patterns to reflect additional residential growth (buildout) capacity within particular subareas. As depicted in Figure 4.3 growth in the future will shift to the fringe of the urban area, with major growth concentrations in Northwestern Dade, West Kendall and South Dade. This pattern is simply a reflection of the availability of land for new development. While other, more centrally located areas of Dade will continue to experience some levels of growth, the levels of growth will be moderated by the type of development expected to occur, e.g. infill and redevelopment versus new large scale development along the suburban fringes. While the University Park campus is located on the "inside edge" of this growth corridor it is strategically placed, with respect to regional transportation corridors, to be able to serve the burgeoning population in the urban fringe. However, the North Miami campus remains somewhat remote from these major growth corridors.

4.0 FUTURE LAND USE ELEMENT

4.5 Existing Campus Land Uses

University Park

Existing Development Patterns

Figure 4.4 depicts the existing overall pattern of uses the University Park. The organization of the campus is characterized by a central academic core, within which are virtually all academic, administration and major support functions, such as the Library and Student Center, surrounded by a loop access road which links the two principal entrances with the four major parking concentrations. With the exception of the Golden Panther Arena, located just outside the loop to the west, virtually all of the campus activity generators are located within the core of concentrated activity.

Outside the loop, campus housing is located to the northeast, and major recreational, sports and campus service functions are located between the Golden Panther Arena and the western campus boundary at SW 117th Avenue. In addition this western edge accommodates ancillary and non-University functions such as day care and the NOAA Hurricane Center. To the south, the east-west runway of old Tamiami Airport forms the interface between the University Park campus and Tamiami Park and the Dade County Youth Fair Grounds.

However, with the planned development of Tamiami Stadium, Arts Complex II and, perhaps, an outdoor amphitheater, this southern "edge" will increasingly be transformed as a "seam" of joint use activities. A significant proportion of the campus is presently considered "open space" of the following types:

- Environmentally Significant Areas such as the large natural preserve beyond the southwest edge of the loop road.
- Buffer Areas, primarily along the northern (Tamiami Trail) and eastern (S.W. 107th Avenue) edges of the campus.
- Recreation Areas, including the ball and soccer fields surrounding the Golden Panther Arena.
- Formal Spaces/Quads and Malls, located within the academic core of the campus as campus organization elements.
- Parking Areas - comprising the several large expanses surrounding the loop road as well as smaller special purpose lots outside and inside the loop.

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- Unprogrammed (Vacant) Open Space, located in fragments throughout the campus both inside and outside the loop.

As the basis for determining the area of campus available for future development, the latter two categories, referenced above, are considered generally more suitable than the proceeding categories which have some relative value as environmental, recreational, urban design or scenic resources.

Committed Development

Some thirteen new structures are considered "committed" at the University Park campus, seven of which are located within the academic core, e.g. inside the loop. These include:

- Library Expansion - a 5 Level addition to the existing Athenaeum. Vertically and an extension along the north face.
- Health and Life Sciences - a major new structure which will shape the quadrangle framed by Owa Ehan and Physical Science.
- Graham Center Expansion - a future expansion to be extended south with additional student services and student administration activities.
- Engineering II - framing the northern edge of the campus at the main entrance across from the new Education Building.
- Education Building - the first building to occupy and set the standard for development along the main entrance mall. To be built in conjunction with a small Information Center just outside the loop road.
- Labor Center / ELI - a small structure under construction in the largely undeveloped southwest corner of the academic core.

Development beyond the existing campus academic core includes the following:

- Student Housing - a major new structure at the key campus "gateway" at the extreme northeast corner.

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- Arts Complex II - The southernmost academic structure, well-removed from the existing academic core and the beginning for a new mall corridor conceived to extend south from Primera Casa.
- Nautilus Fitness Center - constructed as a westward expansion of the Golden Panther Arena in the heart of the campus recreation district.
- Campus Support Complex - a major new structure to consolidate scattered activities near the west edge/entrance to the campus.
- Child Care - a small structure planned for the area just west of the Arena.
- Stadium - a major new multi-use recreation facility located between the Natural Preserve and Campus Support Complex.

North Miami Campus

Existing Development Patterns

As depicted on Figure 4.5 the existing academic core of the North Miami Campus consists of a compact arrangement of five major structures which is accommodated on a very small portion of the 200 acre campus. Included in this core area are Academic Buildings I and II, the Student Center, Hospitality Management and the Library. Also included in this core area are the Aquatic Center and Central Utilities. All of the major structures within the core area are linked by pedestrian walks, arcades and above-grade bridge structures, thus reinforcing a monolithic form and pattern of development. Outside this core area are small clusters of service, residential and ancillary (non-University) activities surrounding a central reservoir of surface parking. To the extreme northeast corner lies a cluster of service functions including Central Receiving, Public Safety, Physical Plant and Grounds Maintenance. Immediately to the east, adjacent to the north edge of the parking lot is an array of small ancillary and support functions including the Children's Creative Learning Center, Holocaust Documentation Center and three structures housing Florida Department of Health and Rehabilitative (HRS) functions.

Further to the east, the northeast corner of the campus is occupied by student housing. Additional land use activities outside the main academic core include a cluster of recreational activities, campus ministry and a small Marine Biology lab facility just east of the Library on the central campus bayfront. A large portion of the remaining campus, particularly the "southern peninsula" south of the academic core and the bayfront east of the student housing is open space and available for future development subject to a number of environmental and coastal construction constraints.

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Committed Development

Four additional facilities are considered "committed" for development at the North Miami Campus. These include an expansion of the existing Student Center, the construction of a new student health center adjacent to the existing student housing, a duplicating center in the support services area, and a major new conference center. Located approximately 800 feet south of the academic core, the conference center will rival or surpass the existing academic buildings in its size and campus visibility. In addition its position, separate from the campus core will raise a number of issues concerning its functional and urban design integration into the fabric of the campus.

4.6 Campus Development Constraints and Suitabilities

University Park

Figure 4.6 depicts some seven categories of development constraint conditions within the University Park campus as described in detail below.

Existing/Committed Buildings

These sites represent the footprints of those existing and committed buildings which represent a magnitude of investment so as to preclude demolition or redevelopment within the time horizon of the Master Plan. In at least one instance, namely the planned Education Building, the committed building footprint coincides with an area of potential constraint. Trailers and similar temporary structures are not placed in this category.

Recreation/Formal Open Space

These areas include all outdoor sports activities as well as quadrangles, malls and other formal open spaces which are critical for the current or future spatial organization and quality of environment of the campus. Such areas will vary somewhat in their relative degree of constraint; from "givens" in the case of the main entrance mall to "moderate constraints" in the case of relatively low value recreation areas.

Lakes/Potential Wetlands

The Conservation Element describes and depicts surface water features, wetlands and suspected wetlands within the University Park campus./ Such features are constrained by the need to maintain adequate drainage and surface water runoff capacity as well as the need to comply with environmental criteria and regulations aimed at protecting wetlands. Although the lake areas and their Littoral wetland zones are evident, certain poorly drained lawn areas are now beginning to support wetland vegetation and thus may become some measure of constraint on development.

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Preserve/Native Vegetation

Perhaps the most important environmental feature of the University Park campus is the approximate 12 acre hardwood hammock termed the Preserve. With its native botanical and wildlife species as well as wetland areas this area is planned for restoration and expansion into the lake littoral zone to the north makes this site a virtual "given". In addition at the extreme southeast corner of the campus there exist four hardwood hammocks containing some wetland vegetation. Although not of the magnitude of the Preserve, these remnants of the site's original natural condition are considered important resources worthy of protection and restoration.

Major Utility Corridors

Figure 4.6 includes a schematic depiction of major utility (water and sewer) corridors serving the campus. Due to the extraordinary cost to relocate such facilities these corridors should be considered severe constraints on development.

Existing Parking

Although existing parking lots are not considered "givens", and future development which displaces parking will necessitate the extra cost to replace and expand such parking elsewhere either as surface lots or parking structures. Thus, this additional cost factor is interpreted as a "moderate" constraint factor.

Unconstrained/Minor Constraints

Portions of the site which are unaffected by the above referenced factors are considered to be relatively unconstrained for future development. Most significant of these are the southwest corner of the academic core (inside the "loop") as well as a number of potential "infill" sites within the developed fabric of the academic core. Although the bulk of the "unconstrained" land area lies outside the loop road many such areas are remote and therefore less than ideal locations for key future academic and support functions.

North Miami Campus

Figure 4.7 depicts the distribution of the above-referenced development constraint factors as they exist throughout the North Miami Campus.

Existing/Committed Buildings

Existing structures, due to their small number and relatively compact arrangement, consume a very small portion of the North Miami site.

Recreation/Formal Open Space

Recreation and visually important open space surrounds the existing academic core and extends to the Bayfront and south surrounding the lake below Academic I. In addition the open space

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between the wings of the student housing building should be considered given for reason of function, maintenance of views and to create central shared "quads" in anticipation of an expanded grouping of residential structures.

Lakes/Potential Wetlands

The bulk of the North Miami Campus was wetland prior to extensive filling for the development of Interama. Much of these wetlands were mangroves, now subject to significant regulatory protection. At present however, mangroves are limited to thin bands which periodically fringe portions of the bayfront, and various canals and ditches on the north and northeastern edges of the campus. Except to the extent that such mangroves may inhibit the filling or alteration of the edges of such water features, mangroves constrain only a very small portion of the campus site. Two lake areas exist on the North Miami Campus, the most visually and environmentally significant of which is located just south of the academic core. This lake and its shoreline/wetland edge is considered a severe development constraint. The second lake is to the west of the main parking area and limited aquatic or shoreline wetland vegetation. Although less of a scenic or environmental resource than the easternmost lake, it nevertheless is considered a significant development constraint.

At the southern tip of the "peninsula" area lies a disturbed low area cleared of vegetation in 1992. Since this clearing some transitional wetland species have appeared. Therefore such areas have the potential to be judged as wetlands, which in turn will add a potentially significant development constraint

Existing Parking

The cost and inconvenience of relocating existing parking lots to accommodate future development is not considered prohibitive. However, the extensive remaining unimproved and unconstrained land within the southern "peninsula" area of the campus should reduce the need to consider existing parking lots as future academic or support services development sites.

Unconstrained/Minor Constraints

The remaining land area of the campus which is unaffected by the above-referenced constraint factors is sizeable, exceeding the existing developed core of the campus. The bulk of the areas are disturbed uplands now vegetated with Australian Pines and other invasive exotic species.

Preserve/Vegetation

Since virtually all of the Interama site was cleared for development, significant areas of native vegetation are noticeably absent. The exception is a narrow band of "strand" vegetation which lines the bayfront south of the academic core. To the immediate west upland areas have in recent years been planted with a variety of specimen trees. Although many such trees are worthy of

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preservation and/or relocation, such vegetated areas are not considered a major development constraint.

Major Utility Corridors

The major utility corridors depicted on Figure 4.7 generally coincided with areas otherwise constrained by existing development, parking open spaces or potential wetlands. Therefore utility corridors add only a marginal additional development constraint factor.

4.7 Off-Campus Constraints

Based on utility conditions (Section 11.0) and traffic capacities (Section 10.0) within the context areas of both University Park and North Miami Campus potential off-campus constraints on university development is summarized below.

University Park

Utility Constraints

Drainage

At present all stormwater generated at the University Park is contained within the campus using exfiltration devices, natural percolation and retention in the existing lakes. Because no stormwater is discharged off-campus, there exist no constraints due to off-campus impacts.

Potable Water

The potable water and fire protection needs of University Park are met by the Metro Dade Water and Sewer Authority Department. In 1975 the Board of Regents executed an agreement with WASAD to provide an "adequate", although unquantified supply of water to FIU. There exists adequate excess water treatment capacity at the Alexander Orr Water Treatment Plant to meet 10 year development needs at University Park. Although treatment plant capacity and the BOR-WASAD agreement provide reasonable assurance of a long term supply of potable water Metro Dade County may need to increase its wellfield withdrawal allocation.

Sanitary Sewer

The sanitary sewer collection system at the University Park campus discharges to a Metro Dade (WASAD) force main for treatment at the South Regional Wastewater Treatment Plant. Due to the poor condition of the force main which links mainland Miami under Biscayne Bay to the treatment plant at Virginia Key, there exists a very serious environmental threat to Biscayne Bay. As a result the U.S. Environmental Protection Agency has intervened with litigation against Dade County to expedite the construction of a replacement force main. The resulting agreement between EPA and Dade County calls for completion of the new main within approximately 18

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months. In the interim the ability to connect into existing overloaded system could become a severe constraint on short term development.

Solid Waste

Through agreements with metro Dade County solid waste generated at University Park is disposed of at the Dade County Resource Recovery Facility by a private hauler. Although no proportional capacity is assigned to FIU or private collection firms the resource recovery plant has adequate capacity to handle its projected demands through the 2003-04 planning horizon.

Electricity

The three primary voltage feeders to University Park by Florida Power & Light (FPL) have more than adequate capacity and ratings to accommodate campus power needs through the 2003-04 planning horizon.

Traffic

At present all roadways on-campus and in the context area are operating at Level of Service "C" or better. Therefore, there exists no off-campus traffic constraint at present. Future traffic volumes surrounding the campus in 2004 were calculated based on background growth of volumes at 2 percent per year plus future campus growth. With the exception of SW 117th Avenue south SW 17th Street which is projected to operate at LOS "F" all roadways surrounding the campus are projected to be operated at acceptable (LOS "C" or better) levels through the 2003-04 planning horizon. With transportation system management or physical improvement at the one constrained roadway, traffic circulation in the context area is not considered a significant off-campus development constraint.

Conclusions

Only two potential off-campus development constraints have been noted. Dade County is currently facing a wastewater crisis associated with overloaded transmission lines and treatment facilities. Although adequate system improvements should be completed by 1995 there exists the potential that projects planned for the 1994-95 period may be precluded from making sanitary sewer connections. At present and through the 2003-04 planning period traffic volumes in the context area are projected to remain within LOS "C" standards except for one constrained location.

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North Miami Campus

Utility Constraints

Drainage

Like University Park the bulk of stormwater at North Miami Campus is retained on-site with in self contained lakes or exfiltration devices. However there exist two small outfalls into adjacent canals, believed to have been constructed as part of the original Interama development. Because campus stormwater systems do not connect with off-campus systems there exists no constraints due to off-campus impacts. However, impacts of future stormwater runoff on Biscayne Bay water quality is a major development issue which must be addressed in planning future stormwater system upgrades.

Potable Water

Water transmission main lines to the North Miami Campus are owned and maintained by the City of North Miami Public Utilities. The source of the water is the Norman Winson Water Plant and WASAD, as necessary is sufficient to ensure sufficient water capacity to meet the 10 year development needs at the North Miami Campus.

Sanitary Sewer

The sanitary sewer collection system at the North miami campus connects into a City of North Miami force main for transmission to the North Regional Wastewater Treatment Plant operated by WASAD. Although the North Regional Plant is operating just below its permitted capacity severe restrictions may impede campus development until system improvement mandated by the recent EPA-Metro Dade Agreement are put into operation.

Solid Waste

Through agreements with Metro Dade County solid waste generated at the North Miami campus is disposed of at the Dade County Resource Recovery Facility by a private hauler. Although no proportional capacity is assigned to FIU or private collection firms the resource recovery plant has adequate capacity to handle its projected demands through the 2003-04 planning horizon.

Electricity

The North Miami Campus is served by two primary voltage feeders and a third with the potential for connection into the Southern portion of the campus. These feeders have more than adequate capacity and ratings to accommodate campus power needs through the 2003-04 planning horizon.

Traffic

At present all roadways in the context area are operating at Level of Service (LOS) "C" or better during the P.M. peak hour. Future traffic conditions are expected to remain adequate (LOS "C"

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or better) through the 2003-04 period with the exception of Bay Vista Boulevard north of the main campus entrance. However, with limited physical improvements or transportation System Management Techniques at this one constrained location, traffic capacity constraints at the North Miami campus are considered minor.

Conclusions

Only two potential off-campus development constraints have been noted. Dade County is currently facing a wastewater crisis associated with overloaded transmission lines and treatment facilities. Although adequate system improvements should be completed by 1995 there exists the potential that projects planned for the 1994-95 period may be precluded from making sanitary sewer connections. At present and through the 2003-04 planning period traffic volumes in the context area are projected to remain within LOS "C" standards except for one constrained location.

4.8 Future Academic Space Needs

University Park

As described in Section 5.0 Academic Facilities, Tables 5.5, 5.6 and 5.7 compare current and projected building inventories with projected space needs to provide forecasts of space deficits for five categories of academic facilities at present (1993-94) and for 5 - year (1998-99) and 10 - year (2003-04) planning horizons. These net (useable space) square footages are then increased by a factor of 1.5 to estimate total additional gross space needs (with circulation, mechanical systems, storage, etc.).

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**Table 4.2 Projected Academic Facilities Deficits
1993-2004 - University Park**

	1993-94 Deficit Net (Gross) s.f.	1998-99 Deficit Net (Gross) s.f.	2003-04 Deficit Net (Gross) s.f.
Classrooms	-24,549 (-36,923)	-22,034 (-33,051)	-18,738 (-28,107)
Teaching Labs	-19,299 (-28,949)	+27,288 (N.A.)	-14,484 (-21,726)
Library	-90,903 (-136,355)	-57,561 (-86,342)	-39,880 (-59,820)
Research Labs	-49,401 (-74,101)	-14,872 (-22,308)	-102,523 (-153,785)
Instructional Media	-6,175 (-9,262)	+4,801 (N.A.)	+1,377 (N.A.)
Total Net / (Gross) Deficit s.f.	-190,327 (-285,490)	-94,467 (-141,200)	-175,625 (-263,437)

Note: Derived from Tables 5.5, 5.6 and 5.7.

The above table indicates that, at present, even including buildings not yet completed, FIU has an enormous deficit of academic facilities, with present and planned facilities representing less than 63% of the total academic facility needs. With the planned construction of the Library addition, Engineering building and Arts Complex I after 1995 the total deficit will be reduced approximately in half. However even with the addition of the Arts Complex II in 1998-99 and an additional 50,000 s.f. classroom building scheduled (but uncommitted) prior to 2003-04, the deficit will climb to 263,437 s.f. by the end of the 10 - year planning horizon.

North Miami Campus

As described in Section 5.0 Academic Facilities, Tables 5.8, 5.9 and 5.10 compare current and projected building inventories with projected space needs to provide forecasts of space deficits for five categories of academic facilities at present (1993-94) and for 5 - year (1998-99) and 10 - year (2003-04) planning horizons. These net (useable space) square footages are then increased by a factor of 1.5 to estimate total gross space needs (with circulation, mechanical systems, storage etc.).

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**Table 4.3 Projected Academic Facilities Deficits
1993-2004 - North Miami**

	1993-94 Deficit Net (Gross) s.f.	1998-99 Deficit Net (Gross) s.f.	2003-04 Deficit Net (Gross) s.f.
Classrooms	-18,738 (-28,107)	+11,954 (N.A.)	-7,441 (-11,161)
Teaching Labs	-14,484 (-21,726)	+26,707 (N.A.)	+9,109 (N.A.)
Library	-39,880 (-59,820)	-76,871 (-115,306)	-112,703 (-169,054)
Research Labs	-102,523 (-153,785)	-19,644 (-29,466)	-37,367 (-56,050)
Instructional Media	+1,377 (N.A.)	-270 (-405)	-2,119 (-3,179)
Total Net/(Gross) Deficit s.f.	-175,625 (-263,437)	-96,785 (-145,178)	-159,630 (-239,443)

Note: Derived from Tables 5.8, 5.9 and 5.10.

4.9 FUTURE SUPPORT FACILITY SPACE NEEDS

University Park

As described in Section 6.0 Support Facilities, Tables 6.1, 6.2 and 6.3 compare current building inventories with projected space needs to provide forecasts of space deficits for four categories of support facilities at present (1993-1994) and 10 year (2003-2004) planning horizons. These net (useable space) square footage estimates are increased by a factor of 1.5 to estimate total gross building area, including circulation, mechanical systems, etc.

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Table 4.4 Projected Support Facility Deficits 1993-2004
University Park

	1993-1994 Deficits Net (Gross) S.F.	1998-1999 Deficits Net (Gross) S.F.	2003-2004 Deficits Net (Gross) S.F.
Office: Academic	-53,639 (-78,958)	-51,840 (-77,759)	-101,484 (-152,958)
Office: Admin.	-93,580 (-140,371)	-92,159 (-138,239)	-135,615 (-209,823)
Auditorium/Exhibit	+1,915 (NA)	+17,946 (NA)	+7,701 (NA)
Student Services	-34,365 (-51,548)	-34,713 (-52,069)	-60,326 (-90,489)
Support Services	-35,786 (-53,679)	+59 (NA)	-8,485 (-12,727)
Total Net/Gross Deficit s.f.	-216,370 (-324,555)	-178,712 (-268,068)	-305,910 (-458,865)

Note: Derived from Tables 6.1, 6.2 and 6.3

As Table 4.4 depicts the present deficits are sizeable, particularly in the administrative and academic office categories. Due to planned construction after 1994 these deficits will decline somewhat by 1998-99. however, without substantial additional development severe deficits will again appear by 2003,2004 with the most severe impacts in the administrative and academic office categories as well as in student services.

In addition to these support facilities the University Park campus is also in need of additional athletic and general recreation activities including the following:

- Golf practice range
- Softball stadium

North Miami Campus

As described in Section 6.0 Support Facilities, Tables 6.4, 6.5 and 6.6 compare building inventories with projected space needs to provide forecasts of space deficits for four categories of support facilities at present (1993-1994) and 10 year (2003-2004) planning horizons. These net (useable space) square footage estimates are increased by a factor of 1.5 to estimate total gross building area, including circulation, mechanical systems, etc.

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Table 4.5

Projected Support Facility Deficits 1993-2004 North Miami Campus

	1993-1994 Deficits Net (Gross) S.F.	1998-1999 Deficits Net (Gross) S.F.	2003-2004 Deficits Net (Gross) S.F.
Office: Academic	-5,194 (-7,791)	-24,678 (-37,017)	-58,390 (-87,586)
Office: Admin.	-2,821 (-4,382)	-32,845 (-49,267)	-32,845 (-49,267)
Auditorium/Exhibit	-2,700 (-4,050)	-8,154 (-12,231)	-15,531 (-23,297)
Student Services	+3,944 (NA)	+31,829 (NA)	+13,397 (NA)
Support Services	+3,813 (NA)	+3,318 (NA)	-5,227 (-7,840)
Total Net/Gross Deficit s.f.	-10,715 (-16,072)	-46,713 (-70,069)	-111,993 (-167,989)

Note: Derived from Tables 6.4, 6.5 and 6.6

As Table 4.5 depicts the present support space deficits at the North Miami campus are relatively small, due in part to the fact that many support functions are assigned to the University Park campus. However, these deficits will grow substantially over the 10 year planning horizon. As with the University Park campus the most critical needs at the North Miami campus will be in the academic and administrative office categories.

4.10 Land Requirements Analysis

Methodology

The analysis below is intended as a "first cut" evaluation of the extent to which the projected 10 - year facility needs of FIU will "fit" the remaining uncommitted and suitable land area within the present University Park and North Miami campuses. Land will be required in the future to serve five basic facility categories below:

- Academic Facilities
- Support Facilities and Recreation
- Housing
- Parking
- Ancillary (non - University) Functions

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The analysis herein documents facility and associated land requirements for the first four of these categories. Because ancillary functions (HRS, Hurricane Center, Holocaust Center, etc.) are not directly related to University functions or needs, their needs have not been calculated. However, such functions may be allocated additional space on the campuses depending on the availability of land after the 10 - year needs of the University have been satisfied.

Academic and support facility space deficits, as documented in sections 5.0 and 6.0, were translated from net space (useable) requirements to gross square footage by adding a standard factor of 1.5 for circulation, mechanical equipment, wall thicknesses, etc. Next gross **building** area is translated into required **land** area by applying a Floor Area Ratio (F.A.R.) Factor. Because policy choices exist concerning the intensity of future development (compactness, scale and open space ratios, etc.) land requirements will vary with the specific F.A.R. factors applied to building square footage requirements.

A "present" F.A.R. of 0.61 was calculated by dividing the building square footage in the existing academic core of University Park (Athenaeum, Graham Center, Primera Casa and Deuxieme Maison), totaling some 648,112 s.f., by the approximate site area that these buildings consume, including open spaces between and surrounding these structures. This current F.A.R. would indicate that for 100,000 s.f. of gross building area a site of 163,934 s.f. is needed (100,000 / .61). Because of declining land reserves it is prudent to also compute land requirements based on more compact or dense patterns of future development. Thus, the F.A.R. 0.61 is increased by 25% to F.A.R. 0.76 and by 50% to F.A.R. 0.92. As a result future land requirements for academic and support facilities will be depicted as a range. Land requirements for future housing and parking are incorporated producing a total land requirements calculation for both campuses.

University Park

Academic Facilities

As depicted on Table 4.2, by 2003-04, University Park is expected to have a deficit in academic facilities of some 263,437 gross square feet. To this projected deficit is added two planned, but uncommitted structures, Arts Complex II and the 50,000 s.f. classroom building, which are included in the "projected space" inventory. This additional 141,840 gross square feet then produces a total need to site 405,277 gross square feet of academic functions by 2003-04. At the current F.A.R. of 0.61 this translates into a requirement for 15.3 acres of land. However, with the higher density factors of F.A.R. 0.76 and F.A.R. 0.92, the land requirement is reduced to 12.2 acres and 10.1 acres, respectively.

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Support Facilities

As depicted on Table 4.4 University Park is expected to have a deficit of some 458,865 gross square feet by 2003-04. At the current F.A.R. of 0.61 this translates into a requirement for 17.3 acres. However, with the higher density factors of F.A.R. 0.76 or F.A.R. 0.92 total land requirements are reduced to 13.9 acres and 11.5 acres respectively. Added to this requirement is the desire on the part of FIU to provide additional recreational facilities, including a softball field / stadium and a golf driving range. These facilities, developed at appropriate standards, would consume approximately 9 acres of land.

Housing

Section 7.0 Housing indicates a need for a total of 2,875 beds by 2003-04 based on a standard of 10% of the projected headcount. This is 1,733 beds more than exist at present and with 410 beds committed for completion in 1995. Thus by 2003-04 the University must have land available for these 1,733 beds to meet its target of housing 10% of the headcount. Based on a current standard density of 760 square feet of land per bed, a total of some 30.2 acres will be required. However, with increased densities of 25% to 50%, land requirements are reduced to 22.7 acres and 15.1 acres respectively.

Parking

Section 9.0 includes an analysis indicating that by 2003-04 parking supply on-campus must grow from 6061 spaces at present to 8,872 spaces. These additional 2,811 spaces, if developed as new surface lots at the density of existing lots (430 s.f. per space) would necessitate some 27.7 acres. However, if developed as 3 level parking decks over existing parking lots, a parking deck "footprint" of 8 acres would be required. This solution would not require any additional land area.

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Table 4.6 Projected Land Requirements - University Park

	Density Ranges		
	Low (current) Acres	Moderate (25% increase) Acres	High (50% increase) Acres
Academic Facilities	15.3	12.2	10.1
Support Facilities	17.3	13.9	11.5
Recreation (1)	9.0	9.0	9.0
Housing	30.2	22.1	15.1
Parking Lot / Deck (2)	27.7 / 0	27.7 / 0	27.7 / 0
Totals (2)	99.5 / 71.8	84.9 / 57.2	73.4 / 45.7

(1) Softball Stadium and golf driving range.

(2) Land requirements with new surface lots / land requirements with parking decks over existing lots.

Summary - University Park Land Requirements

Based on the analysis described herein and summarized on Table 4.6, future facility requirements at University Park will require land ranging from a minimum of 45.7 acres with high density compact development and with future parking in structures. At the other extreme future land requirements could total 99.5 acres if development occurred at relatively low densities and future parking needs were met with additional surface lots.

North Miami Campus

Academic Facilities

As depicted on Table 4.3, by 2003-04 the North Miami Campus is projected to have a deficit in academic facilities totaling some 239,443 square feet. At the current F.A.R of 0.61 this translates into requirement for 8.9 acres. However, at the higher density F.A.R.'s of 0.76 and 0.92, land requirements are reduced to 7.2 acres and 6.0 acres, respectively.

Support Facilities

As depicted on Table 4.5, North Miami Campus is projected to have a deficit of some 167,989 square feet of support facility space by 2003-04. At the current F.A.R. of 0.61 this translates into

4.0 FUTURE LAND USE ELEMENT

a land requirement of 6.2 acres. However, at the higher density F.A.R.'s of 0.76 and 0.92, land requirements are reduced to 5.1 acres and 4.2 acres, respectively.

Housing

Section 7.0 Housing indicates a need for a total of 1,202 beds at the North Miami campus by 2003-04 or 650 beds more than presently exist. Based on the current housing density of approximately 760 square feet of land per bed, a total of some 11.3 acres will be required. However, by increasing densities by 25% and 50%, land requirements are reduced to 8.5 acres and 5.7 acres, respectively.

Parking

Section 9.0 includes an analysis indicating that by 2003-04 an additional 1,546 parking spaces will be needed at the North Miami Campus. If developed as surface lots with generous circulation and landscaping, 430 s.f. per space will be required, or a total of some 15.3 acres. However, if developed as parking decks over existing parking lots, no additional land area would be consumed.

Summary - North Miami Campus Land Requirements

Based on the analysis herein and summarized on Table 4.7, future facilities needed on the North Miami Campus by 2003-04 will consume a minimum of 15.9 acres (at substantially higher densities and with structured parking) to a maximum of 41.7 at present low densities.

4.0 FUTURE LAND USE ELEMENT

Table 4.7 Projected Land Requirements - North Miami Campus

	Density Ranges		
	Low (current) Acres	Moderate (25% increase) Acres	High (50% increase) Acres
Academic Facilities	8.9	7.2	6.0
Support Facilities	6.2	5.1	4.2
Recreation (1)	-	-	-
Housing	11.3	8.5	5.7
Parking Lot / Deck (2)	15.3 / 0	15.3 / 0	15.3 / 0
Totals (2)	41.7 / 26.4	36.1 / 20.8	31.2 / 15.9

(1) Additional recreation improvements have not been included.

(2) Land requirements with new surface lots / land requirements with parking decks over existing lots.

4.11 Development Capacity Analysis

University Park

Figure 4.6 depicts all areas of the University Park campus in seven categories, representing various levels of constraint and availability for future development. Except for small portable structures, existing buildings represent the most severe constraint category. Although recreation areas and formal open spaces may be technically buildable, they in fact are considered highly constrained due to the need to retain recreation and useable open space to enhance the quality of the campus environment. Similarly lakes and wetlands are considered constrained due to regulatory restrictions and to the probable need for mitigation (wetlands creation and/or restoration) where wetlands or lakes are filled. Existing parking areas, totaling over 44 acres are considered moderately constrained. However, as suitable undeveloped land becomes scarce the redevelopment of some existing close-in lots for academic and support uses will likely be necessary with new parking provided in structures.

The largest remaining portion of the University Park campus, some 61.8, acres is considered relatively unconstrained. The development capacity of this portion is estimated to range from 1.6 million square feet to 2.5 million square feet based on the application of F.A.R. 0.61 (low density) and F.A.R. 0.92 (high density) factors. Table 4.6 indicates that depending on development density and the matter of surface versus structured parking, land requirements for

4.0 FUTURE LAND USE ELEMENT

2003-04 range from 45.7 acres (high density / all structured parking) to 99.5 acres (low density / all structure parking). Thus, the amount of unconstrained land is considered to be sufficient to meet 10-year needs based strictly on development capacity if development density increases. However, because much of the "unconstrained" land area is poorly located on the campus perimeter some encroachment into existing parking lots as well as some alteration of wetland areas will undoubtedly be required. Options for the allocation of future growth will be pursued in the Alternative Concepts Phase.

North Miami Campus

Figure 4.7 depicts all areas of the North Miami Campus in seven categories, representing various levels of constraint and availability for future development. Except for small, portable structures, existing buildings represent the most severe constraint category. Although recreation areas and formal open spaces may be technically buildable, they, in fact, are considered highly constrained due to the need to retain recreation and useable open space to enhance the quality of the campus environment. Similarly, lakes, areas of native vegetation and wetlands may be technically buildable, however due to potentially significant regulatory restrictions, and the need for extensive mitigation, such areas are also regarded as highly constrained. The existing parking areas, totaling over 17.1 acres also are buildable. However any construction on existing lots would necessitate their replacement in other areas or the construction of parking decks. Therefore, there exists a cost constraint for use of existing parking lots. The largest remaining portion of the North Miami Campus, some 55.8 acres is considered relatively unconstrained for future development.

Development capacity of these areas alone is estimated to range from 1.5 million square feet to 2.2 million square feet based on the application of F.A.R. 0.61 (low density) and F.A.R. 0.92 (high density) factors. Thus, the presently available unconstrained portion of the North Miami Campus is determined to meet all facility requirements for the 10 year planning horizon and beyond.

4.12 Context Area Expansion Needs and Opportunities

University Park

Based upon the conclusions in Sections 4.10 and 4.11 there exists adequate land area within the University Park campus as presently defined if the density and degree of compactness of future development substantially increases and if future parking needs are met in structures built over existing parking lots. However, beyond 2004 continued FIU growth may necessitate expansion of the campus. Due to absolute development constraints on the North, West and East of campus, the only long range expansion opportunity is toward Tamiami Park and the Dade County Youth Fair.

4.0 FUTURE LAND USE ELEMENT

In the short range FIU should actively seek joint development opportunities in areas just south of its present boundaries, for facilities which otherwise would be constructed in the core of the campus.

North Miami Campus

Based on the conclusions in Sections 4.10 and 4.11, there exists an adequate land area within the existing North Miami Campus to accommodate development needs through the 2003-04 period and beyond. Therefore, there does not exist a need to consider an expansion of the North Miami Campus.

4.13 Alternatives to Additional Land Acquisition

University Park

If projected development at University Park were to continue to occur in a dispersed, low density pattern, with parking provided solely in at-grade lots, the available, developable land area on the campus would be exhausted before the end of the 2003-04 planning horizon. Under this scenario, future development would be precluded until and unless the campus were expanded southward into Tamiami Park / Dade County youth Fair. The only practical alternative to such campus expansion is to significantly reduce the land consumed by future development, by increasing the density and compactness of future development and by converting surface parking into parking structures.

North Miami Campus

Because of the large developable land area at the North Miami campus, there is no need to consider expanding the campus, or any alternatives to such expansion, through the 10-year planning horizon.

4.14 Summary of Key Issues

University Park

·Faced with a limited developable land area future development must focus on new more compact, higher density forms of development, including infill. Some future development will need to occur on existing parking lots, with future parking development in structures.

4.0 FUTURE LAND USE ELEMENT

Joint development activities at or beyond the southern campus boundary should be pursued to the extent that development demands in the academic core are reduced.

FIU should proceed with caution with any non-university development on campus land that may in the future be required to accommodate academic and support facilities.

FIU should anticipate the need to alter lakes and potential wetlands in order to accommodate its 10 - year development needs. Regulation constraints on such activities should be anticipated and resolved well in advance of the timing of such development.

FIU should reach an agreement with Metro - Dade WASAD concerning short term needs for sanitary sewer connections and long term capacity commitments.

North Miami

To ensure a well integrated campus long term development concepts should be prepared to properly site uses which are ancillary to campus life (conference center) and to link academic and support functions.

FIU should reach an agreement with Metro - Dade WASAD concerning short term needs for sanitary sewer connections and for long term capacity commitments.

COUNTY DEED

THIS DEED made this 17th day of December, 1969, by DADE COUNTY, party of the first part, and the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND, STATE OF FLORIDA, Tallahassee, Florida, party of the second part.

WITNESSETH:

That the party of the first part for and in consideration of the sum of One Dollar (\$1.00), and other valuable considerations, to it in hand paid by the party of the second part, receipt whereof is hereby acknowledged, has granted, bargained and sold to the party of the second part forever, for the specific and sole purpose of constructing and operating a State University, and for other purposes incidental thereto, the following described land lying and being in Dade County, Florida:

Commence at the Northeast corner of Section 7, Township 34 South, Range 40 East; thence South 02°17'10" East along the East line of aforesaid Section 7 a distance of 60.06 feet to a point of intersection with the South Right-Of-Way Line of State Road 90; thence South 88°26'05" West along the South Right-Of-Way Line of State Road 90 a distance of 55.00 feet to a point; thence South 02°17'10" East along a line parallel to and 55.00 feet West of the East line of aforesaid Section 7 a distance of 49.38 feet to the point of beginning of the parcel of land hereinafter described; thence continue South 02°17'10" East along a line 55.00 feet West of East line of aforesaid Section 7 a distance of 2435.98 feet to a point 55.00 feet West of the East quarter corner of aforesaid Section 7; thence South 03°08'40" East along a line 55.00 feet West of and parallel to the East line of aforesaid Section 7, a distance of 347.93 feet to a point; thence South 88°42'50" West a distance of 5174.56 feet to a point 150.00 feet East of the West line of aforesaid Section 7; thence North 01°59'00" West along a line 150.00 feet East of and parallel to the West line of aforesaid section a distance of 1873.03 feet to Point of Curvature of a curve concave to the Southeast, having for its elements a radius of 500.00 feet and a central angle of 45°04'28"; thence run North and Northeasterly along the arc of said curve a distance of 393.35 feet to the point of tangency; thence North 43°05'28" East a distance 595.11 feet to the point of curvature of a curve concave to the Southeast, having for its elements a radius of 600.00 feet and a central angle of 45°20'37"; thence run Northeasterly along the arc of said curve a

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1970 JAN 15
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Distance of 474.72 feet to the point of tangency; thence North 88°26'05" East 347.27 feet to a point; thence North 72°10'23" East 625.00 feet to a point of intersection with the South Right-Of-Way Line of State Road 90; thence North 88°26'05" East along the South line of State Road 90 a distance of 3155.80 feet to the point of curvature of a curve concave Southwesterly, having for its elements a radius of 50.00 feet and a central angle of 89°16'45"; thence run Easterly and Southeasterly along the arc of said curve a distance of 78.78 feet to the Point of Beginning; less that part thereof which lies within the NW¼ of the NW¼ of the NW¼ of said Section 7, Township 54 South, Range 40 East, Dade County, Florida; the net area of the above described land being 343.662 acres.

By acceptance of this deed, the Board of Trustees of the Internal Improvement Trust Fund, State of Florida, agrees that pursuant to Section 31.01 Florida Statutes, and otherwise, if such Board decides to sell the land conveyed by this deed, or portions thereof, Dade County shall have the option to purchase such lands at a nominal price.

IN WITNESS WHEREOF, the said party of the first part has caused this deed to be executed in its name, by its Board of County Commissioners acting by the Mayor of said Board the day and year aforesaid.

(OFFICIAL SEAL)

ATTEST:

E. B. LENTHERMAN, CLERK

By: [Signature]

Deputy Clerk

DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

By: [Signature]

Mayor

Authorized by Resolution No. R-1454-69, adopted December 3, 1969.

This instrument prepared by Burton F. Muckols,
Right of Way Engineer,
Dade County Public Works Department

STATE OF FLORIDA
BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

LEASE AGREEMENT

No. 2727

WHEREAS, State of Florida Board of Trustees of the Internal Improvement Trust Fund holds title to certain lands and property being utilized by the State of Florida for public purposes, and

WHEREAS, State of Florida Board of Trustees of the Internal Improvement Trust Fund is directed and authorized in Section 253.03, Florida Statutes, to enter into leases for the use, benefit and possession of public lands by State agencies which may properly use and possess them for the benefit of the State;

NOW, THEREFORE, this agreement made between STATE OF FLORIDA BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND as LESSOR, and the FLORIDA BOARD OF REGENTS, as LESSEE

WITNESSETH:

The parties, for and in consideration of mutual covenants and agreements hereinafter contained, hereby covenant and agree as follows:

1. The lessor does hereby lease to the lessee the following described premises in the County of Dade, State of Florida, together with the improvements thereon:

All those certain lands known as Florida International University properties as described in deed from Dade County to the Board of Trustees of the Internal Improvement Trust Fund, State of Florida and recorded in Official Records Book 6967, Pages 612-619 of the public records of Dade County, Florida.

LOCAL COUNCIL HAS APPROVED
AND
THIS AGREEMENT WAS PREPARED BY
JAMES L. HARRIS
LEGAL COUNSEL
STATE OF FLORIDA 37204

TO HAVE AND TO HOLD the above described land for a period of Ninety-nine (99) years from the date hereof, for the purposes of developing, improving, operating, maintaining and otherwise managing said land for public purposes.

2. The lessee shall have the right to enter upon said land for all purposes necessary to the full enjoyment by said lessee of the rights herein conveyed to it.

3. The lessee shall through its agents and employees cooperate to prevent the unauthorized use of said land or any use thereof not in conformity with this lease.

4. This lease shall terminate at the sole option of the lessor, and the lessee shall surrender up the premises to the lessor, when and if said premises, including lands and improvements, shall cease to be used for public purposes. As used in this agreement, the term "public purposes" shall mean all or any of the purposes, actions or uses which the law authorizes to be done or performed by the lessee or by any of the officers, agents or employees of the lessee for and on behalf of the lessee. Any costs arising out of the enforcement of the terms of this lease agreement shall be the exclusive obligation of the lessee, payable upon demand of the lessor.

5. The lessor does not warrant or guarantee title, right or interest in the hereinabove described property.

6. The lessor or its duly authorized agents shall have the right at any time to inspect the said land and the works and operations thereon of the lessee in any matter pertaining to this agreement.

7. Any inequities that may subsequently appear in this lease shall be subject to negotiation upon written request of either party, and the parties agree to negotiate in good faith as to any such inequities.

8. This agreement is for public purposes and the lessee shall have the right to enter into further agreements or to sublease all or any part of the within land so long as the agreement and/or sublease shall effectively carry out and further the general purposes herein described after written notice to and right of rejection by the lessor.

9. The lessee hereby covenants and agrees to investigate all claims of every nature at its own expense, and to indemnify, protect, defend, hold and save harmless the State of Florida Board of Trustees of the Internal Improvement Trust Fund and the State of Florida from any and all claims, actions, law suits and demands of any kind or nature arising out of this agreement.

10. This agreement is executed in duplicate, each copy of which shall for all purposes be considered an original.

IN TESTIMONY WHEREOF, the Trustees, for and on behalf of the State of Florida Board of Trustees of the Internal Improvement Trust Fund have hereunto subscribed their names and have caused the official seal of said State of Florida Board of Trustees of the Internal Improvement Trust Fund to be hereunto affixed, in the City of Tallahassee, Florida, on this the 22nd day of January, A. D. 1974, and the Board of Regents has duly executed same and has affixed its official seal hereto this 22nd day of January, A.D., 1974.

(SEAL)
STATE OF FLORIDA
BOARD OF TRUSTEES
OF THE INTERNAL
IMPROVEMENT TRUST
FUND

Reubin O. D. Wells
Governor

Richard D. Stone
Secretary of State

Robert L. Shriver
Attorney General

Joe M. Rios
Comptroller

Thomas H. Smalley
Treasurer

Robert T. Christian
Commissioner of Education

David Connor
Commissioner of Agriculture

As and Constituting the State of
Florida Board of Trustees of the
Internal Improvement Trust Fund

BOARD OF REGENTS

By Robert B. Mantz
Chairman

(SEAL)
BOARD OF REGENTS

ATTEST:

Mark R. ...
Notary Public

COUNTY DEED

THIS DEED made this 22nd day of JUNE A.D. 1973, by
DADE COUNTY, party of the first part, and the BOARD OF TRUSTEES OF THE
INTERNAL IMPROVEMENT TRUST FUND, STATE OF FLORIDA, Tallahassee, Florida,
party of the second part.

WITNESSETH:

That the party of the first part for and in consideration of the
sum of One Dollar (\$1.00), and other valuable considerations, to it in hand
paid by the party of the second part, receipt whereof is hereby acknowledged,
has granted, bargained and sold to the party of the second part forever, for
the specific and sole purpose of constructing and operating a State Univer-
sity, and for other purposes incidental thereto, the following described land
lying and being in Dade County, Florida:

A portion of the NW 1/4 of Section 7, Township 54 South, Range 40
East, Dade County, Florida, being more particularly described as
follows:

Commence at the Northeast corner of the NW 1/4 of said Section
7; thence run S 02°24'48" E along the East line of the NW 1/4 of
said Section 7 for a distance of 73.13 feet to the point of inter-
section with the South right of way line of State Road 90; thence
run S 88°26'05" W along the South right of way line of State Road
90 for a distance of 577.40 feet to a point; thence run S 72°10'28" W
for a distance of 285.71 feet to the point of intersection with a
line that is 80.00 feet South of and parallel to the South right of
way line of State Road 90 and the Point of Beginning of the herein
described parcel; thence run S 88°26'05" W along a line that is 80.00
feet South of and parallel to the South right of way line of State
Road 90 for a distance of 120.35 feet to the point of curvature of a
circular curve to the left; thence run Southwesterly along the arc
of said circular curve to the left, having a radius of 1145.92 feet,
through a central angle of 23°29'41", for an arc distance of 469.89
feet to the point of intersection with a line that is 175.00 feet
South of and parallel to the South right of way line of State Road
90; thence run N 88°26'05" E along a line that is 175.00 feet South
of and parallel to the South right of way line of State Road 90 for
a distance of 251.47 feet to a point; thence run N 72°10'28" E for
a distance of 339.29 feet to the Point of Beginning.

Containing 0.577 acres, more or less.

By acceptance of this deed, the Board of Trustees of the Internal
Improvement Trust Fund, State of Florida, agrees that pursuant to Section
253.111 Florida Statutes, and otherwise, if such Board decides to sell the
land conveyed by this deed, or portions thereof, Dade County shall have the
option to repurchase such lands at a nominal price.

DADE COUNTY PUBLIC WORKS DEPT.
1301 N. W. 12th Street, Miami, Florida

IN WITNESS WHEREOF, the said party of the first part has caused these presents to be executed in its name, by its Board of County Commissioners acting by the Mayor of said Board the day and year aforesaid.

(OFFICIAL SEAL)

DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

ATTEST:

RICHARD P. BRINKER, CLERK

By: [Signature]
Deputy Clerk

By: [Signature]
Mayor

Authorized by Resolution No. R-6-73, adopted May 9, 1973

STATE OF FLORIDA)
COUNTY OF DADE)

Before me personally appeared Harry P. Cain and Edward D. Philley, to me well known and known to be the ^{Mayor} Mayor and Deputy Clerk of Dade County, Florida, who executed the foregoing instrument, and acknowledged to and before me that they executed said instrument for the purposes therein expressed.

WITNESS my hand and official seal, this 22nd day of June, 19 73.

[Signature]
Notary Public

NOTARY PUBLIC, STATE OF FLORIDA State of Florida at Large
MY COMMISSION EXPIRES APR 12, 1974
BONDED THRU FELD W. DIESELHORST

STATE OF FLORIDA
BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

LEASE AGREEMENT

No. 2729

WHEREAS, State of Florida Board of Trustees of the Internal Improvement Trust Fund holds title to certain lands and property being utilized by the State of Florida for public purposes, and

WHEREAS, State of Florida Board of Trustees of the Internal Improvement Trust Fund is directed and authorized in Section 253.03, Florida Statutes, to enter into leases for the use, benefit and possession of public lands by State agencies which may properly use and possess them for the benefit of the State;

NOW, THEREFORE, this agreement made between STATE OF FLORIDA BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND as LESSOR, and FLORIDA BOARD OF REGENTS, as LESSEE,

WITNESSETH:

The parties, for and in consideration of mutual covenants and agreements hereinafter contained, hereby covenant and agree as follows:

1. The lessor does hereby lease to the lessee the following described premises in the County of Dade, State of Florida, together with the improvements thereon:

A portion of the NW $\frac{1}{4}$ of Section 7, Township 54 South, Range 40 East, Dade County, Florida, being more particularly described as follows:

Commence at the Northeast corner of the NW $\frac{1}{4}$ of said Section 7; thence run S 02°24'43" E along the East line of the NW $\frac{1}{4}$ of said Section 7 for a distance of 73.13 feet to the point of intersection with the South right of way line of State Road 90; thence run S 88°26'05" W along the South right of way line of State Road 90 for a distance of 577.40 feet to a point; thence run S 72°10'28" W for a distance of 285.71 feet to the point of intersection with a line that is 80.00 feet South of and parallel to

LEGAL DESCRIPTION APPROVED
AND
THIS INSTRUMENT WAS PREPARED BY
JAMES T. WILLIAMS
ELLIST BUILDING
TALLAHASSEE, FLORIDA 32304

the South right of way line of State Road 90 and the Point of Beginning of the herein described parcel; thence run S 88°26'05" W along a line that is 80.00 feet South of and parallel to the South right of way line of State Road 90 for a distance of 120.35 feet to the point of curvature of a circular curve to the left; thence run Southwesterly along the arc of said circular curve to the left, having a radius of 1145.92 feet, through a central angel of 23°29'41", for an arc distance of 469.89 feet to the point of intersection with a line that is 175.00 feet South of and parallel to the South right of way line of State Road 90; thence run N 88°26'05" E along a line that is 175.00 feet South of and parallel to the South right of way line of State Road 90 for a distance of 251.47 feet to a point; thence run N 72°10'28" E for a distance of 339.29 feet to the Point of Beginning. Containing 0.577 acres, more or less.

TO HAVE AND TO HOLD the above described land for a period of Ninety-nine (99) years from the date hereof, for the purposes of developing, improving, operating, maintaining and otherwise managing said land for public purposes.

2. The lessee shall have the right to enter upon said land for all purposes necessary to the full enjoyment by said lessee of the rights herein conveyed to it.

3. The lessee shall through its agents and employees cooperate to prevent the unauthorized use of said land or any use thereof not in conformity with this lease.

4. This lease shall terminate at the sole option of the lessor, and the lessee shall surrender up the premises to the lessor, when and if said premises, including lands and improvements, shall cease to be used for public purposes. As used in this agreement, the term "public purposes" shall mean all or any of the purposes, actions or uses which the law authorizes to be done or performed by the lessee or by any of the officers, agents or employees of the lessee for and on behalf of the lessee. Any costs arising out of the enforcement of the terms of this lease agreement shall be the exclusive obligation of the lessee, payable upon demand of the lessor.

5. The lessor does not warrant or guarantee title, right or interest in the hereinabove described property.

6. The lessor or its duly authorized agents shall have the right at any time to inspect the said land and the works and operations thereon of the lessee in any matter pertaining to this agreement.

7. Any inequities that may subsequently appear in this lease shall be subject to negotiation upon written request of either party, and the parties agree to negotiate in good faith as to any such inequities.

8. This agreement is for public purposes and the lessee shall have the right to enter into further agreements or to sublease all or any part of the within land so long as the agreement and/or sublease shall effectively carry out and further the general purposes herein described after written notice to and right of rejection by the lessor.

9. The lessee hereby covenants and agrees to investigate all claims of every nature at its own expense, and to indemnify, protect, defend, hold and save harmless the State of Florida Board of Trustees of the Internal Improvement Trust Fund and the State of Florida from any and all claims, actions, law suits and demands of any kind or nature arising out of this agreement.

10. This agreement is executed in duplicate, each copy of which shall for all purposes be considered an original.

IN TESTIMONY WHEREOF, the Trustees, for and on behalf of the State of Florida Board of Trustees of the Internal Improvement Trust Fund have hereunto subscribed their names and have caused the official seal of said State of Florida Board of Trustees of the Internal Improvement Trust Fund to be hereunto affixed, in the City of Tallahassee, Florida, on this the 28th day of January, A. D. 1974, and the Board of Regents has duly executed same and has affixed its official seal hereto this 28th day of January, A.D., 1974.

(SEAL)
STATE OF FLORIDA
BOARD OF TRUSTEES
OF THE INTERNAL
IMPROVEMENT TRUST
FUND

Reubin O. Askew
Governor

Richard C. Stone
Secretary of State

Robert L. Linn
Attorney General

Frederick D. Ransom
Comptroller

Thomas W. Conally
Treasurer

Alfred T. Christian
Commissioner of Education

Mark Connor
Commissioner of Agriculture

As and Constituting the State of
Florida Board of Trustees of the
Internal Improvement Trust Fund

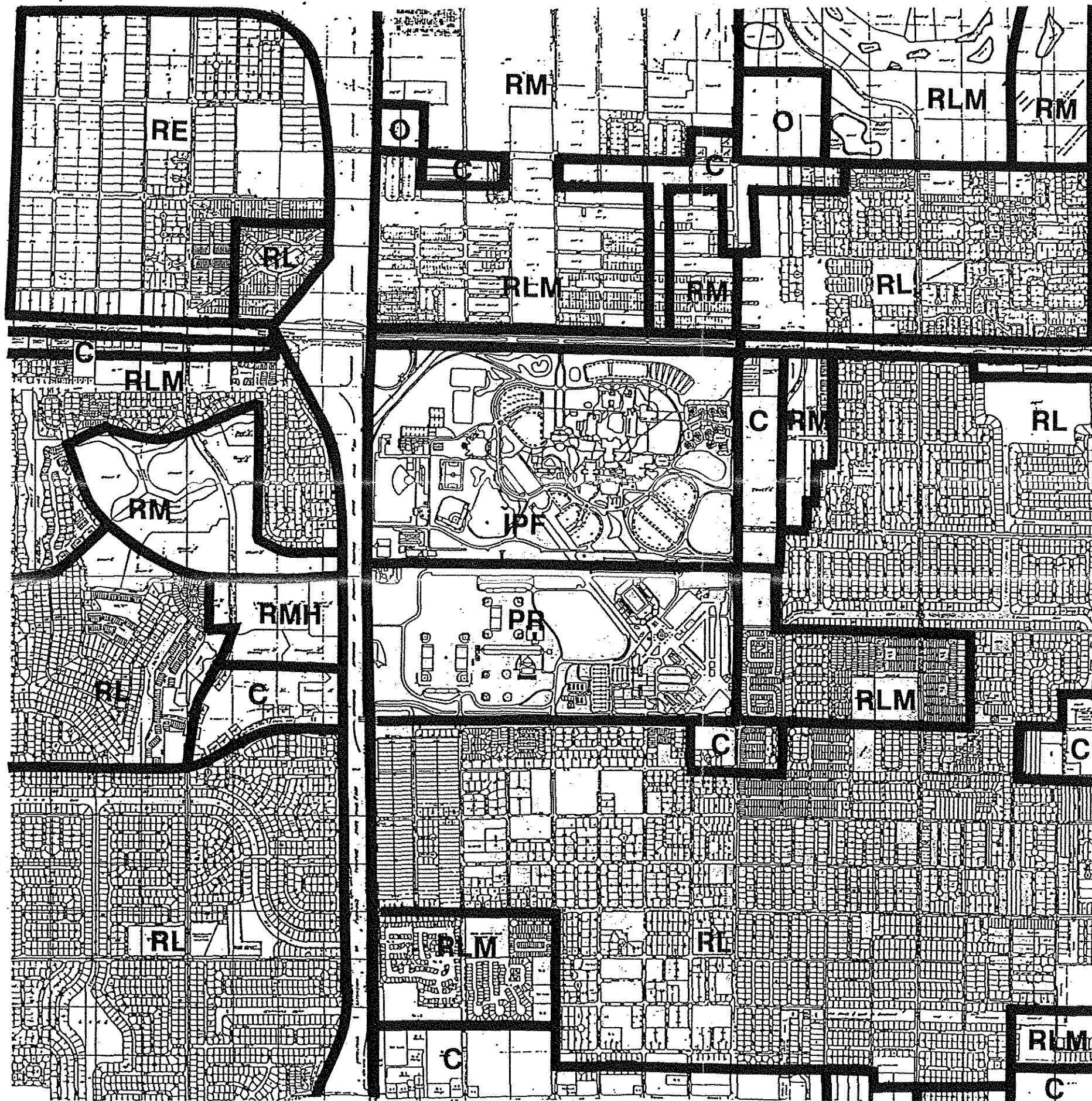
(SEAL)
BOARD OF REGENTS

BOARD OF REGENTS

By Robert D. Mantz
Chairman

ATTEST:

Henry Mawle



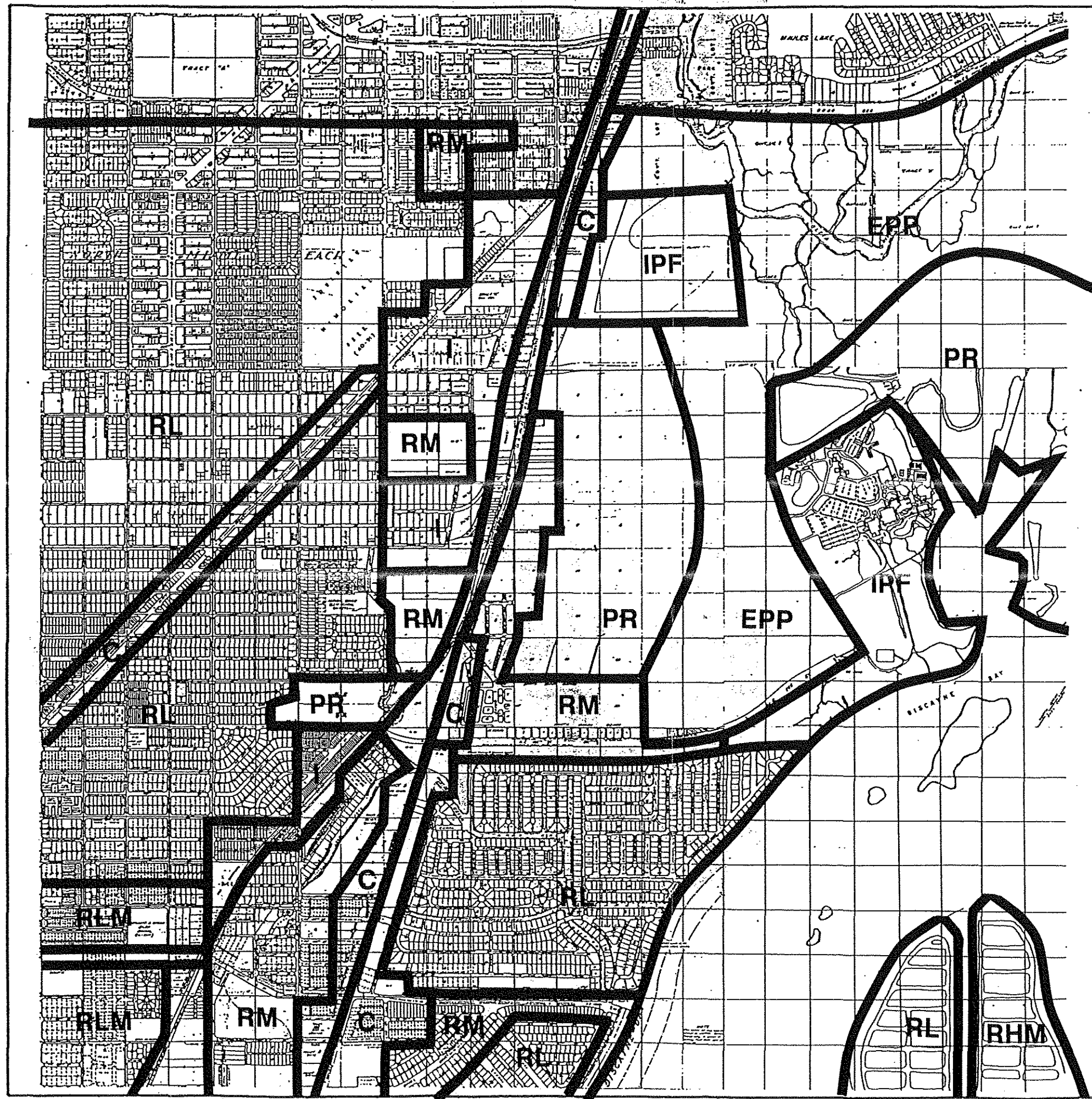
4.1 ZONING UNIVERSITY PARK

- RE** RESIDENTIAL
- RL** LOW DENSITY
- RLM** LOW - MED. DENSITY
- RM** MEDIUM DENSITY
- RHM** MED - HIGH DENSITY
- C** BUSINESS AND OFFICE
- O** OFFICE/ RESIDENTIAL
- PR** PARKS AND RECREATION
- IPF** INSTITUTIONAL
AND PUBLIC FACILITY

WALLACE ROBERTS & TODD CORAL GABLES, FL
 DAVID KLINGMAN & ASSOCIATES, INC. CORAL GABLES, FL
 GARY & GARY, INC. MIAMI, FL
 KEITH & SCHWARTZ FT. LAUDERDALE, FL
 SDI ENGINEERS CORAL GABLES, FL
 ZYSOONICH, INC. MIAMI, FL

FLORIDA INTERNATIONAL UNIVERSITY
 MASTER PLAN
 MIAMI, FLORIDA





4.2 ZONING

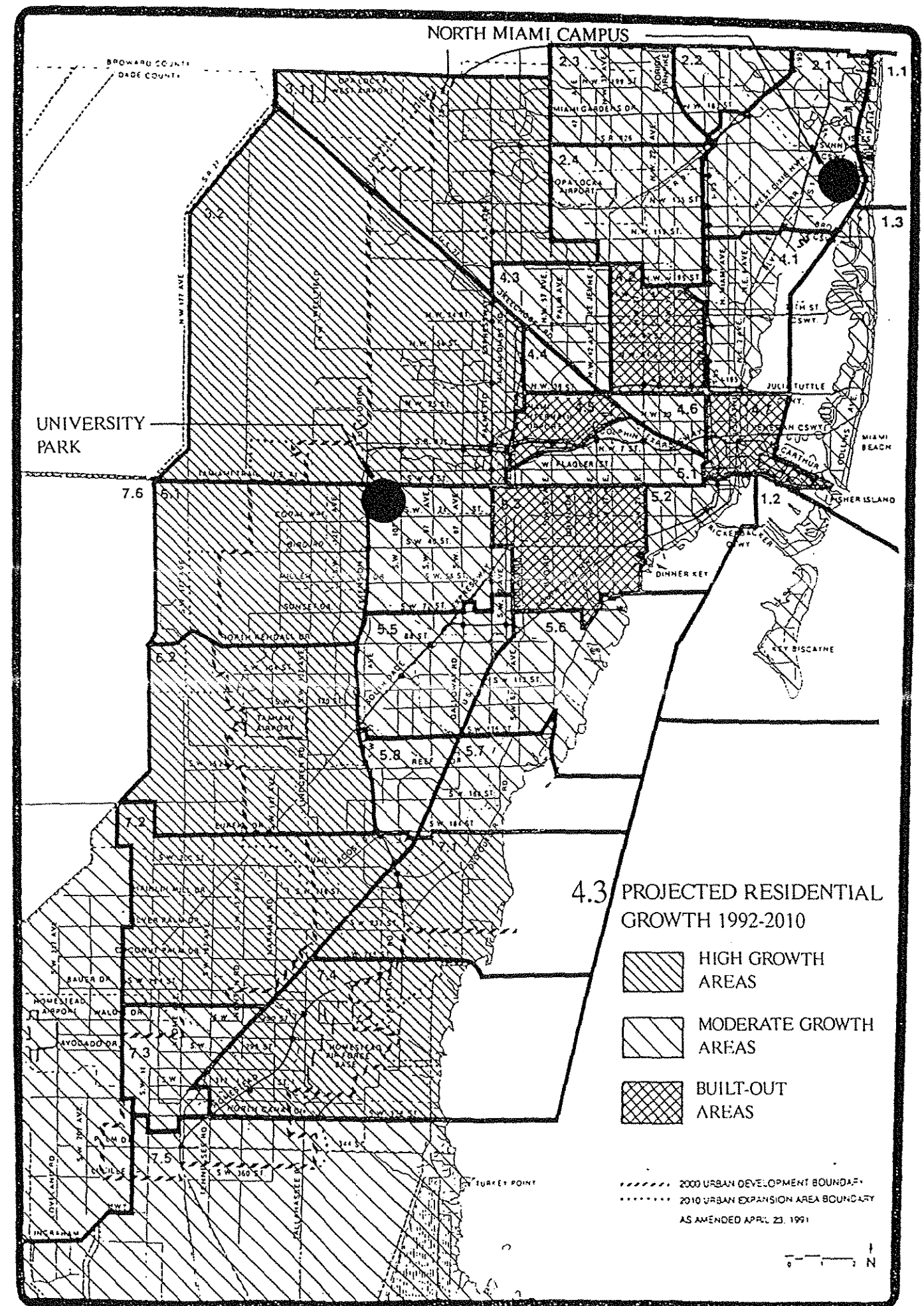
NORTH MIAMI CAMPUS

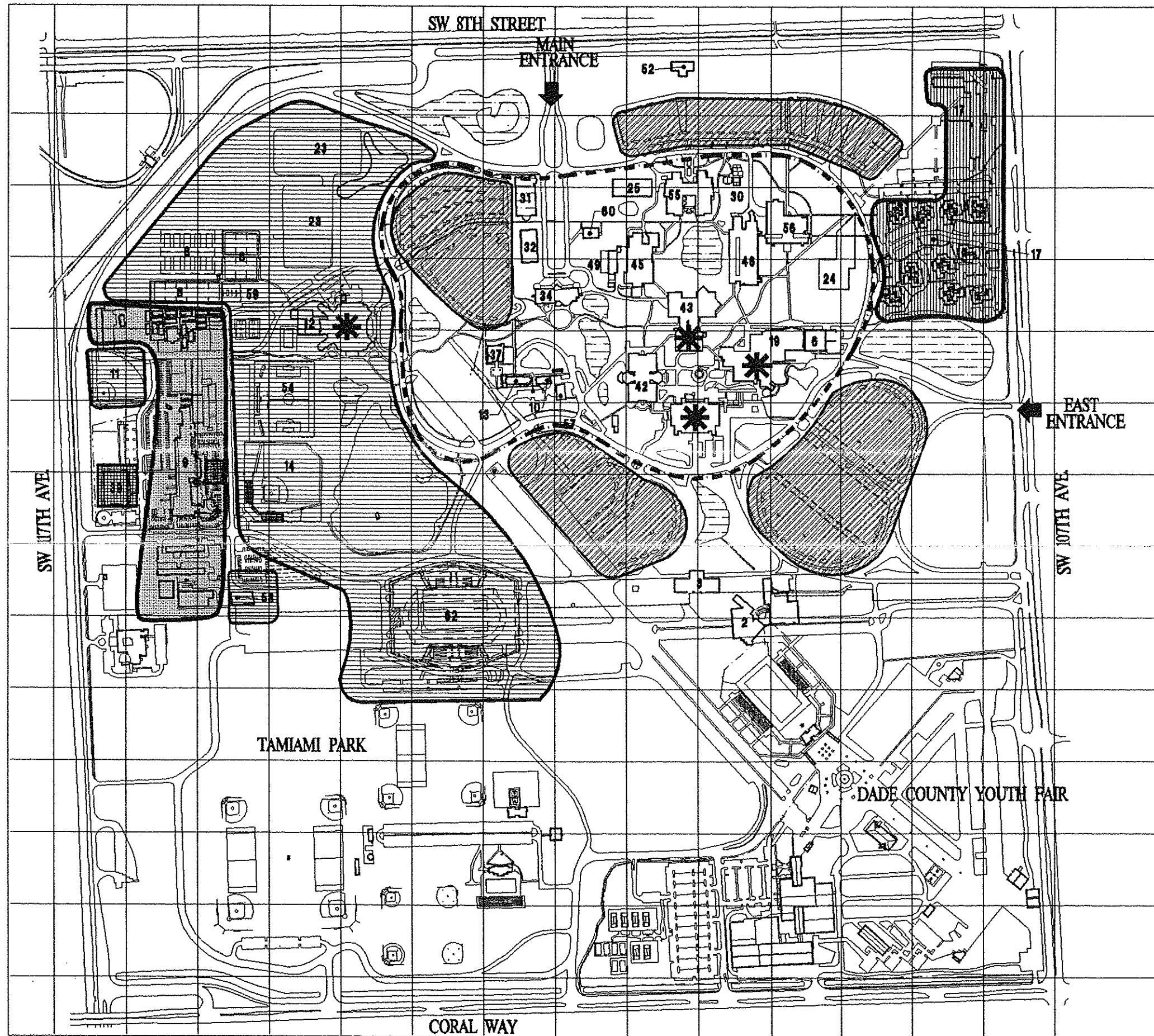
- I** INDUSTRIAL/ OFFICE
- RL** LOW DENSITY
- RLM** LOW - MED. DENSITY
- RM** MEDIUM DENSITY
- RHM** MED - HIGH DENSITY
- C** BUSINESS AND OFFICE.
- PR** PARKS AND RECREATION
- IPF** INSTITUTIONAL AND PUBLIC FACILITY
- EPP** ENVIRONMENTALLY PROTECTED PARK

WALLACE ROBERTS & TODD CORAL GABLES, FL
 DAVID HUNTER & ASSOCIATES, INC. CORAL GABLES, FL
 GARY & GARY, INC. MIAMI, FL
 KEITH & ROHMARS FT. LAUDERDALE, FL
 SOM ENGINEERS CORAL GABLES, FL
 ZYKOVICH, INC. MIAMI, FL

FLORIDA INTERNATIONAL UNIVERSITY MASTER PLAN MIAMI, FLORIDA



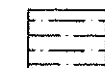




4.4 LAND USE

UNIVERSITY PARK

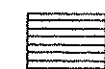
LEGEND



WATER



ACADEMIC CORE



ATHLETICS/RECREATION



SERVICE



HOUSING



PARKING



ANCILLARY USES



ACTIVITY GENERATORS

ATHENEUM PRIMERA CASA
GRAHAM CENTER GOLDEN PANTHERS ARENA

- | | |
|-----------------------------------|--------------------------------------|
| 1. LIBRARY ADDITION | 37. JOINT CENTER |
| 2. ARTS COMPLEX I | 39. HURRICANE CENTER/ |
| 3. ARTS COMPLEX II | 41. PRIMERA CASA |
| 6. STUDENT CENTER EXPANSION | 42. DEUXIEME MAISON |
| 8. TENNIS COURTS | 43. ATHENEUM/LIBRARY |
| 9. PHYSICAL PLANT BUILDING | 44. GRAHAM UNIVERSITY CENTER |
| 10. PUBLIC SAFETY BUILDING | 45. VERTES HAUS |
| 11. RELOCATED SOFTBALL FIELD | 46. OWA EHAN |
| 12. NAUTILUS/FITNESS CENTER | 47. GOLDEN PANTHER ARENA |
| 13. HEALTH CENTER | 49. CENTRAL UTILITY |
| 14. MULTI-PURPOSE STADIUM | 52. METRO STATION |
| 17. STUDENT HOUSING | 54. SOCCER FIELD |
| 19. FACULTY CLUB | 55. ENGINEERING AND COMPUTER SCIENCE |
| 23. OUTDOOR RECREATION FACILITIES | 56. CHEMISTRY AND PHYSICS |
| 24. HEALTH AND LIFE SCIENCE | 57. DUPLICATION CENTER |
| 25. ENGINEERING II | 58. CERAMICS BUILDING |
| 28. CHILD CARE | 59. TENNIS CENTER |
| 30. BIOLOGY GREEN HOUSE | 60. COLLEGE OF HEALTH |
| 31. EDUCATION BUILDING | 62. TAMAMI STADIUM |
| 32. BUSINESS II | |
| 34. BUSINESS AND FINANCE | |

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NORTH MIAMI CAMPUS

LEGEND

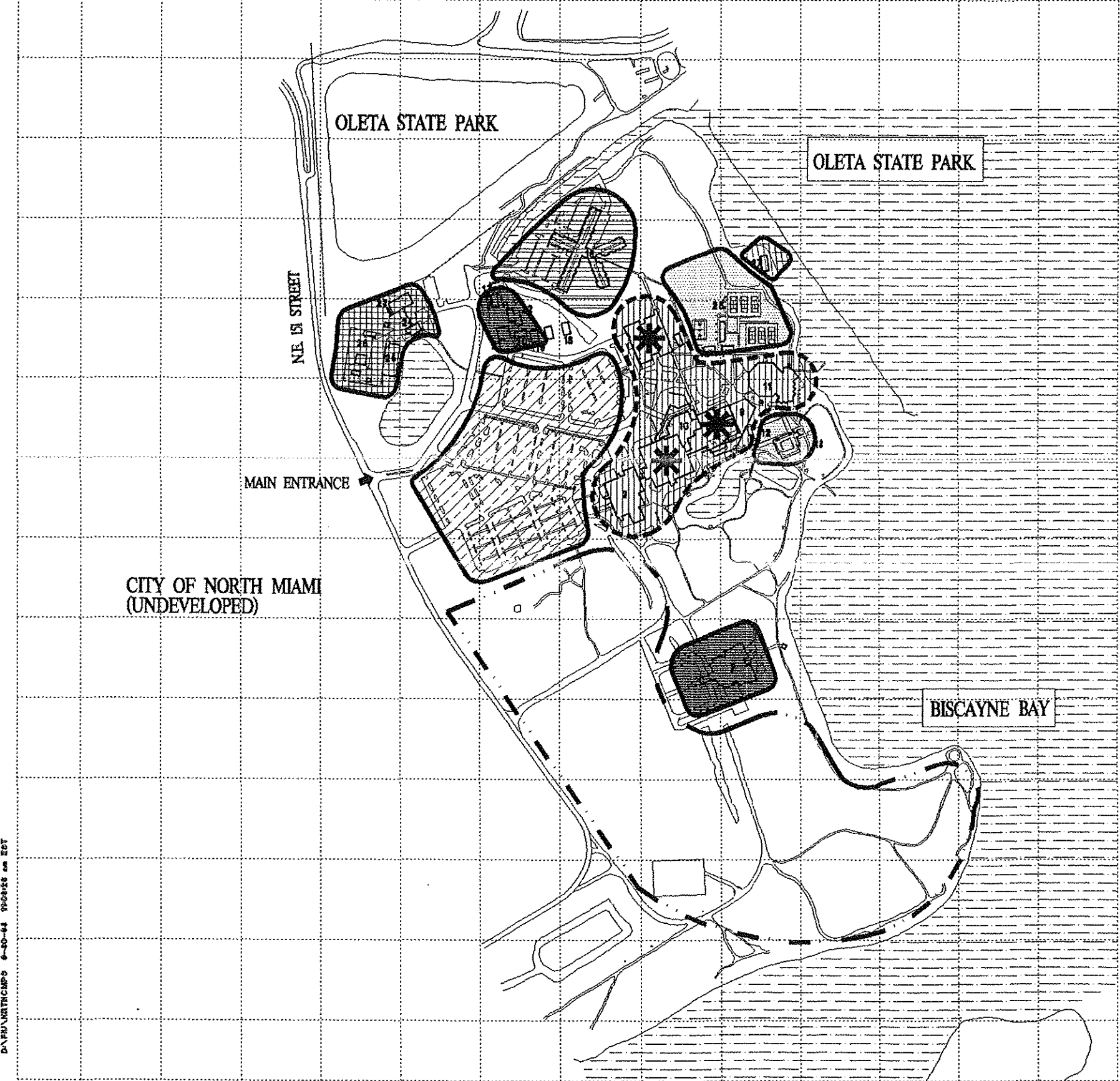
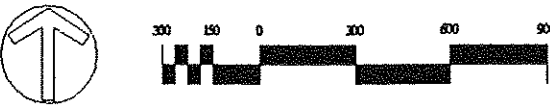
- WATER
- ACADEMIC
- ATHLETICS/RECREATION
- SERVICE
- HOUSING
- PARKING
- ANCILLARY USES
- ACTIVITY GENREATORS
LIBRARY
STUDENT CENTER
ACADEMIC ONE
- UNDEVELOPED

- | | |
|----------------------------------------|-----------------------------------|
| 1. ACADEMIC ONE | 18. HEALTH CENTER |
| 2. ACADEMIC TWO | 19. HOLOCAUST DOCUMENTATION CNTR. |
| 3. CONFERENCE CENTER | 20. HRS- PRACTICE CENTER |
| 4. STUDENT CENTER | 21. HRS- CLASSROOM |
| 5. STUDENT CENTER EXPANSION | 22. HRS- ADMINISTRATION |
| 6. CENTRAL UTILITIES | 23. CENTRAL RECEIVING |
| 7. HOSPITALITY MANAGEMENT | 24. PUBLIC SAFETY |
| 8. AQUATIC CENTER | 25. PHYSICAL PLANT |
| 9. POOL HOUSE | 26. GROUNDS |
| 10. THE LIBRARY AND EXPANSION | 27. MARINE BIOLOGY (FISH TANKS) |
| 11. STUDENT HOUSING | 28. OUTDOOR RECREATION |
| 12. CHILDREN'S CREATIVE LEARNING CNTR. | |

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









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4.6 DEVELOPMENT CONSTRAINTS

UNIVERSITY PARK

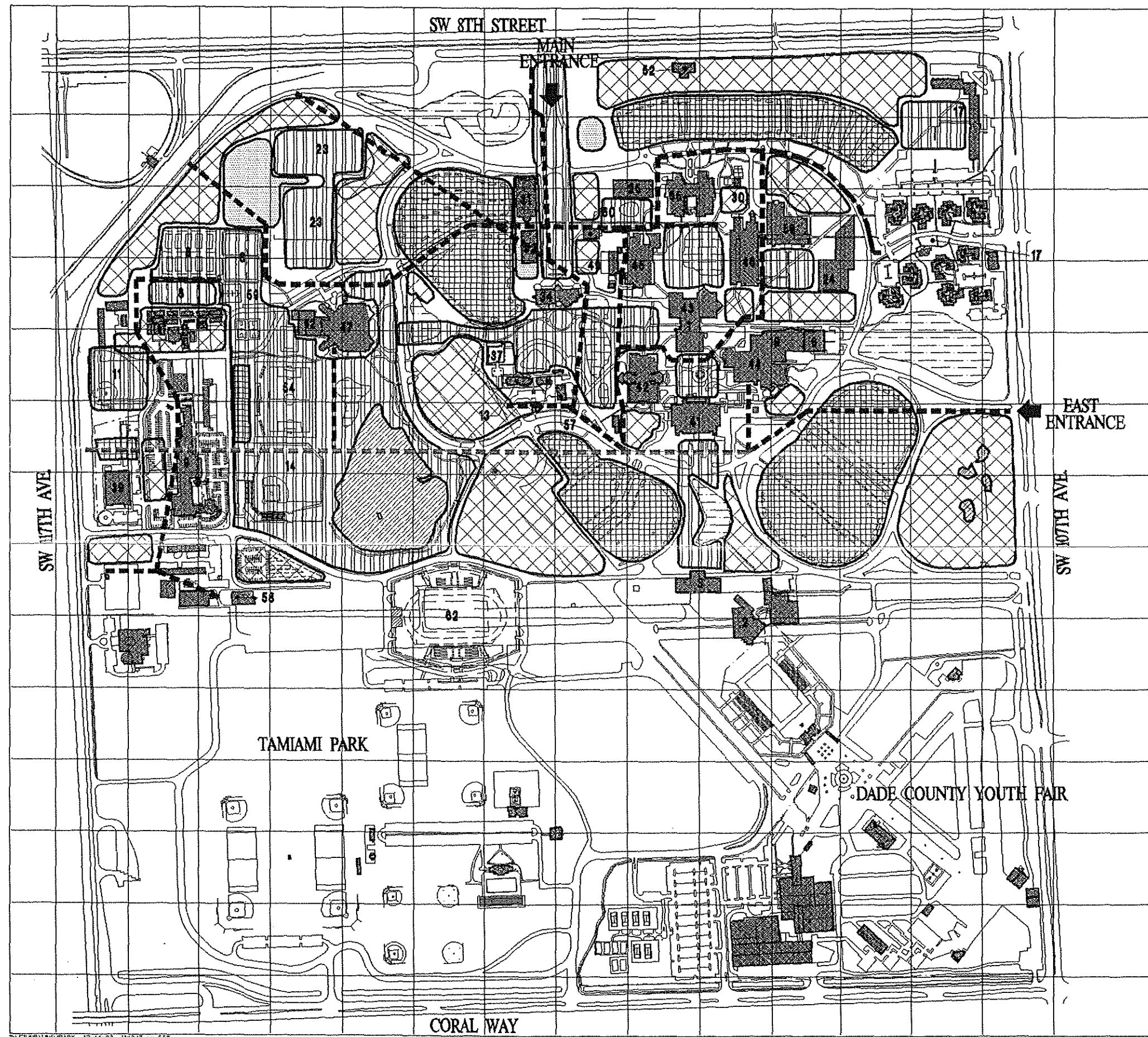
LEGEND

-  WATER
-  EXISTING/COMMITTED BLDGS.
-  RECREATION/FORMAL OPEN SPACE 47.2 ACRES
-  LAKES/POTENTIAL WETLANDS 14.6 ACRES
-  PRESERVES 7.8 ACRES
-  MAJOR UTILITY CORRIDORS
-  EXISTING PARKING 44.3 ACRES
-  UNCONSTRAINED/MINOR CONSTRAINTS 61.8 ACRES

- | | |
|-----------------------------------|--------------------------------------|
| 1. LIBRARY ADDITION | 37. JOINT CENTER |
| 2. ARTS COMPLEX I | 39. HURRICANE CENTER/ |
| 3. ARTS COMPLEX II | 41. PRIMERA CASA |
| 6. STUDENT CENTER EXPANSION | 42. DEUXIEME MAISON |
| 8. TENNIS COURTS | 43. ATHLETIC/LIBRARY |
| 9. PHYSICAL PLANT BUILDING | 44. GRAHAM UNIVERSITY CENTER |
| 10. PUBLIC SAFETY BUILDING | 45. VERTES HAUS |
| 11. RELOCATED SOFTBALL FIELD | 46. ONA EHAM |
| 12. NAUTILUS/FITNESS CENTER | 47. GOLDEN PANTHER ARENA |
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| 23. OUTDOOR RECREATION FACILITIES | 56. CHEMISTRY AND PHYSICS |
| 24. HEALTH AND LIFE SCIENCE | 57. DUPLICATING CENTER |
| 25. ENGINEERING II | 58. CERAMICS BUILDING |
| 26. CHILD CARE | 59. TENNIS CENTER |
| 30. BIOLOGY GREEN HOUSE | 60. COLLEGE OF HEALTH |
| 31. EDUCATION BUILDING | 62. TAMAMI STADIUM |
| 32. BUSINESS I | |
| 34. BUSINESS AND FINANCE | |
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NORTH MIAMI CAMPUS

LEGEND

-  RECREATION/FORMAL OPEN SPACE
19.3 ACRES
-  EXISTING/COMMITTED BUILDINGS
7.5 ACRES
-  LAKES/ POTENTIAL WETLANDS
38.4 ACRES
-  PRESERVE/VEGETATION
5.7 ACRES
-  MAJOR UTILITY CORRIDORS
-  EXISTING PARKING
17.1 ACRES
-  UNCONSTRAINED/ MINOR CONSTRAINTS
55.8 ACRES

- | | |
|----------------------------------------|-----------------------------------|
| 1. ACADEMIC ONE | 18. HEALTH CENTER |
| 2. ACADEMIC TWO | 19. HOLOCAUST DOCUMENTATION CNTR. |
| 3. CONFERENCE CENTER | 20. HRS- PRACTICE CENTER |
| 4. STUDENT CENTER | 21. HRS- CLASSROOM |
| 5. STUDENT CENTER EXPANSION | 22. HRS- ADMINISTRATION |
| 6. CENTRAL UTILITIES | 23. CENTRAL RECEIVING |
| 7. HOSPITALITY MANAGEMENT | 24. PUBLIC SAFETY |
| 8. AQUATIC CENTER | 25. PHYSICAL PLANT |
| 9. POOL HOUSE | 26. GROUNDS |
| 10. THE LIBRARY AND EXPANSION | 27. MARINE BIOLOGY (FISH TANKS) |
| 11. STUDENT HOUSING | 28. OUTDOOR RECREATION |
| 12. CHILDREN'S CREATIVE LEARNING CNTR. | |

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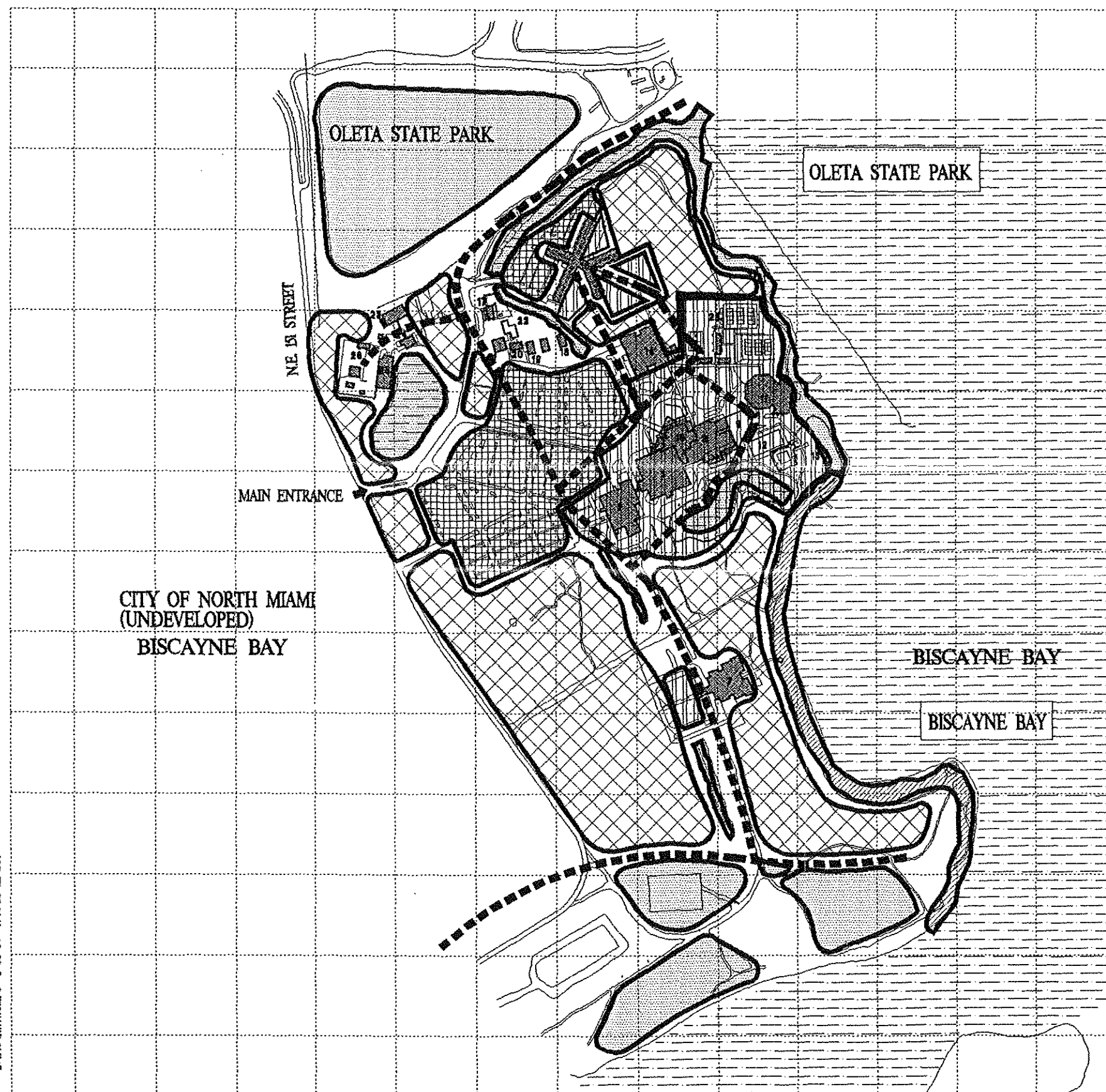
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5.0 ACADEMIC FACILITIES ELEMENT

Existing Academic Buildings

Currently the University Park campus has 8 buildings that are primarily used for academic purposes and 5 that are scheduled to be built by 1998. In addition to these academic buildings, there are many classrooms and laboratories found in trailers and other temporary locations. In comparison, the North Miami Campus has 4 main academic buildings including the library and few additional areas that contain classroom and laboratory space.

Table 5.1 University Park Campus Academic Buildings

EXISTING BUILDINGS	NET ASSIGNABLE SQ. FT.	GROSS SQ. FT.
Athenaeum	91,004	145,118
Primera Casa	119,073	221,394
Deuxieme Maison	52,365	140,807
Viertes Haus	43,824	69,567
Engineering and Computer Science	63,306	112,754
Owa Ehan	53,260	110,867
Chemistry and Physics	65,025	132,212
Business Administration	30,502	56,382
Total Existing Academic Buildings	518,359	989,101
SCHEDULED FOR DESIGN/CONSTRUCTION		
(13) Labor Center 1994	12,750	19,125 (25,000)
(14) Education Bldg. 1995	33,619	50,428 (57,456)
(05A) Athenanum Addition 1997	121,936	187,904 (170,710)
(16) Arts Complex I 1996	38,288	57,432 (74,052)
(20) Engineering II 1998	119,770	179,655 (167,000)
(21) Health & Life Science 1997	45,100	67,650 (61,523)
(23) Classroom/Office 2000	50,000	75,000 (76,808)
(24) Arts II 1999	44,560	66,840 (64,414)
Total Currently Planned Const.	466,023 NASF	699,034 (696,963)

Source: FTU Physical Facilities Space File Report II 7/29/93
 FTU Physical Facilities Space Data Report 8/23/93

- NOTE: 1. Engineering II indicates an increased square footage as per the FTU 5 year project priorities list 1995-2000, CIP - May 9, 1994
2. Gross square footage for buildings scheduled for design/construction assume a conversion factor of 1.5. Number in parenthesis indicates actual square footage per design.

Table 5.2 North Miami Campus Academic Buildings

5.0 ACADEMIC FACILITIES ELEMENT

EXISTING BUILDINGS	Net Assignable	Gross
Library	57,197	100,087
Academic One	61,218	145,911
Academic Two	47,642	101,800
Hospitality Management	39,884	87,724
Total	205,941 NASF	435,522 GSF

Source: FIU Physical Facilities Space File Report 7-29-93

Planned Academic Facilities

As the University grows and its needs continue to change, facilities are being planned to house both the existing and planned programs and activities at FIU. These additional facilities are listed in the 1992-93 Academic Affairs Goals which states that one of the strategic assumptions for the University is the "consolidation of colleges and schools to North Miami and University Park," which is considered an important factor in the building of a research University. "Each professional school should be housed primarily on one campus or the other as consistent with its mission to meet student and community needs. On the other hand, it is necessary that some professional schools and the College of Arts and Sciences maintain their presence on both campuses to provide courses to other schools and to continue its own degree programs."

Academic Facilities Space Definitions

Each academic building has been broken down to its academic uses; classroom, teaching, laboratory, research laboratory and library space. These functions have been defined by the SUS Fixed Capital Outlay Formula as follows:

Classroom Space

A room used by classes that does not require special-purpose equipment for student use. Included in this category are rooms generally used for scheduled instruction requiring no special equipment and referred to as lecture rooms, lecture-demonstration rooms, seminar rooms and general purpose classrooms, plus related service areas such as projection rooms, cloak rooms, preparation rooms, and storage.

Teaching Laboratory Space

A teaching laboratory is defined as a room used primarily by regularly scheduled classes that require special-purpose equipment for student participation, experimentation, observation, or practice in a field of study. Included in this category are rooms generally referred to as teaching laboratories, drafting rooms, band rooms, (group) music practice rooms and, language laboratories, plus related service areas.

Research Laboratory Space

A room used for laboratory applications, research and/or training in research methodology that require special purpose equipment for staff and/or student experimentation or observation. Included in this category are rooms generally referred to as research laboratories and research laboratory offices, plus related service areas such as balance rooms, cold rooms, stock rooms and dark rooms. Research laboratories are not used for regularly scheduled classes.

Library Space

A library is a facility used to provide shelving for books and audiovisual materials as well as areas for individual study of these materials. Library facilities include reading rooms, carrels study booths, stacks, circulation desks, card catalogs, microfilm processing areas, and audiovisual record-playback areas, plus related service areas such as storage and coatrooms.

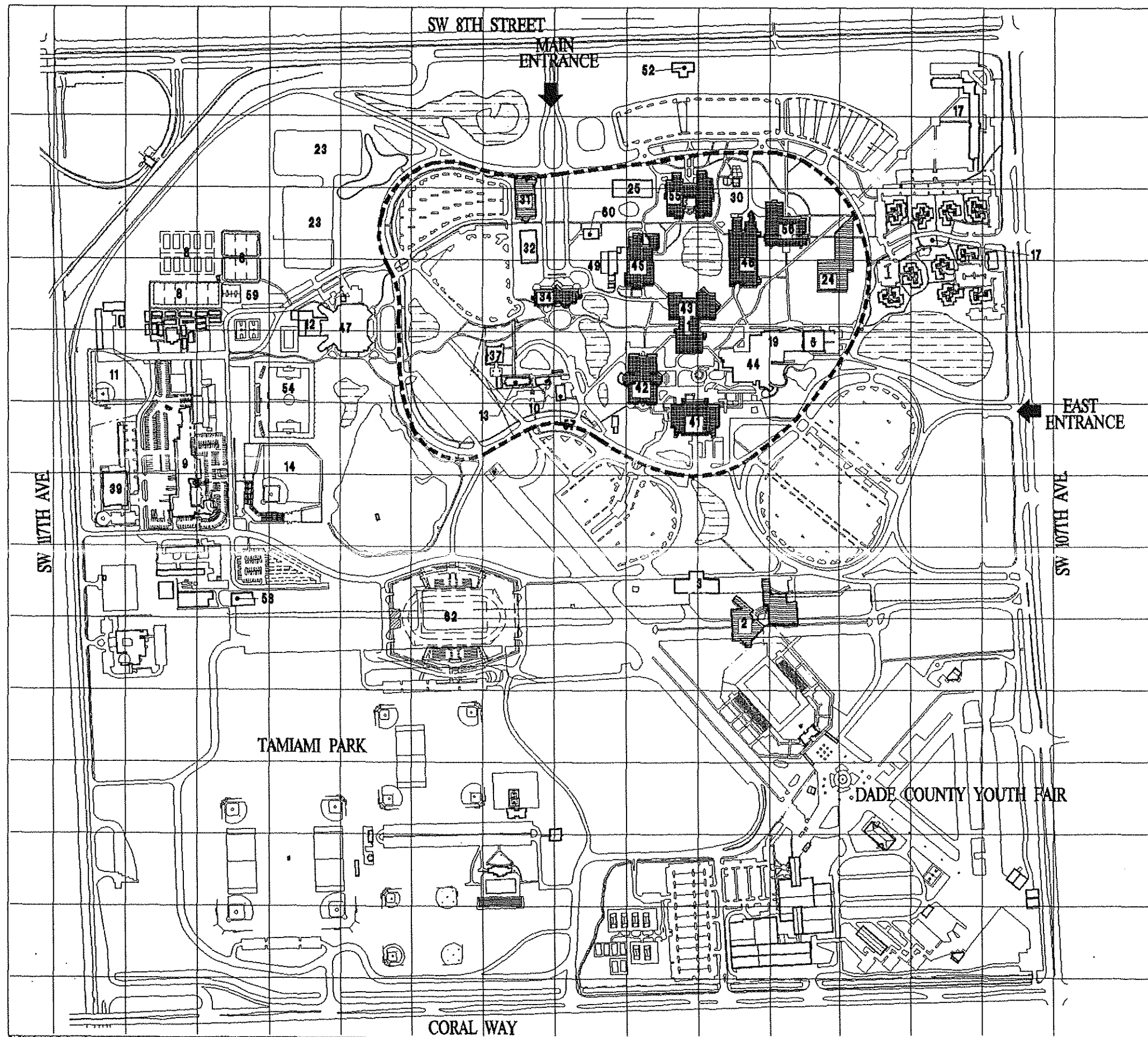
Instructional Media

Rooms used for the production and distribution of audiovisual, radio, and TV materials, and for the operation of equipment for the communication of these materials. Included in this category are rooms generally referred to as TV studios, radio studios, sound studios and graphic studios, plus related service areas such as film libraries, tape libraries, control rooms, videotape recorder rooms, property storage and recording rooms.

Existing Space Utilization

Space utilization information for each campus is constantly changing as courses offerings are changed and classroom locations are reassigned. Because of this, it is difficult to keep this information current with the projected space needs. FIU does keep an inventory of classroom and teaching laboratory space utilization on the University Park campus which is updated annually.

The 1992-93 Academic Affairs Goals has as one of its goals, to provide "efficient management and better usage of the limited classroom and laboratory space to accommodate a greater number of students and courses."



5.1 ACADEMIC FACILITIES

UNIVERSITY PARK

LEGEND

- WATER
- ACADEMIC CORE
- EXISTING ACADEMIC BLDGS.
 - 34. BUSINESS AND FINANCE
 - 41. PRIMERA CASA
 - 42. DEUXIEME MAISON
 - 43. ATHENEUM
 - 45. VIERTES HAUS
 - 46. OWA EHAN
 - 55. ENGINEERING AND COMPUTER SCIENCE
 - 56. CHEMISTRY AND PHYSICS
- COMMITTED ACADEMIC BLDGS.
 - 2. ARTS COMPLEX
 - 24. HEALTH AND LIFE SCIENCE
 - 31. EDUCATION AND BUILDING
 - 32. BUILDING II

- | | |
|-----------------------------------|--------------------------------------|
| 1. LIBRARY ADDITION | 37. JOINT CENTER |
| 2. ARTS COMPLEX I | 39. HURRICANE CENTER/ |
| 3. ARTS COMPLEX II | 41. PRIMERA CASA |
| 6. STUDENT CENTER EXPANSION | 42. DEUXIEME MAISON |
| 8. TENNIS COURTS | 43. ATHENEUM/LIBRARY |
| 9. PHYSICAL PLANT BUILDING | 44. GRAHAM UNIVERSITY CENTER |
| 10. PUBLIC SAFETY BUILDING | 45. VIERTES HAUS |
| 11. RELOCATED SOFTBALL FIELD | 46. OWA EHAN |
| 12. NAUTILUS/FITNESS CENTER | 47. GOLDEN PANTHER ARENA |
| 13. HEALTH CENTER | 49. CENTRAL UTILITY |
| 14. MULTI-PURPOSE STADIUM | 52. METRO STATION |
| 17. STUDENT HOUSING | 54. SOCCER FIELD |
| 19. FACULTY CLUB | 55. ENGINEERING AND COMPUTER SCIENCE |
| 23. OUTDOOR RECREATION FACILITIES | 56. CHEMISTRY AND PHYSICS |
| 24. HEALTH AND LIFE SCIENCE | 57. DUPLICATING CENTER |
| 25. ENGINEERING II | 58. CERAMICS BUILDING |
| 26. CHILD CARE | 59. TENNIS CENTER |
| 30. BIOLOGY GREEN HOUSE | 60. COLLEGE OF HEALTH |
| 31. EDUCATION BUILDING | 62. TAMIAMI STADIUM |
| 32. BUSINESS I | |
| 34. BUSINESS AND FINANCE | |

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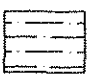
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5.2 ACADEMIC FACILITIES

NORTH MIAMI CAMPUS

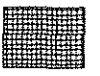
LEGEND



WATER



ACADEMIC



EXISTING ACADEMIC BUILDINGS

- 1. ACADEMIC ONE
- 2. ACADEMIC TWO
- 7. CONFERENCE CENTER
- 11. HOSPITALITY MANAGEMENT
- 14. LIBRARY
- 27. MARINE BIOLOGY (FISH TANKS)

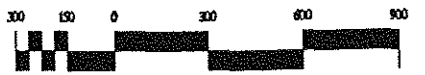
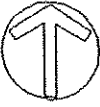
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|-------------------------------|----------------------------------------|
| 1. ACADEMIC ONE | 15. STUDENT HOUSING |
| 2. ACADEMIC TWO | 16. STUDENT HOUSING ACTIVITIES |
| 3. ACADEMIC IV/NURSING | 17. CHILDREN'S CREATIVE LEARNING CNTR. |
| 4. PUBLIC AFFAIRS | 18. HEALTH CENTER |
| 5. FUTURE PROFESSIONAL SCHOOL | 19. HOLOCAUST DOCUMENTATION CNTR. |
| 6. FUTURE ACADEMIC SITE | 20. HRS- PRACTICE CENTER |
| 7. CONFERENCE CENTER | 21. HRS- CLASSROOM |
| 8. STUDENT CENTER | 22. HRS- ADMINISTRATION |
| 9. STUDENT CENTER EXPANSION | 23. CENTRAL RECEIVING |
| 10. CENTRAL UTILITIES | 24. PUBLIC SAFETY |
| 11. HOSPITALITY MANAGEMENT | 25. PHYSICAL PLANT |
| 12. AQUATIC CENTER | 26. GROUNDS |
| 13. POOL HOUSE | 27. MARINE BIOLOGY (FISH TANKS) |
| 14. THE LIBRARY AND EXPANSION | 28. OUTDOOR RECREATION |

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53 ACADEMIC FACILITIES

NOTE:

SURPLUSES IN SOME CATEGORIES ARE NOT CONSIDERED IN THE TOTAL DEFICIT CALCULATION

1. ACADEMIC FACILITIES PROJECTED SPACE INVENTORY INCLUDES:

· CLASSROOMS
· TEACHING LABS
· LIBRARY
· RESEARCH LABS
· INSTRUCTIONAL MEDIA

UNIVERSITY PARK

· JOINT CENTER
· MULTIPURPOSE STADIUM

5 YEAR

· EDUCATION BUILDING
· ARTS COMPLEX I
· ATHENAEUM ADDITION
· HEALTH & LIFESCIENCE
· ENGINEERING II
· ARTS COMPLEX II
(* BUILDING IS PLANNED BUT NOT COMMITTED)

10 YEAR


· OFFICE/CLASSROOM BUILDING

NORTH MIAMI CAMPUS

· CLASSROOM/OFFICE BUILDING

2. PROJECTIONS HAVE BEEN MADE IN GROSS SQUARE FEET.

3. ACADEMIC FACILITIES SPACE DEFICIT IS REPRESENTED BY FIU EDUCATION BUILDING PROTOTYPE

 (53,000 GSF)

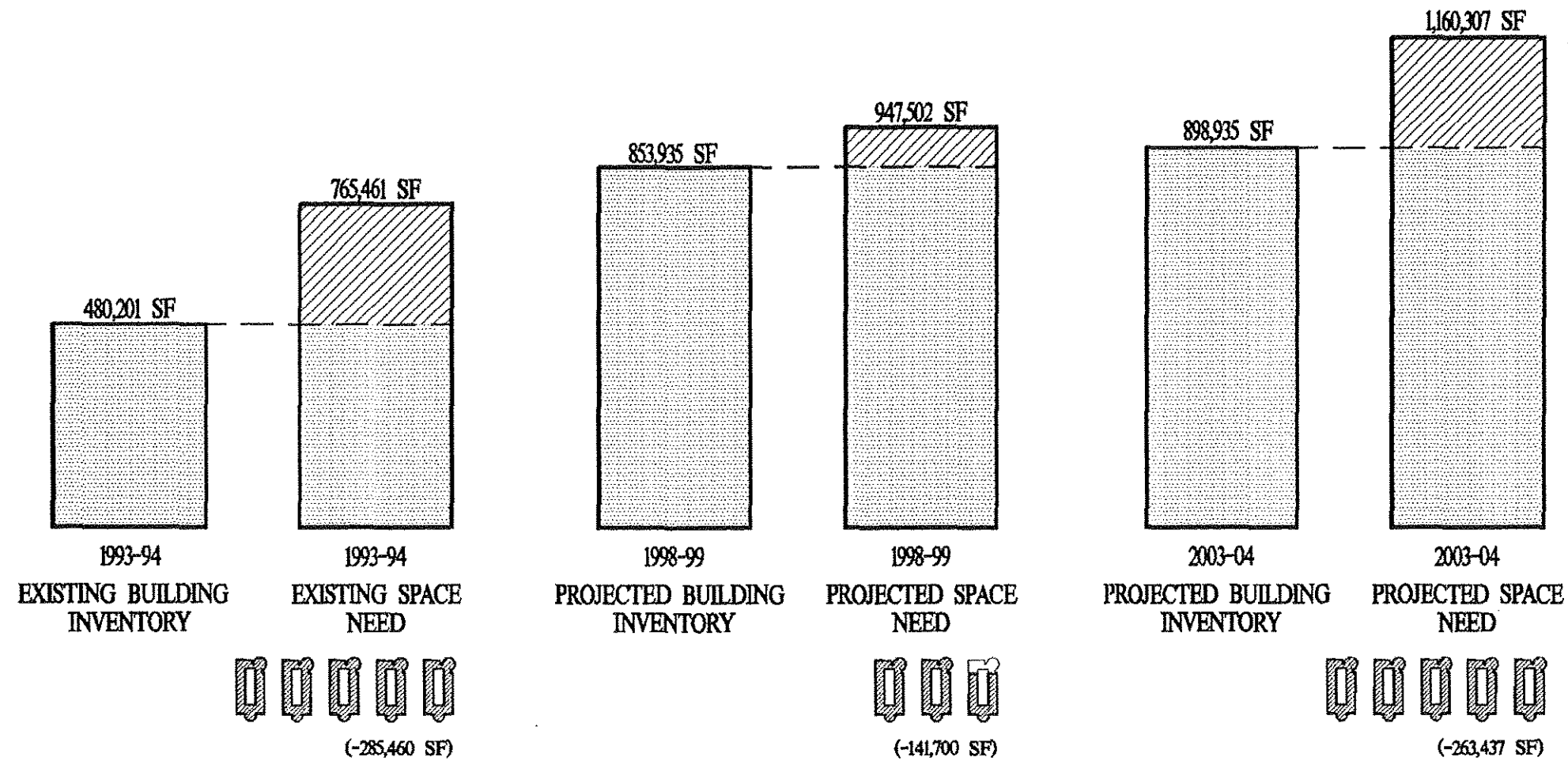
SOURCE: FIU FACILITIES MANAGEMENT REPORT FOR THE CAMPUS MASTER PLAN UPDATE 8/23/93 & 9/15/93

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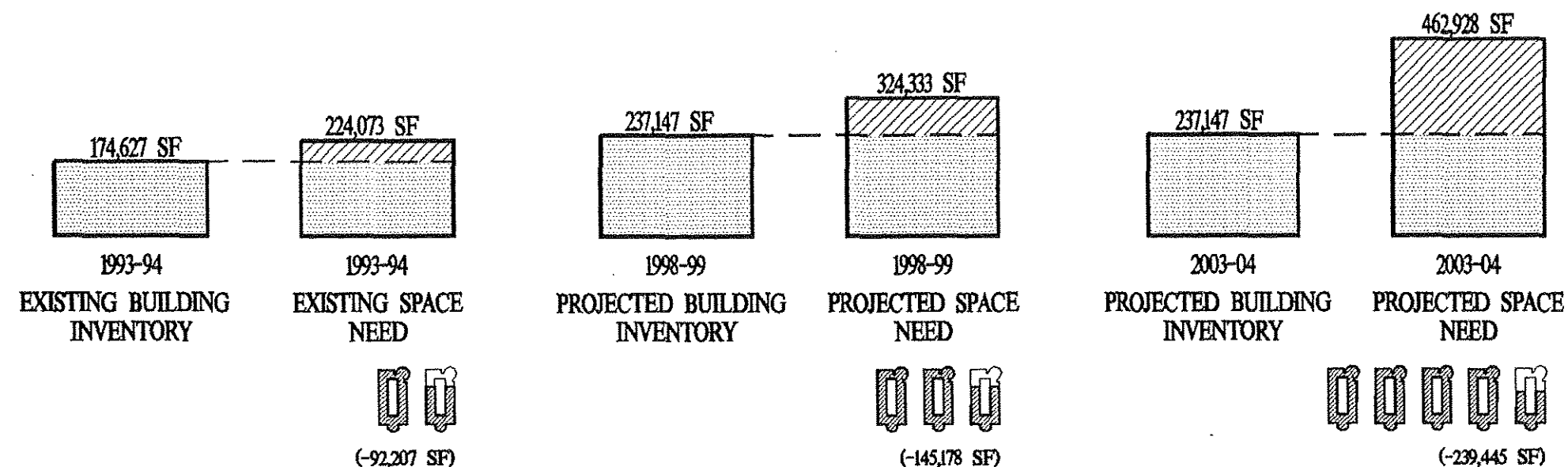
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UNIVERSITY PARK



NORTH MIAMI CAMPUS

6.0 SUPPORT FACILITIES ELEMENT

Campus support facilities aid the entire University by providing services needed to manage on-campus facilities and enrich the quality of university life. Because the support facilities found on a campus vary greatly. They have been categorized into the areas of: offices, auditorium/exhibit, student services, support services and gymnasium and have been defined in the SUS Fixed Capital Outlay Formula as follows:

Offices

Rooms used by faculty, staff or students working at a desk or table

Auditorium/Exhibit

Rooms designed and equipped for the assembly of large numbers of persons for general use by students and the public.

Student Services

Rooms used for rest and relaxation, providing products or services and recreation. They include lounges, bookstores, cafeterias, kitchens and game rooms, plus related service areas such as storage and equipment rooms.

Support Services

Areas used for institution-wide services. This includes maintenance shops, general storage areas, central receiving areas and vehicle-storage facilities, plus related service areas such as supply storage areas, and equipment areas.

Teaching Gymnasium

Facilities used by students, staff or the public for athletic/physical education activities.

Office Space - Academic and Administrative

Office space requirements can be categorized into two separate functions: **academic**, which supports a specific college or program and **administrative**, which serves the management needs of the entire university or department. According to the 1992 Total Campus Building Area by Space Category, academic office space and administrative office space represent 36% and 64%, respectively, of the total office space on the University Park campus. These percentages are reversed on the North Miami Campus because a portion of the administrative office space needed on the North Miami Campus is accommodated by the University Park campus. Using these percentages, the total office space inventory and requirements will be divided into academic and administrative offices to provide a clearer idea of how this space will be distributed. As a result, academic office space has been included in the academic space inventory and administrative office space is included in the support facilities space inventory.

6.0 SUPPORT FACILITIES ELEMENT

University Park Support Facilities Space Inventory 1993-94

The SUS Fixed Capital Outlay Formula has been used to project future space needs based on total student FTE for the existing University support facilities and for the Year 5 and the Year 10. The 1993-94 Support Facilities Space Inventory for the University Park Campus, indicates that there is currently a deficit of almost half the total space needed for support facilities. The most notable deficit is in office and general support services space even with the Joint Center and Multipurpose Stadium which have added space to these categories.

Table 6.1 University Park Support Facilities Space Inventory 1993-94

	Existing Building Inventory s.f. net/(gross)	Projected Space Needed s.f. net/(gross)	Surplus/Deficit * s.f. net/(gross)
Office: Admin. 64%	132,369 (198,553)	225,949 (338,924)	-93,580 (-140,371)
Auditorium/Exhibit	36,955 (55,432)	35,040 (52,560)	+1,915 (NA) *
Student Services	53,235 (79,852)	87,600 (131,400)	-34,365 (-51,548)
Support Services	16,423 (24,634)	52,209 (78,313)	-35,786 (-53,679)
Total NASF (Gross)	238,983 (358,474)	400,799 (601,198)	-163,731 (245,579)

Note: 1. Support Facilities Space Inventory for 1993-94 is based on 11,680 FTE.
2. Gross square footage uses a conversion factor of 1.5.

* Note: Surpluses in some categories are not considered in the total deficit calculation.
Source: FIU Facilities Management Campus Master Plan Up-Date 8/23/93

Existing Buildings to be Terminated

The Physical Facilities Space File Building Inventory Report of July 29, 1993 notes the condition of each building located on campus and lists their building function. On the University Park campus all of the main buildings are considered to be in satisfactory condition; "suitable for continued use with normal maintenance". There are however 40 buildings equaling 103,260 sf that have been planned for termination which is defined in the report as "relinquishment of occupancy of the building for reasons other than unsafeness or structural unsoundness, such as abandonment of temporary units or vacating of leased space." Although most of these are not included in the Physical Facilities Space File Reports, many of these building are trailer buildings which have functioning offices and activity.

6.0 SUPPORT FACILITIES ELEMENT

All of the buildings found on the North Miami Campus are considered to be in satisfactory condition, "suitable for continued use with normal maintenance" except for three trailers having a cumulative gross square footage of 4,000 sf.

University Park Campus Support Facilities 1998-1999

University Park campus support services which have not been expanded since the University opened are currently undersized, in marginal structural soundness and in many cases functionally inadequate. Much of this will be replaced however by a new Campus Support Complex which will provide the University with adequate space needed for this use. Even with the addition of these buildings, there will continue to be a deficit of space for support facilities functions in the 5 Year projection of space needs 1998-99. However, the areas of deficiency have shifted to office and student services.

The 5 Year projection of space needs includes a portion of the total net assignable square footage of the following planned buildings will be assigned to support functions..

- Fitness Center
- Education
- Residence
- Campus Support Complex
- Arts I
- Owa Ehan Renovations
- Graham Center Renovations
- Athenaeum Addition
- Health and Life Sciences
- Engineering
- Arts II

6.0 SUPPORT FACILITIES ELEMENT

Table 6.2 University Park Support Facilities 1998-99

	Projected Building Inventory s.f. net/(gross)	Projected Space Needed s.f. net/(gross)	Surplus/Deficit s.f. net/(gross)
Offices: Admin. 64%	181,921 (272,881)	274,080 (411,120)	-92,159 (-138,239)
Auditorium/Exhibit	62,280 (93,420)	44,334 (66,501)	+17,946 (NA) *
Student Services	76,122 (114,183)	110,835 (166,252)	-34,713 (-52,069)
Support Services	64,180 (96,270)	64,121 (96,181)	+59 (NA) *
Total NASF (Gross)	384,5045 (576,755)	493,370 (740,055)	-126,872 (-190,309)

Note: 1. Support Facilities Space Inventory for 1998-99 is based on 14,778 FTE.
2. Gross square footage uses a conversion factor of 1.5.

Note: Surpluses in some categories are not considered in the total deficit calculation.

Source: FIU facilities Management Campus Master Plan Up-Date 8/23/93.

University Park Campus Support Facilities 2003-04

The 10 Year projection of support facility space needs includes a single office/classroom building which is planned for 1999. Though this building adds a significant amount of square footage to the inventory, there continues to be a sizeable deficit of support facility space at the end of the planning horizon.

6.0 SUPPORT FACILITIES ELEMENT

Table 6.3 University Park Support Facilities Inventory 2003-04

	Projected Building Inventory s.f. net/(gross)	Projected Space Needed s.f. net(gross)	Surplus/Deficit s.f. net(gross)
Offices: Admin. 64%	181,521 (287,281)	327,136 (497,104)	-135,615 (-209,823)
Auditorium/Exhibit	62,280 (93,420)	54,579 (81,868)	+7,701 (NA) *
Student Services	76,122 (114,183)	136,448 (204,672)	-60,326 (-90,489)
Support Services	69,180 (103,770)	77,665 (116,497)	-8,485 (-12,727)
Total NASF (Gross)	424,304 (598,655)	595,829 (890,143)	-204,426 (-306,639)

Note: 1. Support Facilities Space Inventory for 2003-04 is based on 18,193 FTE.
2. Gross square footage uses a conversion factor of 1.5.
3. Surpluses in some categories are not considered in the total deficit calculation.

Source: FIU Facilities Management Campus Master Plan Up-Date 8/23/93.

North Miami Campus Support Facilities Space Inventory 1993-1994

The 1993-94 Support Facilities Space inventory for the North Miami Campus includes the Student Health Clinic and Hospitality Management Completion both of which are planned for completion in 1994. In contrast to University Park, the North Miami Campus has a very small support space deficit at present, less than 10% of the total calculated need. This deficit is found in office space and auditorium / exhibit space and there is a small surplus in student and support services space.

6.0 SUPPORT FACILITIES ELEMENT

Table 6.4 North Miami Support Facilities Space Inventory 1993-94

	Existing Building Inventory s.f. net/(gross)	Projected Space Inventory s.f. net/(gross)	Surplus / Deficit s.f. net/(gross)
Offices: Admin. 36%	27,694 (41,541)	30,615 (45,923)	-2,821 (-4,382)
Auditorium/Exhibit	6,999 (10,448)	9,699 (14,548)	-2,700 (-4,050)
Student Services	28,192 (42,288)	24,248 (36,372)	+3,944 (NA)
Support Services	17,232 (25,848)	13,419 (20,128)	+3,813 (NA)
Total NASF (Gross)	80,118 (120,177)	77,982 (116,973)	-5,521 (-8,281)

Note: 1. Support Facilities Space Inventory for 1993-94 is based on 3,233 FTE.
2. Gross square footage uses a conversion factor of 1.5.
3. Surpluses in some categories are not considered in the total deficit calculation.

Source: FIU Facilities Management Campus Master Plan Up-Date 8/24/93

North Miami Campus Support Facilities 1998-1999

In the North Miami Campus 5 Year Space Inventory for support Facilities, the deficit has increased even though the following buildings have been added to the inventory:

Conference Center
Student Center Addition
Classroom / Office Building

6.0 SUPPORT FACILITIES ELEMENT

Table 6.5 North Miami Support Facilities Space Inventory 1998-99

	Projected Building Inventory s.f. net/(gross)	Projected Space Needed s.f. net/(gross)	Surplus / Deficit s.f. net/(gross)
Offices: Admin. 36%	30,754 (46,131)	44,635 (66,953)	-13,881 (-20,822)
Auditorium/Exhibit	6,999 (10,498)	15,153 (22,729)	-8,154 (-12,231)
Student Services	69,722 (104,583)	37,883 (56,824)	+31,829 (NA) *
Support Services	22,980 (34,470)	19,662 (29,493)	+3,318 (NA) *
Total NASF (Gross)	130,456 (195,634)	177,334 (176,001)	-22,035 (-33,052)

Note: 1. Support Facilities Space Inventory for 1998-99 is based on 5,051 total FTE.
2. Gross square footage uses a conversion factor 1.5.
3. Surpluses in some categories are not included in the total deficit calculation.

Source: FIU Facilities Management Campus Master Plan Up-Date 9/15/93.

North Miami Campus Support Facilities 2003-2004

The 10 Year Support Facilities Space Inventory includes no additional buildings to the total square footage. With continued enrollment growth from 1998-99, the deficit in support facilities will more than double from 1998-99 to 2003-04.

6.0 SUPPORT FACILITIES ELEMENT

Table 6.6 North Miami Campus Support Facilities Space Inventory 2003-04

	Projected Building Inventory s.f. net/(gross)	Projected Space Needed s.f. net/(gross)	Surplus/Deficit s.f. net/(gross)
Offices: Admin. 36%	30,754 (46,131)	63,599 (95,398)	-32,845 (-49,267)
Auditorium/Exhibit	6,999 (10,498)	22,530 (33,795)	-15,531 (-23,297)
Student Services	69,722 (104,583)	56,325 (84,487)	+13,397 (NA)
Support Services	22,980 (34,470)	28,207 (-42,310)	-5,227 (-7,840)
Total NASF (Gross)	130,456 (195,684)	170,662 (255,991)	53,603 (80,403)

Note: 1. Support Facilities Space Inventory is based on 7,510 total FTE.
2. Gross square footage uses a conversion factor of 1.5.
3. Surpluses in some categories are not considered in the total deficit calculation.

Source: FIU Facilities Management Campus Master Plan Up-Date 8/24/93.

Campus Support Facilities Space Utilization

FIU does not keep an inventory of space utilization for support facilities because so many of these buildings are considered "temporary" facilities. If this information was available however, it would closely support the analysis of the projected space needs which indicates a large deficit of office and support services on each campus.

Because the different types of space categorized as support facilities (office, auditorium/exhibit, student services and support services) it is very difficult to use a single building prototype to represent the deficit space in this area. Translating future building area requirements into building "increments" will often consist of additions and renovations to existing facilities.

The campus support complex will consolidate many of the uses found in trailer facilities into a single building which will include offices and support spaces for Physical Plant, Public Safety and Purchasing Units. A more complete examination of how deficit area will be accommodated will be performed as a part of the alternative concept phase.

Figure 6.3

Support Facilities Projected Space Inventory

6.0 SUPPORT FACILITIES ELEMENT

Athletic Facilities

FIU is a member of the National Collegiate Athletic Association (NCAA), the Trans America Athletic Conference (TAAC) for men and competes at the Division 11 Level. There are a number of intercollegiate, intramural and recreational programs available to students which are listed below.

Intercollegiate Athletic Programs

Men: Basketball, soccer, baseball, golf, tennis, track and cross country

Women: Basketball, volleyball, soccer, golf, tennis, track and cross country

Intramural Athletic Programs

Flag football, volleyball, soccer, basketball, competitive softball, bowling, wallyball, golf, tennis and sand volleyball

University Park Athletic Facilities

The S.U.S. allows each university to build one gymnasium building for physical education activities. The FIU teaching gymnasium facility (Golden Panther Arena) is located on the University Park campus and has been factored into the University Park Support Services Space Inventory. The SUS Fixed Outlay Formula which is based on total student FTE has been applied to this facility to project future space needs as indicated.

Table 6.7 University Park Gymnasium Space Inventory

	Projected Student Enroll.	Projected Bldg. Inventory	Projected Space Needed	Surplus / Deficit
1993-94	11,680 FTE	49,343	58,040	-8,697
1998-99	14,778 FTE	57,693	67,334	-9,641
2003-04	18,193 FTE	57,693	77,579	-19,886

Source: FIU Facilities Management Campus Master Plan Up-Date 8/23/93

university Park Current Athletic Facilities

In total, the existing recreation areas encompass approximately 4 acres located on the western edge of the campus and include a variety of athletic facilities.

6.0 SUPPORT FACILITIES ELEMENT

Golden Panther Arena

This covered arena is used for academic classes, sports, recreation and special events by approximately 150,000 people both in and outside of the University community.

Golden Panther Soccer Stadium

Used for soccer events by the University, high schools and national teams. Approximately 20,000 people use this facility.

Golden Panther Baseball Stadium

This stadium is used solely for baseball by the University and local high schools with a participation of approximately 20,000 people.

Golden Panther Football/Track Stadium

This facility is scheduled for construction in 1994 with Tamiami Park to house football, track and field events, and special events for the use of the University, high schools and area community groups. The expected yearly participation is up to 250,000 people.

Recreation Fields

Used for practice, tournaments, leagues and camps 10 months of the year. Approximately 100 people use the fields for flag football, soccer and rugby.

Multipurpose Field

Four softball fields with backstops and fields for rugby, lacrosse, soccer, volleyball, cricket and baseball and are used between 8 to 12 months per year by approximately 125 people per day. (Approximately 6 acres)

Softball Field

This fenced field within the softball field is used by clubs, leagues, camps and clinics. Approximately 30 people use this facility daily.

Fitness Center

Weightlifting equipment is used by as many as 500 students, faculty and staff daily in this 3,500 square foot facility.

Racquet Sports Center

Twelve lighted tennis courts and 8 lighted 3-wall racquetball courts are used by 100 people daily.

6.0 SUPPORT FACILITIES ELEMENT

Par Course

A thirty two station exercise course which surrounds the 4 acre nature preserve is used by 6-10 people per day.

Basketball Courts

Two outdoor courts are used by up to 60 persons per day.

North Miami Campus Athletic Facilities

A small Fitness Center/Gymnasium is located on the North Miami Campus for the use of the University Community. Because the State University System has not allocated space for gymnasium use on the North Campus, a surplus of gymnasium space is shown throughout the 10 year projection. It has however been raised as an issue that the North Miami Campus is in need of a full service fitness center/gymnasium.

Table 6.8 North Miami Campus Gymnasium Space Inventory

	Projected Student Enroll.	Projected Bldg. Inventory	Projected Space Needed	Surplus / Deficit
1993-94	(3,233 FTE)	832	0	+832
1998-99	(5,051 FTE)	832	0	+832
2003-04	(7,510 FTE)	832	0	+832

Source: FIU Facilities Management Campus Master Plan Up-Date 8/24/93.

In addition to this Fitness Center, there are other athletic facilities used by North Miami Campus students, faculty and staff.

North Miami Athletic Stadium

This facility which is leased to the Dade County School Board is located 5/8 of a mile west of the campus and is used for football, soccer, track and special events. This facility holds approximately 3,000 spectators.

Aquatic Center

This facility contains an Olympic-size swimming pool and diving well and is used by approximately 800 people per month.

6.0 SUPPORT FACILITIES ELEMENT

Recreation Fields

These two fields of approximately 1 acre are used for various recreational uses by approximately 140 people monthly.

Par Course

A twenty station exercise course.

Tennis

There are 6 lighted tennis courts and a tennis pro-shop.

Basketball

One outdoor recreational basketball court.

THE MASTER PLAN

University Park

The Master Plan provides sufficient support space to meet the deficits described previously. The following buildings have been added to the Master Plan as support facilities.

Business/Tech (31)/19,123 gsf

This building will be used as a support facility for the School of Business and for the new Labor Center.

University Computer Services (10)/60,000 gsf

This building will be used for computer access and as a central resource area for computer needs of the University.

Support (28)(29)/50,000 gsf each

These buildings are located near the center of campus and will provide space primarily for administrative offices.

Graham Center Expansion (03B)/129,717 gsf

The northern expansion of the Graham Center will provide space for student services such as offices for student organizations as well as University offices.

Children's Creative Learning Center

A 5,830 square foot child care facility will be located on the western side of the University Park campus. The facility will provide both full and half day programs for 60 children

6.0 SUPPORT FACILITIES ELEMENT

between the age of two and five years. Night care, after school, and school break care will be a part of their expanded programs. Special programs for children with disabilities will be developed and included as part of the Center's building design. The Center will also serve as a demonstration, training, and research site for different departments of the University and school programs in the county.

The new facility will include a reception area, classrooms, toilet rooms, observation rooms, kitchen, storage rooms, covered patio and staff workroom. An outdoor patio area for group activities and a .32 acre enclosed playground area will also be provided.

Recreation Facilities

The Master Plan retains the current recreational facilities with some relocation of ball fields and multipurpose fields. It also includes the addition of ten new tennis courts, a swimming pool, informal recreation in the housing areas and it identifies a land bank for a possible joint use facility located at the southeast corner of the campus.

North Miami Campus

Support facilities have been incorporated into the Master Plan in order to meet the projected deficit. The greatest need for support space is found in administrative office space as indicated in Table 6.6 North Miami Campus Support Facilities Space Inventory 2003-04. Each new building contains a portion of support space however the bulk of this space is made up in two new facilities within the academic core.

Exhibition/Support (12)/33,500 gsf

This addition to Academic II on the northern quadrangle will house future exhibition space.

Administrative Offices (15)/47,000 gsf

The administrative office building will be located at the entrance of the main lake quadrangle.






Fitness Center/Gymnasium (26)/15,000 gsf

This recreation facility will replace the existing trailer and will provide basketball, gymnasium and various other fitness activities.

6.1 SUPPORT FACILITIES

UNIVERSITY PARK

LEGEND

-  ADMINISTRATIVE OFFICES
 - 41. PRIMERA CASA
-  PHYSICAL PLANT FACILITIES
 - CS. CAMPUS SUPPORT
 - 49. CENTRAL UTILITIES
 - W2. GROUND MOTOR POOL
 - W3. FACILITIES MAINTENANCE
 - W4. FACILITIES MANAGEMENT/PHYSICAL PLANT
 - W4A. RESTROOM FACILITIES
-  GENERAL AUXILIARY FACILITIES
 - CS. DUPLICATING CENTER
 - DC. DAY CARE FACILITY
 - W10. CENTRAL RECEIVING/MAILROOM
 - PROPERTY STORAGE
-  STUDENT SUPPORT SERVICES
 - 44. GRAHAM CENTER
 - BOOKSTORE
 - FACULTY CLUB
 - 17. STUDENT HOUSING
 - 13. HEALTH CENTER
-  ATHLETIC FACILITIES
 - 47. GOLDEN PANTHERS ARENA
 - 14. MULTI-PURPOSE STADIUM
 - 62. TAMAMI STADIUM

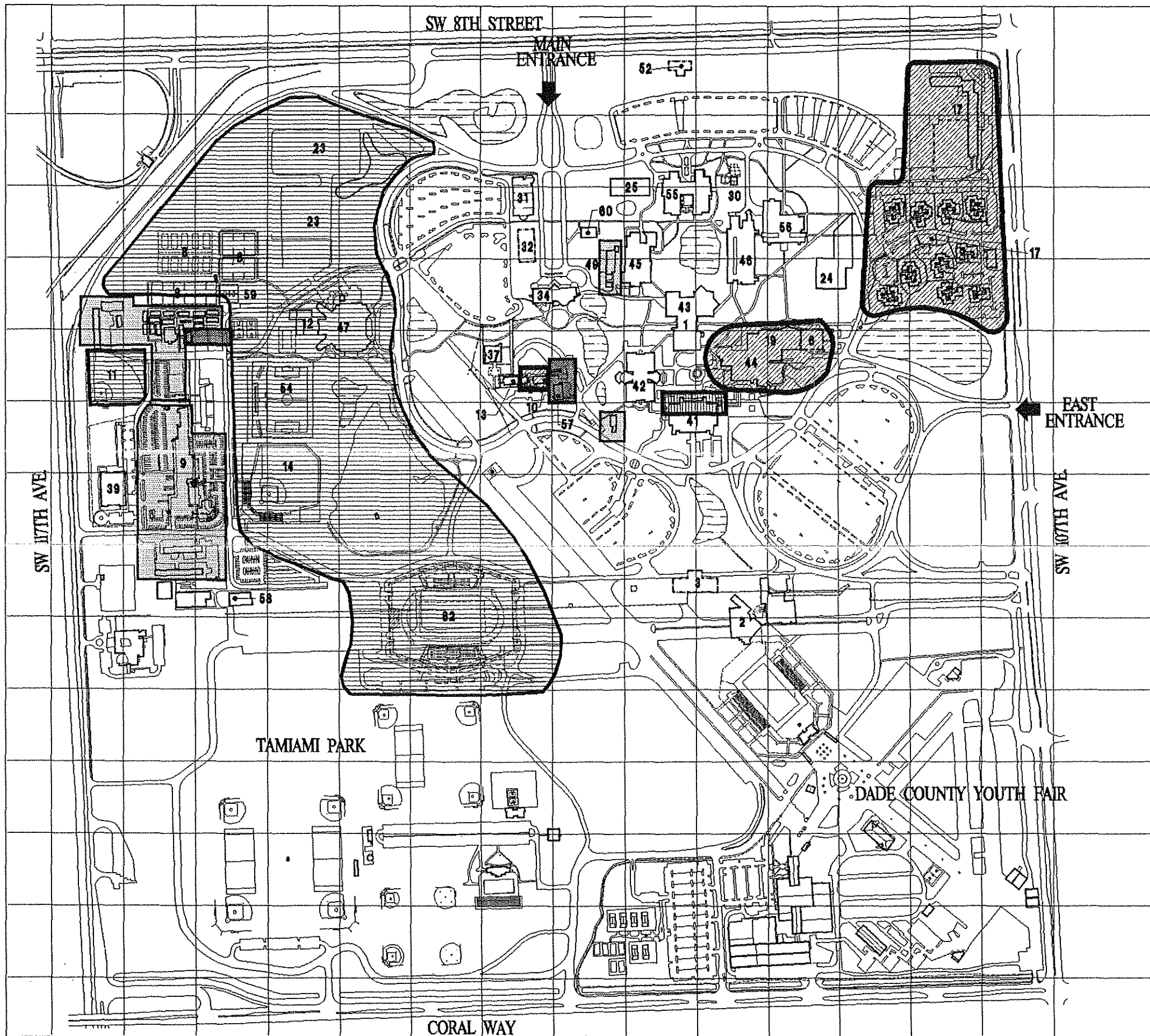
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|-----------------------------------|--------------------------------------|
| 1. LIBRARY ADDITION | 37. JOINT CENTER |
| 2. ARTS COMPLEX I | 39. HURRICANE CENTER/ |
| 3. ARTS COMPLEX II | 41. PRIMERA CASA |
| 6. STUDENT CENTER EXPANSION | 42. DEUXIEME MANSION |
| 8. TENNIS COURTS | 43. ATHENIUM/LIBRARY |
| 9. PHYSICAL PLANT BUILDING | 44. GRAHAM UNIVERSITY CENTER |
| 10. PUBLIC SAFETY BUILDING | 45. MERES HAUS |
| 11. RELOCATED SOFTBALL FIELD | 46. OWA EHAN |
| 12. NAUTILUS/FITNESS CENTER | 47. GOLDEN PANTHER ARENA |
| 13. HEALTH CENTER | 49. CENTRAL UTILITY |
| 14. MULTI-PURPOSE STADIUM | 52. METRO STATION |
| 17. STUDENT HOUSING | 54. SOCCER FIELD |
| 19. FACULTY CLUB | 55. ENGINEERING AND COMPUTER SCIENCE |
| 23. OUTDOOR RECREATION FACILITIES | 56. CHEMISTRY AND PHYSICS |
| 24. HEALTH AND LIFE SCIENCE | 57. DUPLICATING CENTER |
| 25. ENGINEERING II | 58. CERAMICS BUILDING |
| 26. CHILD CARE | 59. TENNIS CENTER |
| 30. BIOLOGY GREEN HOUSE | 60. COLLEGE OF HEALTH |
| 31. EDUCATION BUILDING | 62. TAMAMI STADIUM |
| 32. BUSINESS II | |
| 34. BUSINESS AND FINANCE | |

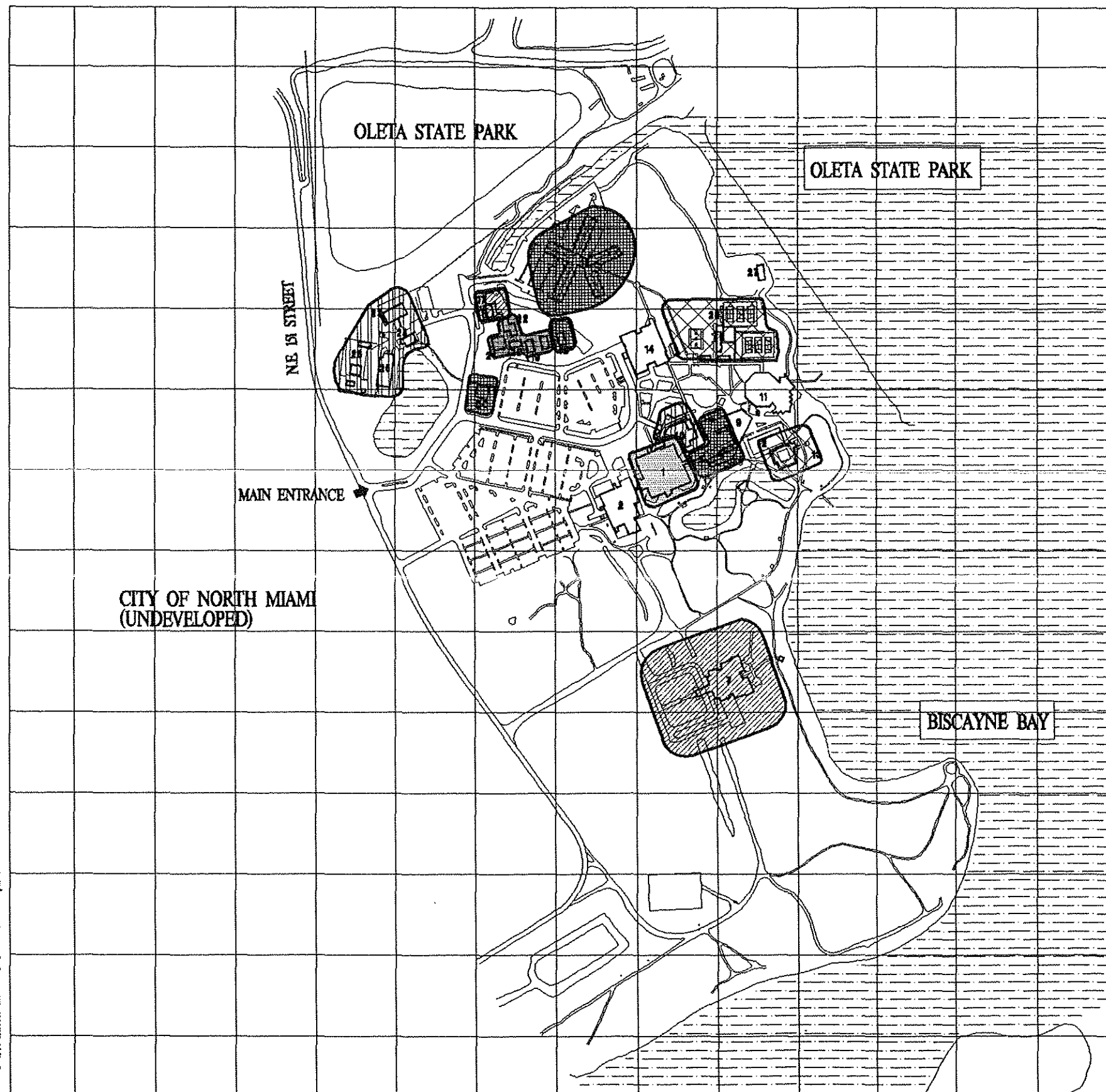
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MASTER PLAN








DATE: MIAMI, FLORIDA





6.2 SUPPORT FACILITIES NORTH MIAMI CAMPUS

LEGEND

-  WATER
-  ADMINISTRATIVE OFFICES
 - 1. ACADEMIC ONE
-  PHYSICAL PLANT
 - 10. CENTRAL UTILITIES
 - 23. CENTRAL RECEIVING
 - 24. PUBLIC SAFETY
 - 25. PHYSICAL PLANT
 - 26. GROUNDS
-  GENERAL AUXILLARY
 - 7. CONFERENCE CENTER
 - 17. CHILDREN'S CREATIVE LEARNING CENTER
-  STUDENT SUPPORT
 - 8. STUDENT CENTER
 - 15. STUDENT HOUSING
 - 18. HEALTH CENTER
 - DC. DUPLICATING CENTER
-  ATHLETIC FACILITIES
 - 12. AQUATIC CENTER
-  ANCILLARY FACILITIES
 - 19. HOLOCAUST DOCUMENTATION CENTER
 - 20-22. HRS BUILDINGS

- | | |
|----------------------------------------|-----------------------------------|
| 1. ACADEMIC ONE | 18. HEALTH CENTER |
| 2. ACADEMIC TWO | 19. HOLOCAUST DOCUMENTATION CNTR. |
| 7. CONFERENCE CENTER | 20. HRS- PRACTICE CENTER |
| 8. STUDENT CENTER | 21. HRS- CLASSROOM |
| 9. STUDENT CENTER EXPANSION | 22. HRS- ADMINISTRATION |
| 10. CENTRAL UTILITIES | 23. CENTRAL RECEIVING |
| 11. HOSPITALITY MANAGEMENT | 24. PUBLIC SAFETY |
| 12. AQUATIC CENTER | 25. PHYSICAL PLANT |
| 13. POOL HOUSE | 26. GROUNDS |
| 14. THE LIBRARY AND EXPANSION | 27. MARINE BIOLOGY (FISH TANKS) |
| 15. STUDENT HOUSING | 28. OUTDOOR RECREATION |
| 17. CHILDREN'S CREATIVE LEARNING CNTR. | |

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DATE: MIAMI, FLORIDA



6.3 SUPPORT FACILITIES

NOTE:

SURPLUSES IN SOME CATEGORIES ARE NOT CONSIDERED IN THE TOTAL DEFICIT CALCULATION

1. SUPPORT FACILITIES PROJECTED SPACE INVENTORY INCLUDES:

· OFFICE
· AUDITORIUM/EXHIBIT
· STUDENT SERVICES
· SUPPORT SERVICES

UNIVERSITY PARK

· JOINT CENTER
· MULTIPURPOSE STADIUM

5 YEAR
· FITNESS CENTER
· EDUCATION BUILDING
· RESIDENCE HALL
· CAMPUS SUPPORT COMPLEX
· ARTS COMPLEX I
· OWA EHAN RENOVATIONS
· GRAHAM CENTER RENOVATIONS
· ATHENAEUM ADDITION
· HEALTH & LIFESCIENCE
· ENGINEERING II
· ARTS COMPLEX II

10 YEAR
· OFFICE/CLASSROOM BUILDING

NORTH MIAMI CAMPUS

· STUDENT HEALTH CLINIC
· HOSPITALITY MANAGEMENT COMPLETION

5 YEAR
· CONFERENCE CENTER
· STUDENT CENTER ADDITION
· CLASSROOM/OFFICE BUILDING

2. PROJECTIONS HAVE BEEN MADE IN GROSS SQUARE FEET

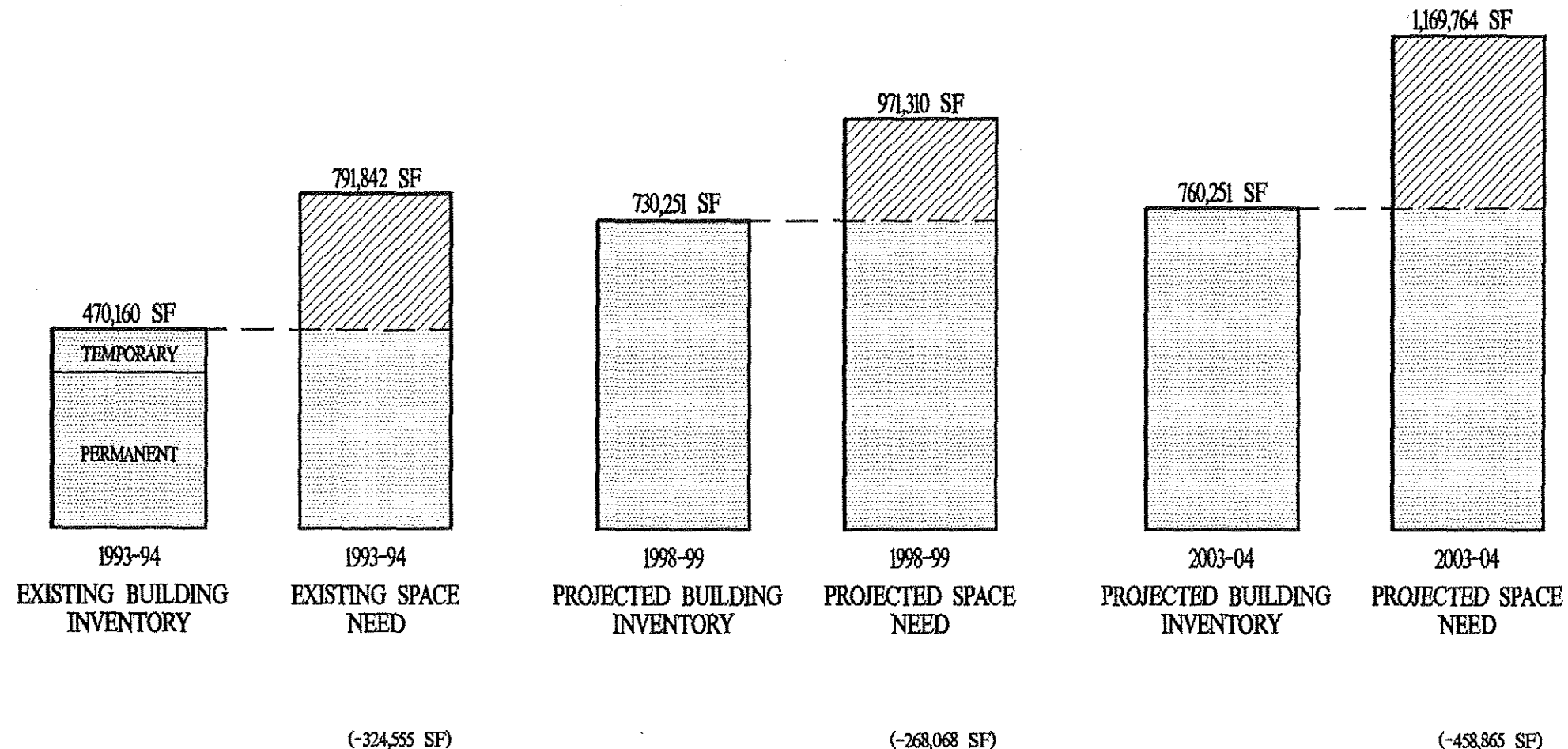
SOURCE: FIU FACILITIES MANAGEMENT REPORT FOR THE CAMPUS MASTER PLAN UPDATE 8/23/93 & 9/15/93

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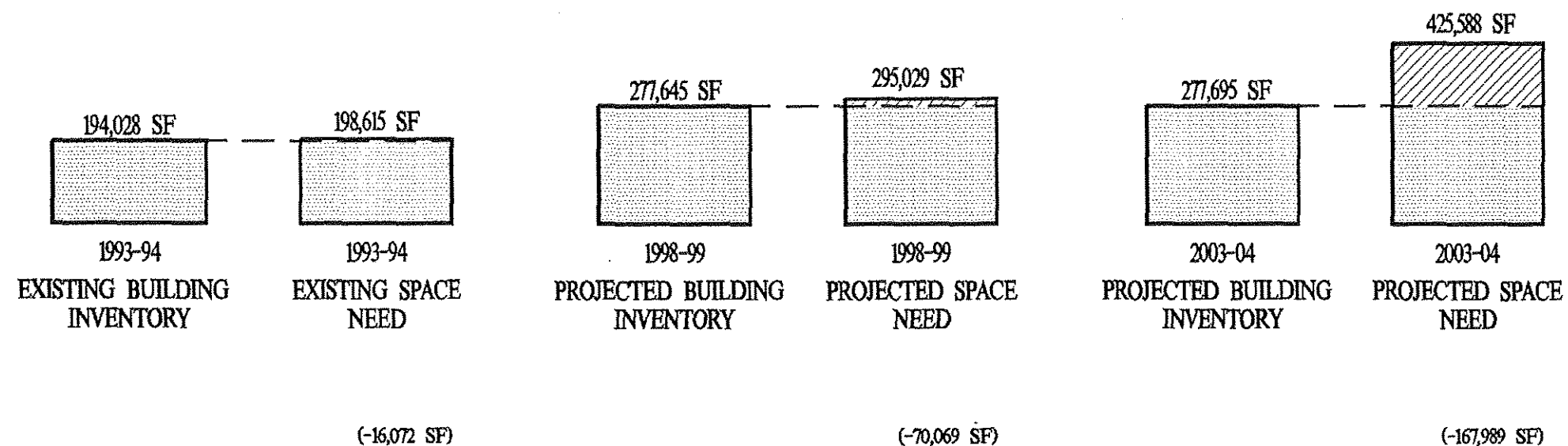
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DATE:



UNIVERSITY PARK



NORTH MIAMI CAMPUS

7.0 HOUSING ELEMENT

As described in the FIU document of March 19, 1992 entitled Building Program Document for Residence Hall, "the housing facilities and their related programs and services, complement and support the University's academic mission. By emphasizing the relationship between academic and non-academic learning, the residential program assists students in developing an awareness of diverse opinions and points of view. Opportunities for leadership, involvement in decision making and learning to live with others all enhance the students educational experience."

This development of many of the University's goals will directly affect housing policies at FIU and will result in an increased need for on-campus housing. These goals are:

· Enhanced Academic Program

The University will offer an expanded range of programs at undergraduate, beginning graduate and advanced graduate levels.

· Increased Research Capacity

The development of graduate programs, especially at the doctoral level, will bring faculty and students with significant research strengths to the University.

· Development of the "International" Theme

The "international" theme will be developed by the diversification of students, faculty and course offerings.

On-Campus Housing

On-campus housing fosters personal growth and development and provides a safe and secure environment which is both cost effective and convenient to the many support services found on the University campus. The Ad Hoc Student Housing Committee Workshop report of August 19, 1992 identifies the importance of on-campus housing and the desire for the State University System to increase its housing availability as the University enrollment grows. This document further explains that there is a low percentage of on-campus housing among Florida universities compared to the rest of the United States. In 1991-92 the SUS housed 12.7% of its student headcount while the national average was 30% of university headcount. FIU presently houses only 5.2% of its total headcount, far below the ratios of the other Florida universities as well as the FIU planning goal of 10%, as established in the Master Plan Up-Date 1991-2006.

FIU currently provides housing at both University Park (732 beds) and North Miami Campus (552 beds) with the majority of students being undergraduates. The greatest percentage of students living on-campus are juniors, due primarily to the large amount of junior transfer students entering FIU. However in recent years the amount of freshmen and sophomores have increased significantly. Of the total 1,284 on-campus beds found at FIU, 40% are occupied by

7.0 HOUSING ELEMENT

non-Florida residents, while another 17% of the available beds are used by international students. In addition to these residents, a number of rooms have been made available for graduate and married students without children, as well as for participants in the English for Foreign Students program.

Housing Types

All of the on-campus student housing at FIU has been built within the last ten years. The ten University Park housing facilities were built in 1985 and the Bay Vista Apartments on the North Miami Campus were built in 1984. All of these buildings are considered to be in satisfactory condition, suitable for continued use with only routine maintenance. There are a variety of housing types, ranging from private studios to four bedroom apartments with the largest percentage being double efficiencies. All existing units are apartment style and have kitchens, private or semi-private baths and basic furnishings.

Table 7.1 Inventory of Existing Beds by Type

UNIVERSITY PARK		
Type	Number of Units	Bed Capacity
Private Studio	48	48
Efficiency - Double	92	184
Efficiency - Married	4	8
One Bedroom	45	90
One Bedroom Married	3	6
Two Bedroom	70	280
Two Bedroom (B) - S	14	14
Two Bedroom (B) - D		28
Four Bedroom	10	80
Total	276	738

7.0 HOUSING ELEMENT

NORTH MIAMI CAMPUS		
Type	Number of Units	Bed Capacity
A Unit - Private Studio/Private Bath	32	32
B-Unit - Semi-Private Efficiency/Share Bath	41	82
Private B (2 beds)	23	23
C Unit - One Bedroom Suite/Private Bath	30	60
C Unit - Married	4	8
D Unit - One Bedroom Suite/Share Bath	35	70
Private D (2 beds)	1	1
E Unit	57	228
Private E	1	1
EE Unit	5	20
Total	229	525

Fraternities and Sororities

There are currently 16 national Greek organizations at FIU; 9 fraternities and 7 sororities, with a membership totaling approximately 650 students. Such organizations foster student leadership, scholarship and social activities. Although there is no housing currently set for fraternities and sororities, the growth of these organizations would warrant the addition of such housing. This would enrich campus life through the activities and leadership that these organizations promote. When fully developed, it is projected that there could be as many as twenty Greek organizations with a total membership of 1,000 students.

Handicapped Accessible Units

University Park housing currently has 26 studio apartments (1 person) located on the ground level and 3, one bedroom (2 person) apartments which are handicapped accessible and meet all current ADA standards. Presently however, there are only 3 studio apartments and 2 one bedroom apartments that are used by disabled students. In addition to these existing special units, future

7.0 HOUSING ELEMENT

on-campus housing plans indicate that the Phase I Residence Hall will provide 5 efficiency type units for disabled students which equals approximately 5% of the beds planned for this new facility along with 1 handicap accessible unit for a resident supervisor.

Rate Structure

The cost for on-campus housing is an important factor for many who choose such housing. The average cost for a student to live on-campus is approximately \$293.00 per month. This rate includes standard utilities as well as security and convenience to the library, academics, athletic facilities, health facilities and food service. The average cost for living in an apartment off campus averages \$510.00 per month excluding utilities and without the many amenities readily available to on-campus residents. As new housing facilities are built with added amenities to meet the changing needs of the University students, (computer accessibility, cable TV, dining facilities, etc.) the University is faced with the continual challenge to provide this housing at a cost effective rate.

Table 7.2 Existing Bed Distribution

Number of existing beds for:	University Park Campus	North Miami Campus
Undergraduate Students	606	471
Graduate Students	60 (1)	0
Married Students	14	8
Fraternities / Sororities	0	0
Housing Staff	23	73 (2)
Handicap Accessible	29	10
Total Beds (3)	732	552

- (1) Indicates number of beds set aside for graduate students, however, only 10-12 beds are used per year. All are located in Building J at University Park.
- (2) The English for Foreign Students Program is allotted 59 beds on the North Miami Campus. They are rented either by the year or the semester under a separate contract with the University.
- (3) Total bed count does not include the planned Residents Hall (410 beds).

Source: FIU Housing Census March 5, 1993.

Housing Projections

University Park

On-campus Housing projections have been made for each campus using the FIU planning standard of 10% of the projected headcount enrollment. The planned University Park residence hall will be used primarily for undergraduate students while the existing apartment buildings will accommodate special user groups such as, graduate students, families, married students, Greek organizations, and international students as needs are presented. Actual percentages of students to be housed in these categories have not yet been determined.

North Miami Campus

The North Miami Campus currently does not have any future housing facilities planned or committed. The projected bed count for this campus indicates a small deficit of bed space for 1993-94. If the enrollment increases as projected, additional housing at this campus will be warranted.

Housing Area Projections

Using the existing housing density currently found at the University Park campus, the projected gross housing area has been determined by using 760 s.f. per bed, which includes building, site parking and administrative space. The current housing trend however indicates that larger apartment style buildings are preferred, which requires less square footage per bed.

The University Park campus has approximately 10 acres of land available for future housing located north of the existing housing area. Immediately south of the existing housing is an additional 7 acres at the lake and 10 acres south of the 107th avenue entrance. In total, 27 acres are located in close proximity to the existing housing facilities and within a 7 minute walking radius of the center of the academic core. Using the factor described above, these 27 acres translate into approximately 1,549 beds which is 594 beds fewer than the projected need.

The North Miami Campus has available land adjacent to the existing housing totaling approximately 9.5 acres which can be used for future housing needs. This acreage can accommodate approximately 545 beds and their required site amenities although, it is still 105 beds fewer than what has been projected.

7.0 HOUSING ELEMENT

Table 7.3 Projected On-Campus Housing and Land Need

University Park

	Headcount	Projected Needed Beds	Projected Inventory (beds)	Deficit (beds)	Land Required (acres)
1993-94	19,622	1,962	732	-1,230	21.5 ac.
1998-99	24,088	2,409	1,942	-467	8.1 ac.
2003-04	28,745	2,875	1,942	-933	16.3 ac.

Table 7.4 Projected On-Campus Housing and Land Need

North Miami Campus

	Headcount	Projected Needed Beds	Projected Inventory (beds)	Deficit (beds)	Land Required (acres)
1993-94	6,789	679	552	-127	2.2 ac.
1998-99	9,344	934	552	-382	6.7 ac.
2003-04	12,016	1,202	552	-650	11.3 ac.

- Note:1. Projection for total number of beds is based on FIU planning standard of 10% of the total student headcount.
2. Projection for gross housing area is based on 760 sf per additional bed.
3. Total existing University Park bed count including Phase I Residence Hall (410 beds) is indicated in parenthesis.
4. Headcount projections are from FIU Fall Student Profile Report 1984-2004 (8/12/93).

7.0 HOUSING ELEMENT

The Master Plan

University Park Planned Residence Facilities

The University housing has been operating at full occupancy since 1988 and in recent years, over 400 student applicants for on-campus housing are turned away annually due to lack of available bed space. A questionnaire was distributed by the University housing office to better understand what students look for in housing. Most felt that living on campus would be desirable because of safety and convenience. As student enrollment continues to increase and the University continues to attract students from throughout the United States and foreign countries, the demand for on-campus housing will increase.

Various sites for future student housing have been studied in terms of where such development would best be utilized and how it could best support the campus and the surrounding community. It should be noted that one important departure from the previous master plan is the elimination of student housing from the Northeast corner of the campus. It has been decided that this area should be developed as a signature corner of the University Park campus.

The majority of student housing will remain overlooking the lake on the eastern edge of the campus and in close proximity to the commercial development across 107th Avenue. A new cluster of housing is planned inside the loop road (Southwest Housing Quadrangle) and east of the preserve. This will create a new center of activity within the academic core.

Southwest Housing Quadrangle - Phase I (410 beds)

A new 410 bed housing facility is being planned for the University Park campus which is expected to begin construction in 1995. According to the Residence Hall Building Program Document of March 19, 1992, the new housing facility will be a traditional residence hall which will be best suited for the traditional lower division student and will free existing apartment style housing for the upper division, graduate, married and family housing needs. A traditional residence hall would also provide appropriate space for summer conference housing including athletic camps, band camps, cheerleading camps and adult workshops. The facility will be made up of two room suites with a shared bathroom. Each suite will accommodate four people and kitchen space will be located on each floor for student use. The initial phase of this facility will house 400 beds for undergraduate students and 10 beds for resident advisors and housing staff.

Southwest Housing Quadrangle - Phase II (640 beds)

Phase II of the new University Park residence complex will provide an additional 640 beds by 1998. These Phase II units will be apartment style and will surround a central courtyard

7.0 HOUSING ELEMENT

containing many amenities to serve the students and to create a unique living / learning environment.

The new residents hall complex will include the following amenities:

- Computer Center - A computer center with computer access in each suite will link information from the library and other sources.
- Dining Facility - A traditional dining hall with 200 person seating capacity will service the residence hall as a Phase II project. Until this is built, students may use the food service provided at the Graham Center or prepare their own meals, using the microwave and refrigerator provided with each unit.
- Recreation - An outdoor swimming pool and volleyball area have been planned for the use of students living on campus. In addition to these, a multipurpose room for 200 people will be part of the new complex which will accommodate various functions for the University residents.
- Offices - The new housing complex will also include the relocated and expanded housing offices.

The South West housing complex is located at the terminus of three major organizational axes and is adjacent to planned academic and athletic facilities. Being located inside the loop road indicates the importance of resident students and the development of student life on campus.

Retrofit of Existing Student Housing Complex (737 beds)

As the new housing quadrangle is completed, renovations, repairs and landscape will be needed for the existing housing complex located on the eastern edge of the campus to make them equally as desirable. These apartment units will be made available for special use housing such as fraternity, sororities and married student housing as the need is presented. This will be an ongoing process taking place throughout the planning period.

East Lake Housing Cluster (800 beds)

This housing area will be made up of ten buildings of apartment suites containing a total of 800 beds for the use of both graduate and undergraduate students. A commons building will be centrally located and recreation facilities will be provided. The size and scale of these buildings will be compatible with the existing resident facilities found north of the east lake.

7.0 HOUSING ELEMENT

Table 7.5 University Park Master Plan - On Campus Student Housing

Existing Housing -Retrofit	732 beds	1995 through 2004
S.W. Housing Quadrangle - Phase I	410 beds	1995
- Phase II	640 beds	1998
East Lake Housing Cluster	800 beds	2002
Special Use Housing/South Stadium	320 beds	2003-04
Total	2,902 beds *	2003-04

*Total housing provided equals 10.09% of the total projected student headcount in 2003-04.

Bed Distribution

The bed distribution has been projected using the ratios that are currently found on campus with the exception of Greek Housing and handicap accessible units each equally approximately 5% of the projected student enrollment.

Table 7.6 University Park Master Plan Bed Distribution

Undergraduate Students	2,223 beds
Graduate Students	232 beds
Married Students	55 beds
Fraternities/Sororities	160 beds
Housing Staff	87 beds
Handicap Accessible	145 beds
TOTAL	2,902 beds

Presidential House and Events Center

The Presidential House and Events Center has been sited west of the SW 8th Street Main Campus entry just outside of the loop road. This location is convenient for events that will occur at the Golden Panther Arena and is found on the developing east-west campus axis that runs through the northern section of the campus. In addition to being a four bedroom private

7.0 HOUSING ELEMENT

residence, the house will have a formal public entry, a large terrace with landscaped garden areas, and a surface parking for 100 cars for large events. There will be a public living area, dining and conference areas which will accommodate between 20-50 people. FIU has developed a summary of space requirements for the four bedroom private residence and public events center which will total 9,975 gross square feet.

North Miami Campus - Planned Residence Facilities

In order to house 10% of the projected student enrollment the North Miami Campus must provide an additional 650 beds on campus by the end of the planning period. Student housing for North Miami Campus is described below.

Existing Student Housing (550 Beds)

The existing Bay Vista Apartments which contain a total of 550 beds were built in 1984 and are in need of maintenance and repair. These units are located in the northern most edge of the campus and will be accompanied by future residential development.

Residential Honors Complex (320 beds)

The Residential Honors Complex will provide housing for 80% of undergraduate enrollment or 320 students. The housing facilities within the complex will consist of 4 floor apartment buildings with a variety of unit configurations. They will be integral parts of the complex and the overall program which will create a unique living and learning environment.

Northeast Apartment Complex (330 beds)

Additional housing will be located in the northeast corner of the campus oriented towards the water and will be a maximum of six floors in height. This complex will be adjacent to the existing student housing and will contain dining facilities for the use of all students housed in that area.

Table 7.7 North Miami Campus Master Plan - On Campus Student Housing

Existing Housing Renovation	550 beds	(1994)
Residential Honors Complex	320 beds	(1999)
Northeast Apartment Complex	330 beds	(2004)
TOTAL	1,200 beds(*)	

(*) Total housing provided equals 9.9 % of the total projected student headcount in 2003-2004.

7.0 HOUSING ELEMENT

Bed Distribution

The bed distribution of the North Miami Campus is based on the existing distribution ratios with the exception of the Honors housing which has been added to the undergraduate student housing count.

Table 7.8 North Miami Campus Master Plan - Bed Distribution

Undergraduate Students	708 beds
Graduate Students	69 beds
Married Students	20 beds
Honors	320 beds
Special	83 beds
TOTAL	1,200 beds

Conference Center Housing

Land has been set aside adjacent to the Conference Center for a privately operated and funded apartment complex consisting of 160 beds which is envisioned for the use of conference attendants, visiting faculty and visitors. These four floor buildings will be oriented toward the water.

Off-Campus Housing

The urban setting in which the two FIU campuses are located, enables students to easily find some type of off-campus housing. According to the 1992 Report on Housing in Dade County which was prepared by Metro-Dade County Planning Department, 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. North Miami has the highest rental vacancy rate. Because of the abundance of rental units available in Dade County, the University does not provide any off-campus housing.

Approximately 94% of the students currently enrolled at FIU are currently living in some type of off-campus housing. Most students are from the Miami area at the time of enrollment and continue to live at home thus, not impacting significantly on the surrounding community.

7.0 HOUSING ELEMENT

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

1. Approximately 90% of the total student headcount is considered to live in some type of off-campus facility.
2. More than half of the students enrolled at the University live at home with family members therefore, approximately 45% of the total headcount live in off-campus rental housing.

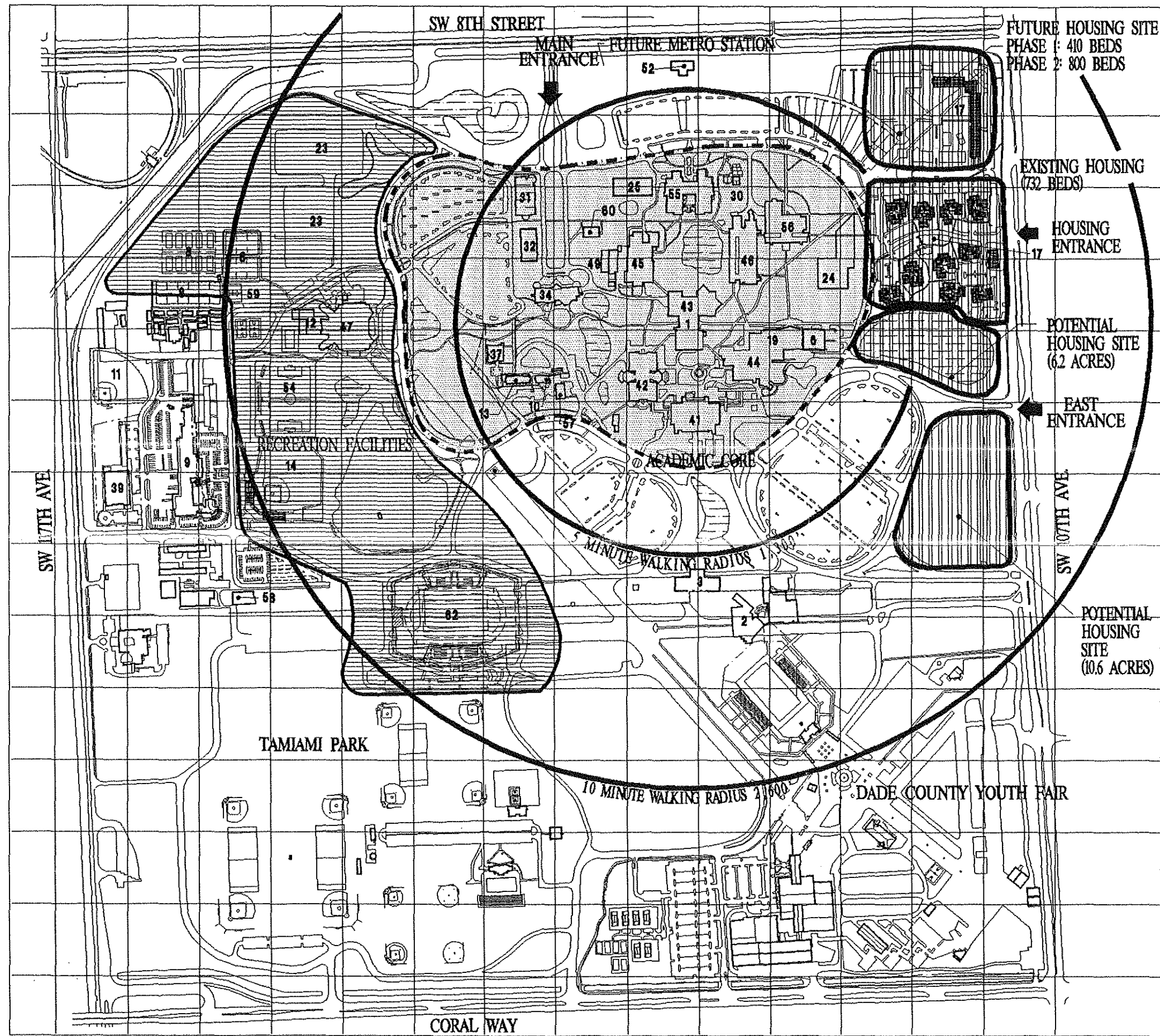
Table 7.9 Off-Campus Housing Projections

University Park

	Headcount	Total students living off-campus (90%)	Total students living in off-campus rental 45%
1993-94	19,622	17,660	7,947
1998-99	24,088	21,679	9,756
2003-04	28,745	25,871	11,642

North Miami

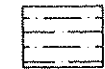
	Headcount	Total students living off-campus (90%)	Total students living in off-campus rental 45%
1993-94	6,789	6,110	2,750
1998-99	9,344	8,410	3,785
2003-04	12,016	10,814	4,866



HOUSING

UNIVERSITY PARK

LEGEND



WATER



ACADEMIC CORE



ATHLETICS/RECREATION



HOUSING AREAS

1. LIBRARY ADDITION	37. JOINT CENTER
2. ARTS COMPLEX I	39. HURRICANE CENTER/
3. ARTS COMPLEX II	41. FRUERA CASA
4. STUDENT CENTER EXPANSION	42. DEJUNE WILSON
5. TENNIS COURTS	43. ATHLETIC/LIBRARY
6. PHYSICAL PLANT BUILDING	44. GRAHAM UNIVERSITY CENTER
7. PUBLIC SAFETY BUILDING	45. VERTES HAUS
8. RELOCATED SOFTBALL FIELD	46. OWA EHAM
9. NAUTILUS/FITNESS CENTER	47. GOLDEN PANTHER ARENA
10. HEALTH CENTER	48. CENTRAL UTILITY
11. MULTI-PURPOSE STADIUM	49. METRO STATION
12. STUDENT HOUSING	50. SOCCER FIELD
13. FACULTY CLUB	51. ENGINEERING AND COMPUTER SCIENCE
14. OUTDOOR RECREATION FACILITIES	52. CHEMISTRY AND PHYSICS
15. HEALTH AND LIFE SCIENCE	53. DUPLICATION CENTER
16. ENGINEERING II	54. CERAMICS BUILDING
17. CHILD CARE	55. TENNIS CENTER
18. BIOLOGY GREEN HOUSE	56. COLLEGE OF HEALTH
19. EDUCATION BUILDING	57. TAMAMI STADIUM
20. BUSINESS II	
21. BUSINESS AND FINANCE	

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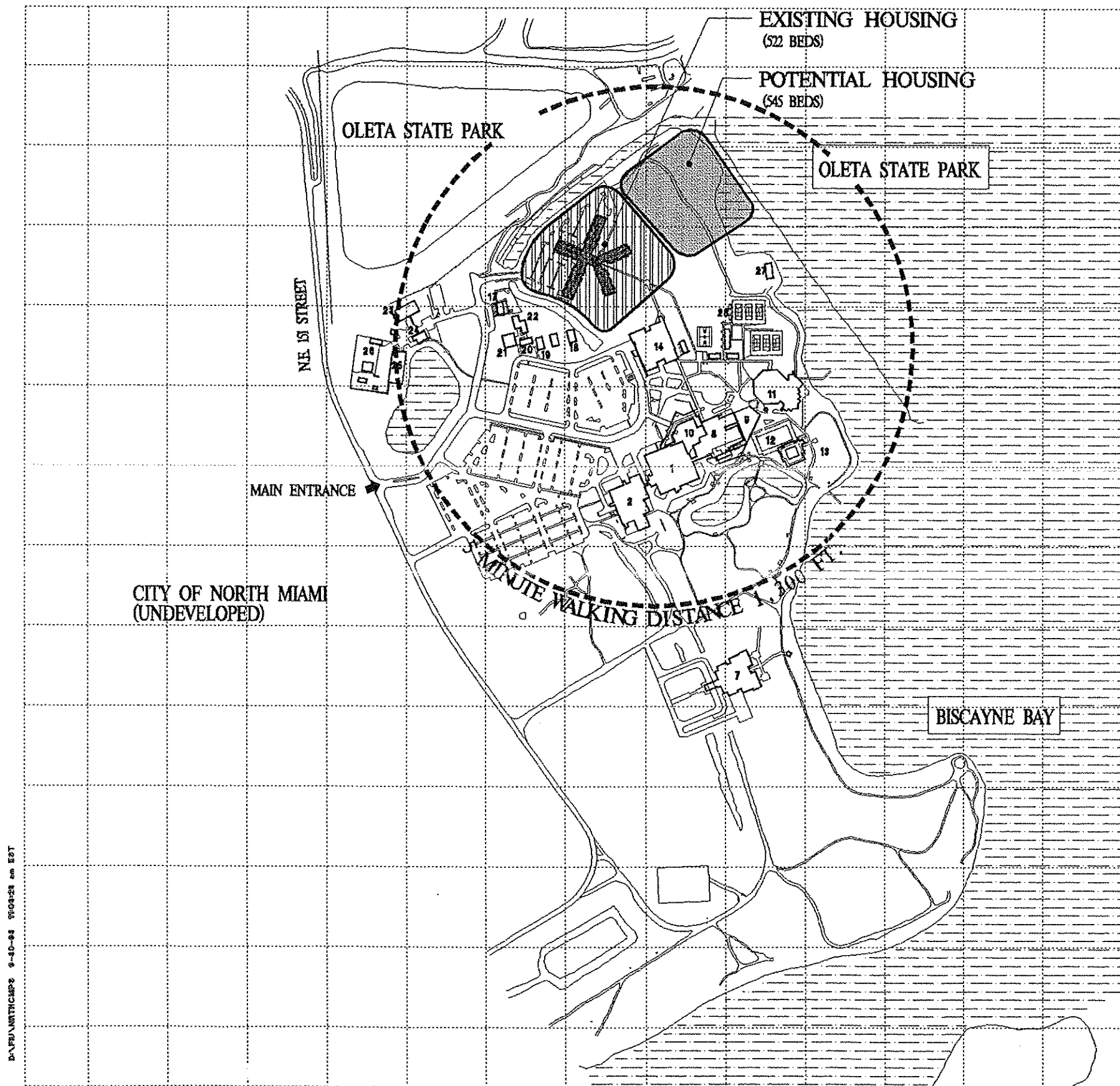
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CORAL GABLES, FL
MIAMI, FL

FLORIDA INTERNATIONAL UNIVERSITY

MASTER PLAN

DATE: MIAMI, FLORIDA








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HOUSING

NORTH MIAMI CAMPUS

LEGEND

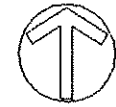
-  WATER
-  EXISTING HOUSING
-  POTENTIAL HOUSING

- | | |
|----------------------------------------|-----------------------------------|
| 1. ACADEMIC ONE | 18. HEALTH CENTER |
| 2. ACADEMIC TWO | 19. HOLOCAUST DOCUMENTATION CNTR. |
| 3. CONFERENCE CENTER | 20. HRS- PRACTICE CENTER |
| 4. STUDENT CENTER | 21. HRS- CLASSROOM |
| 5. STUDENT CENTER EXPANSION | 22. HRS- ADMINISTRATION |
| 6. CENTRAL UTILITIES | 23. CENTRAL RECEIVING |
| 7. HOSPITALITY MANAGEMENT | 24. PUBLIC SAFETY |
| 8. AQUATIC CENTER | 25. PHYSICAL PLANT |
| 9. POOL HOUSE | 26. GROUNDS |
| 10. THE LIBRARY AND EXPANSION | 27. MARINE BIOLOGY (FISH TANKS) |
| 11. STUDENT HOUSING | 28. OUTDOOR RECREATION |
| 12. CHILDREN'S CREATIVE LEARNING CNTR. | |

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GARY & GARY, INC.	MIAMI, FL
KRITH & SCHWAB	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
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FLORIDA INTERNATIONAL UNIVERSITY MASTER PLAN

DATE: MIAMI, FLORIDA



8.0 RECREATION AND OPEN SPACE ELEMENT

Each FIU campus is surrounded by a variety of resources and services provided by their host community and those surrounding it. A series of park and recreation spaces have been incorporated into these communities for the use of its residents and visitors.

University Park - Context Area

Within the University Park context 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 the University Park campus. The University currently uses Tamiami Park when conducting many of its sports tournaments and swimming competitions. Tamiami Park is currently planning the construction of a new football stadium which will be located between the Tamiami Park and FIU properties and which will be used by both entities. In addition to the new football stadium, Tamiami Park has discussed the possibility of replanning the entire park.

North Miami Campus - Context Area

The park and recreation areas found within the 1 mile context area of the North Miami Campus total over 660 acres and contain a wide variety of facilities, including, a golf course, camp sites, horse stables and boat launches, in addition to the typical multipurpose fields, basketball courts etc.

Context Area Recreation Facilities Inventory

In addition to the park and recreation areas listed in tables 8.1 and 8.2, the Dade County Parks and Recreation facilities inventory also includes 18.6 acres of recreation area at University Park campus and 35.5 acres at North Miami Campus. The total acreage for each site seems to be high and the inventory of facilities is not complete as indicated in earlier sections of this document. The recreation facilities located in each FIU campus are owned by the State University System and are completely maintained by the University. The facilities as they are inventoried by Dade County Parks and Recreation include the following:

University Park: 18.6 acres

- 12 Tennis Courts
- 6 Racquetball Courts
- 2 Multipurpose Fields
- 2 Ball Fields

8.0 RECREATION AND OPEN SPACE ELEMENT

North Miami Campus: 35.5 acres

- 1 Swimming Pool
- 3 Tennis Courts
- 3 Multipurpose Fields
- 2 Basketball Courts

Level of Service

The minimum level of service for recreation and open space in both Metro - Dade County and the City of North Miami is 2.75 acres per 1000 permanent residents. The City of North Miami Comprehensive Plan indicates that the inventory of recreation and open space found in North Miami exceeds both the current and future needs as per the projected population levels for this area.

According to the Dade County Comprehensive Plan Capital Improvements projects have been planned for many of the park facilities found within the context area of each campus. These include:

8.1 Dade County Comprehensive Plan Capital Improvements Projects

Park Facility	Planned Expenditure		Year of Completion
University Park			
Tamiami Park	8.13 Million	Future Growth	1996
North Miami Campus			
Greynolds Park	6.97 Million	Future Growth	2000
Haulover Park	12.32 Million	Future Growth	2000

Future Recreation Needs

The University currently has a sufficient amount of recreation and open space to serve the students at each campus, although open space on each campus could be better defined and developed.

According to FIU athletics director, future recreation needs of the University Park campus presently consist of renovations of existing facilities, a future golf course practice range, a future softball stadium, additional multipurpose fields and a multipurpose convocation center. In addition to these, additional non-competitive facilities are needed for general recreation.

8.2 RECREATION AND OPEN SPACE ELEMENT

8.2 Park and Recreation Facilities within the University Park context area (1 mile radius)

Parks	Acres	Recreation Center	Pool	Play Equipment	Picnic	B. Ball Courts	Tennis Courts	Volleyball	Baseball	Boat Launch	Multi-Purpose Field	Other
Concord Park	10			1		2			1		1	
Coral Estates Park	15.5	1		1			2		1		1	
Coral Way	27.4	1							4			
Intl. Gardens	5.38								1		1	
Snapper Creek	17.83				1					1		
Tamiami Park	241.86	1	1			1	6	6	2		12	Football Stadium
Carlton Park	2	1		1		2						
Ronselli Park	5	1		1		3						Football / Soccer Field
TOTAL	324.97	5	1	4	1	8	8	6	9	1	15	

Source: Dade County Parks and Recreation

8.0 RECREATION AND OPEN SPACE ELEMENT

8.1 Park and Recreation Facilities within the University Park context area (1 mile radius)

Parks	Acres	Recreation Center	Pool	Play Equipment	Picnic	B. Ball Courts	Tennis Courts	Volleyball	Baseball	Boat Launch	Multi Purpose Field	Other
Concord Park	10			1		2			1		1	
Coral Estates Park	15.5	1		1			2		1		1	
Coral Way	27.4	1							4			
Intl. Gardens	5.38								1		1	
Snapper Creek	17.83				1					1		
Tamiami Park	241.86	1	1			1	6	6	2		12	Football Stadium
Carlton Park	2	1		1		2						
Ronselli Park	5	1		1		3						Football / Soccer Field
TOTAL	324.97	5	1	4	1	8	8	6	9	1	15	

Source: Dade County Parks and Recreation

8.2 RECREATION AND OPEN SPACE ELEMENT

8.2 Park and Recreation Facilities within the North Miami Campus context area (1 mile radius)

Parks	Acres	Community Center	Pool	Play Equipment	Picnic	B. Ball Courts	Tennis Courts	Beach	Nature Center	Boat Launch	Multi Purpose Field	Other
Arch Greek	9								2			
E. Greynolds	56				1	1			1	1		
Gilbert Samson	30							1				
Haulover Beach	177				2		6	1		11		Golf/par course
Allen	4	1		1		1					1	
Aqua Bowl	20	1		1							1	
Tennis Complex	10	1		1			18					Handball
Tot Lot	2	1		1		4	2					
Victory	6.5	1	1	1		4	2					
Washington	4.6	1	1	1		2					1	
Enchanted Forest	22	1			2				2			Pony Ring
Jaycee	34											Sitting
N. Miami Athletic	20											400 meter track
N. Miami Interama	330											Undeveloped
TOTAL	662	7	2	6	5	12	28	2	5	12	3	

Source: Dade County Parks and Recreation

8.0 RECREATION AND OPEN SPACE ELEMENT

1 Convocation Center - joint-use land bank.

Space reserved for recreation use has slowly been eliminated to make way for other university and non-university facilities. Because of this, by the end of the planning period, FIU will need to look off campus to support its future recreation needs.

North Miami Campus

Recreation facilities provided by the Master Plan will support the planned expansion to the tennis program as well as general recreation and fitness for the University community.

North Miami Campus Recreation Facilities

Aquatic Center - existing
Par Course - existing
Tennis Courts - 6 existing, 3 new
Fitness Center/Gymnasium - replacement
Basketball Courts - 2 relocated
Multipurpose Fields - 3 relocated

8.0 RECREATION AND OPEN SPACE ELEMENT

North Miami Campus recreation needs include additional tennis courts, a gymnasium and general noncompetitive recreation facilities. There has also been discussion to further develop the existing rowing and water related activities.

As FIU continues its enrollment, and increase the number of students living on campus, the need for additional informal recreation space will be needed for these on-campus residents. This has been included in the new residents hall housing complex currently planned for the University Park campus.

Future recreation on the University Park 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.

Recreation space on the North Miami Campus is located on the western 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.

The Master Plan

University Park

The Master Plan recognizes the need for additional recreation facilities on the University Park campus. The majority of these facilities will be located on the western edge of the campus in accordance with the land use plan. The following is a list of recreation facilities provided by the Master Plan.

University Park Recreation Facilities

- 1 Golden Panther Arena - existing
- 12 Tennis Court - existing
- 6 Racquetball Courts - existing
- 1 Sand Volleyball - Existing
- 1 Soccer Stadium - existing
- 2 Multipurpose Fields - relocated
- 1 Baseball Field - relocated
- 1 Multipurpose Field - new
- 1 Baseball Stadium - new
- 2 Basketball Courts - relocated
- 2 Basketball Courts - new
- 1 Swimming Pool - new
- 1 Football Stadium - joint-use

9.0 GENERAL INFRASTRUCTURE ELEMENT

DRAINAGE

UNIVERSITY PARK

Drainage Facilities and Natural Features Inventory

The stormwater management plan for the University Park 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. The university provided digital-based drawings of the existing drainage pipes.

Referencing Figure 9.1, the following areas are primarily drained by 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 Business and Finance building, and some of the parking lots in the physical plant building area.

Positive drainage systems with an outfall to a water body include parking lots south of the Charles E. Perry/Primera Casa building, roof runoff and plaza drainage in the core building area, and the Golden Panther Arena area.

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

Based on the Dade County Flood Criteria Map, the minimum allowable elevations of the ground surface and crown of roads is 7.0 ft. NGVD on the north end of the campus to 7.4 ft. NGVD on the south. 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, Flood Insurance Rate Map, Community Panel Number 125098-0170F, the campus lies within Zone X, areas of 500-year flood.

Stormwater Generation

The University Park campus is presently lightly developed with large areas of open space. No runoff problems have been identified. The volume of runoff from the existing development is being handled by the lakes, exfiltration trenches and percolation into the ground. A master drainage plan is not available. The design of exfiltration trench systems require a specific design storm event to which the trench is sized to handle the runoff. A minimum factor of safety of two is included. When the runoff exceeds the capacity of the exfiltration trench, ponding occurs until the water

9.0 GENERAL INFRASTRUCTURE ELEMENT

recedes through exfiltration.

The positive drainage system with lake outfalls rely on storage of the runoff within the lake banks until infiltration into the groundwater or evapotranspiration 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. 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.

Campus Stormwater Capacity

The capacities of the existing swale and lake system are sufficient for the present development. A master drainage plan was not available for system capacity analysis, however, 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 subbasin. Once these subbasins are connected, some compensation on runoff exceedances can be distributed.

Host Community Stormwater Capacity

No stormwater facilities are shared with the neighboring communities. All stormwater runoff is contained within the campus.

Local, State and Federal Regulations

There are some Federal, State and Local regulations governing land use and development of drainage features.

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) regularly updates and publishes Flood Insurance Rate Maps (FIRM) to establish eligibility for federal flood insurance.

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

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concerning the protection of wetland habitats and function.

South Florida Water Management District has regulatory responsibility for stormwater discharge consumptive use, and surface water management permits. For the majority of projects in Dade County, the Department of Environmental Resource Management (DERM) has been delegated stormwater permit responsibilities.

Incorporation of Facilities into Local Governments Comprehensive Plan

University Park campus is part of a regional drainage system which is regulated by Dade County Department of Environmental Resource Management (DERM) and the South Florida Water Management District (SFWMD). Flood control elevations have been established for the regional system based on each site complying with the elevations.

No specific reference to University Park is contained in the Conservation, Aquifer Recharge and Drainage Element of the Metro-Dade County, Florida Comprehensive Development Master Plan, effective December 1988.

Projected Requirements for Future Development

Future development will require exfiltration trench and/or a lake outfall system. A master drainage plan should be prepared based on the proposed development. Implementation should be ahead of development to ensure appropriate flood control.

Adequacy of Drainage Facilities

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 unless a master plan permits additional connection. The existing exfiltration trench and drainage pipe systems were probably designed for a specific drainage area and would not have included excess capacity for future development.

Impact on Natural Resources

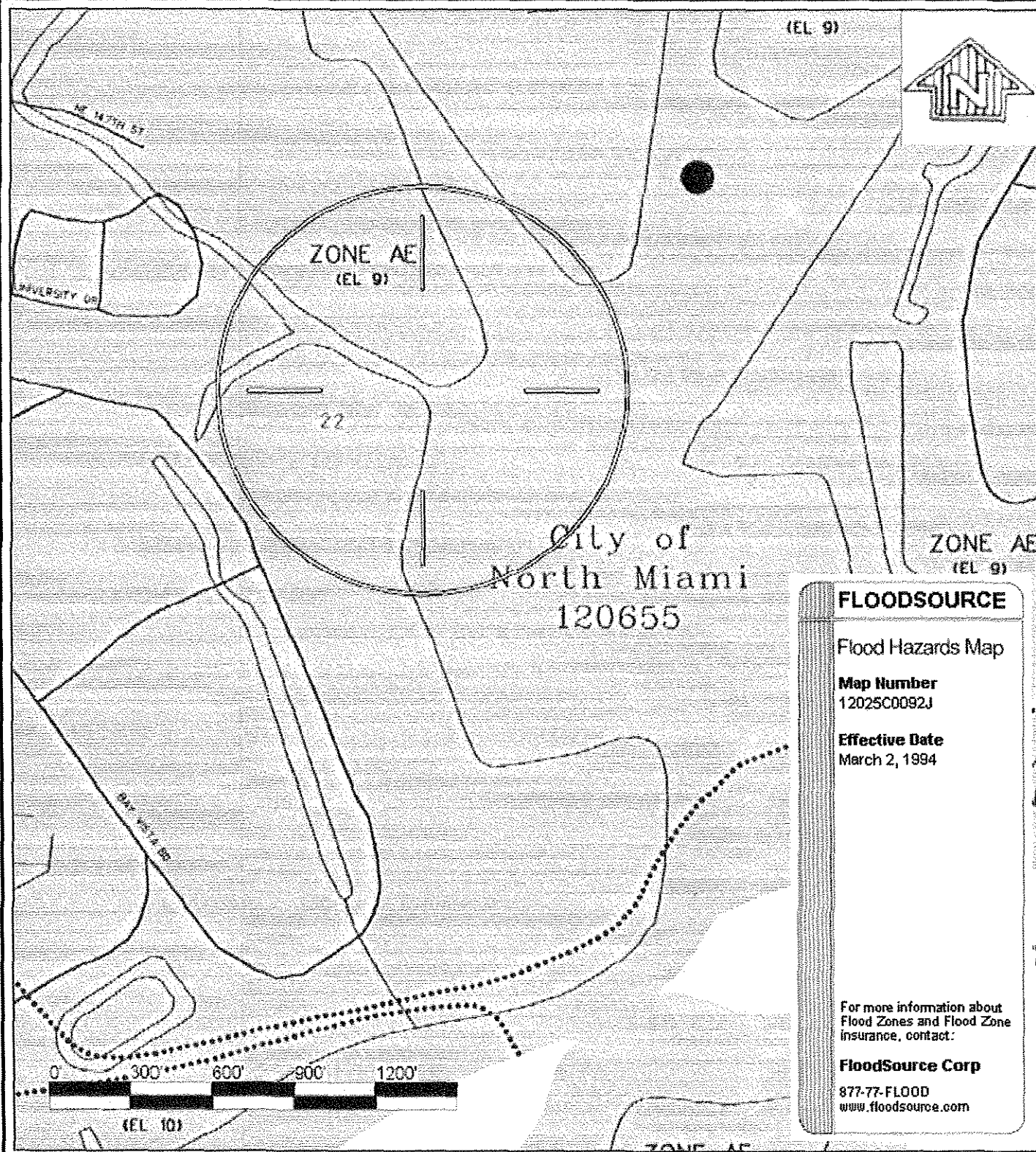
The impact on flood protection by the removal of open space will be minimized by the implementation of a master drainage plan. Best Management Practices (BMP) should be incorporated into the drainage infrastructure design to minimize the impacts to ground and surface water quality. These BMP's include down-turned elbows in catch

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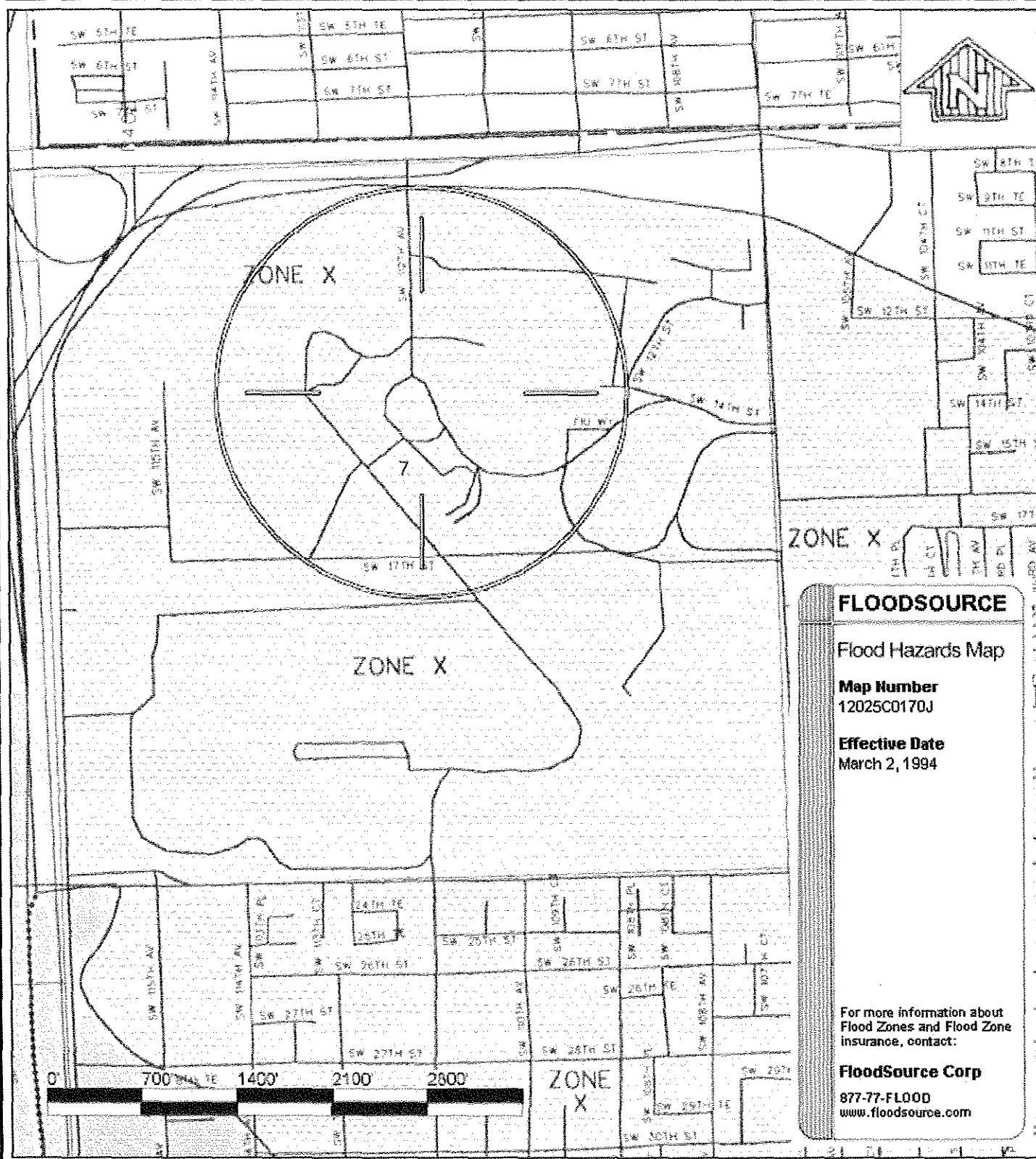


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basins to collect oils and grease in the runoff prior to discharge to the ground or surface water.

Impact of Pending Changes in Local, State and Federal Regulations.

No pending changes are anticipated at this time in local, state, or federal regulations concerning stormwater management.

Key Issues

Master Drainage Plan and implementation, connecting all the existing water bodies, and maintenance program are key issues.

NORTH MIAMI CAMPUS

Drainage Facilities and Natural Features

The stormwater management plan for the University Park campus is a combination of percolation, overland flow, exfiltration systems and positive drainage systems with outfalls to onsite lakes. The university provided digital-based drawings of the existing drainage pipes. Nearly all of the rainfall is retained onsite; however, there are two pipe connections to the canal on the north and east. One small pipe system, 8" x 12" in diameter, discharges runoff from the Hospitality Management building. The other is a 42" diameter culvert into the canal north of student housing.

Referencing Figure 9.2, the North Miami Campus of FIU has a canal on the north and east that 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. Roof runoff and most of the parking areas runoff is collected and discharged into onsite lakes. Parking lots No. 6 and 7 use exfiltration trench drainage systems. There are two onsite lakes: one is adjacent to the Academic Building and the Student Center and the other is next to the Physical Plant Building. There are a few wetland areas on the site.

Based on the Dade County Flood Criteria Map, the minimum allowable elevations of the ground surface and crown of roads is 5.0 ft. NGVD. The Biscayne Bay is a tidal water body which effects the groundwater elevations on adjacent properties. The nearest Average October Groundwater level contour with elevation 2.0 is located near US1. From the Federal Emergency Management Agency, Flood Insurance Rate Map,

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Community Panel Number 125098-0092G the campus lies within Zone AE (el 8, 9 & 10) and Zone VE (el 10). The majority of the site is Zone AE (el 9) with a portion of the campus in the northwest corner as Zone AE (el 8). A very small portion along the southern edge of the campus is Zone AE (el 10) and Zone VE (el 10). Zone AE are special flood hazard areas inundated by a 100-yard flood with base flood elevations determined. Zone VE is the same as Zone AE with an additional velocity hazard (wave action).

Stormwater Generation

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 being handled by the existing lakes, exfiltration trenches, and ponding in the low-lying, undeveloped areas.

The design of exfiltration trench systems require a specific design storm event to which the trench is sized to handle the runoff. A minimum factor of safety of two is included. When the runoff exceeds the capacity of the exfiltration trench, ponding occurs until the water recedes through exfiltration.

The positive drainage system with lake outfalls rely on storage of the runoff within the lake banks until infiltration into the groundwater or evapotranspiration 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. 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.

Campus Stormwater Capacity

The capacities of the existing swale, exfiltration trench, and lake system are sufficient for the runoff from the present development. A master drainage plan was not available for system capacity analysis. The existing drainage pipes and exfiltration trench should not have excess capacity as they were probably designed for a specific drainage area.

Host Community Stormwater Capacity

No stormwater facilities are shared with the neighboring community. All stormwater runoff is handled by onsite facilities.

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GENERAL INFRASTRUCTURE ELEMENT

Local, State and Federal Regulations

There are some federal, State and Local regulations governing land use and development of drainage features.

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) regularly updates and publishes Flood Insurance Rate Maps (FIRM) to establish eligibility for federal flood insurance.

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 has regulatory responsibility for stormwater discharge consumptive use, and surface water management permits. For the majority of projects in Dade County, the Department of Environmental Resource Management (DERM) has been delegated stormwater permit responsibilities.

Local Governments Comprehensive Plan

The City of North Miami Beach Comprehensive Plan, April 1991, does not address any specific drainage needs on the North Miami Campus in either their Drainage or Capital Improvement Elements.

In connection with new development, the City requires construction of new City stormwater systems that provide a minimum Level of Service for disposal of a two-year design storm with a 24-hour duration and, if applicable, require construction of permitted storm drain systems that fall under other governmental agencies providing storm drainage disposal service. This standard shall be applicable to development impacting on State owned or maintained facilities. Where applicable, the design of the system shall be approved by the water management division of Dade County and provide a minimum level of service adopted by Dade County Resolution R-951-82, as may be amended from time to time.

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Projected Requirements for Future Development

Future development will require exfiltration trench and/or a lake outfall system. A master drainage plan should be prepared based on the proposed development. Implementation should be ahead of development to ensure appropriate flood control.

Adequacy of Drainage Facilities

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 unless a master plan permits additional connection. The existing exfiltration trench and drainage pipe systems were probably designed for a specific drainage area and would not have included excess capacity for future development.

Impact on Natural Resources

The impact on flood protection by the removal of open space will be minimized by the implementation of a master drainage plan. 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.

Impact of Pending Changes in Local, State and Federal Regulations

No pending changes are anticipated at this time in local, state, or federal regulations concerning stormwater management.

Key Issues

Master Drainage Plan and implementation, connecting all the existing water bodies, and maintenance program are key issues.

POTABLE WATER

UNIVERSITY PARK

Potable Water & Fire Protection Distribution System

The potable water and fire protection needs for the University Park Campus are

9.0 GENERAL INFRASTRUCTURE ELEMENT

provided by a network of water mains consisting of the water supply source, primary distribution system, secondary distribution system, and services. The University provided digital-based drawings which included the location and sizes of the main distribution lines. The University is continuing to field test the accuracy of the digital information and have indicated the drawings are approximately 80% accurate.

Large 30" and 36" water mains along S.W. 8th Street and S.W. 117th Avenue, respectively, supply the campus with water (See Figure 9.3). These lines are owned and maintained by Metro Dade Water and Sewer Authority Department (WASAD) and distribute water from the Alexander Orr Water Treatment Plant. The primary distribution system makes multiple connections to the WASAD supply lines and consists of pipe sizes predominantly 12" in diameter. A section of 16" pipe exists along the main entrance drive from S.W. 8th Street to approximately the College of Health building. Many buildings receive water services and fire protection directly from the primary distribution system. There are a few secondary distribution systems that connect to the primary distribution system. Generally, these systems are smaller and specific to a building or limited service area. The Golden Panther Arena has a looped 8" water main and an 8" water main connects two links of the primary distribution system by running along and providing service to the Central Utility, Vierdes Haus, Athenaeum/Library, Owa Ehan and Physical Science buildings. Water consumption is measured by the use of water meters. Fire flow test results were satisfactory. Presently, there is an irrigation demand on the potable water system. The University plans to remove this demand.

Potable Water Sources

WASAD is the utility company that provides potable water to the University Park Campus of FIU. The Biscayne Aquifer is the primary source of potable water. The water is removed and treated at the Alexander Orr Water Treatment Plant located at 6700 SW 87 Avenue (see Figure 9.4). The plant was providing 168.1 million gallons per day (MGD) of finished water (June 1993 figures) with a maximum rated capacity of 260 MGD. The permitted average day withdrawal allocation is 165.5 MGD and the maximum day allocation is 198.2 MGD.

TABLE 9.1
POTABLE WATER CONSUMPTION AT UNIVERSITY PARK (FY 1992/1993)

WATER METER	ANNUAL CONSUMPTION	AVERAGE GPD
University Center	5,484,336	15,026

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Engineering and Computer Science	4,986,168	13,661
E1	548,284	1,502
W4 South	1,557,336	4,267
W4 North	1,362,856	3,734
Public Safety Building	197,472	541
Viertes Hans	1,143,692	3,133
Central Utility	16,832,244	46,116
Athenaeum	1,967,240	5,390
Deuxieme Maison	2,620,992	7,181
Primera Casa	3,273,996	8,970
Charles E. Perry	5,951,836	16,306
Owa Ehan	2,369,664	6,492
Duplicating Center	62,832	172
Golden Panther Arena	2,898,500	7,941
Health Services	295,976	811
Biology Greenhouse	381,480	1,045
Business Administration	1,317,976	3,611
Health and Wellness	49,368	135
Housing	15,523,992	42,531
Irrigation Pump 2006	1,370,336	3,754
Irrigation Pump 0140	193,732	531
Irrigation Pump 0180	20,944	57
Athenaeum Irrigation	447,232	1,225
Owa Ehan Irrigation	447,304	1,225

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Fire Lines	111,452	305
TOTAL	71,444,240	195,738

SOURCE: F.I.U. Water Bills for FY 1992/1993

Potable Water Allocation

Documentation of potable water allocation for the University Park campus is not available. However, an agreement for water distribution facilities between the Florida Board of Regents and WASAD was executed in 1975. No specific amount of potable water is allocated in the agreement, only an adequate supply of water shall be provided the FIU property.

Local, State and Federal Regulations**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.

Local Regulations

As a Board of Regents facility, University Park 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.

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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 University Park 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. Dade County Department of Environmental Resources Management (DERM) is responsible for regulating and monitoring the operation of water facilities under Chapter 24 of the County Code. WASAD is responsible for the distribution of potable water throughout Dade County.

Local Government's Comprehensive Plan

No specific reference to University Park is contained in the Water and Sewer Element of Metro-Dade County, Florida Comprehensive Development Master Plan, effective December, 1988. Metro-Dade has established an overall potable water supply level of service of operation of the regional water supply system operation of 2% above the maximum day flow for the preceding year. The level of service water pressure standard is established at 20 p.s.i. and no greater than 100 p.s.i.

Projected Requirements for Future Development

There is sufficient water treatment capacity at the Alexander Orr Water Treatment Plant for future development at the University Park Campus. However, the County should seek an increase in the permitted average day withdrawal allocation and maximum day allocation for the wellfield.

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

TABLE 9.2

PROJECTED NEED FOR POTABLE WATER AT UNIVERSITY PARK

Year	Head Count	Average GPD ¹
1992	17,306	195,738
1993	19,622	196,220
1994	20,441	204,410
1995	21,349	213,490

¹Average GPD is based on WASAD rate set in Schedule of Daily Rated Gallonage for Various Occupancy.

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1996	22,265	223,650
1997	23,188	231,880
1998	24,088	240,880
1999	25,000	250,000
2000	25,921	259,210
2001	26,851	268,510
2002	27,792	277,920
2003	28,745	287,450

SOURCE: Fall Student Profiles. 1992 Average GPD is based on actual consumption measured by water meters.

Key Potable Water Issue

- *A more clearly defined permitting process is required;*
- *Plans to locate new utilities in logical corridors are required;*
- *Existing distribution systems need to be completed as "looped" systems, and only "looped" distributions systems should be constructed in the future;*
- *Disparity between potable water provided and sanitary sewage discharged needs to be evaluated.*

NORTH MIAMI CAMPUS

Potable Water & Fire Protection Distribution System

The potable water and fire protection needs for North Miami Campus are provided by a network of water mains consisting of the water supply source, primary distribution system, secondary distribution system, and services. The University provided digital-based drawings which included the location and sizes of the main distribution lines. The University is continuing to field test the accuracy of the digital information and have indicated the drawings are approximately 80% accurate.

A 16" and 30" diameter water transmission main along N.W.151 St. and N.W. 135 St.,

9.0 GENERAL INFRASTRUCTURE ELEMENT

respectively, supply the campus with water (See Figure 9.5). These lines are owned and maintained by the City of North Miami. A primary distribution system through the campus consisting of 16" through 20" diameter water mains interconnect the 16" and 30" water main. Secondary distribution systems service the Physical Plant/Public Safety Area and the Student Housing Area with an 8" diameter water main. The core buildings area has a secondary distribution system with a 10" diameter water main. All of the main distribution lines (8" diameter and larger) are owned and maintained by the City of North Miami. Water consumption is measured by water meters. Presently, there is an irrigation demand on the potable water system. The University will be removing this demand and plan to utilize irrigation quality, treated effluent from the North Regional Wastewater Treatment Plant. The force main and meter to the property has been installed.

Potable Water Sources

The City of North Miami Public Utilities is the utility company that provides potable water to the North Miami Campus of FIU. The City's water supply is from two sources: Norman Winson Water Plant (See Figure 9.4) and WASAD.

TABLE 9.3
POTABLE WATER CONSUMPTION AT NORTH MIAMI CAMPUS (FY 1992/1993)

WATER METER	ANNUAL CONSUMPTION	AVERAGE GPD
Academic I 07693	7,083,000	19,405
Academic II 07890	834,000	2,285
Academic II 07892	736,000	2,016
HRS 07885	412,000	1,129
Library 07687	1,150,000	3,151
Physical Plant 07858	721,000	1,975
Fire Lines	0	0
Student Center 07753	2,983,000	8,173
Holocaust Center 07880	30,000	82
Housing	Not available	Not available
Swimming Pool 07650	44,000	121
Irrigation 07603	765,000	2,096

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Irrigation 07648	4,793,000	13,132
Irrigation 07678	743,000	2,036
Irrigation 07708	2,256,000	6,181
Irrigation 07728	175,000	479
Irrigation 07738	6,000	16
Irrigation 07873	3,000	6
Irrigation 07604	416,000	1,140
PTC 07618	467,000	1,279
TOTAL	23,617,000	64,704

SOURCE: F.I.U. Water Bills for FY 1992/1993

Potable Water Allocation

The City is permitted to withdraw and treat 9.3 MGD from the Norman Winson Water Plant. Supplemental water is supplied by multiple connections to WASAD's water transmission system. The contract with WASAD allows the City to purchase all their present and future water supply needs to supplement what the City supplies. Presently the Norman Winson Water Plant is treating approximately 8 MGD. This is approximately 60% of the system demand.

Local, State and Federal Regulations**Federal Regulation**

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

9.0 GENERAL INFRASTRUCTURE ELEMENT

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.

Local Regulations

As a Board of Regents facility, University Park 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". North Miami Campus reviews projects with the City of North Miami and pays to the City of North Miami fees associated with installation of water meters.

Local Government's Comprehensive Plan

The City of North Miami Beach Comprehensive Plan, April 1991, does not address any specific potable water needs in either the Potable Water Element or the Capital Improvement Element. The city has adopted an overall level of service design flow standard of 125 gallons/capita per day at a minimum pressure at the water meter of 30 p.s.i. and a total storage capacity of 5 million gallons.

Projected Requirements for Future Development

There is sufficient treatment capacity at the City's Norman Winson Water Plant for future development at the North Miami Campus. In addition, their agreement with WASAD 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 deadend and need to become a "looped" system.

**TABLE 9.4
PROJECTED NEED FOR POTABLE WATER AT NORTH MIAMI CAMPUS**

9.0**GENERAL INFRASTRUCTURE ELEMENT**

Year	Head Count	Average GPD ²
1992	5,858	67,704
1993	6,789	67,890
1994	7,267	72,670
1995	7,778	77,780
1996	8,295	82,950
1997	8,822	88,220
1998	9,344	93,440
1999	9,869	98,690
2000	10,402	104,020
2001	10,938	109,380
2002	11,477	114,770
2003	12,016	120,160

SOURCE: Fall Student Profiles. Average GPD for 1992 is based on actual consumption measured by water meters.

Key Potable Water Issues

- *A more clearly defined permitting process is required;*
- *Plans to locate new utilities in logical corridors are required;*
- *Existing distribution systems need to be completed as "looped" systems, and only "looped" distributions systems should be constructed in the future;*

SANITARY SEWER**UNIVERSITY PARK**

² Average GPD is based on WASAD rate set in Schedule of Daily Rated Gallonage for Various Occupancy.

9.0 GENERAL INFRASTRUCTURE ELEMENT

Sanitary Sewer Facilities

The University Park campus sanitary sewer system consists of multiple gravity sewer and pump station subsystems (see Figure 9.6). Pump Station No.1 subsystem (PS1) serves the Student Housing Area with 8" diameter gravity sewer pipe and 6" laterals. A 4" force main transmits the effluent from this pump station into a gravity line in the north branch of the Pump Station No.2 subsystem (PS2). PS2 is the largest subsystem with gravity sewer pipe sizes ranging from 8" to 12" in diameter. Pump Station No.3 substation (PS3) has the Golden Panther Arena as a sole user. Pump Station No.4 subsystem (PS4) serves several buildings and facilities on the western side of the campus. The main collection lines are 8" in diameter. The force main from PS4 is 8" in diameter and picks up the effluent from PS3 through an 8" force main prior to discharge into a gravity line in the south branch of PS2. The pump station for PS2 is the master station for the site through which all sewage is pumped. A flow meter measures the discharge prior to connection into a 36" diameter force main owned by Metro Dade Water & Sewer Authority Department (WASAD).

Sanitary Sewer Treatment Facility

The sewage from the University Park campus is treated by WASAD's South Regional Wastewater Treatment Plant (SRWTP). [See Figure 9.7]. A lawsuit filed by the Environmental Protection Agency against Dade County has resulted in restrictions on the issuance of building permits throughout the County. A recent agreement between the agencies defines agency and county activities prior to issuance of a building permit. Presently, the rated 12 month rolling average for sewage treatment at the SRWTP is 92.7 million gallons per day (GPD) which exceeds the permitted capacity of 75 MGD. Dade County has a plan to resolve the issues over the next 18 months. Estoppel permits can be issued which restrict issuance of a certificate of occupancy until certain improvements previously identified by the County have been made.

Sanitary Waste Generation

Sanitary waste generation analysis is normally based on statistical generation rates adopted by the utility provider. Documentation of existing water and sewer allocation by WASAD to FIU is not available. However, an agreement for water distribution facilities between the Florida Board of Regents and WASAD was executed in 1975. No specific amount of potable water is allocated in the agreement, only an adequate supply of water shall be provided the FIU property. Table 9.5 shows waste generated as measured by a flow meter.

TABLE 9.5
SANITARY WASTE GENERATION AT UNIVERSITY PARK (FY 1992/1993)

FLOW METER	WASTE GENERATED FY 92/93	AVERAGE GPD
MASTER	94,545,130	259,028

9.0

GENERAL INFRASTRUCTURE ELEMENT

SOURCE: F.I.U. Water Bills readings provided by Facilities Management.

Sanitary Sewer Treatment Allocation

Documentation of existing water and sewer allocations for the University Park Campus are not available. The only agreement between WASAD and FIU is for water distribution facilities executed in 1975. Generally, the acceptance of sewage flow is part of the installation of the water meter by the utility company.

Local, State and Federal Regulations

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

State Regulations: 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 Regents facility, University Park 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 University Park 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. Dade County Department of Environmental Resources Management (DERM) is responsible for regulating and monitoring the operation of water facilities under Chapter 24 of the County Code. The Metropolitan Dade Water and Sewer Authority Department (WASAD) is responsible for the distribution of potable water throughout Dade County.

9.0 GENERAL INFRASTRUCTURE ELEMENT
Local Government's Comprehensive Plan.

No specific reference to University Park is contained in the Water and Sewer Element of Metro-Dade County, Florida Comprehensive Development Master Plan, effective December, 1988. Metro-Dade has established an overall sanitary sewer treatment and disposal level of service of operation of the regional system at 2% above the average daily flow for the preceding year.

Projected Sanitary Sewage Flows

TABLE 9.6
PROJECTED NEED FOR WASTEWATER TREATMENT AT UNIVERSITY PARK

Year	Head Count	Average GPD ³
1992	17,306	259,028*
1993	19,622	196,220
1994	20,441	204,410
1995	21,349	213,490
1996	22,265	223,650
1997	23,188	231,880
1998	24,088	240,880
1999	25,000	250,000
2000	25,921	259,210
2001	26,851	268,510
2002	27,792	277,920
2003	28,745	287,450

³ Average GPD is based on WASAD rate set in Schedule of Daily Rated Gallonage for Various Occupancy.

9.0 GENERAL INFRASTRUCTURE ELEMENT

SOURCE: Fall Student Profiles

*Average GPD for 1992 is based on actual consumption measured by water meters.

Adequacy of Sanitary Sewage Collection and Treatment Facilities

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 PS2, are limited in the way of changes from current operation. However, PS2 should have flexibility since it operates as the master pump station for the campus.

The sewage treatment capacities of the SRWTP are inadequate to handle the present County's system operation within permitted conditions. Dade County plans to resolve the sewage problems over the next 18 months.

Impact of Pending Changes in Local, State and Federal Regulations

The largest unknown in the Dade County Sewer Issue is the impacts of the new US EPA/Dade County Sewer Agreement. A simplified overview is existing pump stations will be required to monitor pump operating times. Nominal pump operating times exceeding 10 hours per day will not be permitted to accept additional flows and must be modified to correct the situation. Each pump station contributing flows into the system and the pump station downstream that receives the flows from the system must be certified by the County that they meet the operating time criteria prior to issuing a permit for a new connection. This could have significant impact on the short term expansion plans for the University Park campus.

Assessment of Sanitary Sewage Reduction Opportunities and Technologies

The most common and practical method of reducing the amount of sewage generated is installing water restriction devices on all fixtures and repairing gravity sewer systems with significant infiltration problems.

Collection and Treatment Agreement Analysis

There are no agreements for the provision of sanitary sewage collection and/or treatment between FIU and WASAD. The closest thing to a sewer agreement is a 1975 water distribution facilities agreement that requires WASAD to provide an adequate supply of potable water to the University Park campus of approximately 344 acres. If the sanitary sewer issue in Dade County was resolved, and WASAD issued water meters in accordance with the agreement, then the sewage generated as a result of these meters should be accepted for treatment by WASAD.

Key Issues

9.0 GENERAL INFRASTRUCTURE ELEMENT

- *Disparity between potable water provided and sanitary sewage discharged needs to be evaluated.*
- *Meet and coordinate WASAD sewer conditions and modifications that will affect new sewer connections for FIU.*

NORTH MIAMI CAMPUS

Sanitary Sewer Facilities

The sanitary sewer system was designed and constructed by the City of North Miami for the Interama project in the early 1970's. A master pump station is located near the Academic Two building (see Figure 9.8). Gravity sewer pipe ranging from 8" to 15" in diameter extend from the pump station to service the existing buildings as well as future development to the south. A 12" diameter force main transmits the pump station effluent to the Master Interama Pump Station located north of the site.

Sanitary Sewer Treatment Facility

The City of North Miami is the utility company that invoices FIU for the sanitary sewage produced at the North Miami Campus. However, they contract with WASAD to provide the treatment and disposal. WASAD's North Regional Wastewater Treatment Plant (NRWTP) is located less than a mile away from the campus near the corner of Biscayne Blvd. & NW 151 St. A lawsuit filed by the Environmental Protection Agency against Dade County has resulted in restrictions on the issuance of building permits throughout the County. A recent agreement between the agencies defines agency and county activities prior to issuance of a building permit. Presently, the rated 12 month rolling average for sewage treatment at the NRWTP is 87.6 million gallons per day (GPD) which is just below the permitted capacity of 90 MGD based on the Department of Environmental Protection or 100 MGD based on Metro-Dade Department of Environmental Resource Management. Dade County has some projects planned to improve the plant capacity and transmission system over the next 18 months. Estoppel permits can be issued which restrict issuance of a certificate of occupancy until certain improvements previously identified by the County have been made.

9.0**GENERAL INFRASTRUCTURE ELEMENT****Sanitary Waste Generation**

Table 9.7 reflects sewage flow based on FIU water and sewer bills averaged over FY 1992/1993.

TABLE 9.7**SANITARY WASTE GENERATION AT NORTH MIAMI CAMPUS (FY 1992/1993)**

FLOW METER	WASTE GENERATED (FY 1992/1993)	AVERAGE GPD
Academic I 07693	10,624,500	29,108
Academic II 07892	1,104,000	3,025
Academic II 07890	1,215,000	3,329
HRS 07885	618,000	1,693
Library	1,725,000	4,726
Physical Plant 07858	1,081,500	2,963
Student Center 07753	4,624,500	12,670
Holocaust Center 07880	45,000	123
Housing	Not available	Not available
Swimming Pool 07650	66,000	181
TC 07618	700,500	1,919
TOTAL	21,804,000	59,737

SOURCE: F.I.U. Water Bills for FY 1992/1993

Local, State and Federal Regulations

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

9.0 GENERAL INFRASTRUCTURE ELEMENT

waste treatment and management programs to ensure adequate control of pollutant sources.

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 Regents facility, University Park 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 University Park 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. Dade County Department of Environmental Resources Management (DERM) is responsible for regulating and monitoring the operation of water facilities under Chapter 24 of the County Code. WASAD is responsible for the distribution of potable water throughout Dade County.

A lawsuit filed by the Environmental Protection Agency against Dade County has resulted in restrictions on the issuance of building permits throughout the County. A recent agreement between the agencies defines agency and county activities prior to issuance of a building permit. It is a very new and complex agreement which has not been tested. Dade County has a plan to resolve the issues over the next 18 months. Estoppel permits can be issued which restrict issuance of a certificate of occupancy until certain improvements previously identified by the County have been made.

Local Government's Comprehensive Plan.

The City of North Miami Beach Comprehensive Plan, April 1991, does not address any specific potable water needs in either the Potable Water Element or the Capital Improvement Element. The Comprehensive Plan has adopted a sewage flow allocation for schools as 10 Gallons Per Day/Person as a means of ensuring that the City's overall adopted level of service for sewage of 100 gallons/capita/day is met. For sewer collections systems built prior to 1985 the City has established a minimum level of service of 200 gallons/day/capita.

Projected Sanitary Sewage Flows

9.0**GENERAL INFRASTRUCTURE ELEMENT**

Table 9.8 calculates the sanitary sewage flows based on the statistical generation rates by head count for each fiscal year.

TABLE 9.8
PROJECTED NEED FOR WASTEWATER TREATMENT AT NORTH MIAMI CAMPUS

Year	Head Count	Average GPD ⁴
1992	5,858	59,737*
1993	6,789	67,890
1994	7,267	72,670
1995	7,778	77,780
1996	8,295	82,950
1997	8,822	88,220
1998	9,344	93,440
1999	9,869	98,690
2000	10,402	104,020
2001	10,938	109,380
2002	11,477	114,770
2003	12,016	120,160

SOURCE: Fall Student Profiles

*Average GPD for 1992 is based on actual consumption measured by water meters.

Adequacy of Sanitary Sewage Collection and Treatment Facilities

The sanitary sewer system should be adequate to handle future development of the North Miami 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.

⁴ Average GPD is based on WASAD rate set in Schedule of Daily Rated Gallonage for Various Occupancy.

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GENERAL INFRASTRUCTURE ELEMENT

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

Impact of Pending Changes in Local, State and Federal Regulations

The largest unknown in the Dade County Sewer Issue is the impacts of the new US EPA/Dade County Sewer Agreement. A simplified overview is existing pump stations will be required to monitor pump operating times. Nominal pump operating times exceeding 10 hours per day will not be permitted to accept additional flows and must be modified to correct the situation. Each pump station contributing flows into the system and the pump station downstream that receives the flows from the system must be certified by the County that they meet the operating time criteria prior to issuing a permit for a new connection. This could have significant impact on the short term expansion plans for the University Park campus.

Assessment of Sanitary Sewage Reduction Opportunities and Technologies

The most common and practical method of reducing the amount of sewage generated is installing water restriction devices on all fixtures and repairing gravity sewer systems with significant infiltration problems.

Collection and Treatment Agreement Analysis

The agreement to provide water and sewage treatment was not available but dates back to the early 1970's and the old Interama Development that was planned for the area. The city shall provide all the water and sewage treatment needs for this campus.

Key Sanitary Sewer Issues

- *Meet with the City of North Miami and WASAD to understand system improvements required before new connections for FIU will be issued.*

SOLID WASTE

Solid Waste Disposal System

Solid Waste collection and disposal is accomplished at FIU 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 University Park using 15 on-campus locations and at North Miami at 3 on-campus locations. Table 9.9 indicates the dumpster location, size and number of pick-ups scheduled each week. Figures 9.9 and 9.10 indicate the locations of the on-site

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dumpsters.

GENERAL INFRASTRUCTURE ELEMENT

TABLE 9.9
TRASH COLLECTION FACILITIES

Dumpster Location	Number & Size	# of Pick-ups Per Week
UNIVERSITY PARK		
Key Bank	3 - 6 yd	5
Owa Ehan Bld.	1 - 6 yd	3
Tower Building	1 - 4 yd	2
W2 Building	1 - 4 yd	3
W10 Building	1 - 6 yd	3
South of VH Bld.	2 - 6 yd	3
SW 117 Avenue Entrance	1 - 20 yd	1
W1 (Sculpture)	1 - 6 yd	1
Golden Punta Avenue	1 - 8 yd	5
Chem & Physics Building	1 - 8 yd	3
Engineering Building	1 - 8 yd	3
Business Administration	1 - 6 yd	3
Housing Complex	8 - 6 yd	3
NORTH MIAMI		
P.P. Campus Support	1 - 6 yd	5
Library	1 - 4 yd	5
Housing	1 - 8 yd	7

SOURCE: Coastal Carting LTD. Sept. 1993

RECYCLING

Paper

9.0 **GENERAL INFRASTRUCTURE ELEMENT**

Approximately 150 bins for the collection of recyclable paper (white, color and computer) are located inside buildings on campus. FIU Recycling staff services the bins and transports the materials to recycling centers.

Cardboard

A compactor is located on campus for the collection of cardboard for recycling FIU Physical Plant Staff is responsible for the operation of the on-site compactor.

Aluminum Cans

Approximately 35 bins are used for the collection of aluminum cans are located on campus. One bin is generally provided for each principal building on campus. FIU Recycling staff services these bins and the aluminum cans are sold locally.

Tires

Waste tires are stored in the University Park Nursery. The tires are then delivered to the Dade County incinerator by FIU personnel.

Wooden Pallets

Wooden Pallets are recovered, as feasible, by the FIU recycling staff and delivered to the North Dade landfill for mulching.

Yard Waste

Small and medium branches are chipped at the West 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.

Phone Books

Southern Bell phone books are collected for recycling.

Oil Filters

Two drums for the collection of used oil filters are located at University motor pool area.

Auto Batteries

9.0 GENERAL INFRASTRUCTURE ELEMENT

Auto batteries are collected by the FIU recycling staff and stored on pallets within the nursery area. The batteries are periodically sold to the vendor.

HAZARDOUS WASTES

Used Motor Oil

Drums for the collection of used motor oil are located at each motor pool for periodic collection by the vendor.

Used Cooking Oil

Drums for the collection of used cooking oil are located at the North Miami Campus Hospitality Management and Cafeteria pick up is made by the vendor.

Hazardous, Biohazardous and Radioactive Wastes

The current waste disposal procedures consist of collection from generator departments throughout the University (by Environmental Health & Safety staff) and storage to await and pick-up and disposal by hazardous waste disposal companies, or by direct pick-up from the point of generation by the selected waste disposal company. Large volumes of wastes such as that generated by the Chemistry Department are picked from the point of generation.

Hazardous wastes, once picked up by the Environmental Health and Safety Department, is stored in the Hazardous Waste Shed located on the west side of University Park. Chemicals from the North Campus are transported to University Park where they are then classified as hazardous wastes and stored in the Hazardous Waste Shed to await pick-up by a hazardous waste disposal company. The volume of hazardous waste generated at the North Miami Campus is very small ranging from five to twenty gallons per day.

Biohazardous wastes are, in most part, picked up from the point of generation by the disposal company. There is currently one outside storage container 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. (University Park Health Clinic - weekly; Medical Lab Sciences, PC Building - biweekly). Biohazardous wastes is generated at both campuses.

Radioactive waste materials are currently stored in 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. No Radioactive waste is generated at the North Campus.

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GENERAL INFRASTRUCTURE ELEMENT

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 wastes are disposed of every 180 days and are picked up by a waste disposal company that has met basic insurance and other permit requirements and which has submitted a competitive quotes. The following companies have provided hazardous waste disposal services for FIU between 1991 and 1993:

Rollins Environmental Services Inc.
2027 Battleground Road
Deer Park, TX

Universal Waste and Transit, Inc.
2002 North Orient Road
Tampa, FL 33619

Laidlaw Environmental Services
5303 - 126th Avenue North
Clearwater, FL 34620

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

Solid Waste Generation

Table 9.10 indicates the amount of Solid Waste generated by the University.

TABLE 9.10

SOLID WASTE GENERATION 1993

CAMPUS	TONS/YEAR	TONS/DAY
University Park	3364.5	9.2
North Miami	955.5	2.6
TOTAL	4320.0	11.8

9.0**GENERAL INFRASTRUCTURE ELEMENT**

SOURCE: Coastal Carting Limited, September 1993.

Solid Waste Disposal Facilities and Collectors

Table 9.11 indicates the Solid Waste service provider, location and description of services provided.

**TABLE 9.11
SOLID WASTE SERVICE PROVIDERS**

NO	SERVICE PROVIDER	VOLUME	COMMENTS
1	Coastal Carting LTD Trash removal 2316 SW 56 Terrace service Hollywood, FL (305) 685-7012	4320 tons/year	Under contract through 1995 Ultimate disposal at Dade County, Montenay Disposal Facility
2	Industrial Waste Service Trash compact ors 3840 NW 37 Court Cardboard compactors Miami, FL 33142 (305) 638-3800	Not Available	
3	Recycle America Paper recycling (Waste Management Inc.) Phone books 2303 NW 70 Avenue Miami, FL (305) 247-1000	200 tons/year	-
4	Arrow Recycling Co. Aluminum cans 3333 NW N. River Drive Miami, FL (305) 634-4668	2 tons/year	-

9.0 GENERAL INFRASTRUCTURE ELEMENT

Options.

5. All dumpsters shall have plastic covers instead of metal to facilitate access in depositing refuse.
6. Collection point and container specifications -- University Park are:

	<u>Location</u>	<u>Size</u>	<u>Pick-Up/Hauling</u>
1.	Key Bank	3-6 yd. dumpster	3 days/week
2.	Owa Ehan Building	1-6 yd. dumpster	3 days/week
3.	Tower Building	1-4 yd. dumpster	twice weekly
4.	W-2 Building	1-4 yd. dumpster	3 days/week
5.	W-10 Building	1-6 yd. dumpster	3 days/week
6.	South of VH Building	2-6 yd. dumpster	3 days/week
7.	S.W. 117 Ave. Entrance	1-20 yd. dumpster	once weekly
8.	W-1 Bldg. (Sculpture)	1-6 yd. dumpster	once weekly
9.	Golden Panther Arena	1-6 yd. dumpster	3 days/week
10.	Housing Complex	5-6 yd. dumpster	3 days/week
11.	Chemistry/Physics Bldg.	1-8 yd. dumpster	3 days/week
12.	Engineering Building	1-8 yd. dumpster	3 days/week
13.	Business Admin. Bldg.	1-6 yd. dumpster	3 days/week

7. Collection point and container specifications -- North Miami Campus are:

	<u>Location</u>	<u>Size</u>	<u>Pick-Up/Hauling</u>
1.	P.P. Campus Support	1-6 yd. dumpster	Daily
2.	Academic II Building	1-4 yd. dumpster	Daily
3.	Library (behind)	1-4 yd. dumpster	Daily
4.	Housing Complex	1-8 yd. dumpster	7 days/week

8. In rare case where dumpsters prove inadequate (i.e. when there is bagged refuse placed beside containers), it shall be the responsibility of the contractor to collect excess refuse and leave the area in an orderly condition. In instances where there is an ongoing problem, it shall be the responsibility of the contractor to notify the University so that changes in container size or frequency of collection may be changed per the cost schedule.

RECYCLING COLLECTION SERVICES

9.0 GENERAL INFRASTRUCTURE ELEMENT

Industrial Waste Services Inc. is under contract with Florida International University to provide compacting and recycling services at both the North Miami and University Park campuses. The contract is valid for the period August 15, 1992 through June 30, 1995. The specific specifications are as follows:

1. **Compactors:** Compactor (2) shall be a 20/30 yard compactor, self contained, leak proof, key operated, lockable disconnect, side loading, painted and labeled per University instructions, to be located one each at each campus at the designated site as agreed upon by the University. All environmental conditions required for the installation of the compactors shall be attached to your bid response. The University shall install the pad and the electrical requirements, etc. as required at the University's expense. The vendor shall deliver and install/hook up the compactor when notified and the service shall start within ten days of this notification. The vendor shall maintain the compactors (rental or purchased) in a clean and sanitary condition. All repairs shall be made within forty-eight (48) hours of notification.
2. **Collection Services:** shall be made on call as necessary within forty-eight hours of such notice on normal week days before 8:00 A.M. A schedule of frequency of the pick-ups shall be determined by the contractor as agreed upon by the University with due regard to product production.
3. **Contaminated materials:** The University shall keep and make every effort to keep the compactors free from contaminated products. The compactors shall be used for cardboard products only. All wax or plastic coated cartons, shoe boxes, newspaper, magazines, books, plastic, styrofoam, wood and metal shall be considered contaminated and shall be excluded. If contaminated, the University shall pay for the disposal at the prices stated.
4. **Records:** The contractor shall record the weight of materials collected on each pick-up. The weights shall be recorded from a state of Florida certified and inspected scale for the purpose of ascertaining payments due to the University. Weight receipts are to be provided to the University on a monthly basis with the reimbursement. The University reserves the right to inspect and verify weight records and procedures.
5. **Payments/Reimbursements:** Payments shall be made by the contractor to the University on or before the 20th day of each month for the previous month's collections. Payment shall be accompanied by an itemized statement showing the amount of recyclable product collected and contamination material removed under the provisions of the agreement. The contractor payments to the University shall be by check, payable to Florida International University (Recycle program) and shall be mailed or delivered to the Coordinator, Carol Bailey. After ninety (90) days, reimbursement payments/prices maybe negotiated based on the published monthly market such as the "Recycling Times" in writing.
6. **Training:** The contractor shall train no less than ten (10) employees (5 per campus) on

9.0 GENERAL INFRASTRUCTURE ELEMENT

the proper operation of the compactor each year.

7. **Guarantees:** The University offers no guarantee that a fixed amount of any recyclable product or material can be collected each month.

RECYCLING COLLECTION SERVICES FOR SOURCE-SEPARATED PROGRAM FOR HOUSING COMPLEXES FOR BOTH CAMPUSES

1. **Containers:** Vendors shall supply a customized 30 cubic yard storage container compatible with hauling services for each housing complex with at least five (5) compartments, painted and labeled per university instruction, and installed. All environmental conditions required for the installation of the container shall be attached to your bid response. The University shall install the pad, etc. as required at the University's expense. The vendor shall deliver and install the containers when notified and service shall start within ten days of this notification. Vendor shall maintain the containers (rental or purchased) in a clean and sanitary condition. All repairs shall be made within forty-eight (48) hours of notification.
2. **Collection Services:** Vendor shall collect on call as necessary within forty-eight hours of such notice on normal week days before 8:00 A.M. The vendor shall collect and market clear glass, brown glass, plastic (H.D.P.E. and P.E.T. co-mingled), newspaper and metal cans (aluminum and tin co-mingled) from the University housing areas of University park Campus and the North Miami Campus. A schedule of frequency of the pick-ups shall be determined by the contractor as agreed upon by the University with due regard to product production.
3. **Contaminated materials:** The University shall keep and make every effort to keep the containers free from contaminated products. The containers shall be used as labeled. If contaminated, the University shall pay for the disposal at the prices stated.
4. **Records:** The vendor shall record the weight of each product collected by collection site, date and product. The weights shall be recorded from a state of Florida certified in inspected scale and shall be recorded and certified by the contractor for the purpose of ascertaining payments due. Weight receipts are to be provided to the University on a monthly basis. The University reserves the right to inspect and verify weight records and procedures.
5. **Guarantees:** The University does not guarantee that a fixed amount of any recyclable product or material can be collected each month.
6. **Addendum:** As it may become appropriate or beneficial, other recyclable products or materials may be added or deleted to the scope of this contract at the discretion of the University based on the successful negotiations of the rates per specification 8 between the University and the vendor. All changes shall be in writing.

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GENERAL INFRASTRUCTURE ELEMENT

7. **Recycling Marketing:** The vendor shall be totally responsible for the marketing of the recyclable collected with the exception of the contaminants. All materials collected must be recycled or reused.
8. **Payments/Reimbursements:** Payments shall be made by the contractor to the University on or before the 20th day of each month for the previous month's collections. Payment shall be accompanied by an itemized statement showing the amount of recyclable product collected and contamination material removed under the provisions of the agreement. The contractor payments to the University shall be by check, payable to Florida International University (Housing Recycle Program) and shall be mailed or delivered to the Coordinator, James Wassenaar. After ninety (90) days, reimbursement payments/prices maybe negotiated based on the published monthly market such as the "Recycling Times".

Key Issues:

Recycling: In 1992 the total volume of materials recycled totaled approximately 200 tons of paper products and 2 tons of aluminum cans which represents approximately 5% of the waste stream generated by the University. Recognizing that the solid waste generation characteristics for a university differ from that of a county or municipality, the 5% recycling of materials does not approach the 30% reduction mandated for by the Florida Resource Recovery and Management Act.

9.0**GENERAL INFRASTRUCTURE ELEMENT**

5	Montenay Power Corp. Tires (Resource Recovery Plant) 6990 NW 97 Avenue Miami, FL (305) 593-7000	Not available	Shredded tires are transported to Orange County Class III Landfill
6	North Dade County Pallets and yard Landfill wastes 215 Street & NW 47 Ave. Miami, FL	Not available	Pallets are mulched which is then utilized on campus
7	Ricky's Waste Oil Used motor oil 6330 West 16 Avenue Hialeah, FL: 33012 (305) 822-2253	Approximately 6 drums/year	-
8	Petroleum Recovery Inc. Used oil filters 4111 SW 47 Avenue Suite 305 Davie, FL 33314 (305) 792-1116	Not available	
9	Acme Processors Cooking oil P. O. Box 4128 Miami, FL (305) 823-5621	Not available	Oil is reprocessed and utilized for agricultural consumption
10	Dade Scrap Iron & Metal Auto batteries 2770 NW 32 Avenue Miami, FL 33142 (305) 634-5865	Not available	

Solid Waste Disposal Allocation

Coastal Carting Ltd. is granted a license by Dade County to collect and transport solid waste within Dade County. No specific allocation is given to licensed vendors. Dade County is under contract to deliver or cause to be delivered 940,000 ton per year to the Montenay Resource Recovery Facility.

9.0 GENERAL INFRASTRUCTURE ELEMENT
Schedules and Routes for Hazardous Waste Disposal

As a result of the Environmental Health and Safety Department soliciting bids for the disposal of hazardous waste as necessary, the schedules and routes for hazardous waste cannot be ascertained. It is the intent of the Environmental Health and Safety Department to enter into a contractual agreement with a licensed hazardous waste disposal firm at a minimum on an annual basis. This action is expected to occur in 1994.

Projected Solid Waste Generation

Table 9.12 indicates the projected five and ten year solid waste generation for the university and is based on the present estimation of 1.85 pounds per full time equivalent student.

TABLE 9.12
PROJECTED SOLID WASTE GENERATION 1993-2003

1992-1993			
	FTE's	TONS/YEAR	TONS/DAY
University Park	9,969	3364.5	9.3
North Miami	2,831	955.5	2.6
TOTAL	12,800	4320.0	11.8
1997-1998			
University Park	14,139	4773.6	13.1
North Miami	4,643	1567.6	4.3
TOTAL	18,780	6341.2	17.4
2002-2003			
University Park	17,479	5901.3	16.2
North Miami	6,956	2348.5	6.4
TOTAL	24,435	8249.8	22.6

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GENERAL INFRASTRUCTURE ELEMENT

Adequacy of Solid Waste Collection and Disposal Facilities

Through agreements with Metro-Dade, Coastal Carting Limited delivers the solid waste collected at both campuses to the Dade County Resource Recovery Facility. No proportional capacity is assigned to individual private trash collection firms. The facility is owned by Dade County and is operated under contract by Montenay Power Corporation. This contract is valid through 2013. The waste to energy component of the plant operates 24 hours a day seven days a week and has process incineration capabilities of 3,000 tons per day which is also the facilities licensed capacity. The plant generates 78 mega watts of energy of which 80% is sold to Florida Power Corporation and 20% is used to power the plant. The plant recovers 30,000 tons of ferrous metals and 600 tons of aluminum annually. The plant generates a residual ash component of 16% which is land filled on site. According to Montenay Power Corporation sufficient land fill capacity exists for the ash through 2003. Montenay Power Corporation and Dade County are presently researching the means for implementing a program for selling a portion of the ash for use by cement manufactures. Materials which cannot be incinerated or recycled comprises 12% of the material entering the plant is transported to the South Dade County Landfill. During the last twelve month, the Montenay Resource Recovery Plant processed 940,000 tons on materials or approximately 86% of its licensed capacity.

Local, State and Federal Regulations

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 Regulation (DER), 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

9.0 GENERAL INFRASTRUCTURE ELEMENT

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.

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 Dade County Home

9.0 GENERAL INFRASTRUCTURE ELEMENT

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 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 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 Metro-Dade Department of Environmental Resources Management has broad authority under Chapter 24 of the Code of Metropolitan Dade County to regulate facilities in order to protect the environment. (Source: Dade County Comprehensive Plan).

Assessment of Reduction, Recycling and Re-use Opportunities and Technologies

Additional Recycling Opportunities: As indicated in Table 9.11, FIU is presently recycling or causing to be recycled the following materials:

9.0

GENERAL INFRASTRUCTURE ELEMENT

Paper
Phone books
Aluminum cans
Motor oil
Oil filters
Cooking oils
Auto batteries
Wooden pallets

Absent from the list of recycled materials are plastics, steel cans, glass and white goods. As part of the solid waste goals, objectives and policies, attention should be given to policies which lead to the implementation of programs which for the recycling of these additional materials.

Solid Waste Management Trust Fund: The Department of Regulation 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.

9.0 GENERAL INFRASTRUCTURE ELEMENT
Collection and Disposal Agreements Analysis

GENERAL CONTRACT PROVISION

The bid solicitation and selection process is subject to the general conditions as established by Florida International University Purchasing Services Department. The contract contains supplemental conditions which are not germane to the specific solid waste removal and disposal operations and provide provisions related to the following items: vendor's right to payment; Prison Rehabilitative Industries (PRIDE); contract cancellation; travel; cancellation; renewal; protection of property; qualification of bidders; hold harmless; public entity crimes; identical tie bids; vendors notification of vendor ombudsman name and telephone number; award; availability of funds; insurance required; inspection of facilities; assembly and/or placement; delivery; environmental conditions F.O.B. Point and cancellation.

TRASH REMOVAL

Coastal Carting LTD. Inc. is under contract with Florida International University to provide the previously described trash removal services. The contract, effective August 30, 1992 through June 30, 1995, provides for the trash removal services at both the North Miami and University Park campuses. The specific trash removal specifications are as follows:

TRASH REMOVAL SPECIFICATIONS

1. Garbage and other refuse materials are to be collected in general on the campuses each business day, Monday and Friday. Collections at the North Miami Campus Housing and University Park Housing areas shall be seven (7) days per week or as requested. Collections shall be made between the hours of 5:00 A.M. and 7:00 A.M.
2. It shall be the responsibility of the contractor to provide and maintain all dumpsters in good repair and in a clean and sanitary condition at all times. Dumpsters must be odor free when empty.
3. Provision shall be made for increases or decreases for cost of additional or eliminated collection points or frequency to be determined by the University per cost schedule.
4. Provision shall be provided for special or one-time pick-up of construction, clean yard waste and other trash upon request of the University in both

10.0 UTILITIES ELEMENT

CHILLED WATER

UNIVERSITY PARK

The Campus Main Building core is served by a chilled water system consisting of a chiller plant with its complementary equipment and a piping distribution loop.

The Central Utility Building currently houses four chillers, four cooling towers, three condenser pumps, and three primary chilled water transport pumps.

Cooling capacity of the plant is:

Table 10.1 Chiller Capacity

Number	Tons	Manufacturer	Refrigerant	Arrangement
1	900	York	R.11	Parallel
2	900	York	R.11	Parallel
3	1193	Carrier	R.500	Parallel
4	900	York	R.11	Parallel
Total	3,893			

Chilled water is conveyed through the Campus via underground piping network which is almost entirely looped.

10.0 UTILITIES ELEMENT

The following buildings are served by the chilled water system:

Table 10.2 Existing Chilled Water System

Building	Conditioned Square Feet	Approximate A/C Tonnage
Primera Casa	154,892	387
Deuxieme Maison	91,970	230
Viertes Haus	54,935	137
University Center	110,000	275
Athenaeum	119,560	299
Owa Ehan	74,629	187
Engineering	100,000	250
Chemistry/Physics	75,695	189
College of Health	9,255	23
Business Administration	43,322	108
Miscellaneous Buildings	8,197	21
Total		2,106 *

(Refer to Figure 10.1)

* Accounts for diversity in usage.

A set of three primary transport pumps circulates the water through the piping loop and its extensions. Deuxieme Maison, Athenaeum, Owa Ehan, Viertes Haus, Engineering, Chemistry/Physics, and 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 through a valved transfer loop. See Figure 10.1.

The primary/secondary transfer loop in most buildings are temperature controlled through an automatic mixing valve.

There is a separate 190 ton capacity "Bohn" air cooled chiller operating on R-22 refrigerant with its own circulating pump. This chiller is locally connected to the main loop at the Owa Ehan

10.0 UTILITIES ELEMENT

Building. The Golden Panther Arena has two 200 ton (each) York chillers operating on R-11 refrigerant. These chillers have their own chilled water circulating pumps.

Analysis

At the present time, the Chiller Plant has approximately an 85% redundancy in capacity and a multiple distribution of chillers for safe operation. The building has been designed and the piping prepared for an expeditious expansion.

In early 1991, the University commissioned a study of their chiller inventory on both Campuses. The study was based on the Clean Air Legislation and their effects on the refrigerants used in the various chillers.

The federal law states that the production of CFC refrigerants must first be reduced and then no later than the end of 1999 eliminated entirely. Refrigerants being used by Florida International University in its Main Chiller Plants include CFC's, R-11 and R-500.

The substitute refrigerants which could be used in the machines under consideration are not without their drawbacks. R-123 has some safety considerations which must be addressed.

Another drawback of these substitute refrigerants is that both of them will cause the refrigeration equipment to operate less efficiently.

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: New Education Building, New Fine Arts Building, Expansion of the Athenaeum (Library) and Expansion of the University Center. Total projected square footage of air conditioned space for this imminent expansion is 235,000 square feet. The air conditioning load increase reflected is of 587 tons. Absorbing it, reduces the Plant redundancy to 44%. The future Health Building, Fine Arts Phase III, Engineering Building II will further erode the Plant capacity. These buildings are planned within the three (3) year capital improvement plan. This point must be considered the milestone when the Chiller Plant must be expanded to augment refrigeration capacity. Other new buildings under design will be located in West Campus. They are being designed around air conditioning systems dedicated to the particular buildings.

10.0 UTILITIES ELEMENT

One of the concepts which will be considered in this Master Plan is the development of a satellite Chiller Plant to serve the existing as well as the new buildings in the area if additional growth in that area supports the requirement.

In the center of the Campus, there will be new dormitory buildings. The existing dormitory units at S.W. 107th Avenue presently use self-contained direct refrigerant expansion air conditioners. Future dormitories should be connected to the Central Chiller Plant. At that time, retrofitting the existing units should be a consideration.

Another area of development is contemplated by the main entrance at Tamiami Trail (S.W. 8th Street). Due to its location, this core will be served from the Central Plant. A piping sub-loop surrounding this core should be connected to the existing one. The existing piping loop must also be extended to serve the Fine Arts Building to be located at the south-southeast section of the Campus.

The existing primary pumping capabilities appear to be stretched to its limit under present load conditions. Additional building additions currently under design will certainly experience chilled water flow shortages unless this system is revamped in phase with the new buildings.

Aside from the pumping capacity problems, the primary/secondary crossover controls and secondary pumping need to be critically addressed.

Alternative sources of energy (cogeneration), as well as thermal storage, and other energy conservation measures need to be considered and will be addressed in other sections of this Master Plan. Building growth with its demanding energy consumption is projecting at a rate faster than energy budget allocations. 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.

Key Issues

- a) Plant capacity expansion.*
- b) Chiller refrigerant replacement/management.*
- c) Piping loop extensions.*
- d) Pumping capacity problems.*
- e) Primary/Secondary valving homologation.*
- f) Thermal storage, and energy conservation.*

10.0 UTILITIES ELEMENT

NORTH MIAMI CAMPUS

A Central Utility Building located in a service yard near the Student Center Building produces the chilled water that is circulated throughout the Campus.

The Central Utility Building houses four chillers, cooling towers, condenser, and chilled water transport pumps.

Cooling capacity of the plant is:

Table 10.3 Chiller Capacity

Number	Tons	Manufacturer	Refrigerant	Arrangement
1	340	Carrier	R.11	Parallel/Series
2	310	Carrier	R.11	Parallel/Series
3	225	Trane	R.11	Parallel
4	350	McQuay	R.12	Parallel
Total	1225			

Chilled water is conveyed through the Campus via underground and exposed supply and return pipes. The following buildings are served by the chilled water system:

Table 10.4 Existing Chilled Water System

Building	Conditioned Square Feet	Approximate A/C Tonnage
Student Center	54858	137
Academic I	78667	197
Academic II	55786	140
Hospitality Management	45592	114
Library	82332	206
Total		794 *

(Refer to Figure 10.5)

* Accounts for diversity in usage.

10.0 UTILITIES ELEMENT

The chilled water from the Plant is circulated through the pipe network by primary transport pumps. The Library Building, Student Center, and Academic I Building have in-line single pump secondary systems drawing chilled water from the primary network. These three buildings have the secondary pumps located in the ceiling space or in a stairwell which renders them inaccessible for servicing. Each of the remainder buildings have two pumps for the secondary systems, one of them being a standby unit.

The buildings have been fitted with a "BRDG-TNDR" brand automatic valving system at the connection between the primary and secondary piping networks.

Analysis

At the present time, the Chiller Plant has approximately a 54% redundancy in capacity and a multiple distribution of chillers to provide safe operation. The addition of the Conference Center and the Student Center Expansion will require another 200 to 250 tons of refrigeration. These buildings are currently under design. Such an addition will bring the Plant redundancy down to approximately 23%. This is roughly equivalent to the capacity of any of the four chillers. This redundancy is critically low since it is assumed that scheduled maintenance will remove one machine off the line at regular intervals. Therefore, this maintenance must take place during the low load months; i.e. November through April.

Another area of concern is the chiller refrigerant non-compliance with the Clean Air Act Amendments of 1990 and the Geneva Protocol with the Copenhagen Amendments. The existing chillers operate on refrigerant R-11 and R-12. Only the machine using R-12 (McQuay - 350 ton capacity) is a good candidate for retrofitting with the more environmentally friendly R-134a refrigerant. The other units given their age and low efficiency are not good candidates for retrofitting. The refrigerant for the retrofit would be R-123. This refrigerant present some serious safety considerations. This is another factor in not recommending retrofits for the existing R-11 machines.

The two Carrier chillers are 16 years old and the Trane unit is 14 years old. Their low efficiency in the 0.9 to 1.1 KW/ton range renders them obsolete. New units are running on a 0.55 to 0.65 KW/ton.

Aside from the building under design; future expansion has identified additional structures such as the Classroom Office Building and the Honor Complex. Additional growth is anticipated for Dormitories, Public Affairs Building, Classroom Building, Nursing School, and Supports Building. Capacity needs, along with efficiency, and refrigerant restrictions dictate an overhaul/expansion program for the Chiller Plant. This expansion must be ready toward the end of the

10.0 UTILITIES ELEMENT

five (5) year C.I.P. Chiller substitution will bring along a cooling tower and condenser pump component to match designed modifications.

The existing primary chilled water pump capabilities are presently close to the limit of their performance. Extension of the primary pipe network to service the Conference Center will further tax these transport pumps. This entire system must be revised to accommodate the chiller system upgrade and to guarantee adequate primary flow through the piping network. A coordinated primary-secondary pumping program providing each building with two (one standby) secondary pumps should be considered. The secondary pumps should be of the variable flow type to further increase the diversity and efficiency of the system.

Currently, the existing dormitories as well as some smaller buildings have independent self-contained or split air conditioning systems. Since additional dormitories are contemplated in the future, it is advisable to consider connecting the new ones as well as retrofitting the existing ones to operate with chilled water from the Central Plant. This step involves not only chiller and pumping capacity considerations, but also extension of the piping network. Under those circumstances it will be economically feasible to also include the core of small buildings northeast of the Library in the chilled water network. A primary technical concern with the piping network is the high water table and it's brackish characteristics. Piping, insulation, valve boxes and equipment in general, must exhibit adequate characteristics to withstand these conditions.

Campus projected growth is taxing and will tax even more the limited resources used to cover energy costs. It is advisable to consider avenues by which additional energy increments may be reduced and maintained in check with the budgets allocated.

Subjects such as energy conservation, storage, and utility incentives will be considered in future sections of this report when goals and objectives are discussed.

Key Issues

- a) *Chiller Plant capacity.*
- b) *Chiller refrigerant replacement.*
- c) *Piping network expansion.*
- d) *Chilled water pumping capacity.*
- e) *Energy consumption versus campus growth.*

10.0 UTILITIES ELEMENT

ELECTRICAL AND TELECOMMUNICATIONS

UNIVERSITY PARK

Electrical

The electrical transmission and distribution system serving University Park presently consists of two primary voltage (13.2 KV) underground feeders which run in a north-south direction up to 107th Avenue and 117th Avenue respectively. 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 new third primary voltage feeder which originates from the new FPL substation built on an easement located at the S.W. corner of the Campus is completed. This new underground feeder which borders the University Park/Youth Fair boundary on the Campus side runs in an easterly direction towards 107th Avenue. This new 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.

Telecommunications

University Park voice communications system is serviced by the Bell South "ESSX" service. The Campus main telephone feeder originates at 107th Avenue and enters into the cable plant located at the PC Building. This cable plant, which provides the voice communications throughout the Campus, is owned and maintained by Bell South which provides it as part of the ESSX service rate.

The data communications system at the 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 Buildings Primera Casa, Deuxieme Maison, Owa Ehan, Engineering & Computer Science, Viertes Haus, Graham Center, Athenaeum, 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.

Analysis

As previously noted, the existing three primary voltage feeders designed to service the 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

10.0 UTILITIES ELEMENT

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 and compact fluorescent lamps, electronic ballast and automated building lighting control systems.

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

In order to increase telecommunications reliability, a second main telephone feeder should be extended into the Campus from 117 Avenue. This second feeder should be strategically located in such a fashion with the existing telecommunications network to form a loop around the Campus.

Key Issues

- a) *Energy efficient technologies.*
- b) *Transmission and distribution for Campus expansion.*
- c) *Buyout of Campus wide transmission/distribution system.*

NORTH MIAMI CAMPUS

Electrical

The electrical transmission and distribution system serving the North Campus consists of two primary voltage (13.2 KV) feeders 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. 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 (Refer to Figure 4). If required, this feeder could be routed down a riser underground and

10.0 UTILITIES ELEMENT

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.

Analysis

Presently, the existing primary voltage feeders can accommodate sufficient capacity to expand upon and service the projected growth at the North 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. (Refer to Figure 10)

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.

Key Issues

- a) *Energy efficient technologies.*
- b) *Transmission and distribution for Campus expansion.*
- c) *Buyout of Campus wide transmission/distribution system.*

Telecommunications

The voice communications system at the North Campus is served from a "Rolm CBX 9000" system. This cable plant, located at the Academic II Building, is owned, operated, maintained and managed by the University.

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 I, Hospitality Management, Library, and Student 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. (Refer to Figure 6)

10.0 UTILITIES ELEMENT

Analysis

Telecommunication 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 II via intermediate manholes to service the building expansions. (Refer to Figure 12)

Key Issues

- a) *Expansion of the FIUnet system.*
- b) *Upgrading the Administrative Network.*

Florida International
University

UNIVERSITY PARK

WALLACE ROBERTS & TODD CORAL GABLES, FL

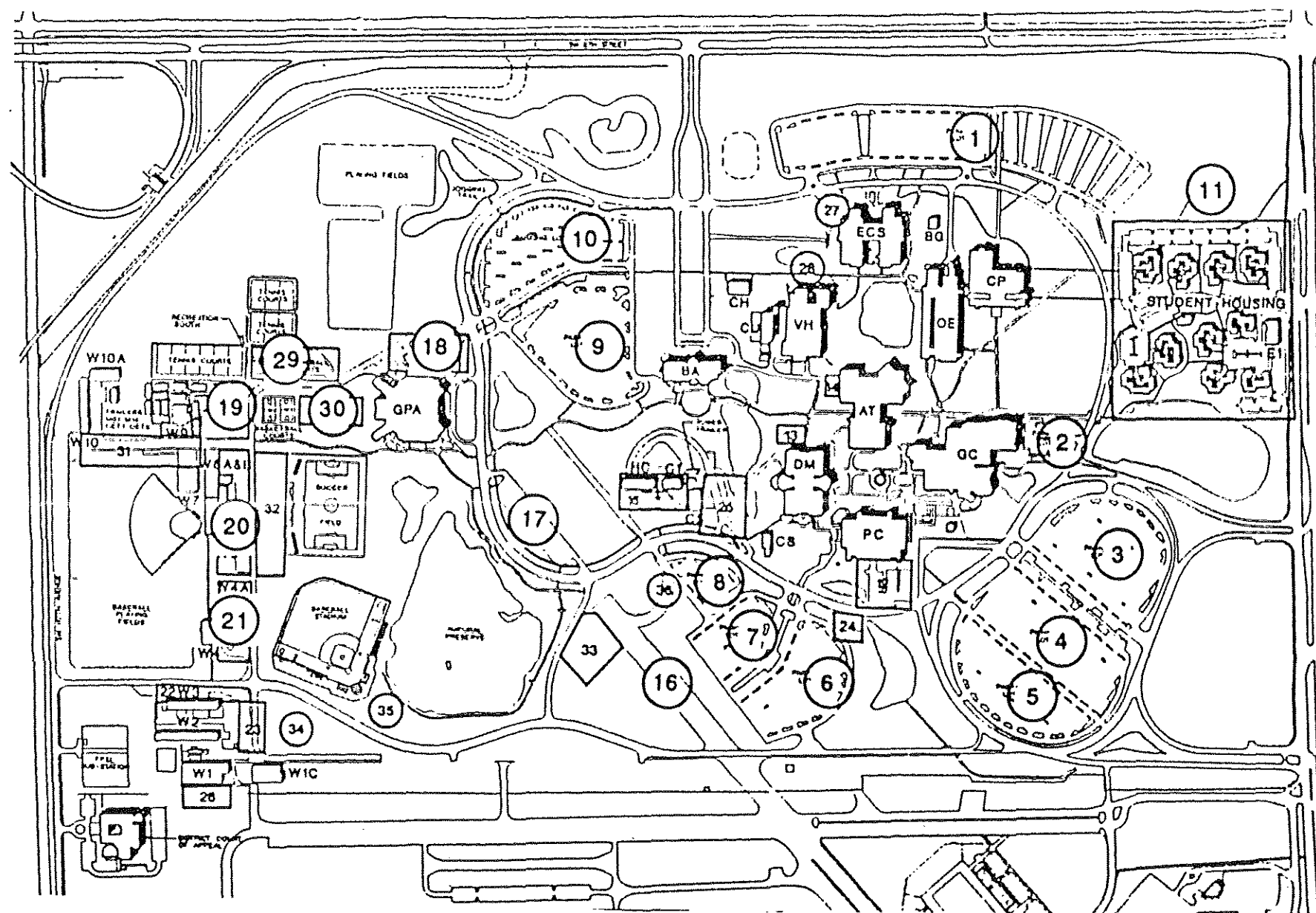
DAVID FLANNERY & ASSOCIATES, INC.
BARRY & BARRY, INC.
KEITH & SCHWAB
BOH CHENIERES
ZYSCOVICH, INC.

CORAL GABLES, FL
MIAMI, FL
FT. LAUDERDALE, FL
CORAL GABLES, FL
MIAMI, FL

Existing Parking
Lot Numbers
(Source: FIU)

Figure 10.1.A1

FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA



Florida International
University

NORTH MIAMI CAMPUS

WALLACE ROBERTS & TODD CORAL GABLES, FL

DAVID PLUMMER & ASSOCIATES, INC.
BARRY & BARRY, INC.
LEITH & SCHWAB
SON DORNECK
ZYSCORON, INC.

CORAL GABLES, FL
MIAMI, FL
FT. LAUDERDALE, FL
CORAL GABLES, FL
MIAMI, FL

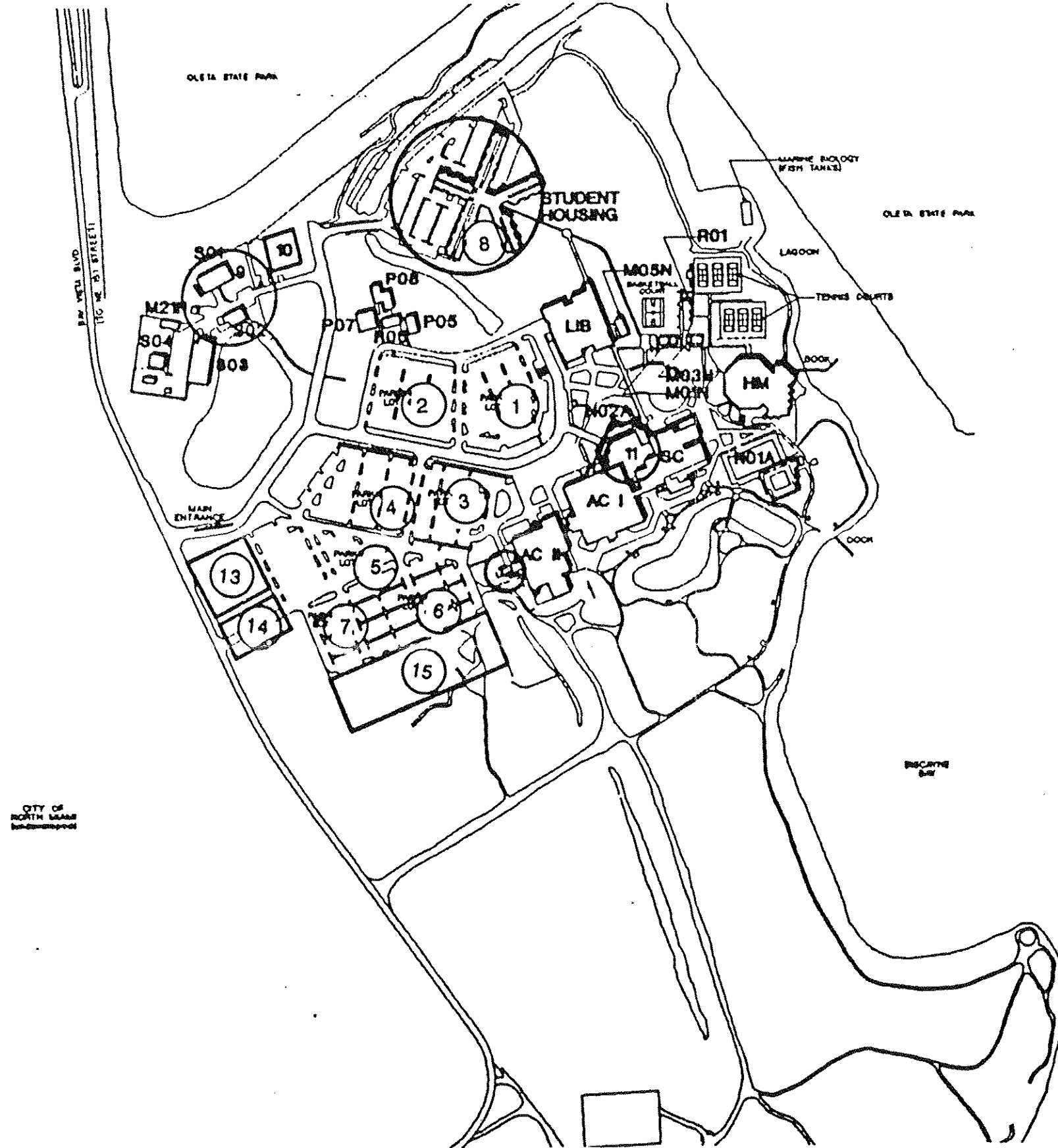
Existing Parking
Lot Numbers
(Source: FIU)

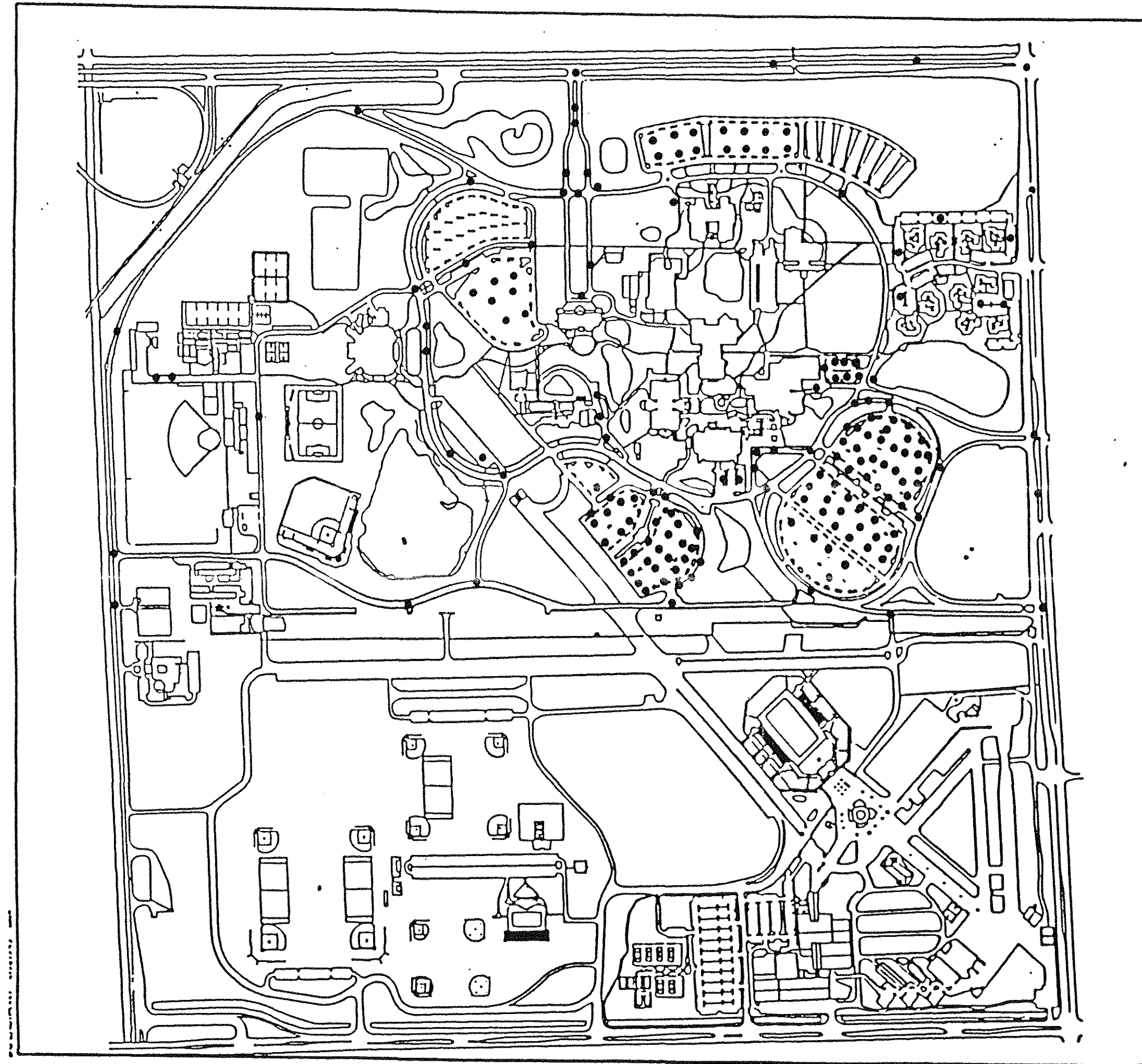
Figure 10.1.A2

FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA



REVISED 1/7/80





UNIVERSITY PARK CAMPUS

Legend:

- - ACCIDENT
LOCATION

WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID FLEMMER & ASSOCIATES, INC.	CORAL GABLES, FL
BART & BART, INC.	MIAMI, FL
ELITH & SCHWARTZ	FT. LAUDERDALE, FL
SON DENTERS	CORAL GABLES, FL
PTC CONSTRUCTION, INC.	MIAMI, FL

Accident
Locations

Jan 1991-Sep 1993

Figure 10.1.G1

FLORIDA INTERNATIONAL UNIVERSITY

MASTER PLAN
MIAMI, FLORIDA





00 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

NORTH MIAMI CAMPUS

Legend:

- - ACCIDENT LOCATION

WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID FLINCHER & ASSOCIATES, INC	CORAL GABLES, FL
GARY & GARY, INC	MIAMI, FL
KEITH & SCHWARTZ	FT. LAUDERDALE, FL
SOM ENGINEERS	CORAL GABLES, FL
ZYSCOVICH, INC	MIAMI, FL

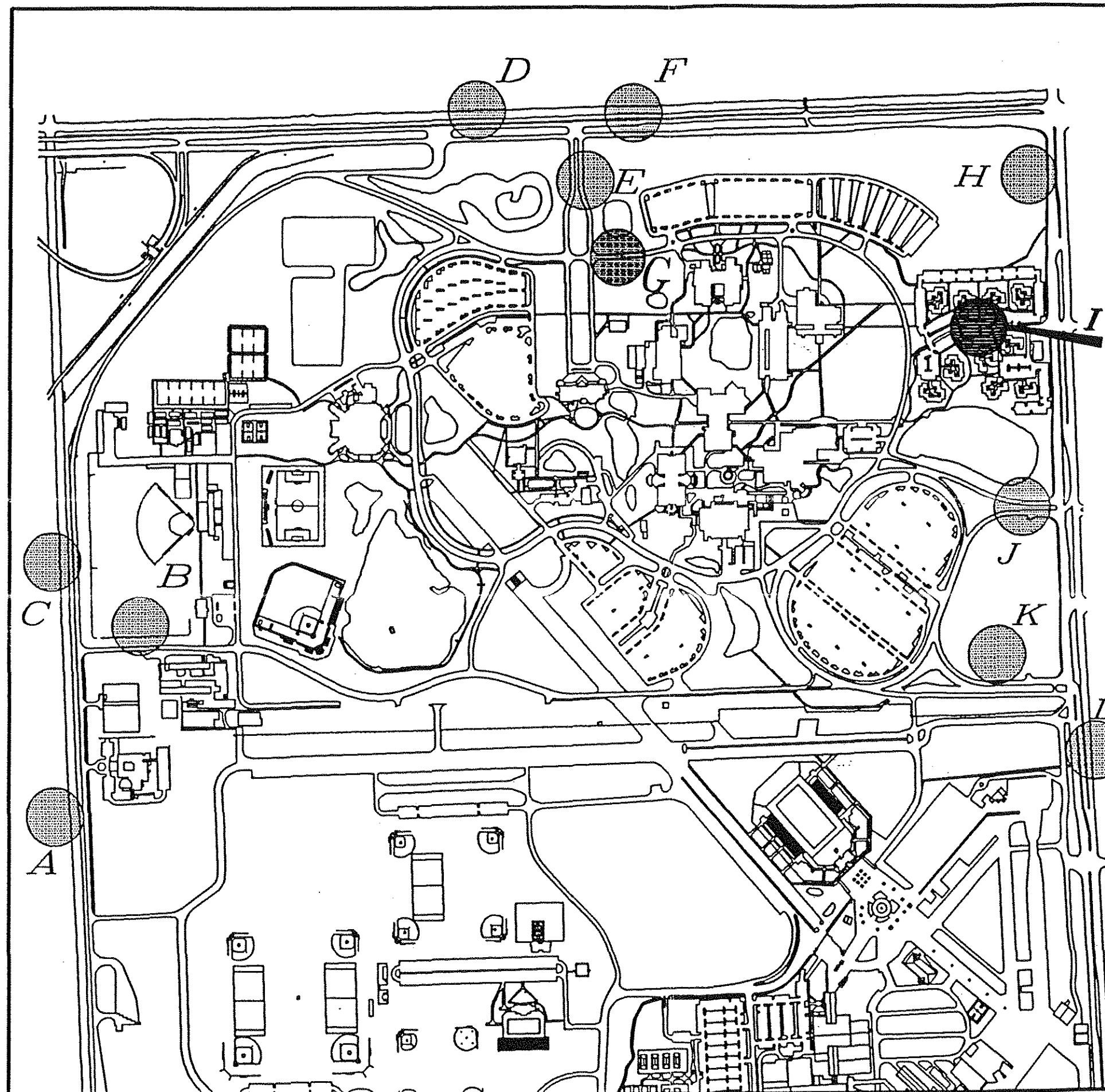
Accident
Locations

Jan 1991-Sep 1993

Figure 10.1.G2

FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA





University Park

Legend:

Ⓐ — Traffic Count Location

WALLACE ROBERTS & TODD CORAL GABLES, FL

DAVID PLUMMER & ASSOCIATES, INC. CORAL GABLES, FL
 GARY & GARY, INC. MIAMI, FL
 KEITH & SCHWARTZ FT. LAUDERDALE, FL
 SOM ENGINEERS CORAL GABLES, FL
 ZYSCOVICH, INC. MIAMI, FL

Key Map

Level Of Service Analysis

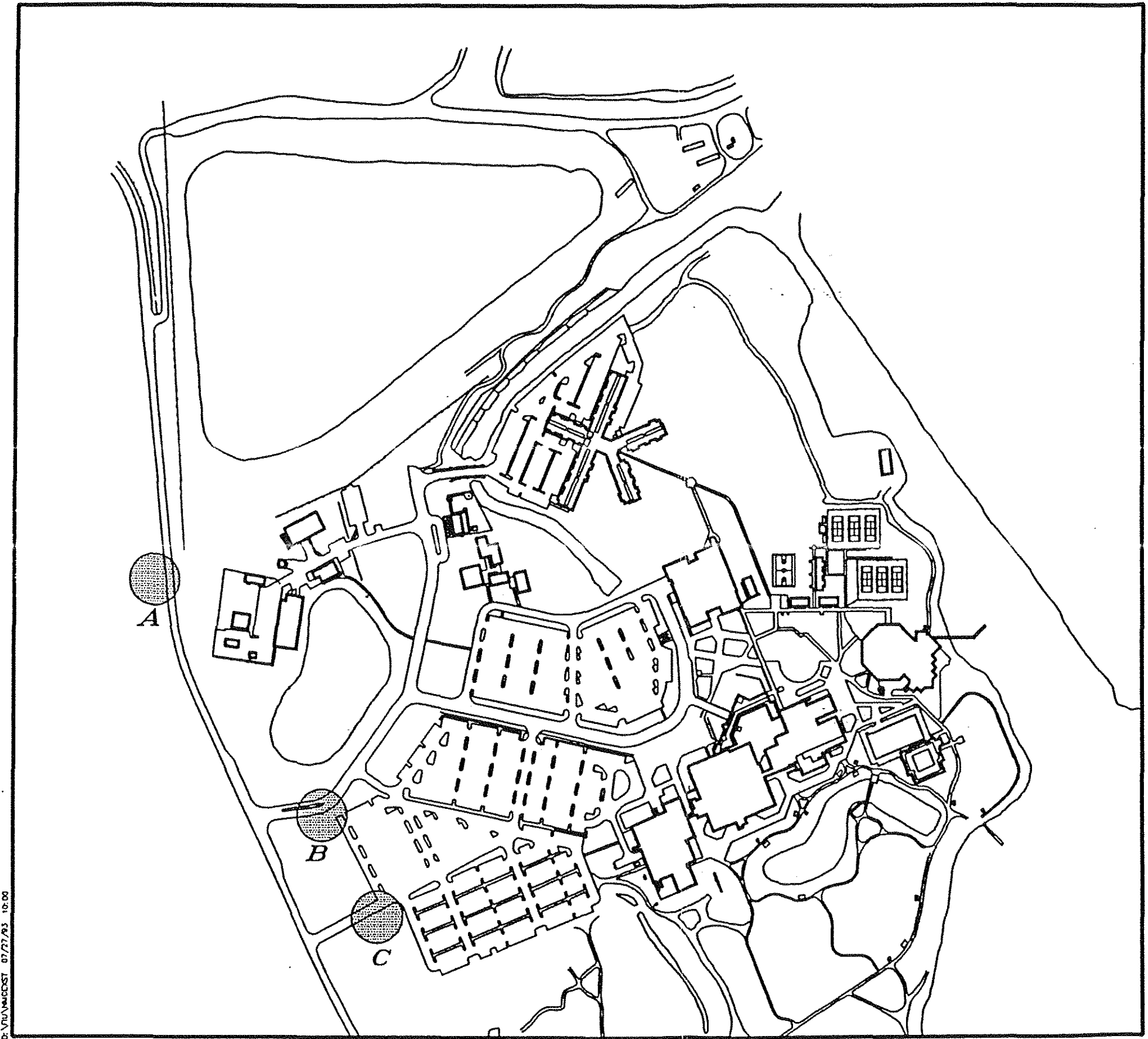
Figure 10.1.J1

FLORIDA INTERNATIONAL UNIVERSITY

MASTER PLAN

MIAMI, FLORIDA





D:\VU\WDCST 07/27/93 10:00

NORTH MIAMI CAMPUS

Legend:

⊙ — Traffic Count Location

WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GABY & GABY, INC	MIAMI, FL
KEITH & SCHNARS	FT. LAUDERDALE, FL
SOM ENGINEERS	CORAL GABLES, FL
ZYSOVICH, INC	MIAMI, FL

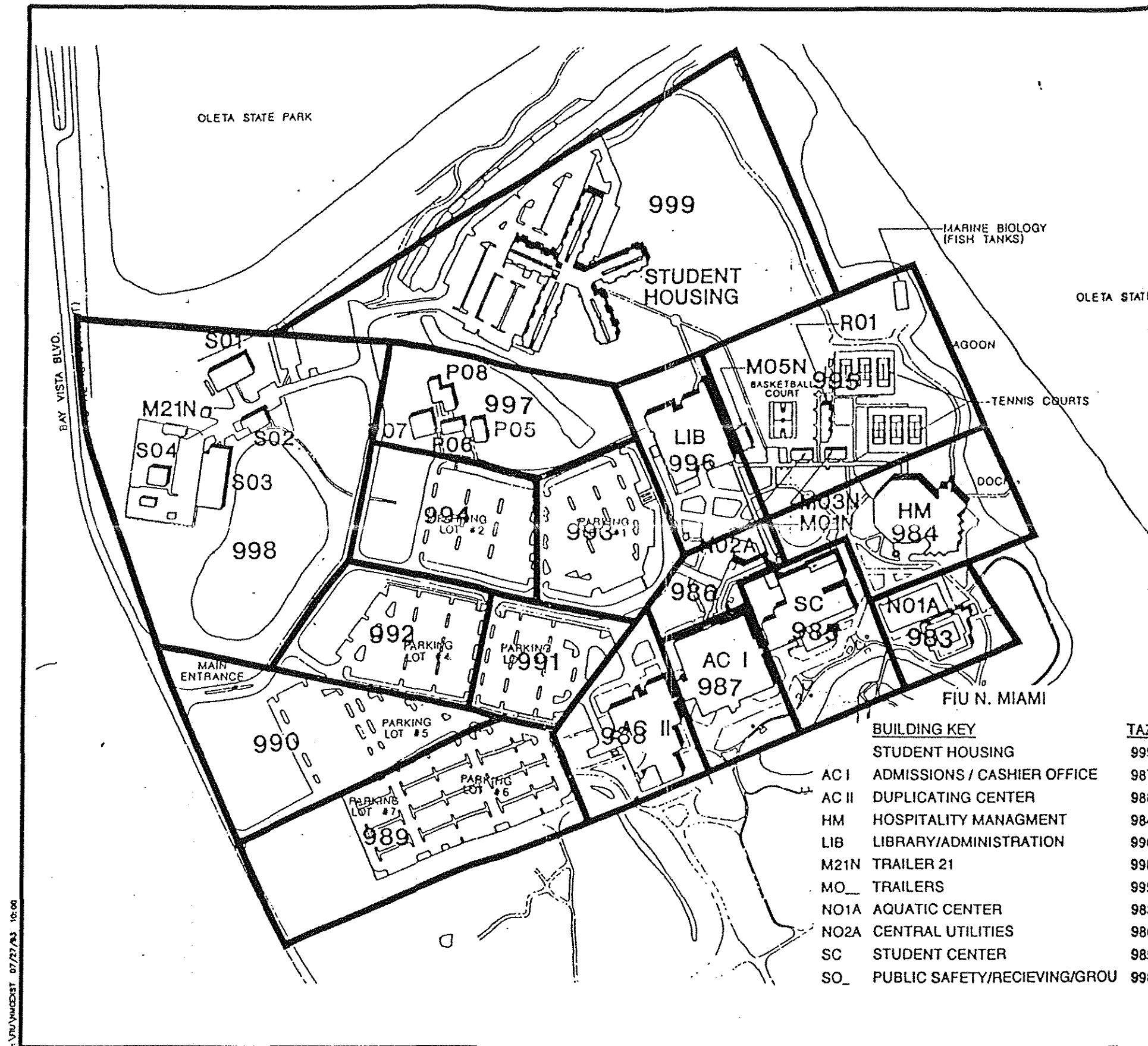
Key Map

Level Of Service Analysis

Figure 10.1-J2

FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA





NORTH MIAMI CAMPUS

Legend:

999 -- Traffic
Analysis Zone

WALLACE ROBERTS & TODD CORAL GABLES, FL

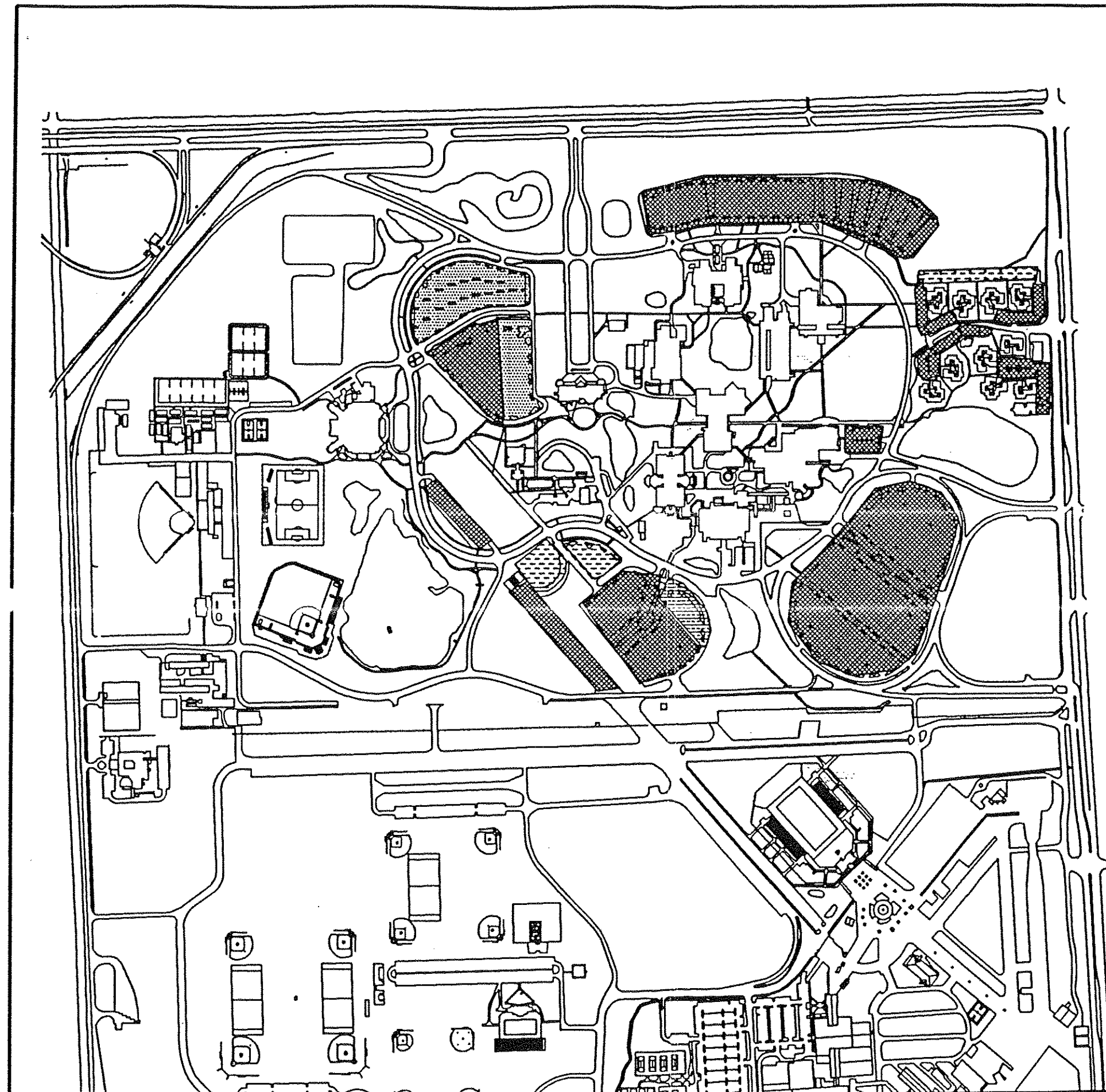
DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GABY & GABY, INC	MIAMI, FL
KEITH & SCHNARS	FT. LAUDERDALE, FL
SDW ENGINEERS	CORAL GABLES, FL
ZYSKOVICH, INC	MIAMI, FL

Traffic Analysis
Zones

Figure 10.1 M2

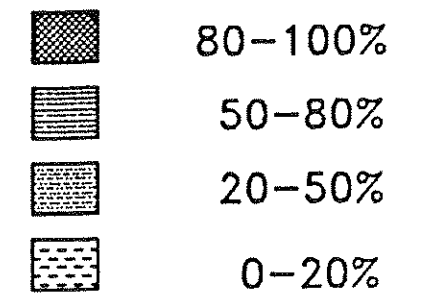
FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA





University Park

Legend:



WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GARY & GARY, INC	MIAMI, FL
KEITH & SCHNARS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
ZYSCOVICH, INC	MIAMI, FL

Parking Utilization

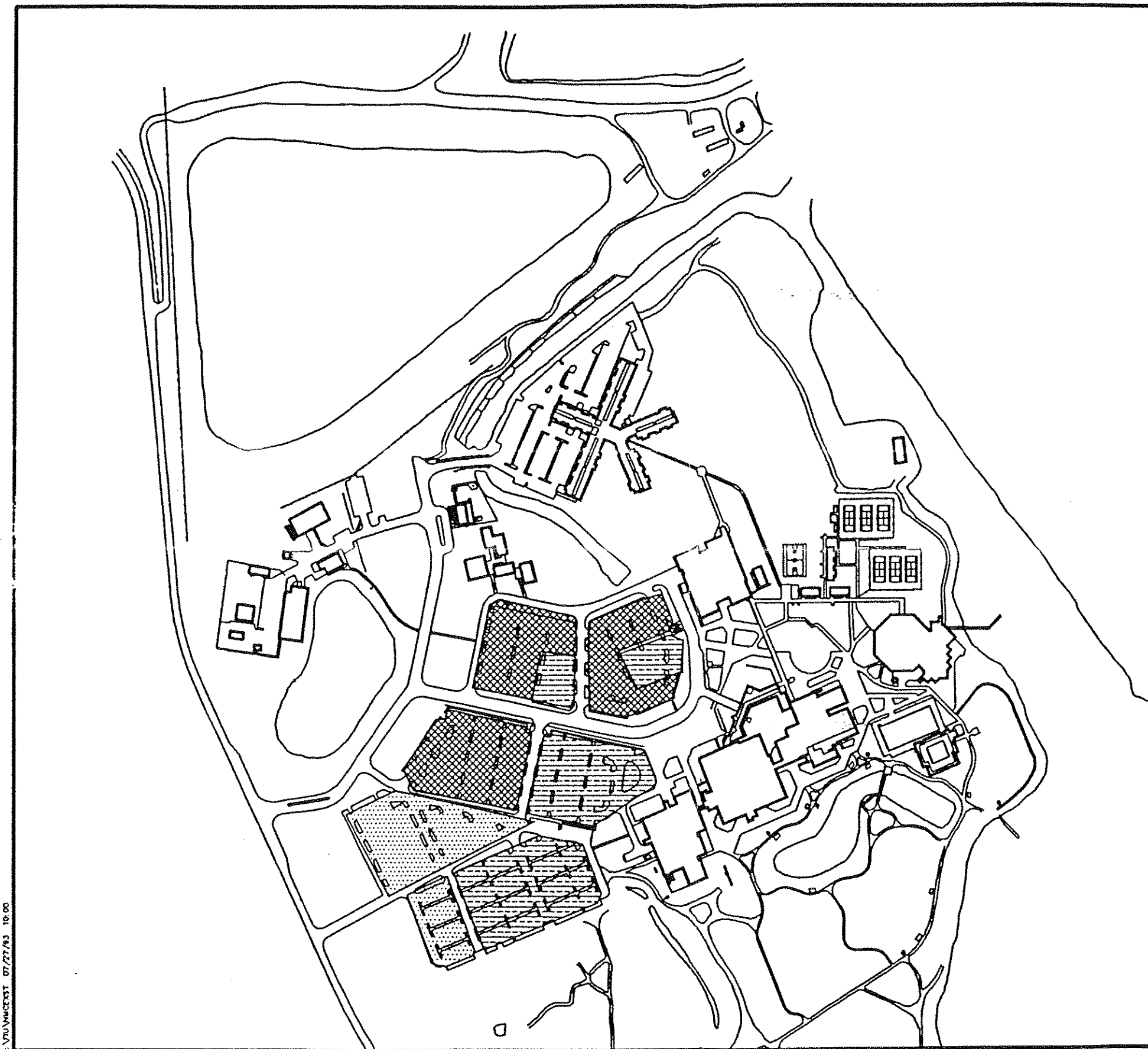
PM Peak Hour

Figure 10.2.B1

FLORIDA INTERNATIONAL UNIVERSITY

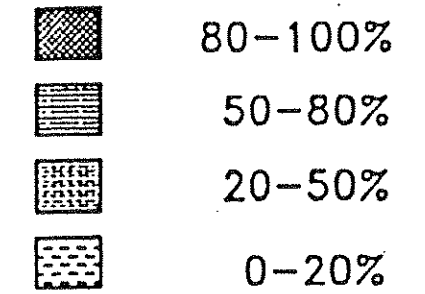
MASTER PLAN
MIAMI, FLORIDA





NORTH MIAMI CAMPUS

Legend:



WALLACE ROBERTS & TODD CORAL GABLES, FL

DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GABY & GABY, INC	MIAMI, FL
KEITH & SCHNARS	FT. LAUDERDALE, FL
SDW ENGINEERS	CORAL GABLES, FL
ZYSCOVICH, INC	MIAMI, FL

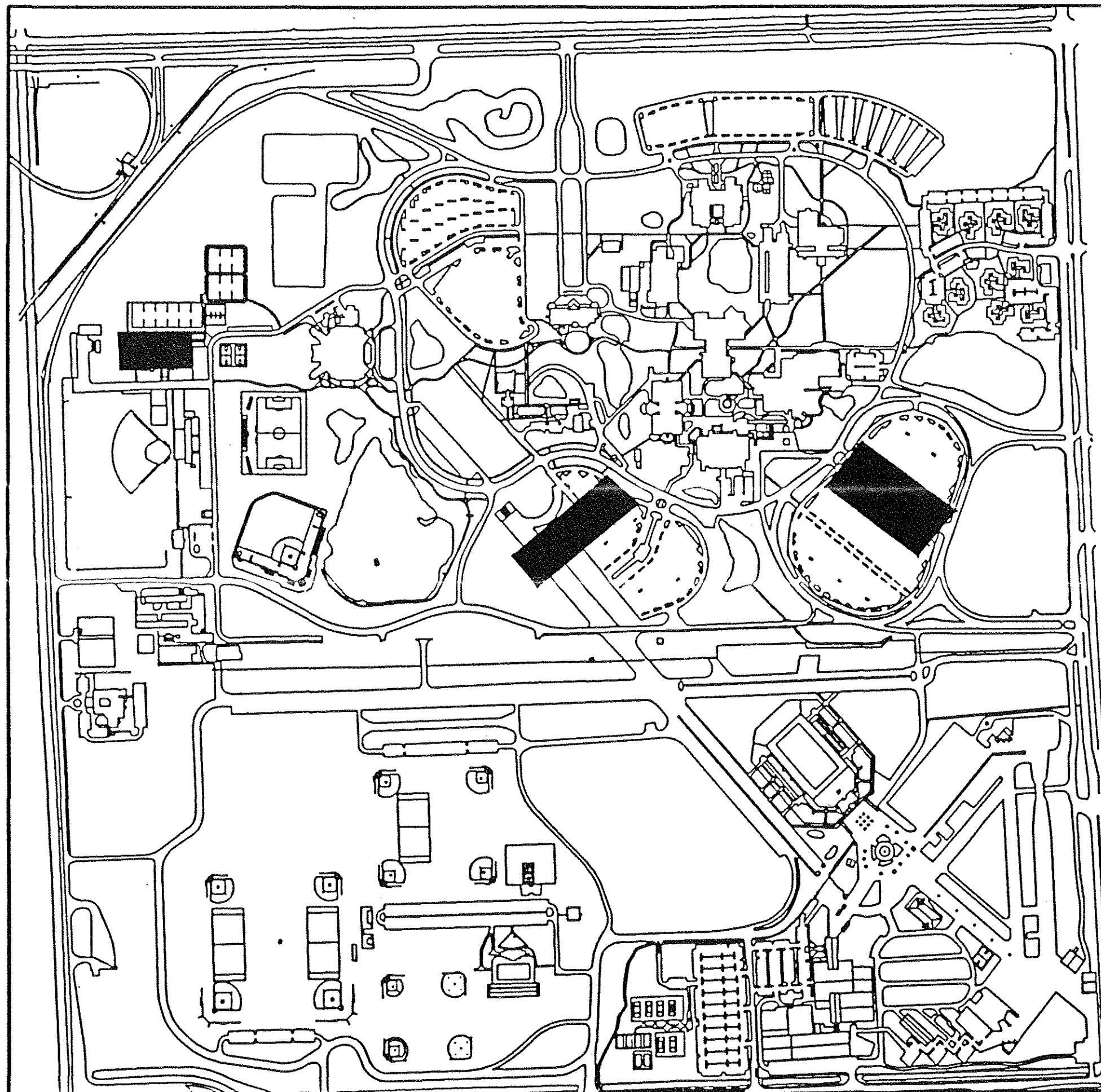
Parking Utilization
PM Peak Hour

Figure 10.2.B2

FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA



D:\VU\WCE\ST 07/27/93 10:00



UNIVERSITY PARK CAMPUS

Legend:

■ – Planned Parking
Structure

WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GARY & GARY, INC	MIAMI, FL
KEITH & SCHMARS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
ZYSOVICH, INC	MIAMI, FL

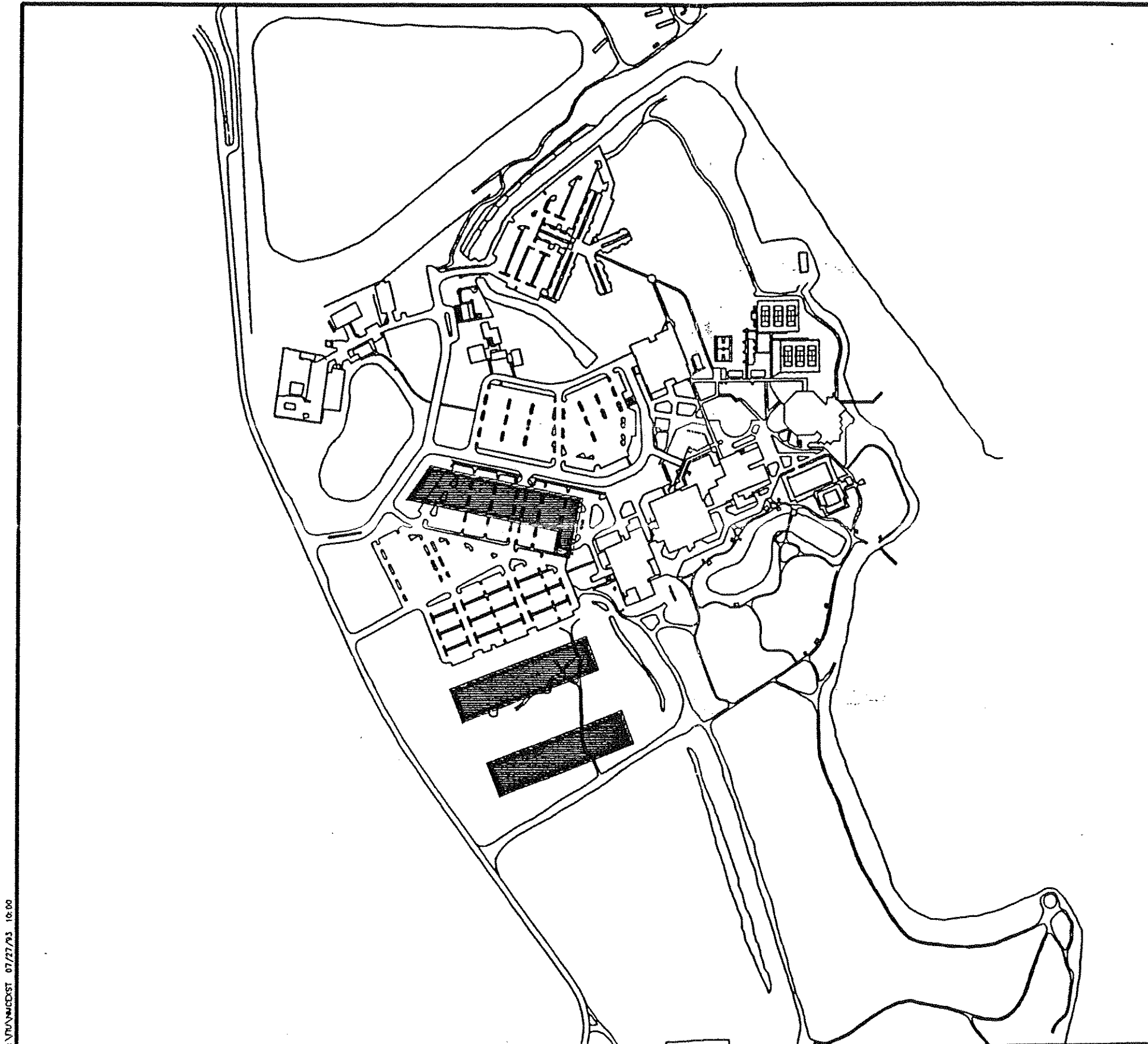
Planned Parking
Structures

Figure 10.2.E1

FLORIDA INTERNATIONAL UNIVERSITY


MASTER PLAN
MIAMI, FLORIDA





NORTH MIAMI CAMPUS

Legend:

 – Planned Parking Structure

WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GABY & GABY, INC	MIAMI, FL
KEITH & SCHNARS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
ZYSCOVICH, INC	MIAMI, FL

Planned Parking Structures

Figure 10.2.E2

FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA



D:\VPLAN\CDST 07/27/93 10:00

TABLE 10.1.A1

Florida International University
Architectural & Engineering Services

University Park - Parking Lot Counts By Stall Type

Last Update: 4/27/93

File Name: PC-001

LOT #	C O D	STALL TYPE												
		EXECU.	ADMIN.	FAC/ STAFF					STATE VEHICLE	MOTOR BIKE	MOTOR CART	PHYSICAL PLANT	RESERVE	TOTAL
					STUDENT	DISABLED	METERED	LOADING						
1	P	0	8	181	648	8	0	0	0	5	0	0	0	850
2	P	2	0	0	0	8	54	2	2	0	0	0	0	68
3	P	0	12	54	539	10	0	0	0	0	0	0	0	615
4	P	0	0	146	441	7	0	0	0	3	0	0	0	597
5	P	0	10	72	333	0	0	0	0	0	0	0	0	415
6	P	0	0	144	249	1	14	0	0	0	0	0	0	408
7	P	0	13	55	168	1	0	0	0	1	0	0	0	238
8	P	0	4	83	0	0	0	0	0	1	0	2	0	90
9	P	0	6	133	343	12	27	0	0	1	0	0	0	522
10	P	0	0	0	454	0	0	0	0	0	0	0	0	454
11	P	0	0	8	482	10	13	0	0	0	0	0	0	513
12	P	19	0	0	0	7	0	9	0	0	0	0	0	35
13	P	0	0	0	0	6	0	1	0	0	0	0	0	7
14	P	0	0	0	0	2	0	0	0	0	0	0	0	2
15	P	0	0	0	0	1	0	1	13	0	0	0	7	22
16	P	0	0	0	171	0	0	0	0	0	0	0	0	171
17	P	0	0	18	49	6	0	0	0	0	0	0	0	73
18	P	0	0	18	0	2	0	0	5	0	0	0	3	28
19	P	0	0	21	0	2	2	0	0	0	0	0	3	28
20	P	0	0	0	74	0	0	0	0	0	0	0	0	74
21	P	0	0	32	0	2	4	1	9	0	0	0	0	48
22	P	0	0	22	0	1	0	0	0	0	0	0	0	23
23	P	0	0	13	0	0	0	0	0	0	0	0	0	13
24	P	0	0	0	0	0	0	0	13	0	0	0	0	13
25	P	0	0	0	0	5	0	4	0	0	0	0	0	9
26	P	0	0	8	0	0	0	0	0	0	0	0	0	8
27	P	2	0	0	0	0	0	0	0	0	0	0	0	2
28	P	0	0	0	0	3	0	3	0	0	0	0	0	6
29	U	0	0	0	69	0	0	0	0	0	0	0	0	69
30	U	0	0	0	120	0	0	0	0	0	0	0	0	120
31	U	0	0	63	65	2	1	0	0	0	0	0	0	131
32	U	0	0	0	88	0	0	0	0	0	0	0	0	88
33	U	0	0	0	54	0	0	0	0	0	0	0	0	54
34	U	0	0	0	69	0	0	0	0	0	0	0	0	69
35	U	0	0	0	62	0	0	0	0	0	0	0	0	62
36	U	0	0	136	0	0	0	0	0	0	0	0	0	136
37	-	-	-	-	-	-	-	-	-	-	-	-	-	0
38	-	-	-	-	-	-	-	-	-	-	-	-	-	0
39	-	-	-	-	-	-	-	-	-	-	-	-	-	0
40	-	-	-	-	-	-	-	-	-	-	-	-	-	0

TOTAL	23	53	1207	4478	96	115	21	42	11	0	2	13	6061
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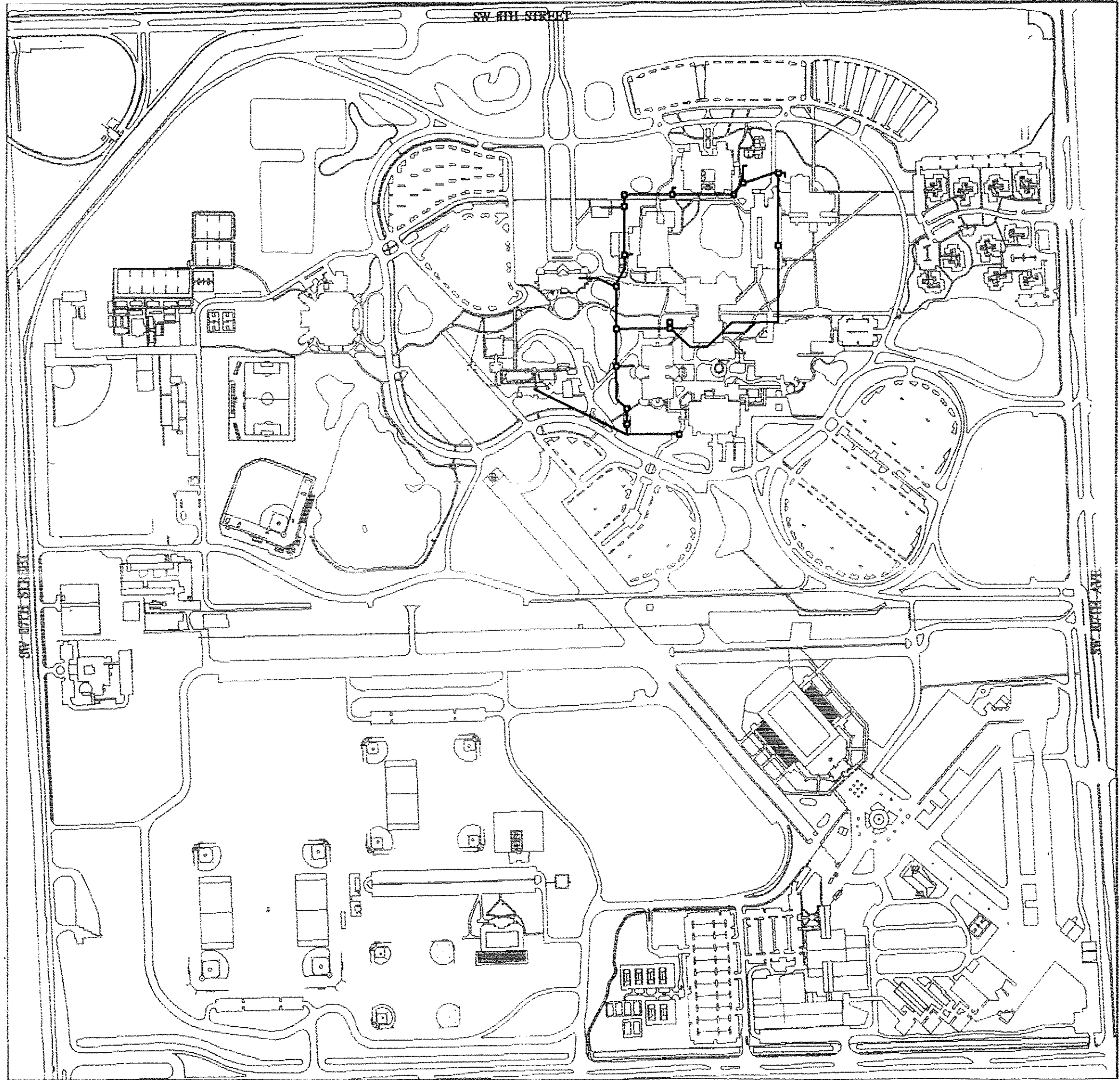
PARKING LOT COUNTS BY STALL - UNIVERSITY WIDE													
TOTAL	24	63	1506	6116	142	176	22	42	14	0	6	20	8131

TABLE 10.1.A2
North Miami Campus – Parking Lot Counts By Stall Type

LOT #	C O D	STALL TYPE												
		EXECU.	ADMIN.	FAC./ STAFF					STATE VEHICLE	MOTOR BIKE	MOTOR CART	PHYSICAL PLANT		
					STUDENT	DISABLED	METERED	LOADING					RESERVE	TOTAL
1	P	0	4	116	94	11	6	0	0	3	0	0	0	234
2	P	0	0	21	199	3	4	0	0	0	0	0	0	227
3	P	0	4	110	0	16	39	0	0	0	0	0	0	169
4	P	0	0	0	240	0	0	0	0	0	0	0	0	240
5	P	0	0	0	211	0	0	0	0	0	0	0	0	211
6	P	0	0	12	248	8	6	0	0	0	0	0	0	274
7	P	0	0	0	70	0	0	0	0	0	0	0	0	70
8	P	0	0	7	254	7	6	0	0	0	0	0	0	274
9	P	0	0	4	0	1	0	0	0	0	0	4	6	15
10	P	0	0	24	0	0	0	0	0	0	0	0	0	24
11	P	0	2	5	0	0	0	0	0	0	0	0	0	7
12	P	1	0	0	0	0	0	1	0	0	0	0	1	3
13	U	0	0	0	52	0	0	0	0	0	0	0	0	52
14	U	0	0	0	35	0	0	0	0	0	0	0	0	35
15	U	0	0	0	235	0	0	0	0	0	0	0	0	235
16	-	-	-	-	-	-	-	-	-	-	-	-	-	0
17	-	-	-	-	-	-	-	-	-	-	-	-	-	0
18	-	-	-	-	-	-	-	-	-	-	-	-	-	0
19	-	-	-	-	-	-	-	-	-	-	-	-	-	0
20	-	-	-	-	-	-	-	-	-	-	-	-	-	0

TOTAL	1	10	299	1638	46	61	1	0	3	0	4	7	2070
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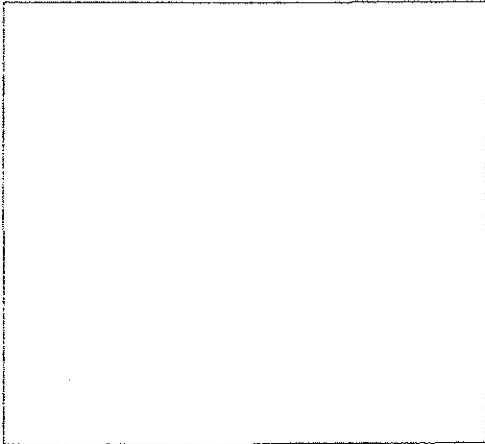
PARKING LOT COUNTS BY STALL – UNIVERSITY WIDE													
TOTAL	24	63	1506	6116	142	176	22	42	14	0	6	20	8131



EXISTING CHILLED
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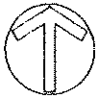
UNIVERSITY PARK
CAMPUS

WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GARY & GARY, INC	MIAMI, FL
KETH & SCHNARS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
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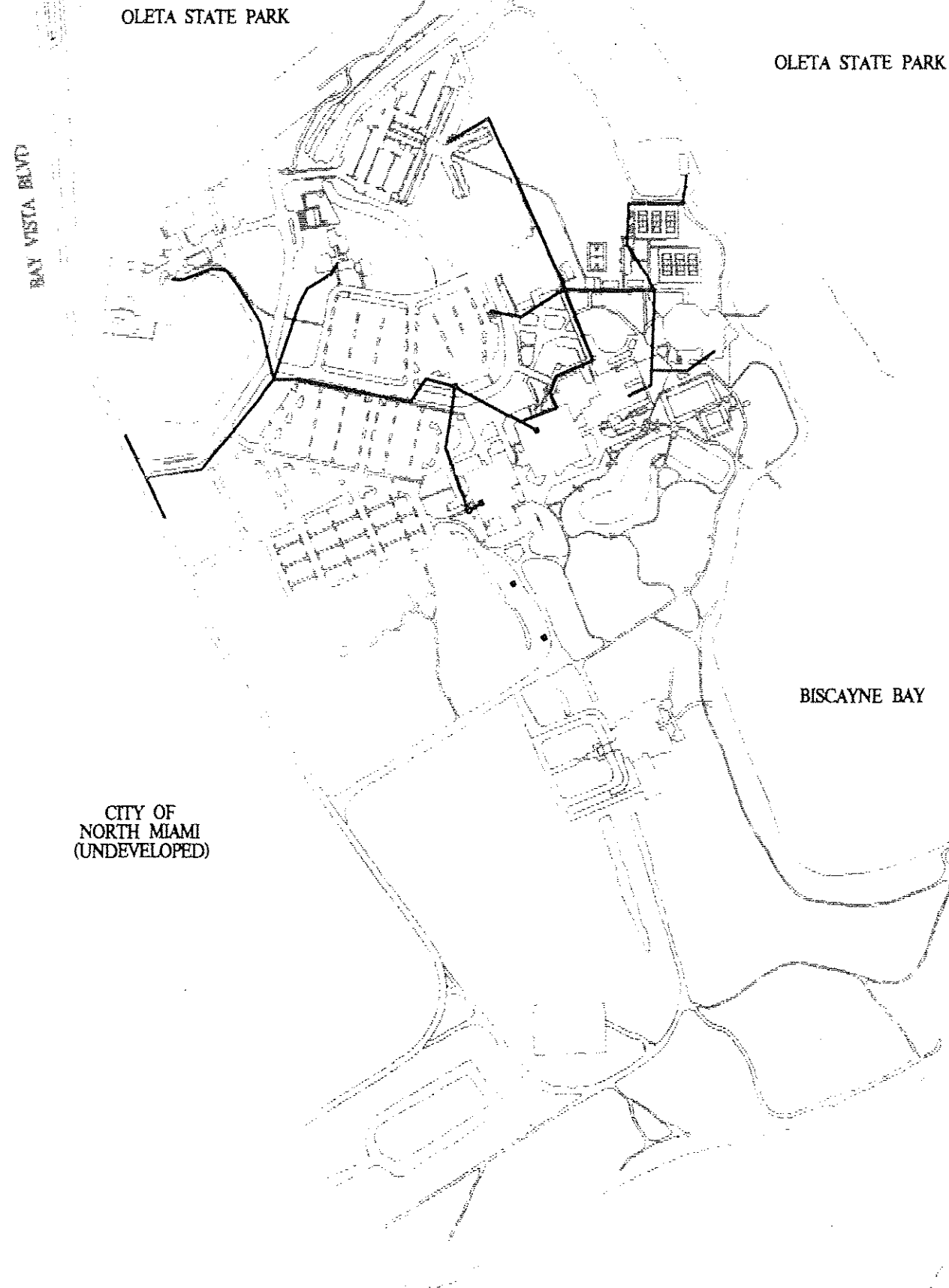
FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA

DATE:



EXISTING TELCOMM
NETWORK

NORTH MIAMI CAMPUS



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KETH & SCHNARS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
ZYSCOVICH, INC	MIAMI, FL

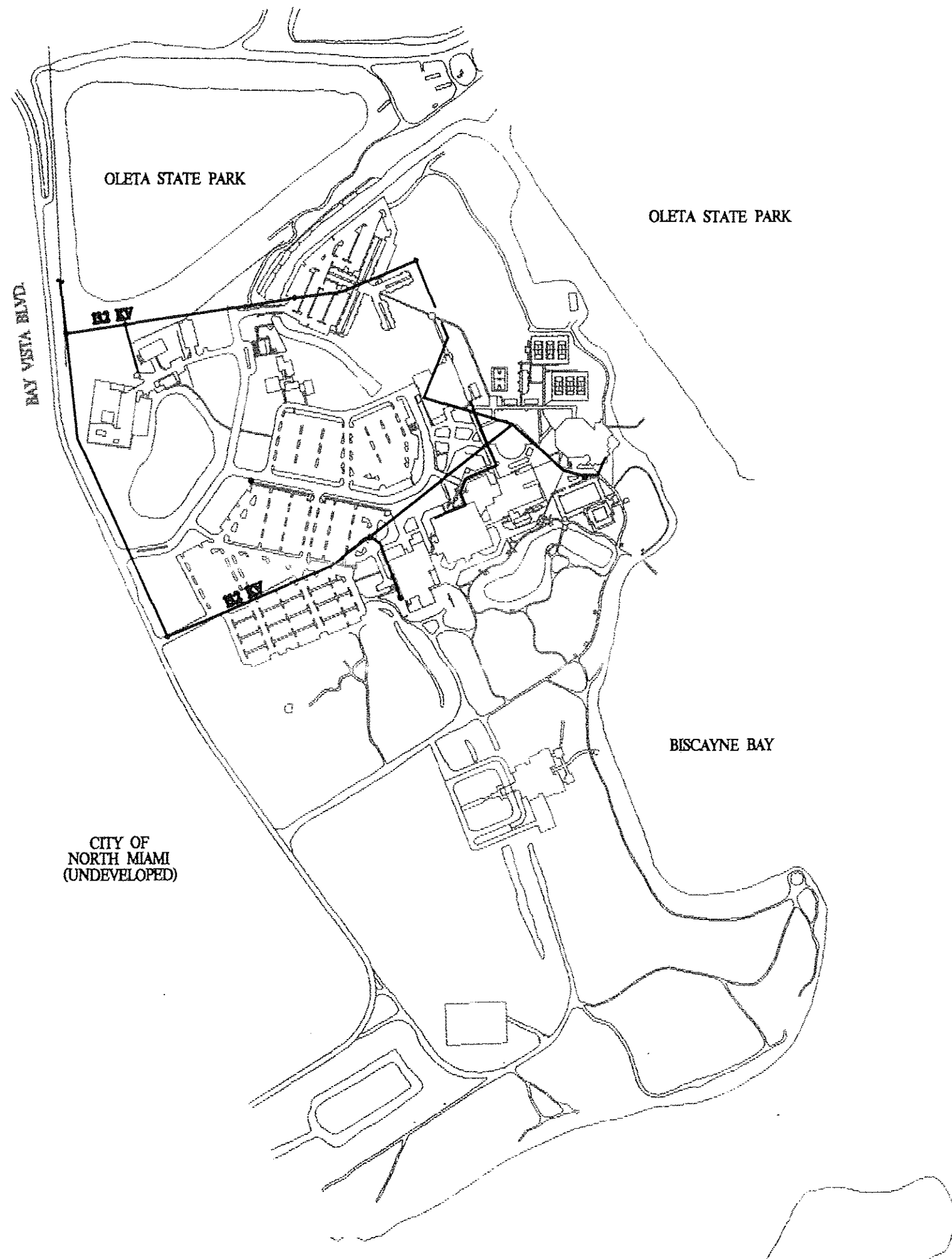
FLORIDA INTERNATIONAL UNIVERSITY MASTER PLAN MIAMI, FLORIDA

DATE:

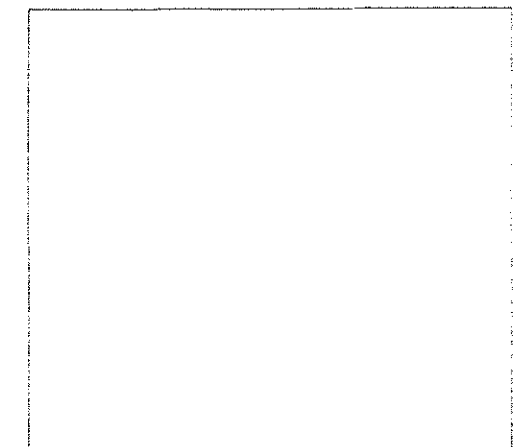


200 100 0 200 400 600 FT

EXISTING ELECTRICAL DISTRIBUTION NORTH MIAMI CAMPUS



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FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA

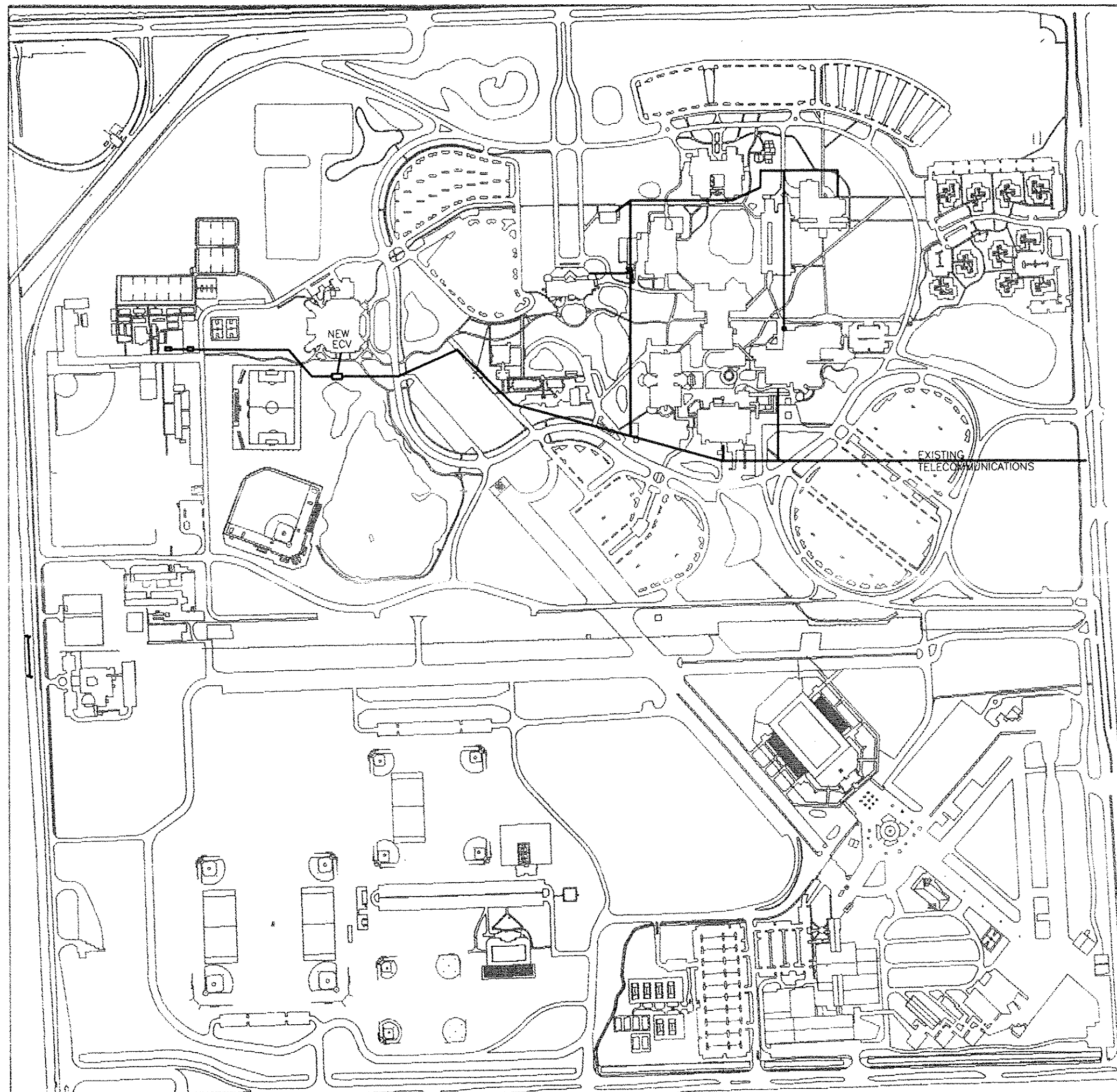
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EXIST. TELCOMM
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UNIVERSITY PARK CAMPUS



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FLORIDA INTERNATIONAL UNIVERSITY MASTER PLAN MIAMI, FLORIDA

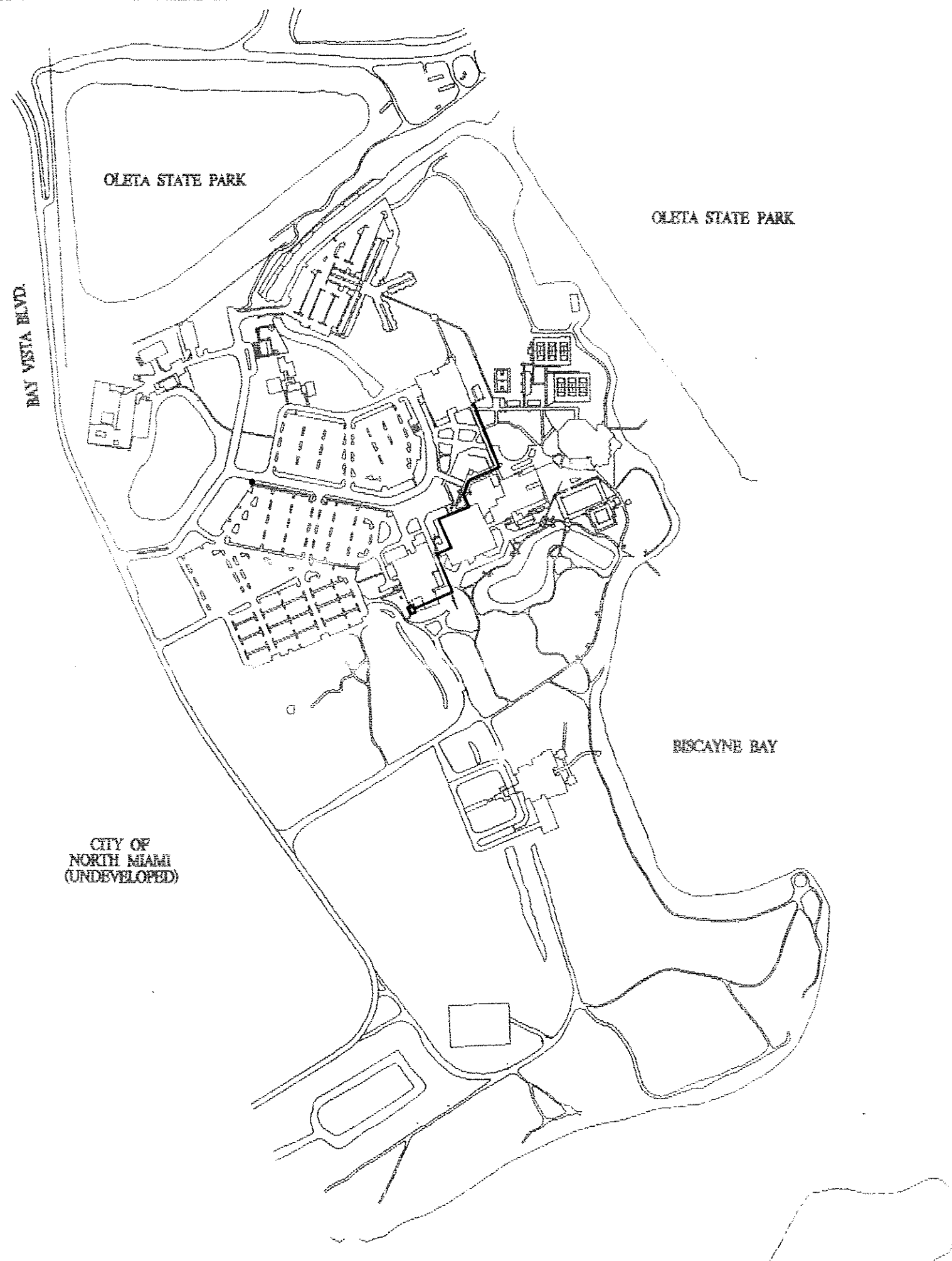
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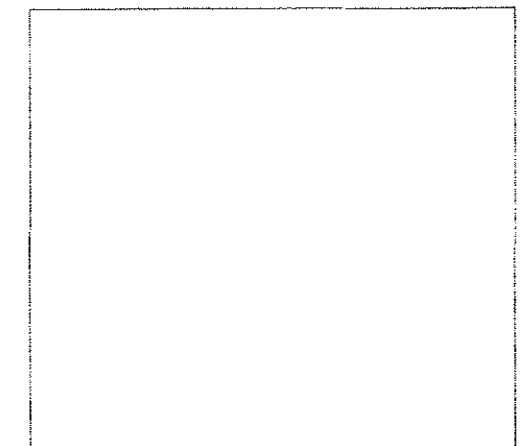
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EXISTING CHILLED
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NORTH MIAMI CAMPUS



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DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
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KEITH & SCHNARS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
ZYSCOVICH, INC	MIAMI, FL

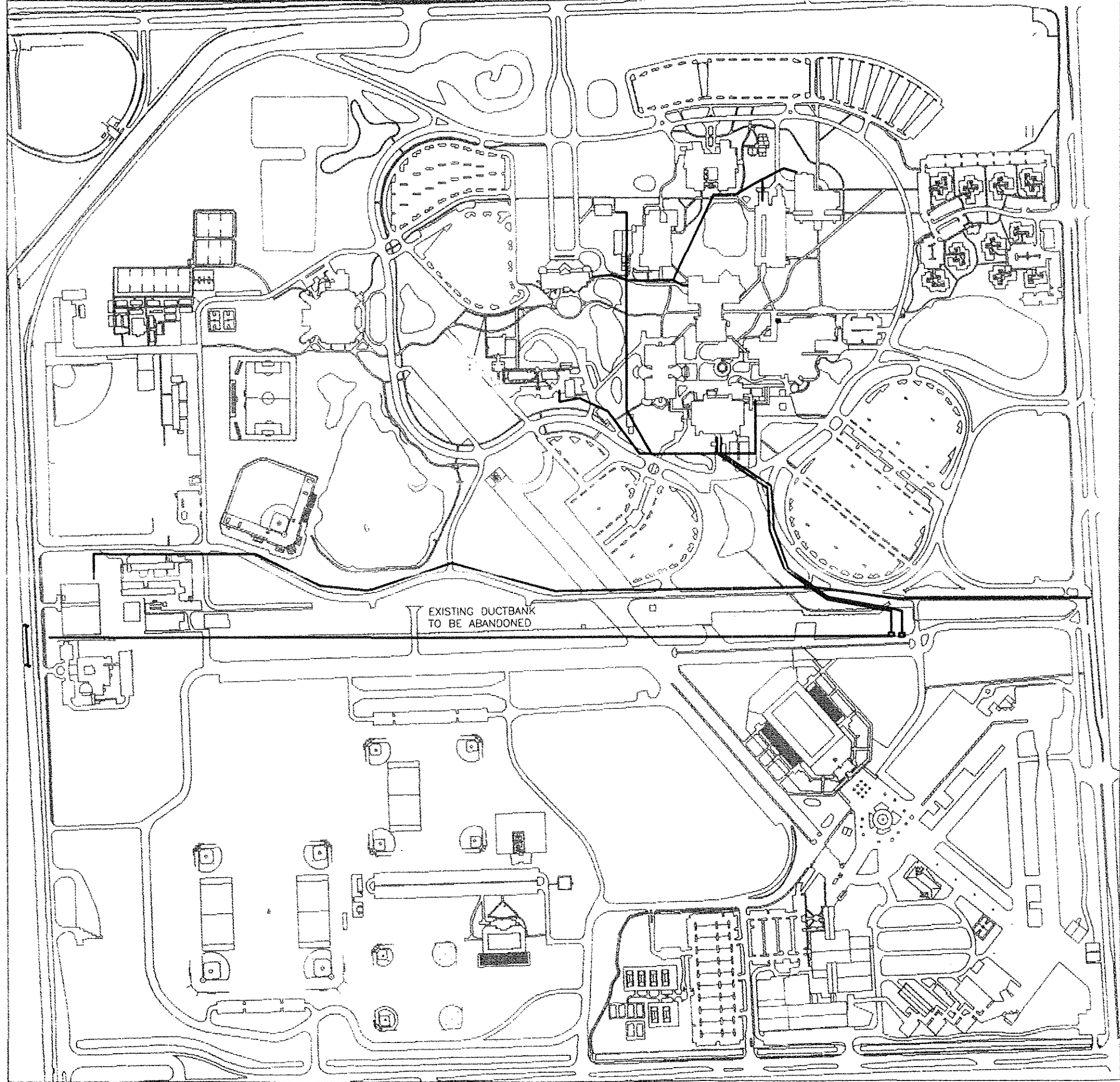


FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA

DATE:



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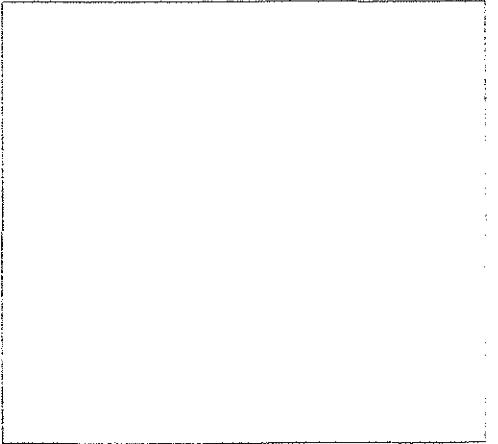


EXISTING
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CAMPUS

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CORAL GABLES, FL
MIAMI, FL



FLORIDA INTERNATIONAL UNIVERSITY
MASTER PLAN
MIAMI, FLORIDA

DATE:



11.0 TRANSPORTATION ELEMENT

TRANSIT, CIRCULATION AND PARKING SUB-ELEMENT

Existing Parking Allocation - On Campus

UNIVERSITY PARK

A map of the campus showing the location of existing parking lots is shown in Figure 11.1.A1. The number of stalls by type for each parking lot are shown in Table 11.1.A1. The bulk of the parking spaces are allotted to student (74%). Faculty and staff occupied 20% of the available spaces. The remaining 6% are allocated among executive, administrative, disabled, visitors (metered), loading, etc.

NORTH MIAMI CAMPUS

Figure 11.1.A2 shows parking lot location at this campus. Table 11.1.A2 contains a detailed count of stalls by type. These are allocated 79% for students, 14% for faculty and staff, and the remaining 7% are allocated among executive, administrative, disabled, visitors (metered), loading, etc.

Existing Parking Permit System (Both Campuses)

Decals are required for all lots except at designated visitor lots which are metered. These permits are issued to all members of the University community who request them. Different decal categories and lot designations exist. A description of the various decals currently issued is shown in Table 11.1.B1. The primary categories of decals issued are student (S, DS), faculty/staff (FS,DFS). Specialized parking requirements are accommodated on an as-needed basis. Parking for service vehicles is located adjacent to buildings. Visitor parking is controlled by meters at which University permit holders are forbidden to park. These are located throughout campus. Disabled parking spaces are located on the campus near various buildings. In addition, visitors attending temporary events, special events, meetings and seminars can obtain special permits which enables them to park in most available parking spaces.

Parking Fees (Both Campuses)

A description of the fees charged for the different types of permits is shown in Table 11.1.B1 along with the description of the types of permit.

1. TRANSPORTATION ELEMENT

TABLE 11.1.B1--FIU MASTER PLAN
EXISTING FEE STRUCTURE AS OF JUNE 23, 1993 (SOURCE FIU)

TYPE	COST	REMARKS
S Decal	55.00	Student Decal
DS Decal	5.00	Duplicate Student Decal
H Decal	65	Housing Decal
DH Decal	5	Duplicate Housing Decal
FS Decal	45.00/65.00	Faculty/Staff Decal
DFS Decal	5	Duplicate Faculty/Staff Decal
ALUM Decal	55	Alumni Decal
DALUM Decal	5	Duplicate Alumni Decal
A Decal	125	Administrative Decal
DA Decal	15	Duplicate Admin. Decal
E Decal	300	Executive Decal
DE Decal	25	Duplicate Executive Decal
30 Day Pass	12	
60 Day Pass	24	
90 Day Pass	36	
Meter Parking	0.25/¼ hr.	
Meter Lot Rental	27.00/hr.	
30 Day Center Pass	4	
60 Day Center Pass	8	
Honor System	.25/hr	
Presidential Permit	No Cost	
Loading and Contractor Permits	No Cost	
Temporary Hang Tags	No Cost	
Continuing Education	4	
Special Events Permit	No Cost	
Hospitality Management Permit	No Cost	
Career Planning and Placement Permit	No Cost	
Vice Presidential Permit	No Cost	
Temporary Parking Decal/Permit	No Cost	

11.0 TRANSPORTATION ELEMENT

Special Events Parking

UNIVERSITY PARK

Special events which affect on-campus parking presently occur on campus and in Tamiami Park. Several proposed facilities (Tamiami Stadium (relocated), Arts Complex, and Amphitheater) will straddle the existing property line between the campus and Tamiami Park. These proposed facilities will also affect on-campus parking.

Existing Facilities

Baseball and soccer games satisfy their parking needs at adjacent unpaved lots. Basketball games and arena events primarily use Lot #17 and Lot #9 to satisfy their parking needs. Attendance at most University athletic events has not been high enough to cause any parking capacity deficiencies. The same can be said of most on-campus special events (e.g. guest speakers, art openings, Thursday night socials, etc.)

Over the past years, the Dade County Youth Fair has stretched into an 18-day event at the end of the month of March. Daily attendance averages nearly 50,000 people (slightly less on weekdays, slightly more on weekends). Parking for the fair is provided in Tamiami Park, however, spillover into FIU parking lots often occurs when the fair lots are filled. The fair's short duration has made the parking demand tolerable. In the future, however, should the duration of the fair lengthen or should attendance rise significantly, the cooperation of Dade County Youth Fair officials should be requested in seeking ways to satisfy excessive parking demand within the Park's fairgrounds.

Funded Facilities

The Tamiami Stadium is scheduled to be relocated just south of SW 17 Street on campus. Stadium attendees would be able to access the stadium directly from FIU parking lots (specifically, Lots #6, 7, 8, 16, and the surrounding field). High school football games are played in the stadium approximately thirty times during the Fall. Most football games would fall on a Friday night when few University classes are scheduled. Other events at the stadium should be scheduled to reduce the impact on campus parking.

The Art complex will be host to art openings and other special events which would likely affect FIU lots three through eight. Events at the Art Complex should be carefully scheduled to reduce the impact on campus parking. A privately owned amphitheater (straddling both FIU property and Tamiami Park) has been proposed near SW 107 Avenue. Single event attendance for the amphitheater could be between fifteen and thirty thousand people. No parking facilities for the amphitheater have been identified. While all or part of that parking demand could be satisfied on campus, parking solutions for the amphitheater

11.0 TRANSPORTATION ELEMENT

should be provided by the prospective owners. Conflicts with normal campus activities should be avoided.

NORTH MIAMI CAMPUS

Special events which could potentially affect on-campus parking include swimming tournaments, guest speakers, social events, and other student organized events. Most special events parking needs have been and will continue to be satisfied with existing parking.

Existing Parking Inventory - On Campus

UNIVERSITY PARK

Figure 11.1.A1 shows numbered parking areas throughout the campus. A tabulation of total parking available at each one of these areas is shown in Table 11.1.A1. A total of 6,061 existing surface parking spaces are provided in this campus. Presently, there are no multi-level parking facilities.

NORTH MIAMI

Figure 11.1.A2 shows numbered parking areas throughout the campus. A tabulation of total parking available at each one of these areas is shown in Table 11.1.A2. A total of 2,070 existing surface parking spaces are provided in this campus. Presently, there are no multi-level parking facilities.

Existing Parking Inventory - Context Area

Presently there is no off-campus parking for either campus.

Accidents - On-Campus and Context Area - Both Campuses

Accident data was obtained from the campus police for 1991-93. Figure 11.1.G1 and 11.1.G2 indicate that a majority of the accidents between 1991 and 1993 occur in the parking lots. Many accidents also occur at roadway intersections throughout both campuses.

Roadway Classification - On-Campus

This section describes the functional classification of major roadways on campus.

UNIVERSITY PARK

Collector Roads

The entrance roads, campus loop road, and south perimeter road (17 Street, between SW 117 Avenue and SW 107 Avenue) function as collectors. The main road for the western part of campus (athletic fields, arena, classroom trailers, tennis courts, etc.), connects the south perimeter road and the campus loop road and is also a collector road (see Figure

11.0 TRANSPORTATION ELEMENT

11.1.H1 (Existing) and Figure 11.1.H2 (Future).

Local Roads

All other roads on campus function as local streets; these street are: the east/west road in front of the existing classroom trailers on the western part of campus; the north/south road, just east of the nature preserve, which connects the south perimeter road to the campus loop road; and the main entrance road south of the main loop road which terminates at Building #34 (Business Administration); and the student dormitory road which connects to SW 107 Avenue.

NORTH MIAMI CAMPUS

Collector Roads

Bay Vista Boulevard is the main collector road which leads into the North Miami campus. It connects with US 1 (Biscayne Boulevard), and also coincides with NE 151 Street to the north (see Figure 11.1.H3 (Existing) and Figure 11.1.H4 (Future).

Local Roads

All other roads providing access to the campus parking lots function as local streets.

Roadway Classification - Context Area

UNIVERSITY PARK

The roadways in the context area function as follows: Tamiami Trail and SW 107 Avenue are classified as state principal arterials. The Florida Turnpike is classified as a freeway.

NORTH MIAMI

The only major roadway in the context area (Biscayne Boulevard) is a state principal arterial.

Existing Levels of Service

UNIVERSITY PARK

The current PM peak hour levels of service for roadways on campus and within the "context area" are shown in Table 11.1.J1. The roads are illustrated in Figure 11.1.J1. Generally, all roadways are operating at Level of Service "C" or better.

Campus Improvements

Previous studies have identified several circulation issues. The following improvements have been suggested, and should be implemented to enhance traffic flow.

11.0 TRANSPORTATION ELEMENT

TABLE 11.1J1-EXISTING LEVEL OF SERVICE ANALYSIS
PM PEAK HOUR FOR UNIVERSITY PARK

LOCATION	DIR	LANES	LOS E CAPACITY ¹	VOLUM E ²	SERVICE LEVEL
A (SW 117 Avenue, S/O 17 Street)	NB	1	840	518	B
	SB	1	840	711	C
B (SW 17 Street, E/O 17 Avenue)	EB	1	840	186	B
	WB	1	840	356	B
C (SW 117 Avenue, N/O 17 Street)	NB	1	840	348	B
	SB	1	840	370	B
D (SW 8 Street, W/O 112 Avenue)	EB	3	2240	1038	C
	WB	3	2240	708	B
E (SW 112 Avenue, S/O 8 Street)	NB	2	1770	549	B
	SB	2	1770	537	B
F (SW 8 Street, E/O 112 Avenue)	EB	3	2240	1167	C
	WB	3	2240	826	B
G (Campus Loop Road, E/O 112 Avenue)	EB	1	840	226	B
	WB	1	840	219	B
H (SW 107 Avenue, S/O 8 Street)	NB	3	3530	1695	C
	SB	3	3530	2110	C
I (SW 11 Street (Dorms), W/O 107 Avenue)	EB	2	1770	132	B
	WB	2	1770	165	B
J (SW 14 Street, W/O 107 Avenue)	EB	3	2650	519	B
	WB	2	1770	344	B
K (SW 17 Street, W/O 107 Avenue)	EB	2	1770	307	B
	WB	2	1770	309	B
L (SW 107 Avenue, S/O 17 Street)	NB	3	3530	1498	C
	SB	3	3530	2244	C

Source: DPA

(1) Levels of service are based on FDOT peak hour directional service volumes.

(2) Traffic volumes provided by TCG and were adjusted for seasonal variation.

11.0 TRANSPORTATION ELEMENT

Serenity Plan

The campus loop road, in certain areas is located between the campus core and the parking areas. This causes many pedestrian/vehicular conflicts. In order to create a more serene campus for pedestrians and motorists, the existing loop road should be relocated to the outside of Lot numbers 3 through 8. In addition, the entire loop road should be made two-way (one lane in each direction) with a center lane for making left turns.

Western Loop Road

- Double stripe existing yellow dashed line.
- Stripe center lane for left turns so that there is only one through lane in each direction.
- Construct third through lane for arena drop-off.
- Reconstruct northwest connector road intersection perpendicular to campus loop road.
- Build traffic roundabout at the campus loop road intersection with the main entrance road from SW 8 Street.

Campuswide

- Install speed limit signs.
- Consolidate double entrances to parking lots into single entrances.

NORTH MIAMI CAMPUS

The existing levels of service for the PM peak hour are shown in Table 11.1.J2. The locations cover both on-campus roadways, and "context area" roadways. Figure 11.1.J2 is a key map indicating each of the study locations. In general, all roadways operate well within acceptable standards.

11.0 TRANSPORTATION ELEMENT

TABLE 11.1J2
EXISTING LEVEL OF SERVICE ANALYSIS
PM PEAK HOUR
NORTH MIAMI

LOCATION	DI R	LAN ES	LOS E CAPACIT Y ⁽¹⁾	VOLU ME ⁽²⁾	LEV. OF SER V.
A (Bay Vista Blvd., N/O North Campus Ent.)	NB	2	840	518	B
	SB	2	840	711	C
B (North Campus Ent., E/O Bay Vista Blvd.)	EB	2	840	186	B
	W B	2	1770	389	B
C (South Campus Ent., E/O Bay Vista Blvd.)	EB	2	1770	54	B
	W B	2	1770	46	B

Source: DPA

⁽¹⁾Level of service are based on FDOT peak hour directional service volumes.

⁽²⁾Traffic volumes are adjusted for seasonal variation.

Campus-Wide Improvements

Apply similar improvements as the University Park campus where appropriate.

Traffic Volumes - On Campus

Transportation Consulting Group (TCG) conducted the traffic counts used in the analyses of subsection 11.1.J. These counts were for the purpose of validating the origin/destination study conducted on-campus and were the only available source of on-campus traffic counts.

Existing Trip Generation

UNIVERSITY PARK CAMPUS

Estimated hourly traffic flows were determined based on origin/destination studies conducted by TCG. Average observed auto trips were also determined by TCG using actual traffic counts. Table 11.1.L1 tabulates the hourly observed traffic counts. The Average Daily Traffic entering and exiting the University is approximately 35,000 auto trips.

Estimated person trips are equal to the product of estimated auto trips and the auto occupancy rate (1.10-students, 1.25-faculty/staff). Based on the auto/transit splits in the

11.0 TRANSPORTATION ELEMENT

State University System Transportation study (SUSTS), July 1993, a rate of 1.73% of the University population use transit service. Table 11.1.L2 is taken from the same SUSTS report. It tabulates the percentage of person trips that chose each of ten travel modes.

**TABLE 11.1.L1
EXISTING EXTERNAL AUTO TRIPS
UNIVERSITY PARK CAMPUS**

<u>HOUR ENDING</u>	<u>OBSERVED TRAFFIC COUNTS</u>
1	279
2	125
3	57
4	25
5	25
6	69
7	247
8	1074
9	2279
10	2505
11	1598
12	2264
13	2664
14	2155
15	2180
16	2280
17	2399
18	2761
19	3147
20	2385
21	1382
22	2183
23	977
<u>24</u>	<u>510</u>
TOTAL	35570

SOURCE: SUSTS - BR -052, Final Report, July 1993

11.0 TRANSPORTATION ELEMENT

**TABLE 11.1.L2
PERCENT MODE SHARE (ALL TRIPS)
UNIVERSITY PARK CAMPUS**

MODE	% SHARE OF RIDERSHIP
Auto Occupancy 1	84.8
2	8.2
3	0.1
4	0.1
5	0.5
City Bus	1.7
Campus Bus	1.7
Bicycle	0.5
Motorcycle	0.2
Walk	2.3
TOTAL	100%

Source: SUSTS-BR-052, Final Report, July 1993

The total percentage of person trips by purpose is tabulated in Table 11.1.L3.

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TABLE 11.1.L3
PERCENT TOTAL PERSON TRIPS BY PURPOSE
UNIVERSITY PARK CAMPUS

TRIP PURPOSE	%TOTAL PERSON TRIPS
Work	17.9
Business	2.1
Class	36.0
Home	26.1
Shop	0.9
Social	2.1
Recreation	0.8
Eat	5.6
Errand	2.7
Other	5.8
TOTAL	100%

Source: SUSTS-BR-052, Final Report, July 1993

11.0 TRANSPORTATION ELEMENT

NORTH MIAMI CAMPUS

Average observed auto trips (based on traffic counts) and estimated auto trips (based on origin/destination studies) are tabulated below in Table 11.1.L4.).

**TABLE 11.1.L4
EXTERNAL AUTO TRIPS
NORTH MIAMI CAMPUS**

<u>HOUR ENDING</u>	<u>OBSERVED TRAFFIC COUNTS</u>
1	76
2	21
3	22
4	3
5	14
6	12
7	100
8	291
9	936
10	1098
11	604
12	765
13	962
14	728
15	863
16	884
17	886
18	717
19	922
20	639
21	438
22	530
23	245
<u>24</u>	<u>136</u>
TOTAL	11892

SOURCE: SUSTS - BR -052, Final Report, July 1993

11.0 TRANSPORTATION ELEMENT

Person trips were determined using the following auto occupancy rates:

Students - 1.18, Faculty/staff - 1.22 (SUSTS, July '93). Existing data indicates a transit usage rate of 5.22% (SUSTS, July '93). The percentage of person trips which choose each of ten travel modes is tabulated below in Table 11.1.L5.

**TABLE 11.1.L5
PERCENT MODE SHARE (ALL TRIPS)
NORTH MIAMI CAMPUS**

MODE	% SHARE OF RIDERSHIP
Auto Occupancy 1	75.9
2	12.3
3	0.6
4	0.6
5	0.4
City Bus	4.9
Campus Bus	0.8
Bicycle	0.2
Motorcycle	0.4
Walk	3.9
TOTAL	100%

Source: SUSTS-BR-052, Final Report, July 1993

11.0 TRANSPORTATION ELEMENT

The total percentage of person trips by purpose is tabulated in Table 11.1.L6.

**TABLE 11.1.L6
PERCENT TOTAL PERSON TRIPS BY PURPOSE
NORTH MIAMI CAMPUS**

TRIP PURPOSE	% TOTAL PERSON TRIPS
Work	17.4
Business	0.4
Class	34.4
Home	25.7
Shop	1.2
Social	2.9
Recreation	1.6
Eat	5.8
Errand	2.1
Other	8.3
TOTAL	100%

Source: SUSTS-BR-052, Final Report, July 1993

Traffic Analysis Zones (on-campus)

In the origin/destination studies, intra-campus trip end data for both campuses were collected. Each building and major parking lot or activity center was assigned a traffic analysis zone (TAZ) in the TCG study. Figure 11.1.M1 and 11.1.M2 illustrate the TAZ map for each campus. The Dade County Metropolitan Planning Organization (MPO) Traffic Analysis Zone (TAZ) map was modified to eliminate the area south of Eureka Drive.

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Existing Transit Service

UNIVERSITY PARK

The Metro-Dade Transit Authority (MDTA) currently has four covered bus shelters located on the west side of Lot #4. Four routes run daily. Three begin on campus and end in downtown Miami, and one begins at the Dadeland South Metrorail station, stops mid-way at the University Park campus, and terminates at the International Mall, north of SR 836 on NW 107 Avenue. Service begins at 4:45 AM and runs continuously (a total of fifteen buses per hour during peak times) until 11:15 PM on weekdays. The buses run less frequently on the weekends. MDTA buses have a seated capacity of approximately 50 persons.

NORTH MIAMI CAMPUS

Metro-Dade (MDTA) bus shelters are located south of the library and east of parking Lot #1. Two bus routes end at the North Miami campus. One of the routes begins at the Hialeah Metrorail Station, and the other begins in the Miami Lakes City Center. The frequency of bus routes is approximately two per hour during weekdays from 6:15 AM to 10:15 PM. The buses run less frequently on weekends.

Parking Ratios

UNIVERSITY PARK

Ratios of students/space and faculty-staff/space have been calculated and are shown on Table 11.2.A1. Average ratios of 0.23 students/space and 0.79 faculty-staff/space were found for existing conditions. These do not include auxiliary parking spaces for uses such as visitors, disabled and loading. The need for these uses needs to be evaluated individually for each campus based on existing percentages for these uses.

TABLE 11.2.A1
FIU MASTER PLAN
EXISTING PARKING RATIOS
UNIVERSITY PARK CAMPUS

TYPE OF USER	NUMBER OF USERS	NUMBER OF SPACES	RATIO SPACE/USER
Students	19,622	4,478	0.253
Faculty/Staff	1,525	1,207	0.79

Source: DPA

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NORTH MIAMI CAMPUS

Ratios of students/space and faculty-staff/space were calculated and are shown in Table 11.2.A2. Average ratios of 0.24 students/space and 0.66 faculty-staff/space were found for existing conditions. These do not include auxiliary parking spaces for uses such as visitors, disabled and loading. The need for these uses needs to be evaluated individually for each campus based on percentages existing for these uses.

**TABLE 11.2.A2
FIU MASTER PLAN
EXISTING PARKING RATIOS
NORTH MIAMI CAMPUS**

TYPE OF USER	NUMBER OF USERS	NUMBER OF SPACES	RATIO SPACE/USER
Students	6,789	1,638	0.24
Faculty/Staff	451	299	0.66

Source: DPA

Parking Utilization - On Campus

UNIVERSITY PARK

Parking utilization of the parking lots throughout campus is graphically portrayed in Figure 11.2.B1 during peak parking conditions (6:30 - 8:00 PM). Utilization of student parking is close to 100% except for Lot #10 located on the northwest portion of the inner part of the loop road. Overall average utilization of student parking is 90%. Faculty parking utilization of individual lots was lower, ranging between 20% and 100% with an average utilization of about 75%.

NORTH MIAMI CAMPUS

Parking utilization for parking lots throughout campus has been graphically portrayed in Figure 11.2.B2 during peak parking conditions (6:30 - 8:00 pm). Utilization varies between 40% and 100% throughout campus at this time. Average student parking occupancy is approximately 80%, for faculty the average rate is 55%.

Future Parking Needs

Every university has unique parking characteristics. University parking needs are affected by a wide array of factors special to each campus. Some of the major factors include daytime and evening enrollment, mix between commuter and residential population, size of faculty and staff, location and frequency of special events, opportunities for ride sharing and public transportation, availability and cost of parking and University policies regarding

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automobile usage and parking. Because these factors are unique to each university, there are no parking requirement standards available that apply specifically to Florida International University. The analysis for future parking needs is based upon data collection at each campus.

UNIVERSITY PARK

Future Population

Existing (1992) and projected (1993-2004) student enrollment and faculty/staff population data were provided by FIU for planning purposes. Since parking analysis is based on population, it is important to understand future population estimates. Actual counts of students and faculty/staff were provided for Fall 1992. Surveys of parking characteristics were conducted during this time period. The student population consisted of a head count total of 19,622 students; these were converted into 11,680 Full Time Equivalents (FTE). For purposes of this study, head counts were used for future projections. Faculty and staff are currently 1,479 full time and 46 part time.

Projections for the academic year 2003-2004, which represents the end of the planning period, consists of a head count of 28,745 students, or 18,193 FTE students. This represents an overall increase of 46% of the student population. Faculty was assumed to grow at this same rate for this time period.

OTHER FACTORS

Other factors affecting future parking demands such as peak conditions, population type, ridesharing and transit usage are anticipated to remain at the actual rates. However, vehicles are presently allowed to park in a grassy area south of parking Lot #16. Approximately 350 vehicles can park there. These vehicles must be factored into the demand calculation. In addition, students and faculty who are discouraged from bringing their vehicles to campus for lack of parking, would be more likely to come to school in personal vehicles (rather than ridesharing or metro-transit) if additional parking were available. This "latent" demand would also contribute to the total demand calculation. Assuming that the latent demand adds an additional 5% (approximately 300 spaces) to the future parking needs, then the total demand would be higher than what the parking rates alone would suggest. Recommendations will be made in Section 11.2.F about policies that could be adopted by the University to reduce future parking needs by maximizing the use of available parking. Special Events have been addressed in Section 11.1.D of this plan.

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Parking Ratios

Information on Parking Ratios has been gathered from various sources in order to establish an appropriate rate for future conditions. A comparison of these rates is shown in Table 11.2.C1 for students and faculty/staff, separately. Existing rates are within the range described in the publications Parking, by Robert A. Weant and Herbert S. Levinson for the ENO Foundation and Parking for Institutions and Special Events, by Edward M. Whitlock, PE, ENO Foundation. The facts that overall utilization rates of existing parking lots are high campus-wide (75% for faculty/staff and 90% for students) and that use of alternate modes of transportation account for less than 7% of all trips, are an indication that the existing ratios (in the above cited material) may not be appropriate for planning purposes. Overflow parkers and latent demand are added to the overall demand as stated earlier.

TABLE 11.2.C1
FIU MASTER PLAN
PARKING RATIOS COMPARISON
UNIVERSITY PARK

<u>STUDENTS</u>		
<u>SOURCE</u>	<u>RATE (SPACES/STUDENT)</u>	<u>RANGE</u>
1. ENO Foundation	0.30	0.15-0.45
Commuter	0.25	0.05-0.40
Resident		
University Park Campus	0.253	_____
Existing Rates		
<u>FACULTY</u>		
<u>SOURCE</u>	<u>RATE (SPACES/(FACULTY/STAFF))</u>	<u>RANGE</u>
2. ENO Foundation		0.50-1.00
University Park Campus	0.70	_____
Existing Rates	0.79	

Source: Parking, ENO, 1990

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Future Needs Projections

Total parking needed by the end of the planning period (2003-2004) is shown in Table 11.2.C2. If parking reduction strategies are not implemented, a total of 9,533 parking spaces will be required for all uses (Students, Faculty/Staff, Executive, Administrative, Disabled, Visitors (metered), Loading, existing temporary parking, and latent demand). Existing parking is 6,061 spaces; 3,472 new parking spaces will need to be provided to satisfy the projected demand.

**TABLE 11.2.C2
FIU MASTER PLAN
FUTURE PARKING NEEDS PROJECTION (2004)
UNIVERSITY PARK**

TYPE OF USER	PROJECTED NUMBER OF USERS	RATIO (SPACES/USER)	PARKING SPACES
Student	28,745	0.253	7,272
Faculty/Staff	2,227	0.790	1,759
TOTAL			9,031
Other Users ⁽¹⁾	635	0.790	502
GRAND TOTAL			9,533

Notes: ⁽¹⁾Approximately 6% of the total existing parking is allocated to other uses such as Executive, Administrative, Disabled, Visitors (Metered), Loading.

Source: DPA

NORTH MIAMI CAMPUS

Future Population

Existing (1992) and projected (1993-2004) student enrollment and faculty/staff population data were provided by FIU for planning purposes. Since parking analysis is based on population, it is important to understand future population estimates. Actual counts of students and faculty/staff were provided for Fall 1992. Surveys of parking characteristics were conducted during this time period. The student population consists of a total head count of 6,789 students. These were converted into 3,233 full time equivalents (FTE). For purposes of this study, head counts were used for future projections. The present number of faculty and staff is currently 439 full time and 12 part time.

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For the academic year 2003-2004, which represents the end of the planning period, a head count of 12,016 students are projected, or 7,510 FTE students. This represents an overall increase of 77% in student population. Faculty will be assumed to grow at this same rate for this time period.

OTHER FACTORS

Other factors affecting future parking demand such as peak conditions, population type, ridesharing and transit usage are anticipated to remain at the actual rates. Recommendations will be made in Section 11.2.F about policies that could be adopted by the University to reduce the amount of parking on campus by maximizing what is available. Special Events have been addressed in Section 11.1.D of this plan.

Parking Ratios

Information on Parking Ratios has been gathered from various sources in order to establish an appropriate rate for future conditions. A comparison of rates is shown in Table 11.2.C3 for both students and faculty/staff. Existing rates are within the range described in the publication "Parking" and "Parking for Institutions and Special Events". The facts that overall utilization rates are high campus-wide (55% for faculty/staff and 80% for students) and that existing alternate modes of transportation account for less than 11% of the total trips are an indication that the existing rates are appropriate for planning purposes.

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TABLE 11.2.C3
FIU MASTER PLAN
PARKING RATIOS COMPARISON
NORTH MIAMI CAMPUS

<u>STUDENTS</u>		
<u>SOURCE</u>	<u>RATE (SPACES/STUDENT)</u>	<u>RANGE</u>
1. ENO Foundation	0.30	0.15-0.45
Commuter	0.25	0.05-0.40
Resident		
University Park Campus	0.24	_____
Existing Rates		
<u>FACULTY</u>		
<u>SOURCE</u>	<u>RATE (SPACES/FACULTY)</u>	<u>RANGE</u>
2. ENO Foundation	0.70	0.50-1.00
University Park Campus		
Existing Rates	0.66	_____

Source: Parking, ENO, 1990

Future Needs Projections

Total parking needed by the end of the planning period (2003-2004) is shown in Table 11.2.C4. A total number of 3,616 parking spaces will be required including all uses (Students, Faculty/Staff, Executive, Administrative, Disabled, Visitors (metered), Loading). Existing parking is 2,070 spaces; 1,546 new parking spaces will need to be provided to satisfy the projected demand.

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TABLE 11.2.C4
FUTURE PARKING NEEDS PROJECTION (2004)
NORTH MIAMI CAMPUS

TYPE OF USER	PROJECTED NUMBER OF USERS	RATIO (SPACES/USER)	PARKING SPACES
Student	12,016	0.24	2884
Faculty/Staff	798	0.66	527
TOTAL			3411
Other Users(1)	311	0.66	205
GRAND TOTAL			3616

Notes: (1) Approximately 6% of the total existing parking is allocated to other uses such as Executive, Administrative, Disabled, Visitors (Metered), Loading.

Source: DPA

Future Parking Land Needs

UNIVERSITY PARK

Net new parking which will be needed by the end of the planning period (2003-2004) is 2,811 parking spaces as established in Section 11.2.C of this report. The Traffic Engineering Handbook, 4th Edition, published by the Institute of Transportation Engineers (ITE) has established that in a typical layout (90 degree and 60 degree parking layout) for large-size vehicles, the average overall area required (including all aisles and entrances) ranges between 310 and 330 square feet/car. Total land use needs would range between 871,410 SF (20.0 Acres) and 927,630 SF (21.3 Acres).

NORTH MIAMI CAMPUS

Net new parking which will be needed by the end of the planning period (2003-2004) is 1,546 parking spaces as established in Section 11.2.C of this report. According to the Traffic Engineering Handbook, (ITE), the total land use needs would range between 479,260 SF (11.0 Acres) and 510,180 SF (11.7 Acres).

11.0 TRANSPORTATION ELEMENT

Future Parking Structures Needs

UNIVERSITY PARK

Five (5) parking decks are planned for Phase 2 of the FIU Master Plan for this campus. Locations of these decks are shown in Figure 11.2.E1. Capacity or dimension have not been established at this time.

NORTH MIAMI CAMPUS

Three (3) parking decks are planned for Phase 3 of the FIU Master Plan for this campus. Locations of these deck are shown in Figure 11.2.E2. Capacity or dimensions have not been established at this time.

Parking Demand Management Techniques (Both Campuses)

Parking management techniques could be implemented at FIU to reduce future parking demand. Various techniques are described below.

Reduction of Parking Permits

The number of decals used could be limited to upper division students (juniors and seniors). In other words, freshman and or sophomores could be prohibited from driving to school by not allowing them to buy decals.

Increasing Parking Utilization

Parking utilization is nearly full during peak hours of demand. At other times, parking demand and utilization is lower. If classes are scheduled more evenly in order to minimize the peak hour of demand, parking utilization could be increased at other times, decreasing the amount of parking needed during peak conditions.

Metrorail

There are bus routes that currently serve both FIU campuses. The proposed Metrorail expansion is planning a station within the FIU University Park Campus. Even though this would increase the usage of transit at this campus, it is not possible in this study to estimate future transit ridership that would result from this improvement.

Carpooling

One action that could be taken by the University is to encourage carpooling by guaranteeing a prime location space. Increase of auto occupancy would result in a decrease of the parking needs in the future.

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Bicycles

Bikeway routes are programmed for the roads connecting to the North Miami Campus. The University should extend these routes throughout campus. Furthermore, support facilities such as bicycle racks, lockers and showers should be provided to encourage this mode of transportation.

Potential Parking - Context Area

Off-campus parking has not been identified presently nor in the future plan.

Parking Impacts - Context Area

Off-campus parking impacts do not occur since there is no off-campus parking.

Future Traffic Analysis

This section analyzes future traffic volumes, and levels of service on the campus roadways and in the "context area" for the year 2004.

UNIVERSITY PARK

The existing traffic volumes (Table 11.1.J1) in the context area were increased by an annual growth rate of two percent per year to the year 2004. The Dade County Long Range Plan (LRP) was used to calculate the growth rate for the future traffic study. On-campus existing volumes were increased by the same growth rate as the student population (46%).

Table 11.2.I1 illustrates the future PM peak hour level of service analysis for the station locations in Figure 11.1.J1. Trip distribution used for the analysis was verified for consistency with Dade County's Miami Area Urban Transportation Study (MUATS). In general, all locations are operating at Level of Service "B", or "C". However, location "A" (SW 117 Avenue, south of 17 Street) would operate at Level of Service "F".

NORTH MIAMI CAMPUS

Future traffic generated by the North Miami Campus is approximately 21,000 auto trips per day based on student enrollment projections to the year 2004. On-campus traffic will increase by 77% through the planning period.

11.0 TRANSPORTATION ELEMENT

**TABLE 11.211--FUTURE LEVEL OF SERVICE ANALYSIS
PM PEAK HOUR--UNIVERSITY PARK CAMPUS**

LOCATION	DIR	LANE S	LOS E CAPACI TY	VOLUME	LOS
A (SW 117 Avenue, S/O 17 Street)	NB	1	840	643	C
	SB	1	840	882	F
B (SW 17 Street, E/O 17 Avenue)	EB	1	840	271	B
	WB	1	840	520	B
C (SW 117 Avenue, N/O 17 Street)	NB	1	840	432	B
	SB	1	840	459	B
D (SW 8 Street, W/O 112 Avenue)	EB	3	2240	1288	C
	WB	3	2240	878	C
E (SW 112 Avenue, S/O 8 Street)	NB	2	1770	801	B
	SB	2	1770	784	B
F (SW 8 Street, E/O 112 Avenue)	EB	3	2240	1447	C
	WB	3	2240	1024	C
G (Campus Loop Road, E/O 112 Avenue)	EB	1	840	330	B
	WB	1	840	320	B
H (SW 107 Avenue, S/O 8 Street)	NB	3	3530	2102	C
	SB	3	3530	2616	C
I (SW 11 Street (Dorms), W/O 107 Avenue)	EB	2	1770	165	B
	WB	2	1770	203	B
J (SW 14 Street, W/O 107 Avenue)	EB	3	2650	758	B
	WB	2	1770	502	B
K (SW 17 Street, W/O 107 Avenue)	EB	2	1770	448	B
	WB	2	1770	451	B
L (SW 107 Avenue, S/O 17 Street)	NB	3	3530	1857	C
	SB	3	3530	2782	C

Source: DPA

(1) Levels of service are based on FDOT or Dade County peak hour directional service volumes.

(2) Volume includes background growth and future campus growth.

11.0 TRANSPORTATION ELEMENT

Table 11.2.I2 tabulates the future PM peak hour level of service analysis for the station locations in Figure 11.1. J2. In general, all locations are operating at Level of Service B, except location A (Bay Vista Boulevard, north of the main campus entrance) which operates at Level of Service "F".

**TABLE 11.2.I2
FUTURE LEVEL OF SERVICE ANALYSIS
PM PEAK HOUR
NORTH MIAMI CAMPUS**

LOCATION	D I R	LA NES	LOS E ⁽¹⁾ CAPACI TY	VOLU ME ⁽²⁾	LO S
A (Bay Vista Boulevard, N/O North Campus Entrance)	N B	2	840	917	F
	S B	2	840	1258	F
B (North Campus Entrance, E/O Bay Vista Boulevard)	E B	2	840	320	B
	W B	2	1770	689	B
C (South Campus Entrance, E/O Bay Vista Boulevard)	E B	2	1770	96	B
	W B	2	1770	81	B

Source: DPA

(1) Levels of service based on FDOT peak hour directional service volumes.

(2) Volume includes background growth and future campus growth.

Future Roadway Needs - On Campus

All on-campus roadways for both campus are operating at Level of Service "B". Roadway improvements may be required, however, based on changes to the existing circulation pattern. See Section 11.1.J for other traffic related improvements. Additionally, new roads will be built on campus to provide access to proposed buildings.

11.0 TRANSPORTATION ELEMENT

UNIVERSITY PARK

The relocating of the campus loop road through parking Lot #3 and along SW 17 Street, then back alongside of the nature preserve to the existing loop road, is a major roadway improvement. All on-campus roadways should be designed or rebuilt to include curb and gutter.

In addition, the west campus roadway which provides access to existing support services and athletic facilities, should be reconstructed to include a center turn lane, consistent with the remainder of campus.

With the construction of the National Oceanographic and Atmospheric Administrations (NOAA), National Hurricane Center (NHC) already underway, and the proposed construction of Support Services Complex expansion, SW 17 Street will experience increased traffic between the FIU entrance at SW 117 Avenue and SW 115 Avenue. This segment of roadway is recommended to be widened to four lanes divided to allow for increased through and turning volumes. In addition, large volumes of tractor-trailer traffic is expected to use the Support Complex, therefore, the campus entrance on SW 17 Street should be designed accordingly.

Elementary School Impacts

The elementary school proposed on SW 117 Avenue, would occupy approximately five acres in the northwest corner of the campus. Access will be provided by three driveways (two for drop-off and pick-up of students and one for delivery trucks and service vehicles). Typical school hours would be from 8:30 AM to 3:00 PM with some after school activity lasting until 5:30 PM. According to the Institute of Transportation Engineers Trip Generation, 5th Edition, sixty-six percent of students are transported to school via school buses. The typical size of an elementary school in Dade County ranges between eight hundred to fifteen hundred students with the average school serving approximately one thousand students. Daily trip ends (one way trips), for an average elementary school in Dade County is one thousand. University traffic using SW 117 Avenue will be impacted by the elementary school, especially during the morning as school begins, and in the afternoon as school ends (when speed limits on SW 117 Avenue are reduced to fifteen miles per hour).

Southwest 117 Avenue should be widened to four lanes, approaching the school, with turn lanes provided at the school entrances. In addition, flashing beacons, reduced speed limit signs, and advanced warning and regulatory signage should be provided on SW 117 Avenue.

The school Staff/Faculty parking should have access to FIU while precluding through traffic. This facilitates access for this group while preventing pick-up/drop-off of students via University streets.

11.0 TRANSPORTATION ELEMENT

NORTH MIAMI CAMPUS

The section of Bay Vista Boulevard, which runs north/south along the west side of campus between NE 151 Street and the proposed NE 135 Street connection, should be made four lanes with a median separation and left turn bays at each of the four proposed campus entrances (the fourth entrance is proposed near the future Residential Honors College). Each of the four driveways should provide two lanes inbound and two lanes outbound.

Internal Circulation

Traffic circulation between the parking lots and garages is achieved by three entrance spurs which connect directly with Bay Vista Boulevard. Circulation among the parking facilities must be gained through the parking lots themselves or via Bay Vista Boulevard. This parking layout provides the greatest efficiency with regard to circulation for parkers who are searching for a space, while it minimizes the amount of pedestrian/vehicular conflicts. All entrance spurs should be designed with cul-de-sacs in order to maintain efficient traffic circulation.

The parking aisles should be designed to serve as pedestrian walkways which are aligned in the direction of the campus core.

The year 2003-04 Master Plan, eliminates the existing loop road which circulates in front of the campus core. The Metro-Dade Transit Authority (MDTA), currently provides bus service to the North Miami Campus via the loop road, dropping off and picking up patrons near the library.

A large cul-de-sac should be provided at the end of the north (main) entrance spur for MDTA access. Two through lanes and a third bus lane should be provided to maintain adequate circulation.

Future Roadway Needs - Context Area

UNIVERSITY PARK

The segment of SW 117 Avenue south of the campus entrance is operating at LOS "F" during the PM peak hour. Transportation Demand Management strategies or roadway improvements may be required. However, additional studies at that location may reveal more capacity than what is indicated in the FDOT LOS Manual.

11.0 TRANSPORTATION ELEMENT

NORTH MIAMI CAMPUS

Bay Vista Boulevard (NE 151 Street) is operating at LOS F during the PM peak hour. Improving Bay Vista Boulevard adjacent to campus (as described above), will provide sufficient capacity to the roadway. Other options should, however, be considered. An additional access point from Biscayne Boulevard would greatly increase the efficiency of traffic circulation to and from campus. Northwest 135 Street could easily provide access to the south end of the campus with its direct connection to Biscayne Boulevard.

Transportation Demand Management (TDM) and Transportation Systems Management (TSM)

The following is list of improvements which can be implemented to either increase roadway capacity (TSM) or reduce traffic (demand) TDM). Some of these suggestions would be inappropriate in certain locations. However, exact suggested locations will be reserved until the final Master Plan is approved.

(Source: Traffic Engineering Handbook, ITE, 1992)

1. Operational modification.
 - a) Add lane
 - b) Widen lane
 - c) Widen shoulder
 - d) Install median
 - e) Reduce number of access points
2. Improved utilization of public transit at the University.

Transit for the purposes of this study includes buses and metrorail. The main 'improvement' to be made with regard to transit is increased ridership. Low ridership can be boosted in a number of ways: decrease fares, provide express routes, maintain clean and comfortable vehicles, increase frequency of service, provide weather-proof shelters, place transit terminals close to campus.
3. Improvement of pedestrian and non-vehicular circulation facilities.
 - a. provide bikeways
 - b. reduce pedestrian/motorist conflicts
 - c. install speed limit signs
4. Increasing the number of students living on-campus.

The number of students living on-campus can be increased, obviously, by providing more housing, but more specifically requiring that all freshman live on-campus.

11.0 TRANSPORTATION ELEMENT

5. **Academic Scheduling Modifications.**
Peak hour traffic congestion can be reduced by changing the class schedule so that the traffic flow in and out of the campus is spread evenly throughout the day.
6. **Other TDM Approaches.**
 - a) car pooling
 - b) van pooling
 - c) public transit
 - d) parking management (e.g. carpool vehicles get best parking location).
7. **Jobs-Housing Balance.**
Provide more jobs and housing stock closer to campus to reduce traffic in the context area, and encourage non-motorized travel modes.

Application of these improvements should be considered during campus development.

Future Transit

UNIVERSITY PARK

Future Transit

Metropolitan Dade County has identified the University Park Campus as a possible terminus for a metrorail transit line that would begin in Downtown Miami. The tentative completion date is 2001. The rail transit service to Florida International University (FIU) could have significant influences on the infrastructure supporting this campus, however, a metrorail station at University Park could be a tremendous benefit to on-campus parking requirements and traffic congestion, and would put less University burden on the external street systems serving the community.

The Rail Transit System in Metropolitan Dade County is an important ingredient in the future of FIU. The University, via a destination type station within the campus boundaries, is linked to the full Metropolitan Dade County System and the Tri-County Rail System serving the rest of Florida's Gold Coast.

11.0 TRANSPORTATION ELEMENT

In order to maximize transit ridership on-campus, the rail alignment would ideally be as close to the campus core as possible. Such an alignment could be effected by locating the actual metrorail station within a reasonable walking distance from the campus core or by providing a separate Automated People Mover (APM), which would connect the metrorail terminus and the campus core.

The existing metrobus terminal in Lot #4 will need to be moved when the proposed double parking garage on SW 17 Street is built. One option would be to move the bus station close to where the proposed metrorail station would be. However, such an arrangement would encourage a large share of commuter traffic to use the campus as a transfer station, and would significantly increase the walking distance from the campus core to the bus station. Therefore, it is recommended to keep the bus station close to where it is located today (Lot #4), away from the proposed transit station. The placement of a metrobus station at the proposed metrorail station would not be in keeping with the idea of a metrorail destination station, which would ideally have no commuter parking, no kiss-and-ride facilities, and no metrobus station or terminal. Figure 11.2.N1 shows the existing metrobus routes and station locations, and Figure 11.2.N2 shows the future conditions.

NORTH MIAMI CAMPUS

Future Transit

The frequency of bus routes serving the campus should be evaluated as the University grows. Other transit modes besides buses have not been identified.

The existing metrobus station will be displaced by building construction of the proposed Master Plan. As described earlier, the new bus station should be relocated to the cul-de-sac at the end of the proposed main entrance drive (see Figure 11.2.N3 (existing) and Figure 11.2.N4 (future).

PEDESTRIAN AND NON-VEHICULAR SUB-ELEMENT

Existing Facilities - On Campus

UNIVERSITY PARK

Florida International University (FIU) University Park Campus consists of a conglomerate of buildings connected with covered and uncovered walkways serving pedestrians. The academic facilities are surrounded by a vehicular loop road. The athletic facilities are located outside the loop road on the west side of campus. Student housing is located in the outside of the loop road on the northeast side of campus. Two parking lots are provided inside the loop road. However, most of the parking is provided outside of the loop road requiring pedestrians to cross this road. Figure 11.3.A1 shows the general configuration of

11.0 TRANSPORTATION ELEMENT

this campus. Non-vehicular circulation facilities are highlighted. A description of the different non-vehicular facilities available is provided below.

Walkways

Pedestrian Access among the existing buildings is provided with covered and uncovered walkways. The core buildings surrounding the library are provided with covered walkways approximately 12' wide. Buildings located north of the library are accessible to pedestrians via uncovered walkways varying in width between 6' and 14'. Pedestrian walkways are also provided north and south of the loop road, leading to parking lots, on the east leading to student housing, and on the west leading to athletics facilities. Surface material of these walkways consists of cast-in-place concrete and asphalt.

Crosswalks

The eastern half of the campus loop road (from parking Lot #1 on the north to parking Lot #8 on the south) is traversed by fifteen (15) crosswalks (see Figure 11.3.A1). During the pedestrian peak hours (10:30 AM - 11:30 AM and 6:30 PM - 8:00 PM) vehicular traffic is slowed significantly by pedestrians.

Five (5) crosswalks exist on the western half of the loop road. Most pedestrian activity on the western half occurs near the arena. However, in general, pedestrian flows in this area are light except during special events at the arena. Pedestrian activity on the eastern half of the loop road is significant.

The far western part of campus is used mostly for athletics. However, ten to fifteen trailers are currently being used for classrooms. Several parking lots exist to serve the area. Crosswalks have not been provided on the roadways to connect the parking lots to the various facilities.

Bikeways

Bicycle racks are currently located in the courtyards of the residential housing dormitories on campus. Many of the pedestrian and vehicular facilities are being shared with cyclists in the campus core and on the loop road. However, an officially marked bikeway does not exist on campus.

NORTH MIAMI CAMPUS

Florida International University (FIU) North Miami Campus consists of a group of academic buildings on the east side of campus, student housing to the north and parking on the southwest portion of the campus. One main entrance provides vehicular access to the campus. The general configuration is shown in Exhibit 11.3.A2. A description of non-vehicular access is provided below.

11.0 TRANSPORTATION ELEMENT

Walkways

Pedestrian access among the existing building is provided via covered and uncovered walkways varying in width between 5' and 10'. One path provides access to student housing. Sidewalks are provided along the campus roads to provide access to the parking lots. Walkways are made of cast-in-place concrete and asphalt as surface material.

Crosswalks

Campus roadways are traversed by nine (9) crosswalks (see Figure 11.3.A2). Most pedestrian activity occurs on the six (6) crosswalks crossing the south and east portions of the main road since these are the links between the academic facilities and parking lots.

The additional three (3) 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 campus. Many of the pedestrian and vehicular facilities are being shared with cyclists in the campus core and on the loop road. However, an officially marked bikeway does not exist on campus.

Planned Facilities On Campus

UNIVERSITY PARK

Development of the new campus complex will result in increased pedestrian activity on campus. Figure 11.3.B1 shows the Master Plan Update of existing and proposed walkways throughout the campus along with existing and proposed buildings.

NORTH MIAMI CAMPUS

Development of the new campus complex will result in increased pedestrian activity on campus. Figure 11.3.B2 shows the Master Plan Update of existing and proposed walkways throughout the campus along with existing and proposed buildings.

Existing Facilities - Context Area

UNIVERSITY PARK CAMPUS

Existing Bikeways are provided along Coral Way (SW 24 Street) and SW 117 Avenue. Figure 11.3.C1 shows the location of existing bikeway paths. Crosswalks from the University to the context area are also shown in this area.

11.0 TRANSPORTATION ELEMENT

NORTH MIAMI CAMPUS

Sidewalks and bikeway paths are not presently provided in the general vicinity of the University.

Planned Facilities - Context Area

UNIVERSITY PARK

The 1993-94 Transportation Improvement Program (TIP), prepared by the Metropolitan Planning Organization (MPO), does not show any planned or programmed pedestrian/non-vehicular facilities in this area. The Metro-Dade Transportation Plan Long Range Element (2010), also prepared by the MPO, does not make specific provisions for pedestrian or non-vehicular facilities.

Metropolitan Dade County is currently planning a Countywide Bikeway Study and Pedestrian Facilities Study that would address existing and future needs. This study, should be available in 1994.

NORTH MIAMI CAMPUS

The 1993-94 Transportation Improvement Program (TIP), prepared by the Metropolitan Planning Organization (MPO) shows three (3) bikeway improvements in this area. These improvements as shown in the TIP are reiterated in Table 11.3.D1.

**TABLE 11.3.D1
FIU MASTER PLAN
PLANNED NON-VEHICULAR FACILITIES - CONTEXT AREA
NORTH MIAMI CAMPUS**

WORK ITEM #	PROJECT DESCRIPTION	WORK DESCRIPTION	COST 1993-94
6123209	North Miami Beach Bike Path	Bikeway Path Highway Demonstration Project	CST 919
6123210	City of North Miami Bike Path	Bikeway Path Highway Demonstration Project	CST 850

Figure 11.3.D1 shows Planned Bikeway Paths in the context area. Presently funded improvements include a bikeway path along Biscayne Boulevard (US 1, SR 5) NE 151 Street and Bay Vista Boulevard to FIU's main entrance. These will provide the University with an alternative mode of transportation linking it to the residential neighborhoods in the cities of North Miami and North Miami Beach, their Central Business Districts (CBD) as well as

11.0 TRANSPORTATION ELEMENT

other commercial and industrial areas. Access will also be provided to recreational areas such as the Center of Contemporary Art as well as park, recreation centers and other public facilities throughout the area.

Safety/Security - On-Campus

Campus-wide crime statistics for both campuses combined are provided by year (1990 through 1992) and by type of offense in Table 11.3.F1. However, data was not available to identify existing problem areas on-campus or the relationship of these crimes to pedestrians.

**TABLE 11.3.F1
FIU MASTER PLAN
CRIME STATISTICS**

CRIME INDEX	1990	1991	1992
Murder	1	0	3
Sex Offenses Forcible	0	2	2
Sex Offenses Non-Forcible	*	*	0
Robbery	1	0	0
Aggravated Assault	3	0	3
Burglary	17	30	30
Larceny	265	273	260
Auto Theft	36	27	37

*This category not reported for 1990-91
Source: FIU

Future Needs - On Campus

UNIVERSITY PARK

Walkways

Planned walkways along the University Park Campus are shown in Figure 11.3.B1. The high number of rain days per year in South Florida suggests that covered walkway protection should be continued between the buildings in the campus core. Covered walkways are desirable and should be incorporated in planning for future pedestrian circulation.

11.0 TRANSPORTATION ELEMENT

Pedestrian Crosswalks

The eastern half of the campus loop road (surrounding the campus core) currently has fifteen crosswalks. One more crosswalk is planned on the loop road for the dormitories which will be built in the northeast corner of campus. Pedestrian crosswalks are critical to efficient traffic flow on the eastern half of the loop road. Vehicular traffic is significantly slowed during peak hours. In large part, vehicular delays are due to the heavy pedestrian movements. Students and faculty must cross the loop road from the main surface parking lots in order to get to the campus core.

The current practice of longitudinal (zebra) striping the crosswalks should be continued and improved. Additionally, a campus "serenity" plan should be implemented to reduce vehicular pedestrian conflicts. This plan has been previously presented to FIU and is described in Section 11.4.J of the traffic circulation. All signs and markings for pedestrian crosswalks shall conform with the Manual of Uniform Traffic Control Devices (MUTCD), published by the US Department of Transportation in conjunction to the Federal Highway Administration, as well as with FDOT Roadway Design Manual. Crosswalks should serve to guide pedestrians in the proper paths, as well as to warn motorists of a pedestrian crossing. The method of identifying and marking crosswalks using white longitudinal striping would be appropriate since this type is intended for use at locations where substantial numbers of pedestrians cross without any other traffic control device. Since non-intersection pedestrian crossings are generally unexpected by motorists, warning signs should be installed and adequate visibility (sight triangle) must be ensured. Figure 11.4.A1 illustrates a typical crosswalk layout.

Bikeways

Mode choice information provided in the "State University System Transportation Study" showed the percent of trips using bicycles as their primary source of transportation at this campus is 0.2%. Given such low usages of this mode of transportation, exclusive bikeway paths do not seem warranted in the future.

NORTH MIAMI CAMPUS

Walkways

Planned walkways along the University Park Campus are shown in Figure 11.3.B2. The high number of rain days per year in South Florida suggests that covered walkway protection should be continued between the buildings in the campus core. Covered walkways are desirable and should be incorporated in planning for future pedestrian circulation.

11.0 TRANSPORTATION ELEMENT

Pedestrian Crosswalks

No additional crosswalks are planned in the future for this campus. The current practice of longitudinal striping should be continued and improved at all existing crosswalks. All signs and markings for pedestrians crosswalks shall conform with the Manual of Uniform Traffic Control Devices (MUTCD), published by the U. S. Department of Transportation in conjunction to the Federal Highway Administration as well as the FDOT Roadway Design Manual. Crosswalks should serve to guide pedestrians in the proper paths, as well as to warn motorists of a pedestrian crossing. The method of identifying and marking crosswalks using white longitudinal striping would be appropriate since this type is intended for use at locations where substantial numbers of pedestrians cross without any other traffic control device. Since non-intersectional pedestrian crossings are generally unexpected warning signs should be installed and adequate visibility (sight triangle) must be ensured.

Bikeways

Mode choice information provided in the "State University System Transportation Study" showed the percent of trips using bicycles as their primary source of transportation is 0.4%. Given such low usage of this mode of transportation, exclusive bikeway paths are not warranted in the future.

Future Needs - Context Area

UNIVERSITY PARK

Pedestrian Crosswalks

Pedestrian linkage to the shopping centers on the east side of SW 107 Avenue is presently insufficient, especially in the area of the student dormitories. A striped crosswalk conforming with MUTCD should be installed at or close to the traffic signal at the existing dormitory entrance. As other dormitories are built, striped crosswalks should be installed at or near the closest traffic signal.

An additional pedestrian bridge crossing the SW 8 Street (Tamiami Trail) canal is desirable at the SW 112 Avenue driveway entrance to this campus. This connection would provide enhanced pedestrian access between the University and the City of Sweetwater.

Bikeway

Existing bikeway paths located on SW 117 Avenue and Coral Way (SW 24 Street) should be maintained so that students and faculty would have the option of commuting to campus with minimal interference from motorized vehicles.

11.0 TRANSPORTATION ELEMENT

NORTH MIAMI CAMPUS

Pedestrian Walkways

There are no existing sidewalks along Bay Vista Boulevard or NE 151 Street. Because of the walking distances required to reach residential off-campus areas, it is unlikely that pedestrian activity will dramatically increase in the future. Improvements are, therefore, not recommended in this area, but should be considered as part of any possible future road improvement project.

Bikeway

Bikeway paths planned for Biscayne Boulevard, NE 151 Street and Bay Vista Boulevard are sufficient to meet future demand by FIU North Campus. Additional improvements are, therefore, not recommended.

Lighting - On Campus

UNIVERSITY PARK

Campus Core

Lighting along walkways connecting major buildings at the university core appears adequate.

Parking Lots

Parking lot lighting appears adequate near the campus core. However, the unpaved/partially paved parking lots in the far western end of campus do not have lighting. Lighting should be provided on all walkways and in all parking lots on the western end of campus.

Roads/Loop Road

All roads in the general vicinity of the natural preserve are completely without lighting. The nature of the road with curves and unexpected side streets, and the future designation of an adjacent walkway justify the installation of roadside and walkway lighting.

Crosswalks

Existing lighting conditions at all crosswalks on the loop road appear to be adequate.

NORTH MIAMI CAMPUS

Lighting along this campus seems adequate at the campus core, walkways and crosswalks. All parking lots seem to have appropriate lighting except Lots #5 and #7 located on the outside edge of campus. Lighting should be extended to the outside edge of all parking lots.

11.0 TRANSPORTATION ELEMENT

NORTH MIAMI CAMPUS

Campus Core

Lights along walkways within the university core seems appropriate.

Parking Lots

Parking lot lighting appears adequate at all parking lots except for Lots #5 and #7. Lighting is located on the outside edge only. Lighting should be extended to the outside edge of all lots.

FIGURE 11LA1
EXISTING PARKING
LOT NUMBERS
(SOURCE: FIU)

LEGEND

35 LOT NUMBERS

- | | |
|-----------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERA CASA | 19C STUDENT HOUSING |
| 02 DEUXIEME MAISON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 OWA EHAW | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/
BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P3 PARKING GARAGE |
| 19A STUDENT HOUSING | P4 PARKING GARAGE |
| 19B STUDENT HOUSING | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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DAVID FLUDGEMER & ASSOCIATES, INC	CORAL GABLES, FL
GARY & GARY, INC	MIAMI, FL
KRITH & SCHNAUS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
ZYSOVCICH, INC	MIAMI, FL

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DATE:

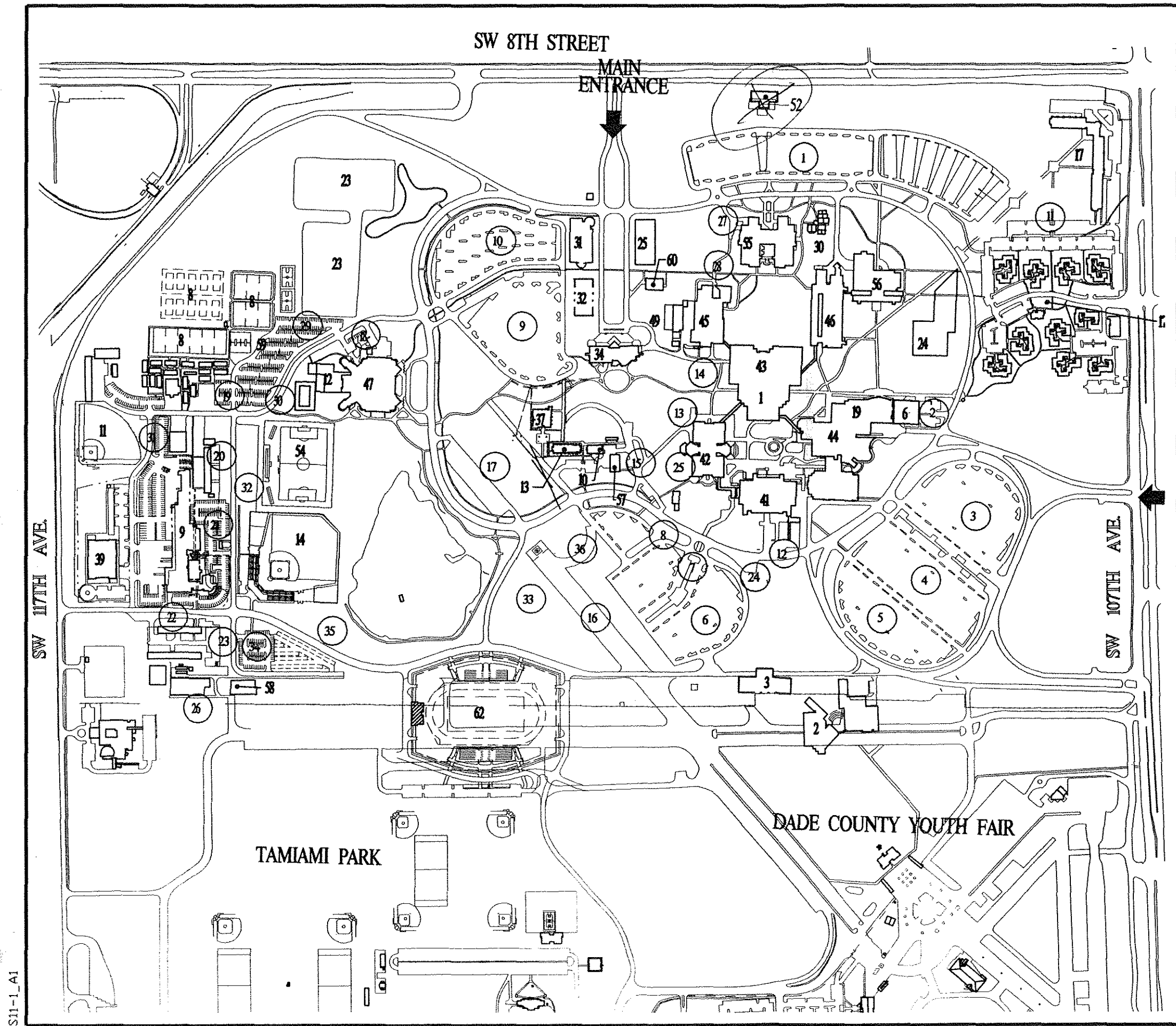
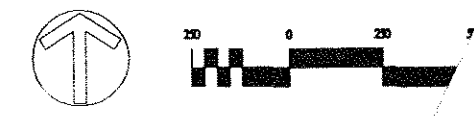


FIGURE 11LA2

EXISTING PARKING LOT NUMBERS (SOURCE: FIU)

LEGEND

④ - LOT NUMBERS

01 HOSPITALITY MANAGEMENT	16 INFORMATION
01A AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
02 ACADEMIC ONE	18 HRS PRACTICE CENTER
02A CENTRAL UTILITIES	19 HRS CLASSROOM
03 STUDENT CENTER	20 HRS ADMINISTRATION
03A STUDENT CENTER ADDITION	21 CHILD CARE CENTER
04 ACADEMIC TWO	22 CENTRAL RECEIVING
05 LIBRARY	23 PUBLIC SAFETY
05A LIBRARY ADDITION	24 PHYSICAL PLANT
06 STUDENT HEALTH CENTER	25 GROUNDS
07 CONFERENCE CENTER	26 GYMNASIUM
08 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
09 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
10 HONORS COMPLEX	H2 HONORS HOUSING
11 PUBLIC AFFAIRS	H3 STUDENT HOUSING
12 ADMIN OFFICES	P1 PARKING GARAGE
13 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
14 NURSING BUILDING	P3 PARKING GARAGE
15 ADMIN OFFICES	

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CORAL GABLES, FL
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DATE:



Technical

FIGURE 11.1G1

ACCIDENT LOCATIONS JAN 1991 - SEP 1993

LEGEND

● ACCIDENT LOCATION

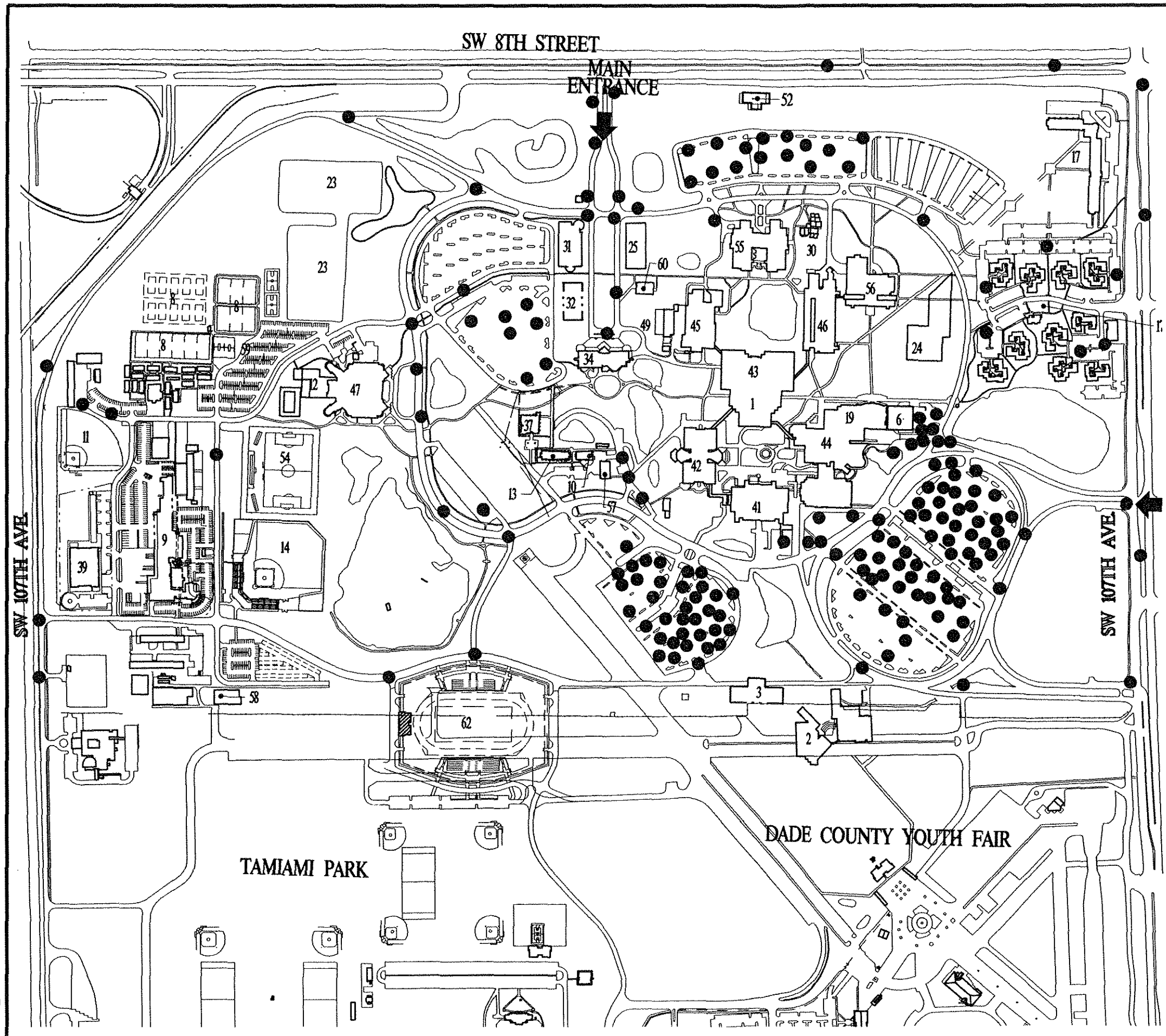
- | | |
|-------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERIA CASA | 19C STUDENT HOUSING |
| 02 DELUGEME MASON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTICES HALLS | 23 OFFICE/CLASSROOM |
| 05 ATHENAEUM | 24 ARTS COMPLEX II |
| 05A ATHENAEUM ADDITION | 25 CLASSROOMS |
| 06 OWA EHAN | 26 SOCIAL SCIENCES |
| 06A WERTHEIM CONSERVATORY/BIOLOGICAL GREENHOUSE | 27 CLASSROOMS |
| 07 GOLDEN PANTHER ARENA | 28 SUPPORT |
| 07A ARENA ADDITION | 29 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 30 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 31 BUSINESS/TECH |
| 09A MOLECULAR BIOLOGY | 32 ELEMENTARY SCHOOL |
| 10 UNIVERSITY COMPUTER SERVICES | 33 PRESIDENTS HOUSE |
| 11 BUSINESS ADMINISTRATION | 34 CERAMICS |
| 12 STUDENT HEALTH & WELLNESS CENTER | 35 PUBLIC SAFETY |
| 13 LABOR CENTER | 36 DUPLICATION CENTER |
| 14 EDUCATION BUILDING | 37 INFORMATION CENTER |
| 15 BASEBALL STADIUM | 38 TAMAMI STADIUM |
| 16 ARTS COMPLEX I | 39 LAND BANK |
| 17 CHILD CARE CENTER | 40 JOINT USE LAND BANK |
| 18 CAMPUS SUPPORT COMPLEX | P1 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P2 PARKING GARAGE |
| 19A STUDENT HOUSING | P3 PARKING GARAGE |
| 19B STUDENT HOUSING | P4 PARKING GARAGE |
| | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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FIGURE 11.1G2

ACCIDENT LOCATION JAN 1991 - SEP 1993

LEGEND

● - ACCIDENT LOCATION

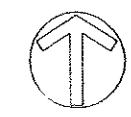
- | | |
|------------------------------|----------------------------|
| 01 HOSPITALITY MANAGEMENT | 16 INFORMATION |
| 01A AQUATIC CENTER | 17 HOLOCAUST DOCUMENTATION |
| 02 ACADEMIC ONE | 18 HRS PRACTICE CENTER |
| 02A CENTRAL UTILITIES | 19 HRS CLASSROOM |
| 03 STUDENT CENTER | 20 HRS ADMINISTRATION |
| 03A STUDENT CENTER ADDITION | 21 CHILD CARE CENTER |
| 04 ACADEMIC TWO | 22 CENTRAL RECEIVING |
| 05 LIBRARY | 23 PUBLIC SAFETY |
| 05A LIBRARY ADDITION | 24 PHYSICAL PLANT |
| 06 STUDENT HEALTH CENTER | 25 GROUNDS |
| 07 CONFERENCE CENTER | 26 GYMNASIUM |
| 08 AUXILIARY SUPPORT COMPLEX | 27 MARINE BIOLOGY |
| 09 CLASSROOM/OFFICE BUILDING | H1 BAY VISTA HOUSING |
| 10 HONORS COMPLEX | H2 HONORS HOUSING |
| 11 PUBLIC AFFAIRS | H3 STUDENT HOUSING |
| 12 ADMIN OFFICES | P1 PARKING GARAGE |
| 13 CLASSROOM/OFFICE BUILDING | P2 PARKING GARAGE |
| 14 NURSING BUILDING | P3 PARKING GARAGE |
| 15 ADMIN OFFICES | |

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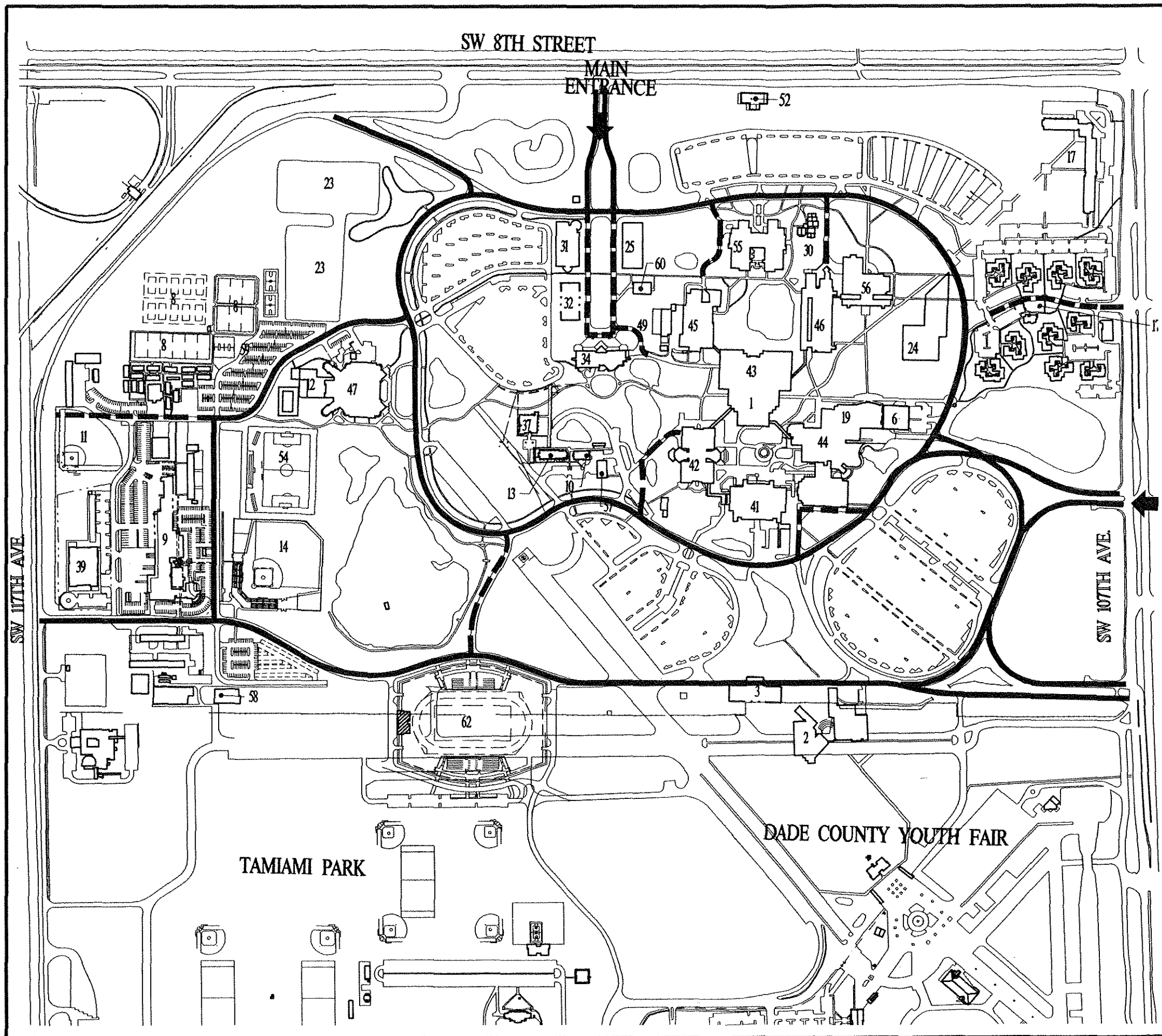


FIGURE 11LH1

EXISTING ROADWAY CLASSIFICATION

LEGEND

— - - - - COLLECTOR ROAD

- - - - - LOCAL ROAD

01 CHARLES E. PERRY PRIMERA CASA	19C STUDENT HOUSING
02 DEUXIEME MAISON	19D STUDENT HOUSING
03 ERNEST R. GRAHAM UNIVERSITY CENTER	20 ENGINEERING II
03A BOOKSTORE	21 HEALTH & LIFE SCIENCES
03B GRAHAM CENTER ADDITION	22 ART MUSEUM
04 VIERTE HAUS	23 OFFICE/CLASSROOM
04A CENTRAL UTILITIES	24 ARTS COMPLEX II
05 ATHENAEUM	25 CLASSROOMS
05A ATHENAEUM ADDITION	26 SOCIAL SCIENCES
06 OWA EHAW	27 CLASSROOMS
06A WERTHEIM CONSERVATORY/ BIOLOGICAL GREENHOUSE	28 SUPPORT
07 GOLDEN PANTHER ARENA	29 SUPPORT
07A ARENA ADDITION	30 BUSINESS/FINANCE
08 ENGINEERING & COMPUTER SCIENCE	31 BUSINESS/TECH
09 CHEMISTRY & PHYSICS	32 ELEMENTARY SCHOOL
09A MOLECULAR BIOLOGY	33 PRESIDENTS HOUSE
10 UNIVERSITY COMPUTER SERVICES	34 CERAMICS
11 BUSINESS ADMINISTRATION	35 PUBLIC SAFETY
12 STUDENT HEALTH & WELLNESS CENTER	36 DUPLICATING CENTER
13 LABOR CENTER	37 INFORMATION CENTER
14 EDUCATION BUILDING	38 TAMAMI STADIUM
15 BASEBALL STADIUM	39 LAND BANK
16 ARTS COMPLEX I	40 JOINT USE LAND BANK
17 CHILD CARE CENTER	P1 PARKING GARAGE
18 CAMPUS SUPPORT COMPLEX	P2 PARKING GARAGE
19 EXISTING RESIDENCE FACILITIES	P3 PARKING GARAGE
19A STUDENT HOUSING	P4 PARKING GARAGE
19B STUDENT HOUSING	P5 PARKING GARAGE
	P6 PARKING GARAGE

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FIGURE 11LH2
FUTURE ROADWAY
CLASSIFICATION

LEGEND

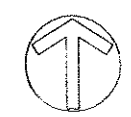
- COLLECTOR ROAD
- - - LOCAL ROAD

- | | |
|--------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERA CASA | 19C STUDENT HOUSING |
| 02 DELUXE WILSON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 MERIES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 OWA EHAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/ BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P3 PARKING GARAGE |
| 19A STUDENT HOUSING | P4 PARKING GARAGE |
| 19B STUDENT HOUSING | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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SOM ENGINEERS	CORAL GABLES, FL.
ZYSOVICH, INC.	MIAMI, FL.

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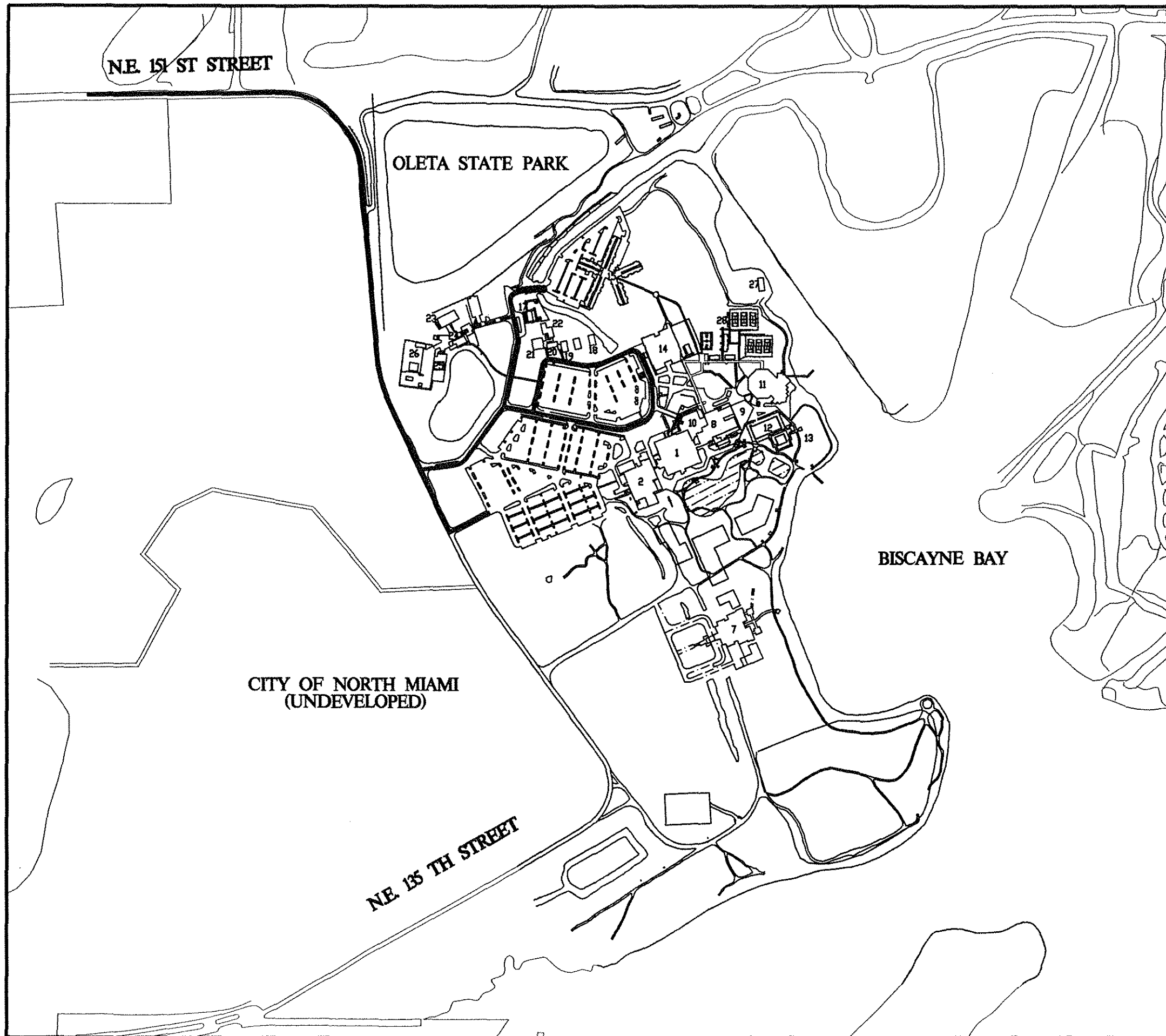




FIGURE 11LH3

EXISTING ROADWAY CLASSIFICATION

LEGEND

-  - COLLECTOR ROAD
 - LOCAL ROAD

01 HOSPITALITY MANAGEMENT	16 INFORMATION
01A AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
02 ACADEMIC ONE	18 HRS PRACTICE CENTER
02A CENTRAL UTILITIES	19 HRS CLASSROOM
03 STUDENT CENTER	20 HRS ADMINISTRATION
03A STUDENT CENTER ADDITION	21 CHILD CARE CENTER
04 ACADEMIC TWO	22 CENTRAL RECEIVING
05 LIBRARY	23 PUBLIC SAFETY
05A LIBRARY ADDITION	24 PHYSICAL PLANT
06 STUDENT HEALTH CENTER	25 GROUNDS
07 CONFERENCE CENTER	26 GYMNASIUM
08 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
09 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
10 HONORS COMPLEX	H2 HONORS HOUSING
11 PUBLIC AFFAIRS	H3 STUDENT HOUSING
12 ADMIN OFFICES	P1 PARKING GARAGE
13 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
14 NURSING BUILDING	P3 PARKING GARAGE
15 ADMIN OFFICES	

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 KENT & SCHWAB
 SEM ENGINEERS
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FIGURE 11LH4
FUTURE ROADWAY
CLASSIFICATION

LEGEND

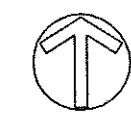
- - COLLECTOR ROAD
- - - - - LOCAL ROAD

- | | |
|------------------------------|----------------------------|
| 01 HOSPITALITY MANAGEMENT | 16 INFORMATION |
| 01A AQUATIC CENTER | 17 HOLOCAUST DOCUMENTATION |
| 02 ACADEMIC ONE | 18 HRS PRACTICE CENTER |
| 02A CENTRAL UTILITIES | 19 HRS CLASSROOM |
| 03 STUDENT CENTER | 20 HRS ADMINISTRATION |
| 03A STUDENT CENTER ADDITION | 21 CHILD CARE CENTER |
| 04 ACADEMIC TWO | 22 CENTRAL RECEIVING |
| 05 LIBRARY | 23 PUBLIC SAFETY |
| 05A LIBRARY ADDITION | 24 PHYSICAL PLANT |
| 06 STUDENT HEALTH CENTER | 25 GROUNDS |
| 07 CONFERENCE CENTER | 26 GYMNASIUM |
| 08 AUXILIARY SUPPORT COMPLEX | 27 MARINE BIOLOGY |
| 09 CLASSROOM/OFFICE BUILDING | H1 BAY VISTA HOUSING |
| 10 HONORS COMPLEX | H2 HONORS HOUSING |
| 11 PUBLIC AFFAIRS | H3 STUDENT HOUSING |
| 12 ADMIN OFFICES | P1 PARKING GARAGE |
| 13 CLASSROOM/OFFICE BUILDING | P2 PARKING GARAGE |
| 14 NURSING BUILDING | P3 PARKING GARAGE |
| 15 ADMIN OFFICES | |

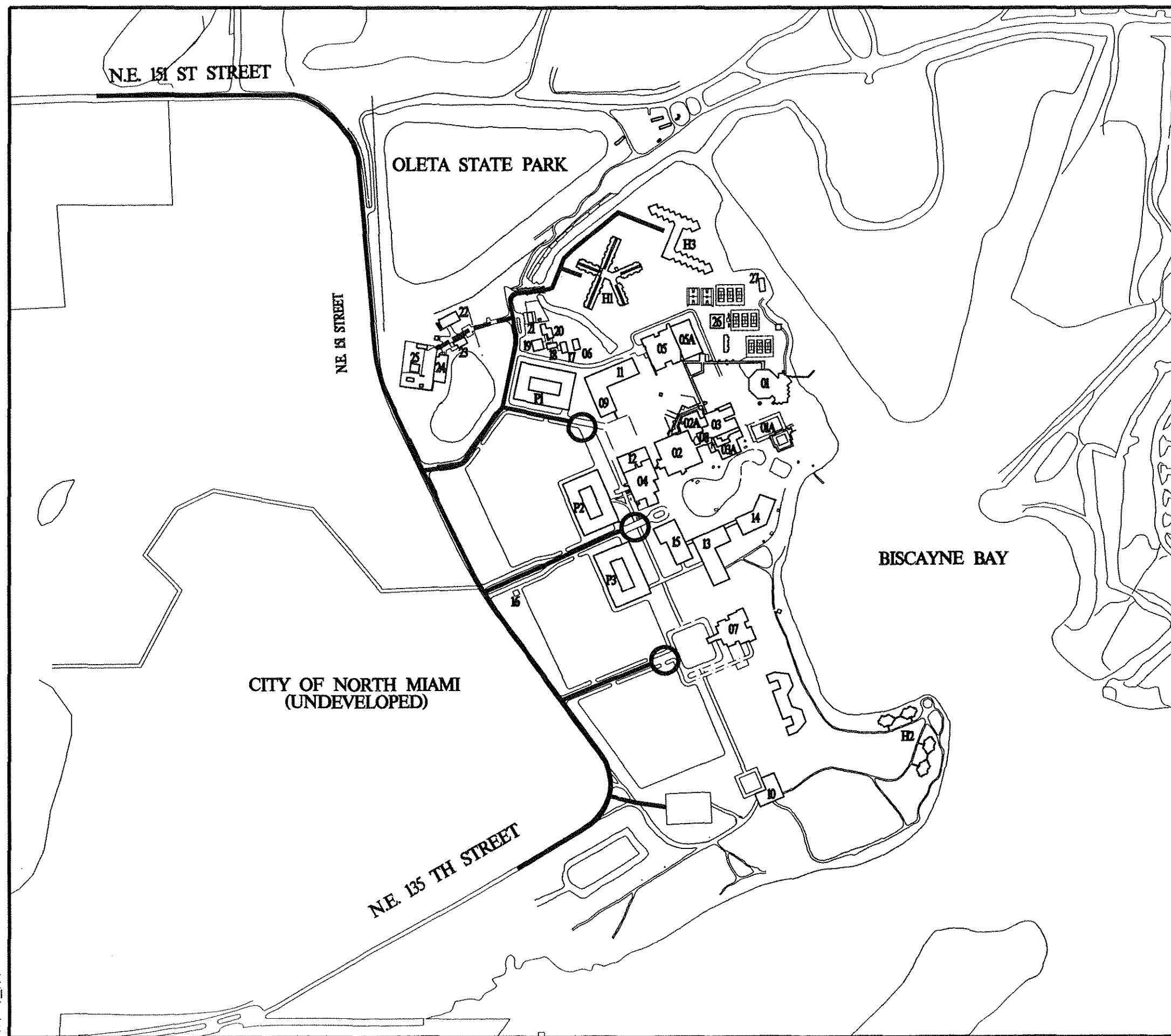
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KENTH & SCHWAB	FT. LAUDERDALE, FL
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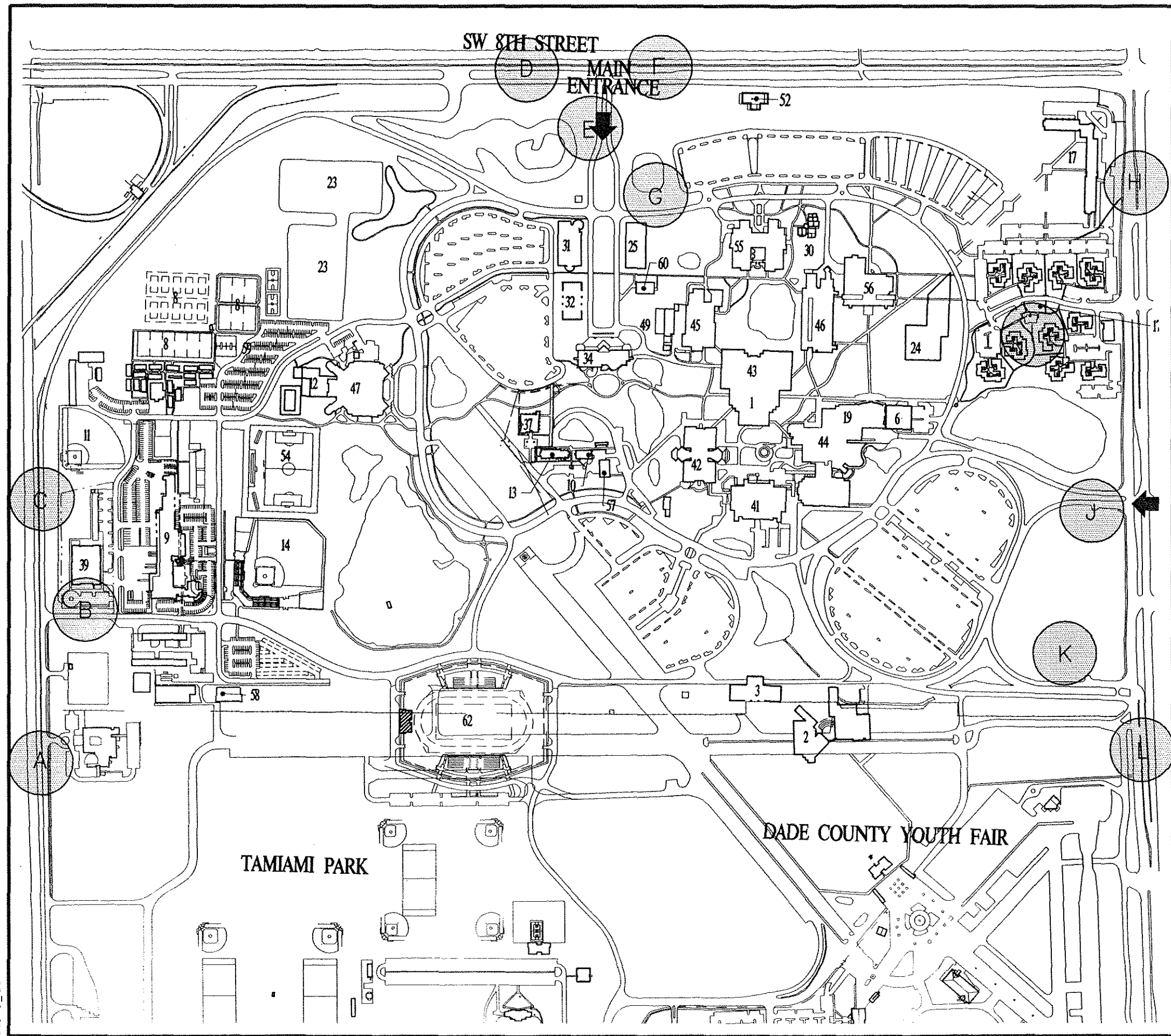


FIGURE 11LJ1

KEY MAP LEVEL OF SERVICE ANALYSIS

LEGEND

 TRAFFIC COUNT LOCATION

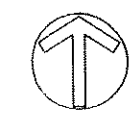
- | | |
|-------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERA CASA | 19C STUDENT HOUSING |
| 02 DEUXIEME MAISON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VIERIES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 DWA ERIAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P3 PARKING GARAGE |
| 19A STUDENT HOUSING | P4 PARKING GARAGE |
| 19B STUDENT HOUSING | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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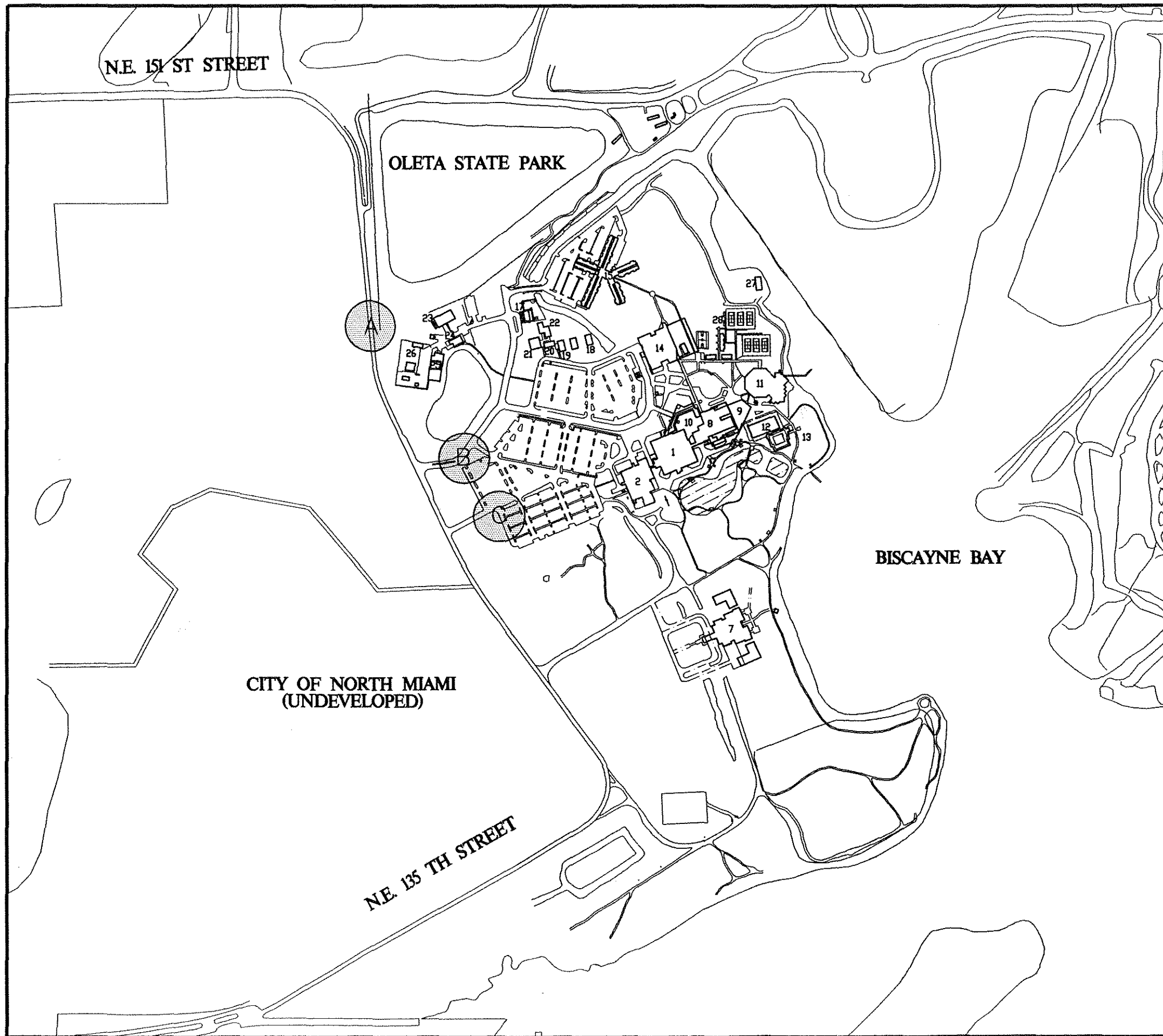
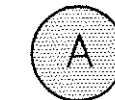


FIGURE 11LJ2

KEY MAP LEVEL OF SERVICE ANALYSIS

LEGEND



- TRAFFIC COUNT LOCATION

01 HOSPITALITY MANAGEMENT	16 INFORMATION
01A AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
02 ACADEMIC ONE	18 HRS PRACTICE CENTER
02A CENTRAL UTILITIES	19 HRS CLASSROOM
03 STUDENT CENTER	20 HRS ADMINISTRATION
03A STUDENT CENTER ADDITION	21 CHILD CARE CENTER
04 ACADEMIC TWO	22 CENTRAL RECEIVING
05 LIBRARY	23 PUBLIC SAFETY
05A LIBRARY ADDITION	24 PHYSICAL PLANT
06 STUDENT HEALTH CENTER	25 GROUNDS
07 CONFERENCE CENTER	26 GYMNASIUM
08 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
09 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
10 HONORS COMPLEX	H2 HONORS HOUSING
11 PUBLIC AFFAIRS	H3 STUDENT HOUSING
12 ADMIN OFFICES	P1 PARKING GARAGE
13 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
14 NURSING BUILDING	P3 PARKING GARAGE
15 ADMIN OFFICES	

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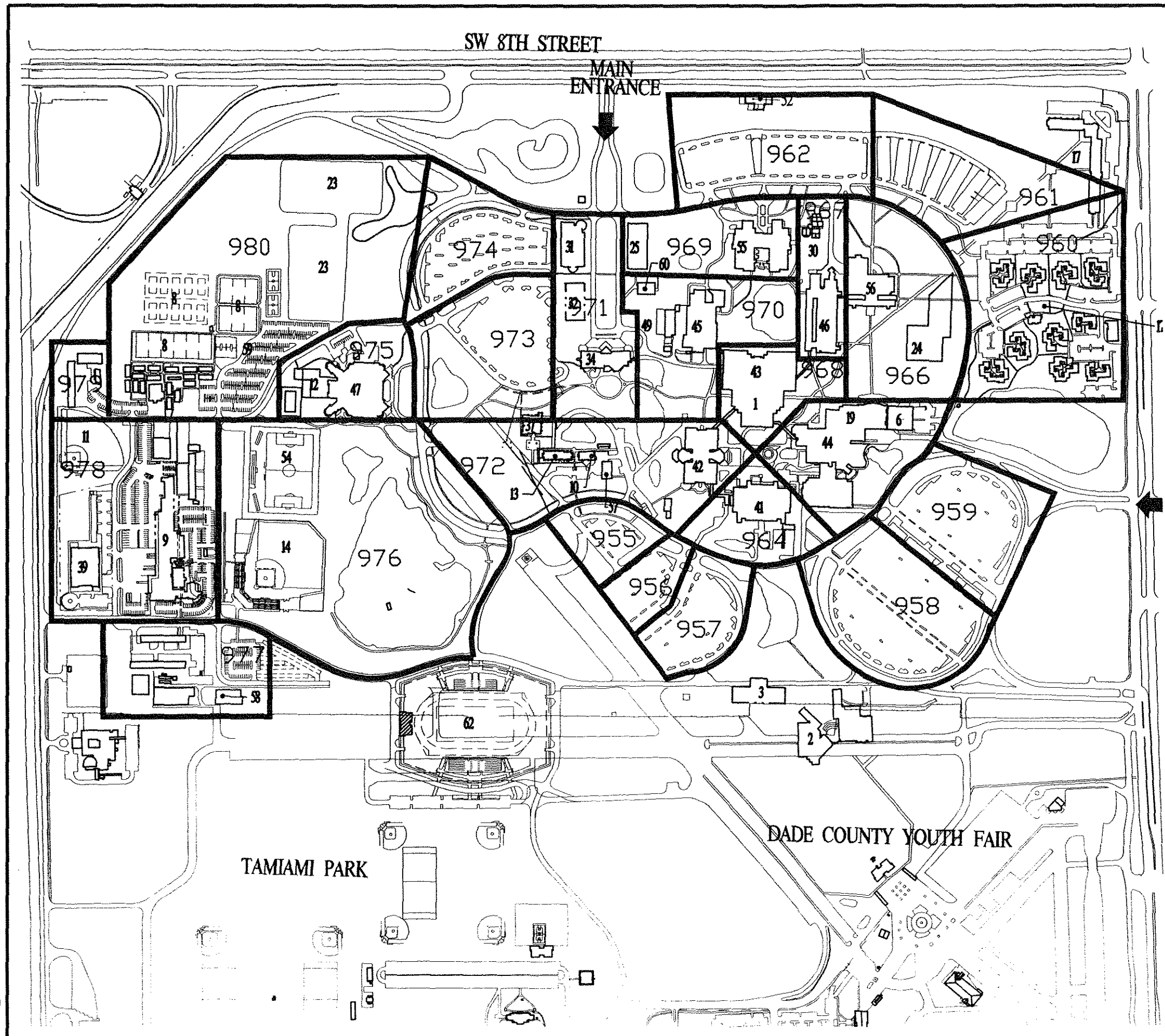


FIGURE 11.1M1

EXISTING TRAFFIC ANALYSIS ZONES

LEGEND

980 - TRAFFIC ANALYSIS ZONE

- | | |
|-------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERIA CASA | 19C STUDENT HOUSING |
| 02 DEUXIEME MASON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 OWA EHAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P3 PARKING GARAGE |
| 19A STUDENT HOUSING | P4 PARKING GARAGE |
| 19B STUDENT HOUSING | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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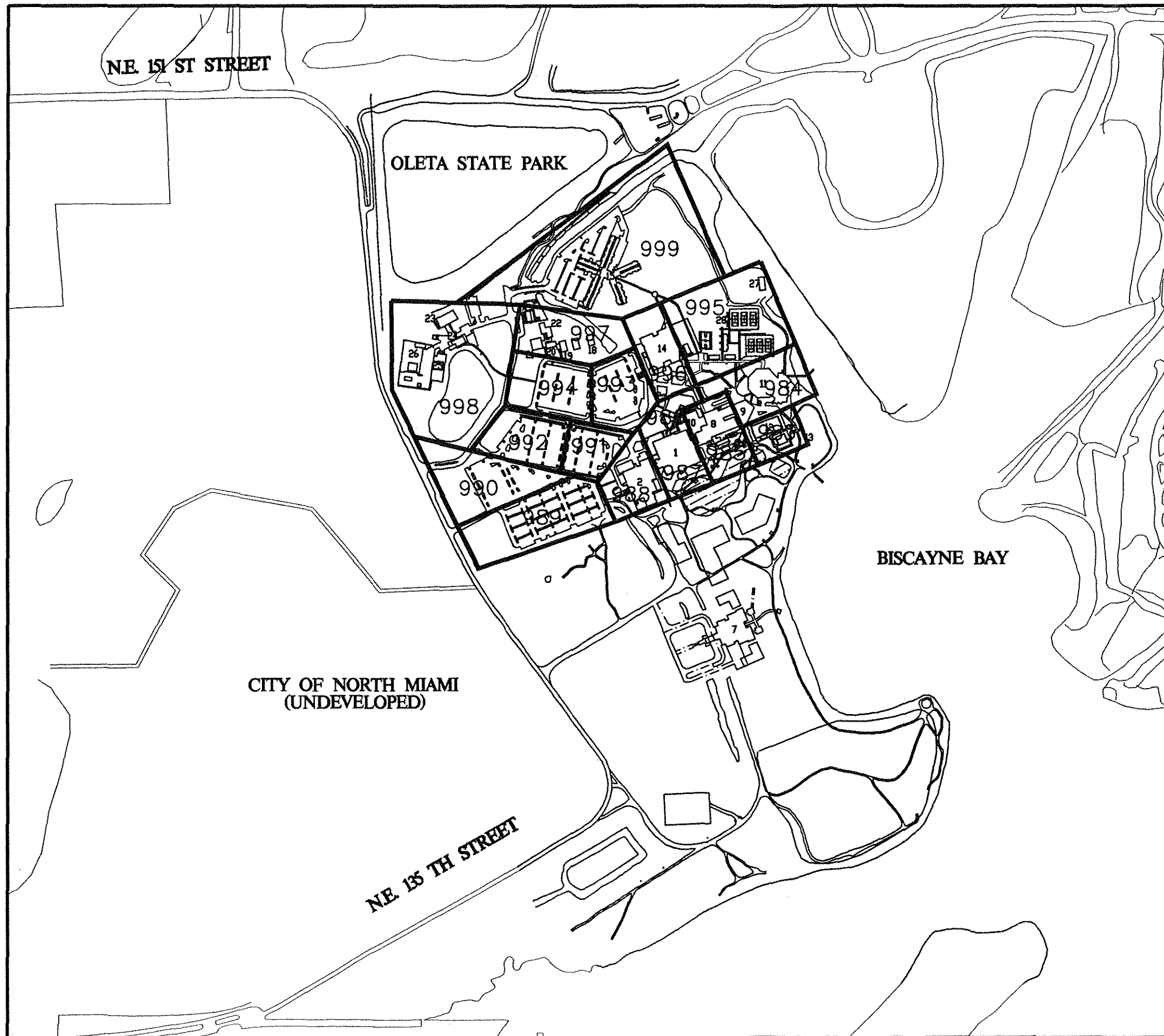


FIGURE 11.1M2

TRAFFIC ANALYSIS ZONES

LEGEND

999 - TRAFFIC ANALYSIS ZONE

01 HOSPITALITY MANAGEMENT	16 INFORMATION
02 AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
03 ACADEMIC ONE	18 HRS PRACTICE CENTER
04 ACADEMIC TWO	19 HRS CLASSROOM
05 LIBRARY	20 HRS ADMINISTRATION
06 STUDENT CENTER	21 CHILD CARE CENTER
07 STUDENT CENTER ADDITION	22 CENTRAL RECEIVING
08 ACADEMIC TWO	23 PUBLIC SAFETY
09 LIBRARY ADDITION	24 PHYSICAL PLANT
10 STUDENT HEALTH CENTER	25 GROUNDS
11 CONFERENCE CENTER	26 GYMNASIUM
12 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
13 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
14 HONORS COMPLEX	H2 HONORS HOUSING
15 PUBLIC AFFAIRS	H3 STUDENT HOUSING
16 ADMIN OFFICES	P1 PARKING GARAGE
17 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
18 NURSING BUILDING	P3 PARKING GARAGE
19 ADMIN OFFICES	

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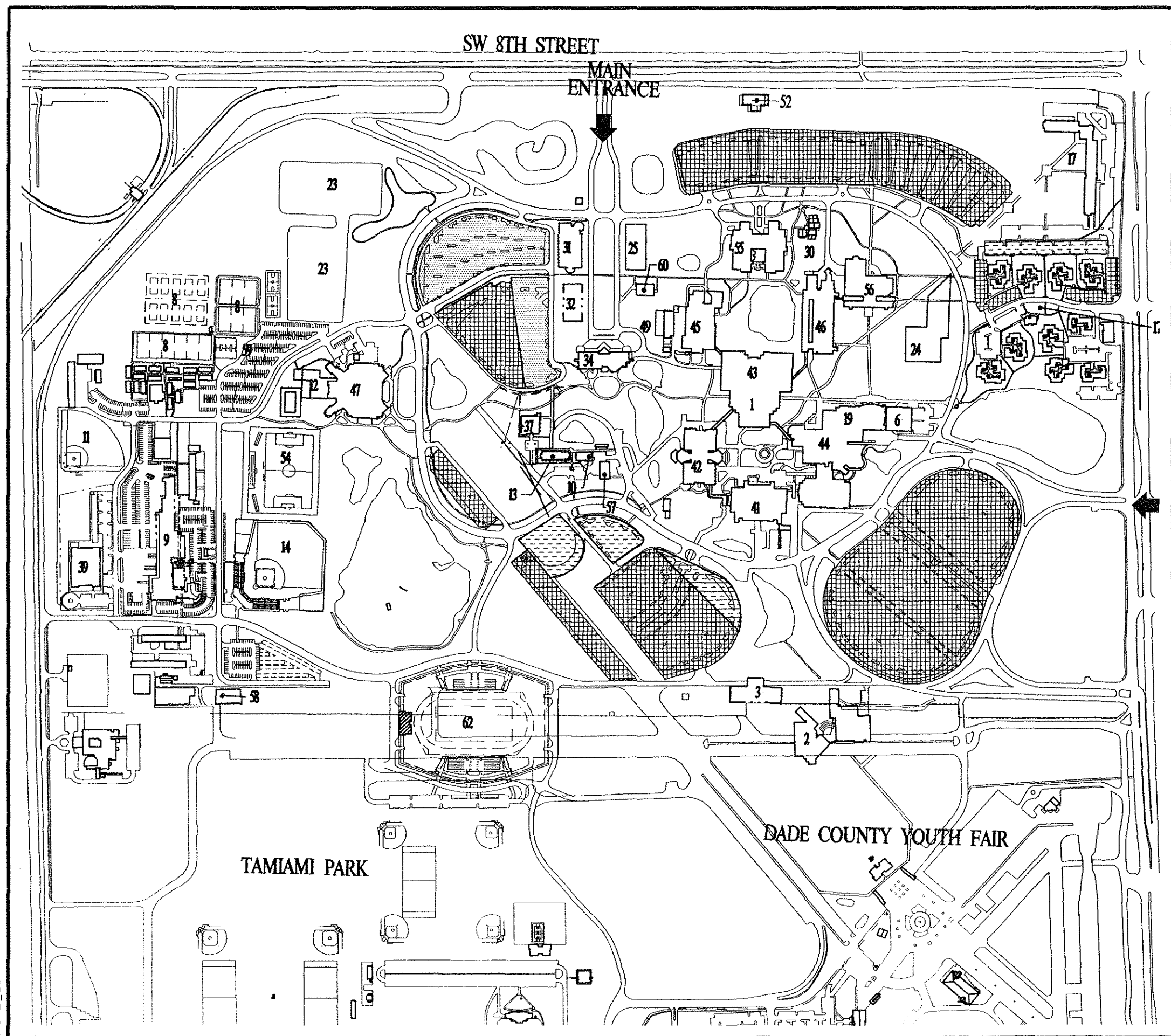
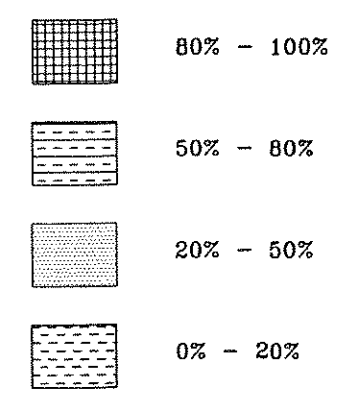


FIGURE 11.2.B1
PARKING UTILIZATION
PM PEAK HOUR

LEGEND



- | | |
|-----------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERIA CASA | 19C STUDENT HOUSING |
| 02 DELUXE MAISON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 OWA EHAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/
BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CEBAURS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P3 PARKING GARAGE |
| 19A STUDENT HOUSING | P4 PARKING GARAGE |
| 19B STUDENT HOUSING | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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SDM ENGINEERS	CORAL GABLES, FL
ZYSOVCICH, INC	MIAMI, FL

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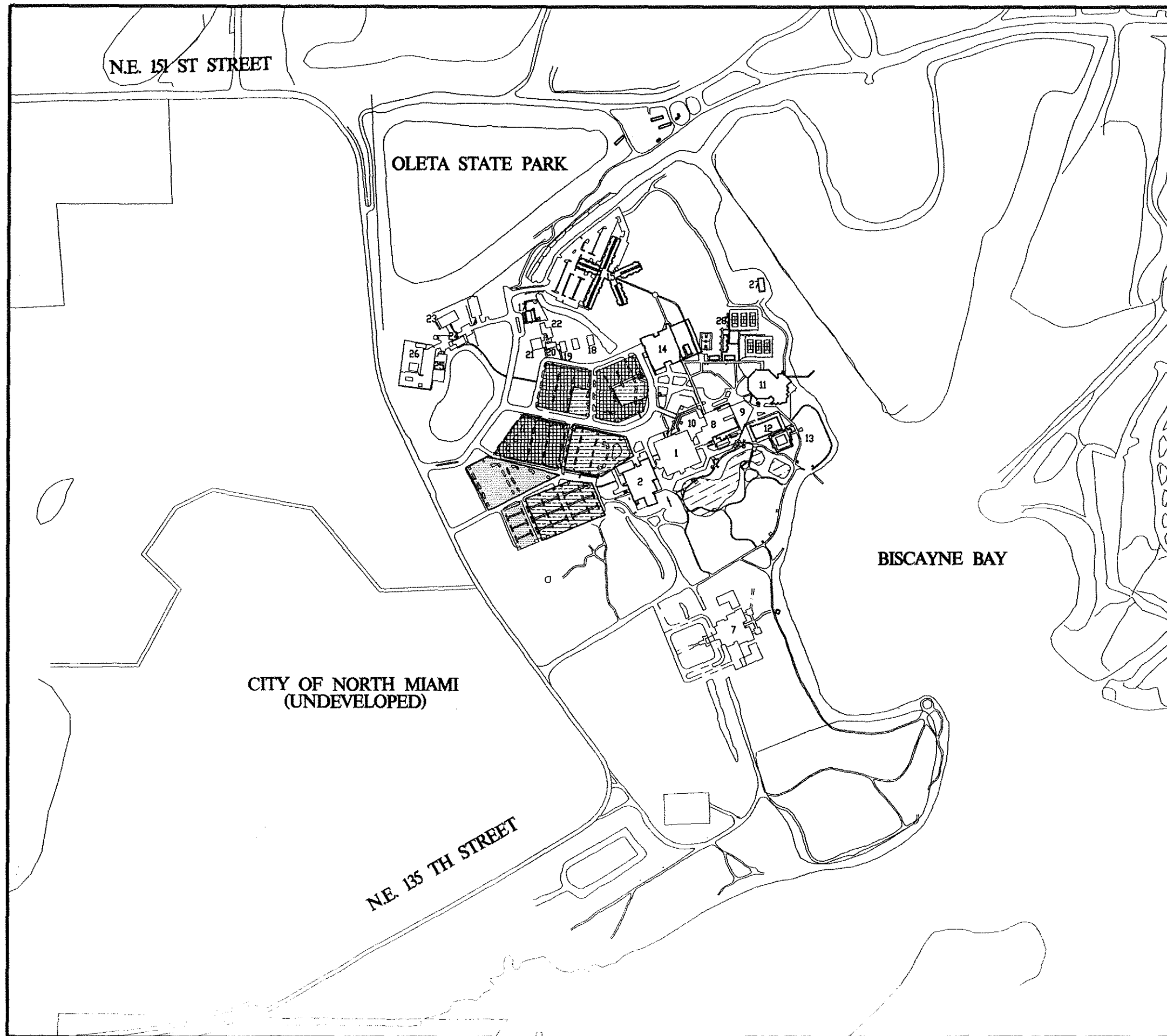
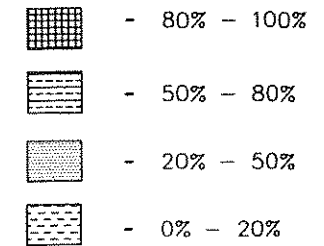


FIGURE 11.2B2

PARKING UTILIZATION PM PEAK HOUR

LEGEND



01 HOSPITALITY MANAGEMENT	16 INFORMATION
02 AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
03 ACADEMIC ONE	18 HRS PRACTICE CENTER
04 ACADEMIC TWO	19 HRS CLASSROOM
05 LIBRARY	20 HRS ADMINISTRATION
06 STUDENT HEALTH CENTER	21 CHILD CARE CENTER
07 CONFERENCE CENTER	22 CENTRAL RECEIVING
08 AUXILIARY SUPPORT COMPLEX	23 PUBLIC SAFETY
09 CLASSROOM/OFFICE BUILDING	24 PHYSICAL PLANT
10 HONORS COMPLEX	25 GROUNDS
11 PUBLIC AFFAIRS	26 GYMNASIUM
12 ADMIN OFFICES	27 MARINE BIOLOGY
13 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
14 NURSING BUILDING	H2 HONORS HOUSING
15 ADMIN OFFICES	H3 STUDENT HOUSING
	P1 PARKING GARAGE
	P2 PARKING GARAGE
	P3 PARKING GARAGE

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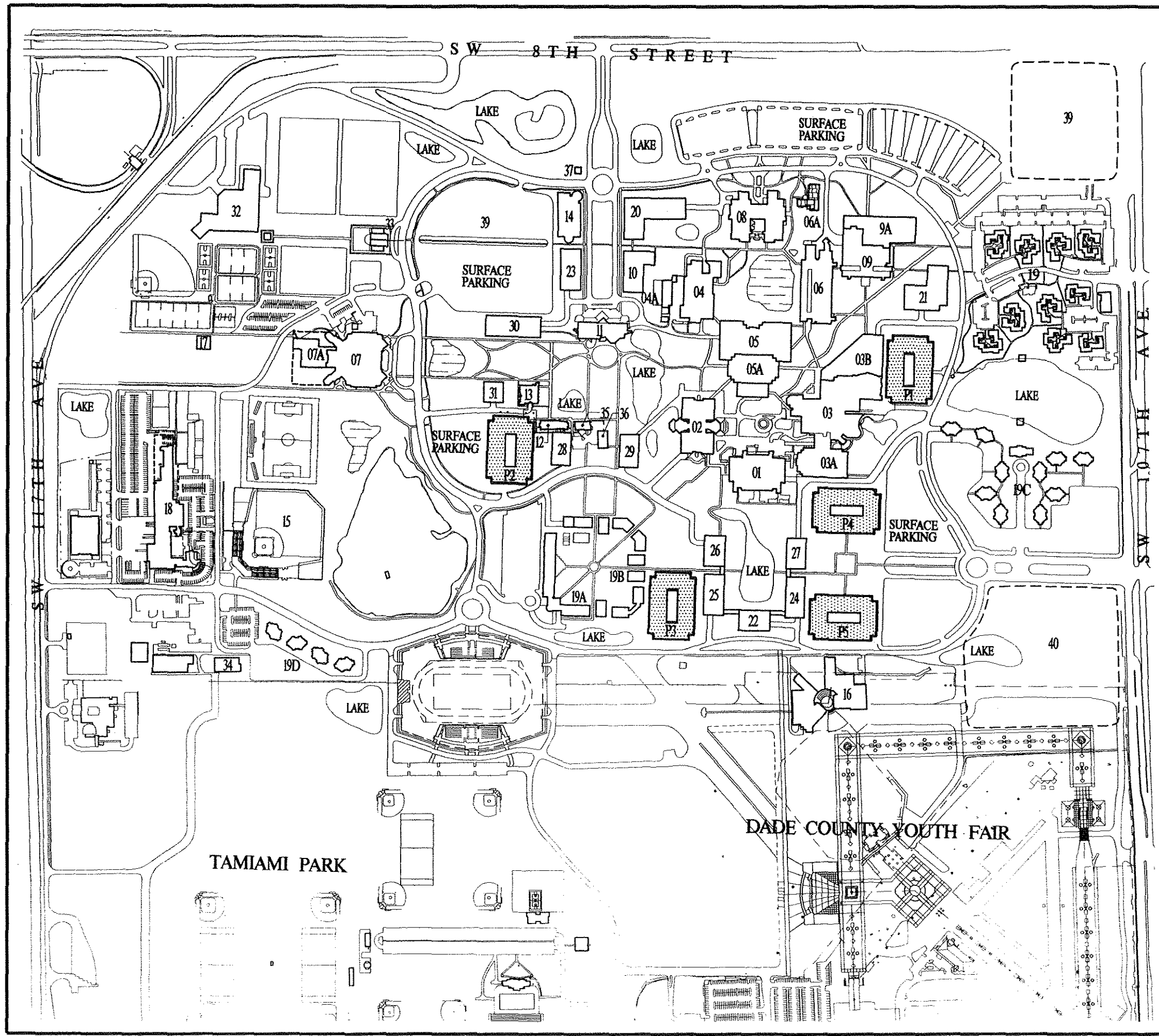


FIGURE 11.2E1

PLANNED PARKING STRUCTURES (SOURCE: FIU)

LEGEND

 PLANNED PARKING STRUCTURE

- | | |
|-------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERA CASA | 19C STUDENT HOUSING |
| 02 DEUXIEME WATSON | 20 ENGINEERING II |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 21 HEALTH & LIFE SCIENCES |
| 03A BOOKSTORE | 22 ART MUSEUM |
| 03B GRAHAM CENTER ADDITION | 23 OFFICE/CLASSROOM |
| 04 VERTES HAUS | 24 ARTS COMPLEX II |
| 04A CENTRAL UTILITIES | 25 CLASSROOMS |
| 05 ATHENAEUM | 26 SOCIAL SCIENCES |
| 05A ATHENAEUM ADDITION | 27 CLASSROOMS |
| 06 OWA ECHAN | 28 SUPPORT |
| 06A WERTHEIM CONSERVATORY/BIOLOGICAL GREENHOUSE | 29 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 30 BUSINESS/FINANCE |
| 07A ARENA ADDITION | 31 BUSINESS/TECH |
| 08 ENGINEERING & COMPUTER SCIENCE | 32 ELEMENTARY SCHOOL |
| 09 CHEMISTRY & PHYSICS | 33 PRESIDENTS HOUSE |
| 09A MOLECULAR BIOLOGY | 34 CERAMICS |
| 10 UNIVERSITY COMPUTER SERVICES | 35 PUBLIC SAFETY |
| 11 BUSINESS ADMINISTRATION | 36 DUPLICATING CENTER |
| 12 STUDENT HEALTH & WELLNESS CENTER | 37 INFORMATION CENTER |
| 13 LABOR CENTER | 38 TAMAMI STADIUM |
| 14 EDUCATION BUILDING | 39 LAND BANK |
| 15 BASEBALL STADIUM | 40 JOINT USE LAND BANK |
| 16 ARTS COMPLEX I | P1 PARKING GARAGE |
| 17 CHILD CARE CENTER | P2 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P3 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P4 PARKING GARAGE |
| 19A STUDENT HOUSING | P5 PARKING GARAGE |
| 19B STUDENT HOUSING | P6 PARKING GARAGE |

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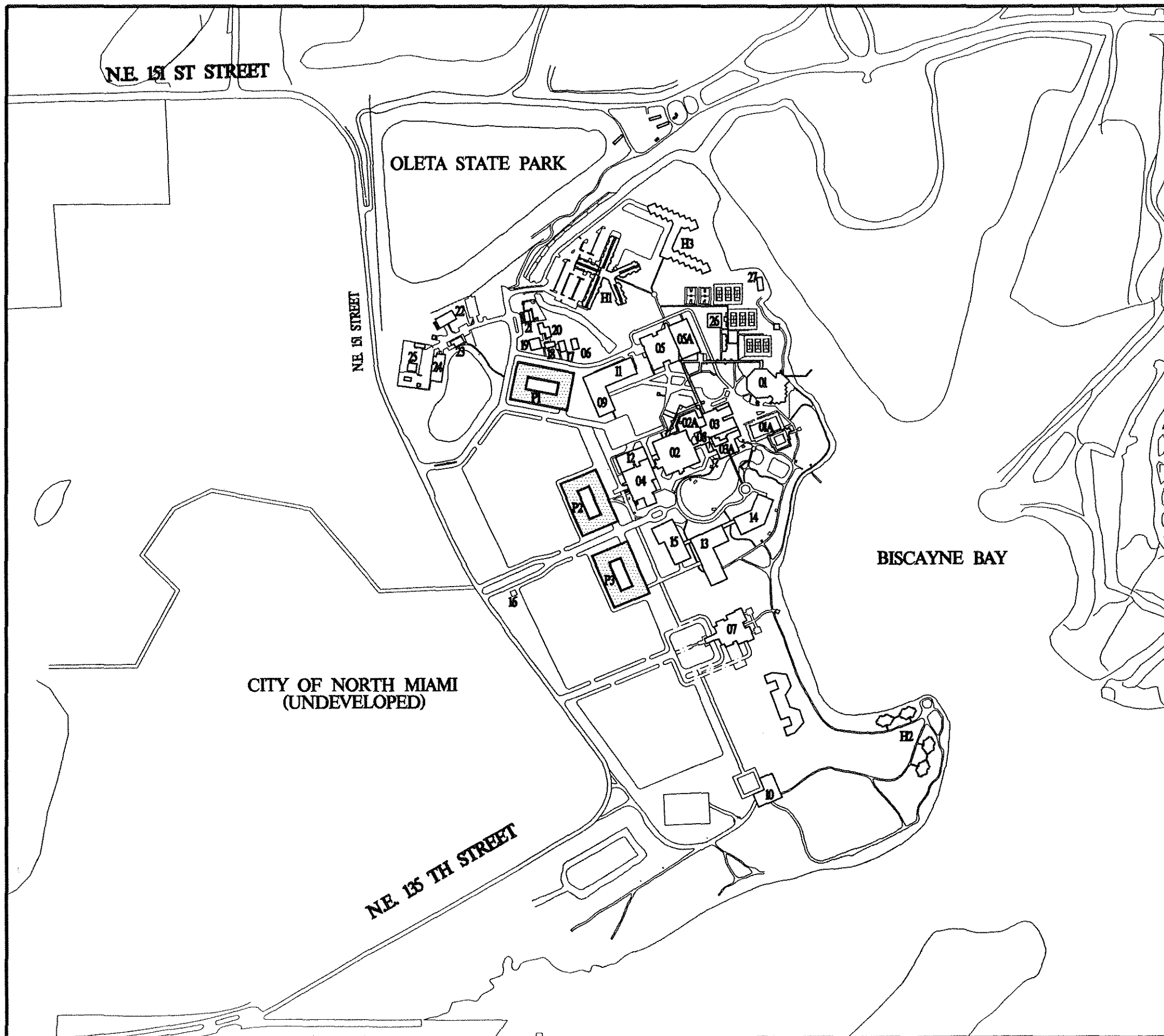


FIGURE 11.2E2
PLANNED PARKING
STRUCTURES
(SOURCE: FIU)

LEGEND



- | | |
|------------------------------|----------------------------|
| 01 HOSPITALITY MANAGEMENT | 16 INFORMATION |
| 01A AQUATIC CENTER | 17 HOLOCAUST DOCUMENTATION |
| 02 ACADEMIC ONE | 18 HRS PRACTICE CENTER |
| 02A CENTRAL UTILITIES | 19 HRS CLASSROOM |
| 03 STUDENT CENTER | 20 HRS ADMINISTRATION |
| 03A STUDENT CENTER ADDITION | 21 CHILD CARE CENTER |
| 04 ACADEMIC TWO | 22 CENTRAL RECEIVING |
| 05 LIBRARY | 23 PUBLIC SAFETY |
| 05A LIBRARY ADDITION | 24 PHYSICAL PLANT |
| 06 STUDENT HEALTH CENTER | 25 GROUNDS |
| 07 CONFERENCE CENTER | 26 GYMNASIUM |
| 08 AUXILIARY SUPPORT COMPLEX | 27 MARINE BIOLOGY |
| 09 CLASSROOM/OFFICE BUILDING | H1 BAY VISTA HOUSING |
| 10 HONORS COMPLEX | H2 HONORS HOUSING |
| 11 PUBLIC AFFAIRS | H3 STUDENT HOUSING |
| 12 ADMIN OFFICES | P1 PARKING GARAGE |
| 13 CLASSROOM/OFFICE BUILDING | P2 PARKING GARAGE |
| 14 NURSING BUILDING | P3 PARKING GARAGE |
| 15 ADMIN OFFICES | |

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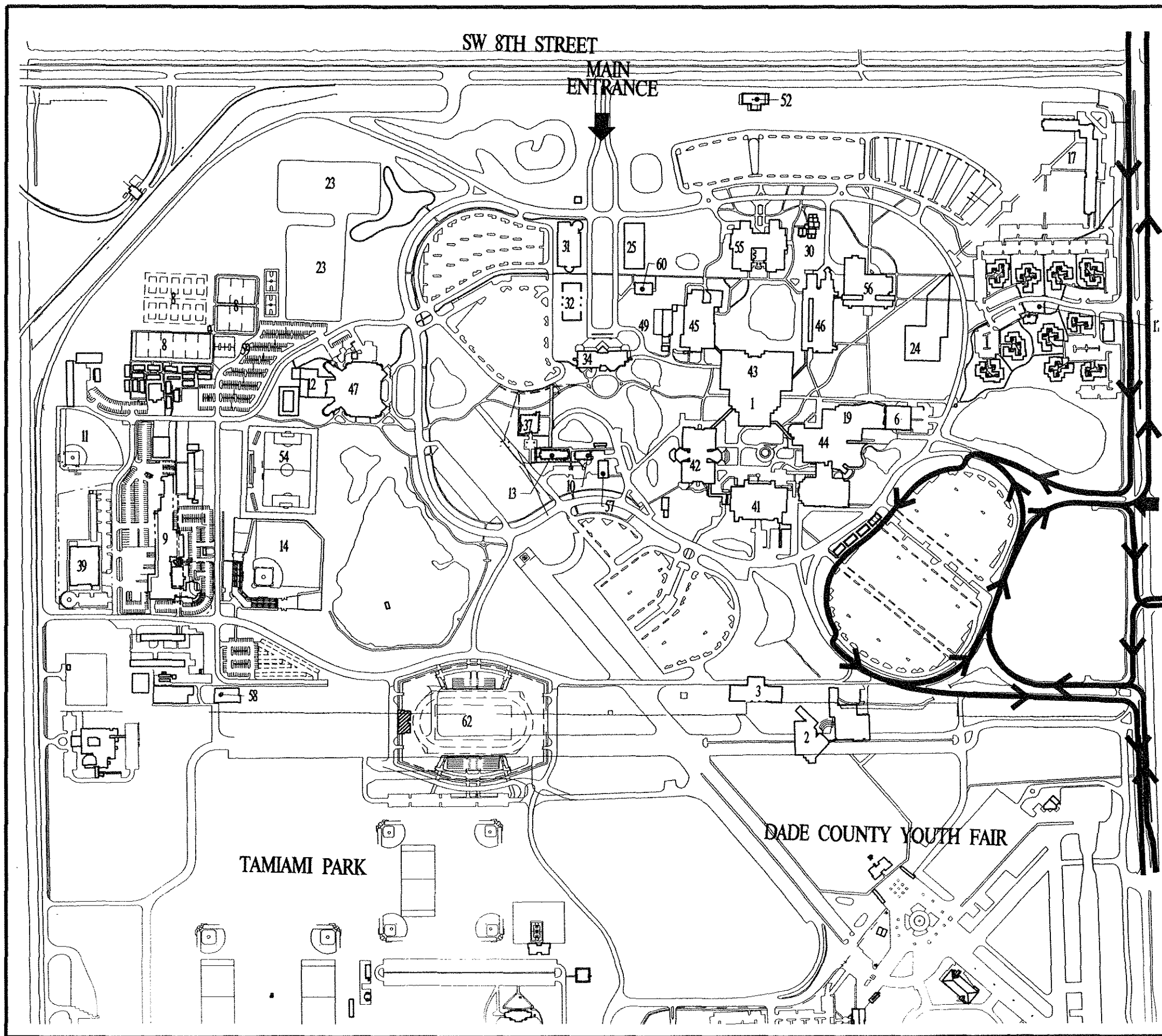
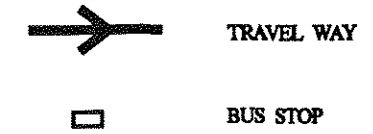


FIGURE 1L2N1

EXISTING METROBUS ROUTES

LEGEND



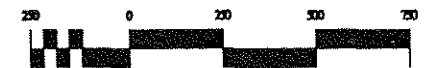
- | | |
|-------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERA CASA | 19C STUDENT HOUSING |
| 02 DEUKEME MASON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 OWA EHAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMIAH STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P3 PARKING GARAGE |
| 19A STUDENT HOUSING | P4 PARKING GARAGE |
| 19B STUDENT HOUSING | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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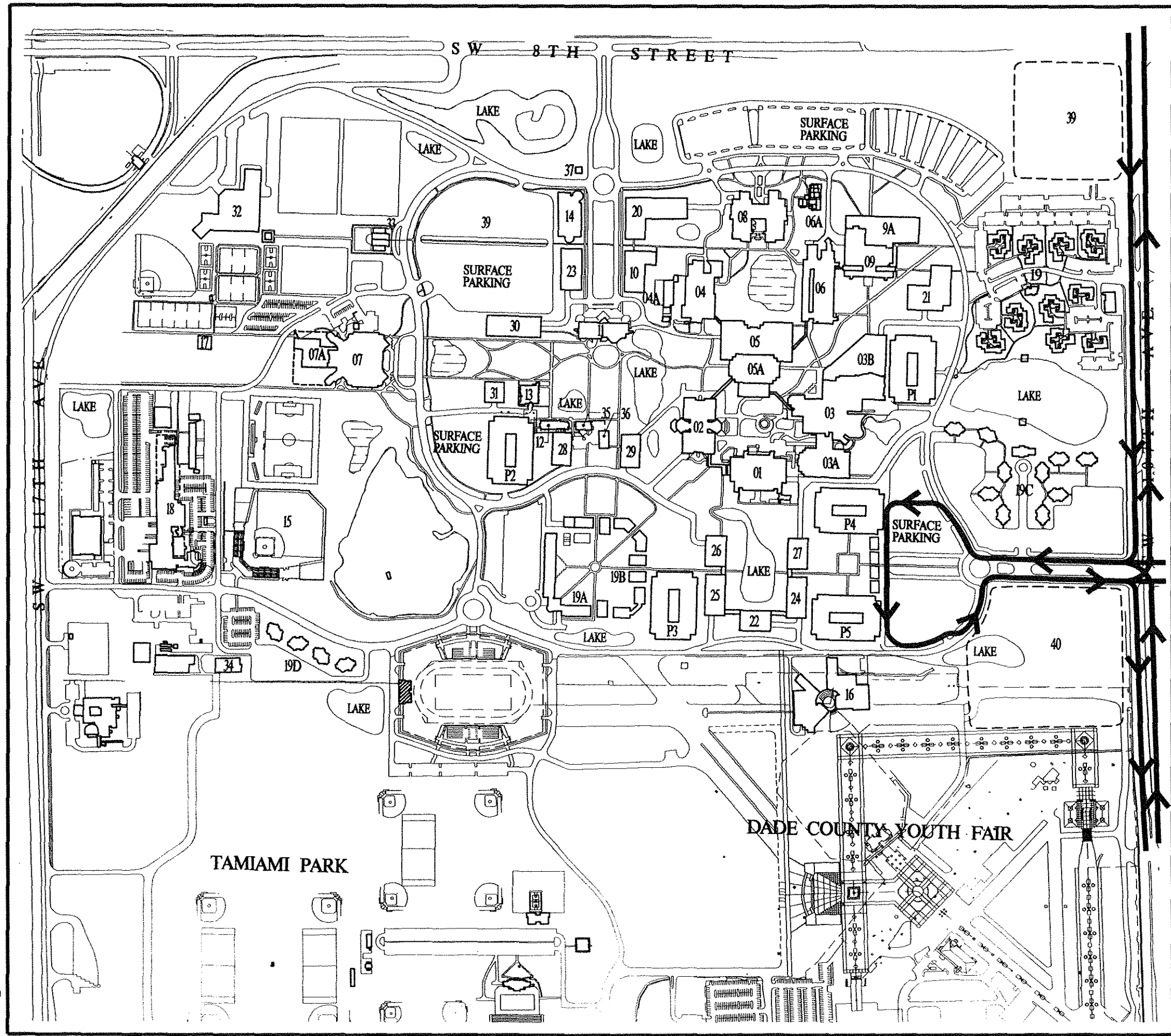


FIGURE 11.2N2

FUTURE METROBUS ROUTES

LEGEND

- ➔ TRAVEL WAY
- BUS STOP

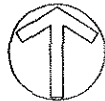
- | | |
|-------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERA CASA | 19C STUDENT HOUSING |
| 02 DEUXIEME MAISON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 DWA EHAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19A STUDENT HOUSING | P3 PARKING GARAGE |
| 19B STUDENT HOUSING | P4 PARKING GARAGE |
| 19C STUDENT HOUSING | P5 PARKING GARAGE |
| 19D STUDENT HOUSING | P6 PARKING GARAGE |

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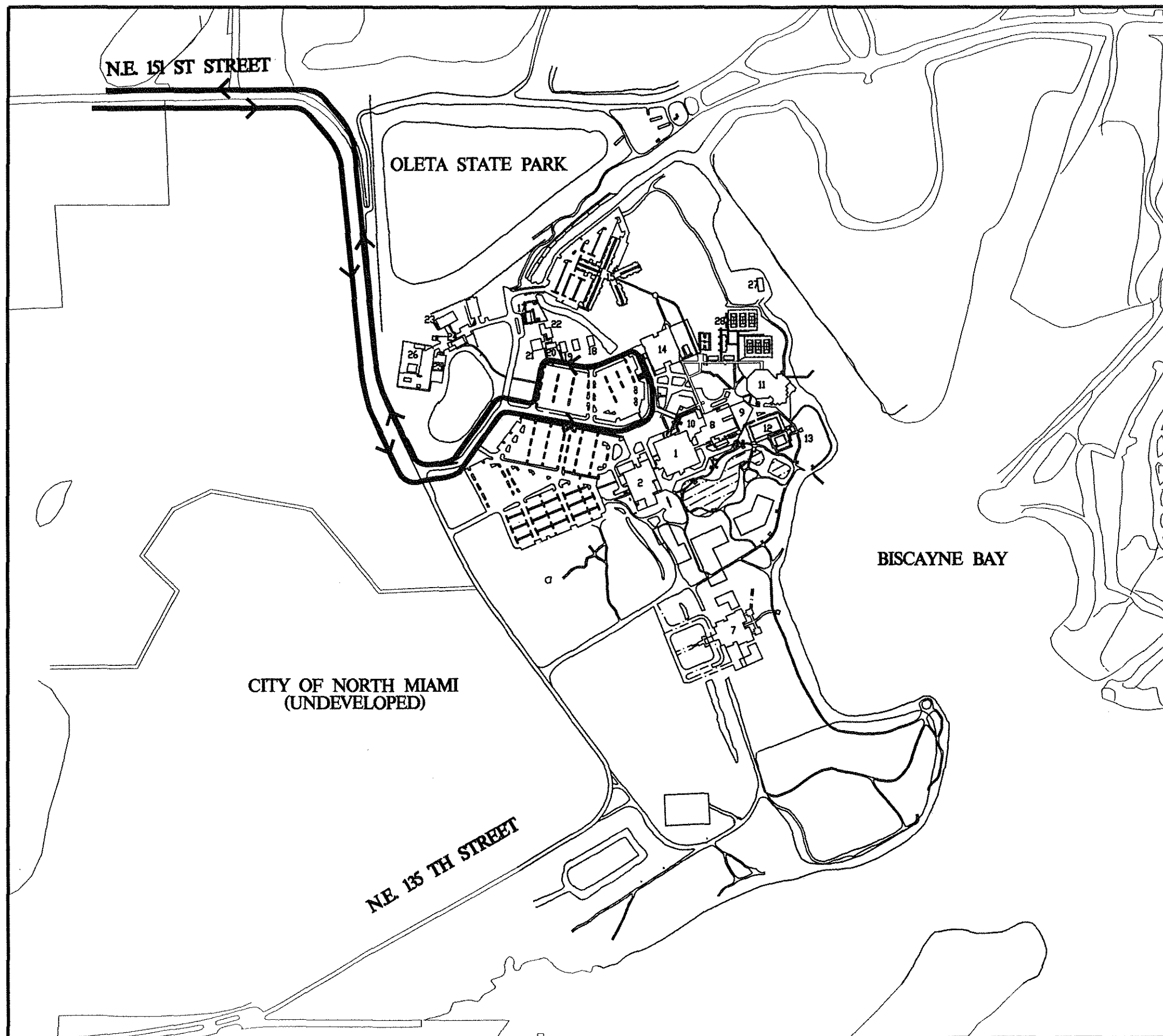




FIGURE 11.2N3

EXISTING METROBUS ROUTES

LEGEND

-  - TRAVEL WAY
 - BUS STOP

01 HOSPITALITY MANAGEMENT	16 INFORMATION
01A AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
02 ACADEMIC ONE	18 HRS PRACTICE CENTER
02A CENTRAL UTILITIES	19 HRS CLASSROOM
03 STUDENT CENTER	20 HRS ADMINISTRATION
03A STUDENT CENTER ADDITION	21 CHILD CARE CENTER
04 ACADEMIC TWO	22 CENTRAL RECEIVING
05 LIBRARY	23 PUBLIC SAFETY
05A LIBRARY ADDITION	24 PHYSICAL PLANT
06 STUDENT HEALTH CENTER	25 GROUNDS
07 CONFERENCE CENTER	26 GYMNASIUM
08 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
09 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
10 HONORS COMPLEX	H2 HONORS HOUSING
11 PUBLIC AFFAIRS	H3 STUDENT HOUSING
12 ADMIN OFFICES	P1 PARKING GARAGE
13 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
14 NURSING BUILDING	P3 PARKING GARAGE
15 ADMIN OFFICES	

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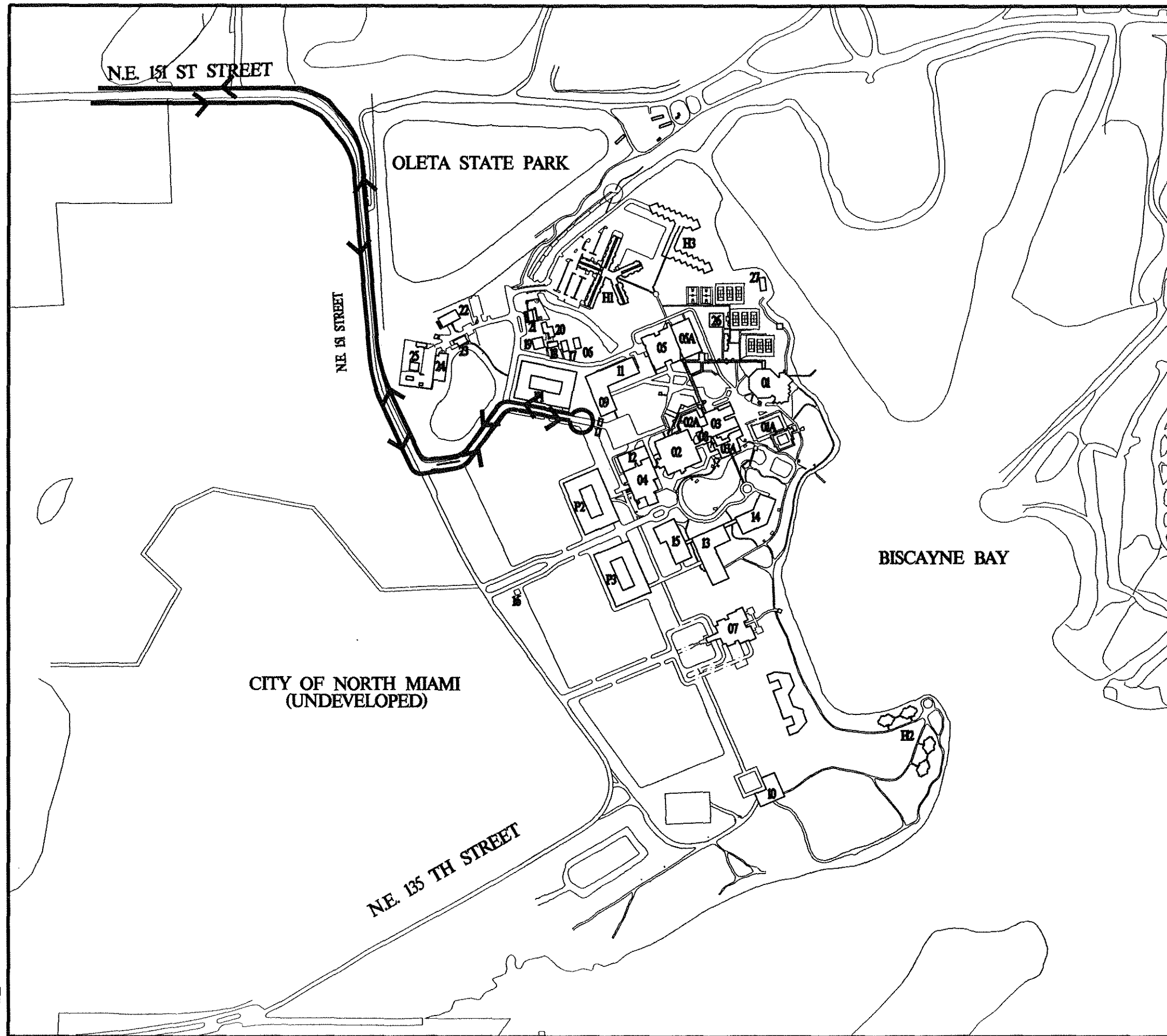




FIGURE 11.2N4

FUTURE METROBUS ROUTES

LEGEND

-  - TRAVEL WAY
-  - BUS STOP

01 HOSPITALITY MANAGEMENT	16 INFORMATION
01A AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
02 ACADEMIC ONE	18 HRS PRACTICE CENTER
02A CENTRAL UTILITIES	19 HRS CLASSROOM
03 STUDENT CENTER	20 HRS ADMINISTRATION
03A STUDENT CENTER ADDITION	21 CHILD CARE CENTER
04 ACADEMIC TWO	22 CENTRAL RECEIVING
05 LIBRARY	23 PUBLIC SAFETY
05A LIBRARY ADDITION	24 PHYSICAL PLANT
06 STUDENT HEALTH CENTER	25 GYMNASIUM
07 CONFERENCE CENTER	26 GYMNASIUM
08 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
09 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
10 HONORS COMPLEX	H2 HONORS HOUSING
11 PUBLIC AFFAIRS	H3 STUDENT HOUSING
12 ADMIN OFFICES	P1 PARKING GARAGE
13 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
14 NURSING BUILDING	P3 PARKING GARAGE
15 ADMIN OFFICES	

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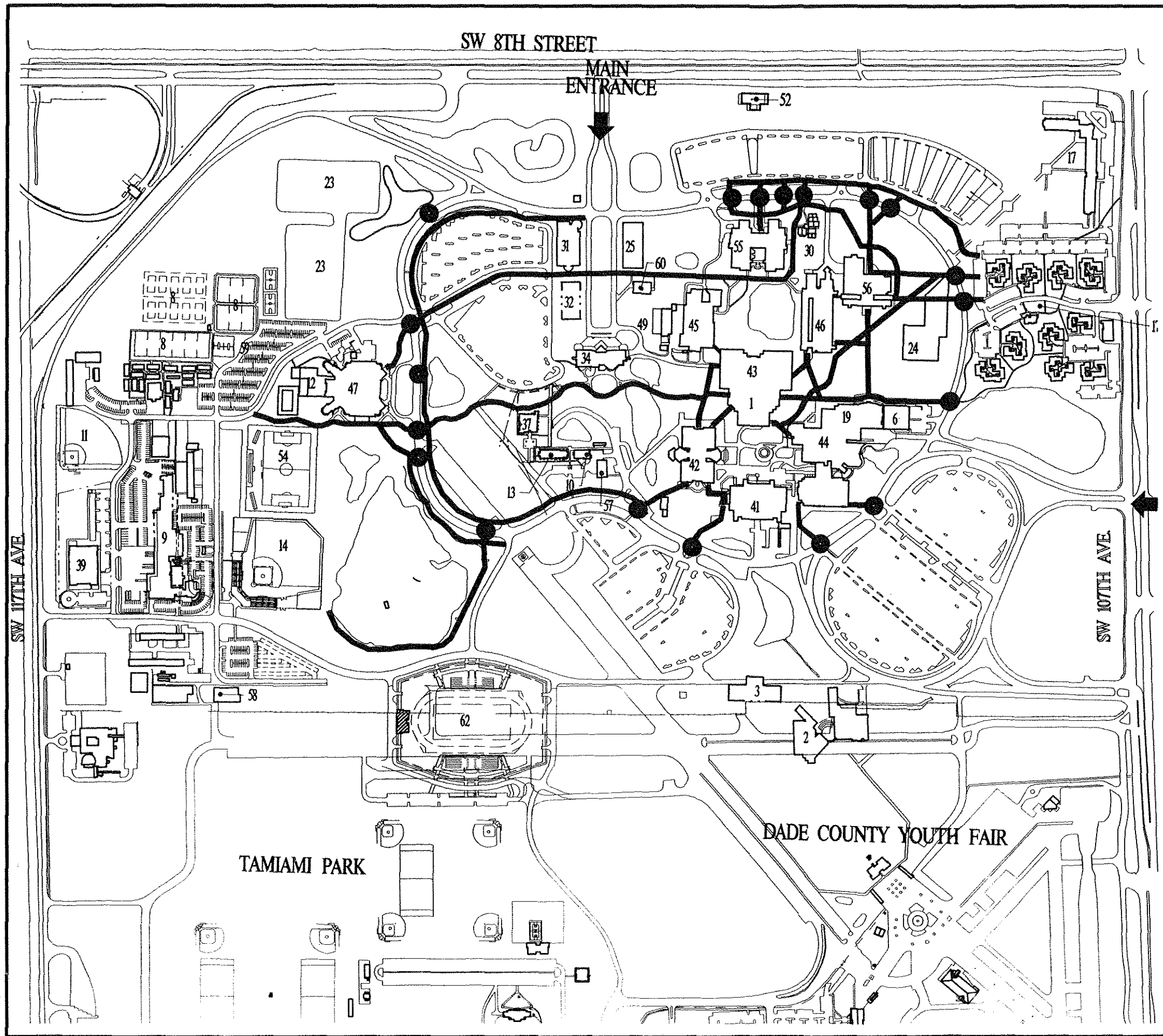


FIGURE 11.3A1

EXISTING NON-VEHICULAR CIRCULATION

LEGEND

- WALKWAYS
- CROSSWALKS

- | | |
|-----------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERA CASA | 19C STUDENT HOUSING |
| 02 DEUXIEME MAISON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 DWA E-HAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/
BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19 EXISTING RESIDENCE FACILITIES | P3 PARKING GARAGE |
| 19A STUDENT HOUSING | P4 PARKING GARAGE |
| 19B STUDENT HOUSING | P5 PARKING GARAGE |
| | P6 PARKING GARAGE |

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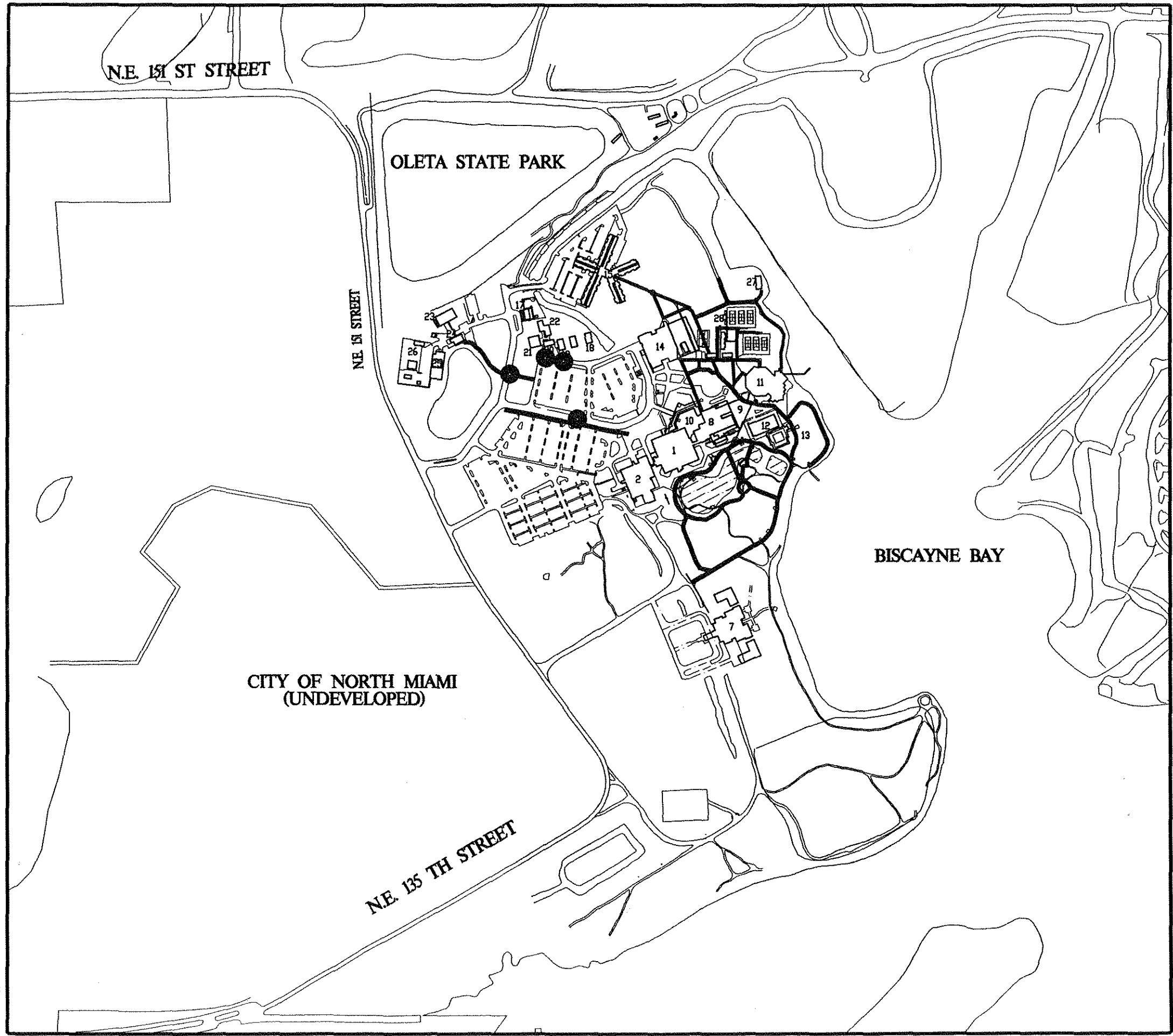


FIGURE 11.3A2
**EXISTING
NON-VEHICULAR
CIRCULATION**

LEGEND

- WALKWAYS
- CROSSWALKS

01 HOSPITALITY MANAGEMENT	16 INFORMATION
01A AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
02 ACADEMIC ONE	18 HRS PRACTICE CENTER
02A CENTRAL UTILITIES	19 HRS CLASSROOM
03 STUDENT CENTER	20 HRS ADMINISTRATION
03A STUDENT CENTER ADDITION	21 CHILD CARE CENTER
04 ACADEMIC TWO	22 CENTRAL RECEIVING
05 LIBRARY	23 PUBLIC SAFETY
05A LIBRARY ADDITION	24 PHYSICAL PLANT
06 STUDENT HEALTH CENTER	25 GROUNDS
07 CONFERENCE CENTER	26 GYMNASIUM
08 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
09 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
10 HONORS COMPLEX	H2 HONORS HOUSING
11 PUBLIC AFFAIRS	H3 STUDENT HOUSING
12 ADMIN OFFICES	P1 PARKING GARAGE
13 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
14 NURSING BUILDING	P3 PARKING GARAGE
15 ADMIN OFFICES	

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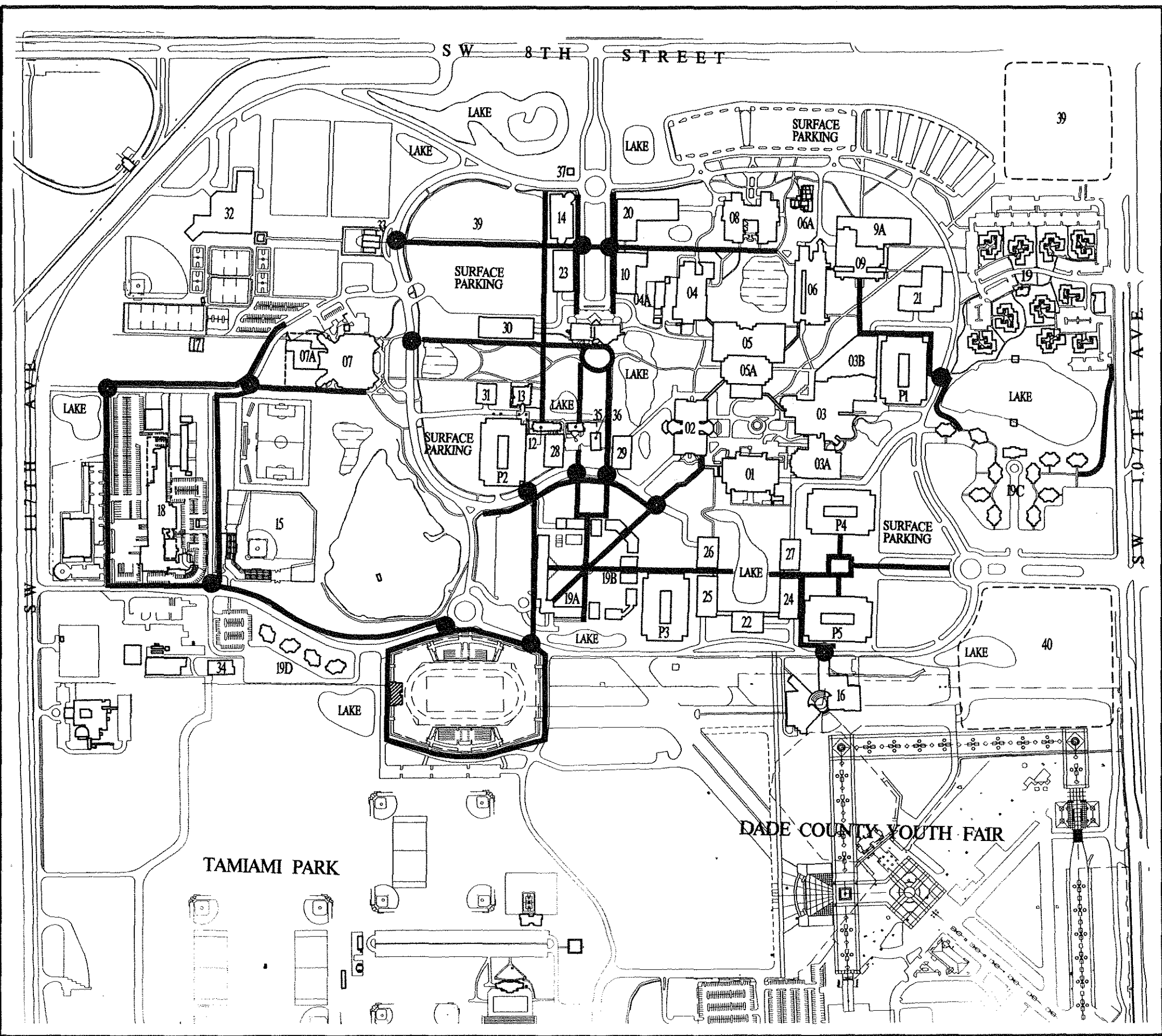


FIGURE 11.3.B1

PLANNED WALKWAYS CIRCULATION

LEGEND

- PLANNED WALKWAYS
- CROSSWALKS

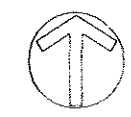
- | | |
|-------------------------------------------------|---------------------------|
| 01 CHARLES E. PERRY PRIMERIA CASA | 19C STUDENT HOUSING |
| 02 DEUXIEME MAISON | 19D STUDENT HOUSING |
| 03 ERNEST R. GRAHAM UNIVERSITY CENTER | 20 ENGINEERING II |
| 03A BOOKSTORE | 21 HEALTH & LIFE SCIENCES |
| 03B GRAHAM CENTER ADDITION | 22 ART MUSEUM |
| 04 VERTES HAUS | 23 OFFICE/CLASSROOM |
| 04A CENTRAL UTILITIES | 24 ARTS COMPLEX II |
| 05 ATHENAEUM | 25 CLASSROOMS |
| 05A ATHENAEUM ADDITION | 26 SOCIAL SCIENCES |
| 06 OWA EHAN | 27 CLASSROOMS |
| 06A WERTHEIM CONSERVATORY/BIOLOGICAL GREENHOUSE | 28 SUPPORT |
| 07 GOLDEN PANTHER ARENA | 29 SUPPORT |
| 07A ARENA ADDITION | 30 BUSINESS/FINANCE |
| 08 ENGINEERING & COMPUTER SCIENCE | 31 BUSINESS/TECH |
| 09 CHEMISTRY & PHYSICS | 32 ELEMENTARY SCHOOL |
| 09A MOLECULAR BIOLOGY | 33 PRESIDENTS HOUSE |
| 10 UNIVERSITY COMPUTER SERVICES | 34 CERAMICS |
| 11 BUSINESS ADMINISTRATION | 35 PUBLIC SAFETY |
| 12 STUDENT HEALTH & WELLNESS CENTER | 36 DUPLICATING CENTER |
| 13 LABOR CENTER | 37 INFORMATION CENTER |
| 14 EDUCATION BUILDING | 38 TAMAMI STADIUM |
| 15 BASEBALL STADIUM | 39 LAND BANK |
| 16 ARTS COMPLEX I | 40 JOINT USE LAND BANK |
| 17 CHILD CARE CENTER | P1 PARKING GARAGE |
| 18 CAMPUS SUPPORT COMPLEX | P2 PARKING GARAGE |
| 19A STUDENT HOUSING | P3 PARKING GARAGE |
| 19B STUDENT HOUSING | P4 PARKING GARAGE |
| 19C STUDENT HOUSING | P5 PARKING GARAGE |
| 19D STUDENT HOUSING | P6 PARKING GARAGE |

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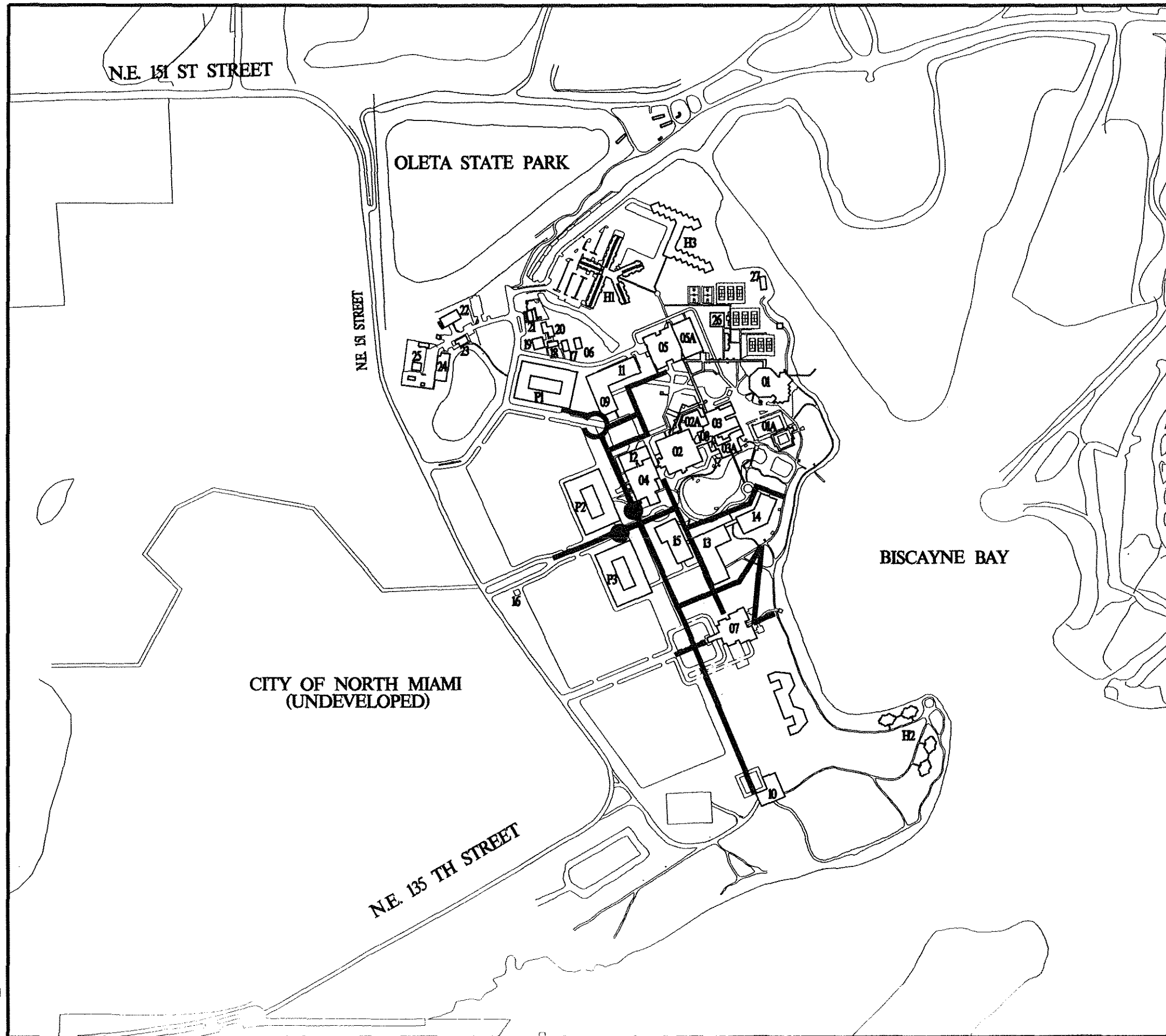




FIGURE 11.3.B2

PLANNED WALKWAYS

LEGEND

-  - PLANNED WALKWAY
-  - CROSSWALK

01 HOSPITALITY MANAGEMENT	16 INFORMATION
02 AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
03 ACADEMIC ONE	18 HRS PRACTICE CENTER
04 ACADEMIC TWO	19 HRS CLASSROOM
05 LIBRARY	20 HRS ADMINISTRATION
06 STUDENT HEALTH CENTER	21 CHILD CARE CENTER
07 CONFERENCE CENTER	22 CENTRAL RECEIVING
08 AUXILIARY SUPPORT COMPLEX	23 PUBLIC SAFETY
09 CLASSROOM/OFFICE BUILDING	24 PHYSICAL PLANT
10 HONORS COMPLEX	25 GYMNASIUM
11 PUBLIC AFFAIRS	26 MARINE BIOLOGY
12 ADMIN OFFICES	27 BAY VISTA HOUSING
13 CLASSROOM/OFFICE BUILDING	H2 HONORS HOUSING
14 NURSING BUILDING	H3 STUDENT HOUSING
15 ADMIN OFFICES	P1 PARKING GARAGE
	P2 PARKING GARAGE
	P3 PARKING GARAGE

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SW 10TH AVE.

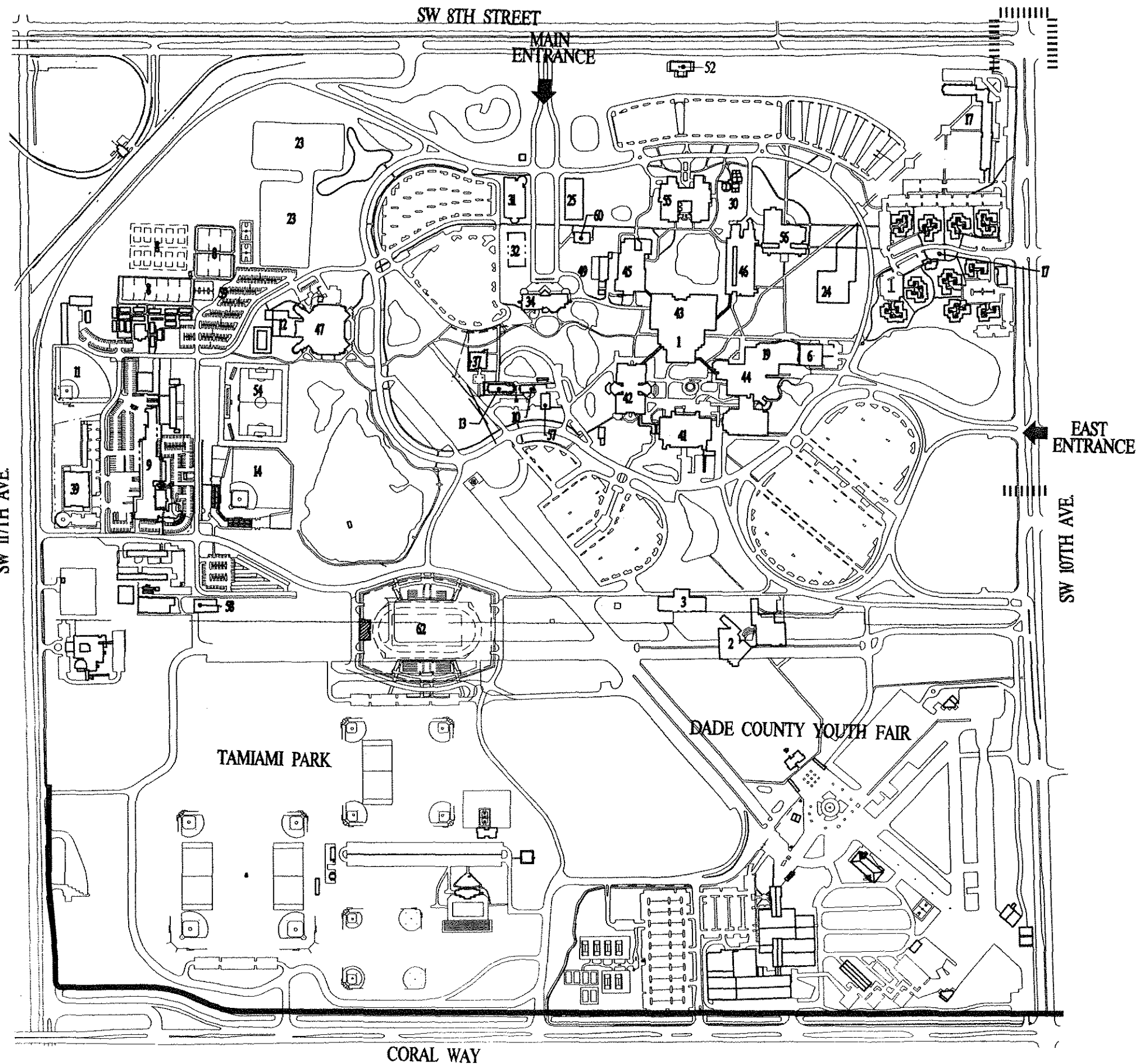


FIGURE 11.3.C1

EXISTING NON-VEHICULAR FACILITIES

LEGEND

BIKEWAYS

CROSSWALKS

01 CHARLES E. PERRY PRIMERIA CASA	19C STUDENT HOUSING
02 DEURHEME MASON	19D STUDENT HOUSING
03 ERNEST R. GRAHAM UNIVERSITY CENTER	20 ENGINEERING II
03A BOOKSTORE	21 HEALTH & LIFE SCIENCES
03B GRAHAM CENTER ADDITION	22 ART MUSEUM
04 WERTES HAUS	23 OFFICE/CLASSROOM
04A CENTRAL UTILITIES	24 ARTS COMPLEX II
05 ATHENAEUM	25 CLASSROOMS
05A ATHENAEUM ADDITION	26 SOCIAL SCIENCES
06 OWA EHAN	27 CLASSROOMS
06A WERTHEIM CONSERVATORY/ BIOLOGICAL GREENHOUSE	28 SUPPORT
07 GOLDEN PANTHER ARENA	29 SUPPORT
07A ARENA ADDITION	30 BUSINESS/FINANCE
08 ENGINEERING & COMPUTER SCIENCE	31 BUSINESS/TECH
09 CHEMISTRY & PHYSICS	32 ELEMENTARY SCHOOL
09A MOLECULAR BIOLOGY	33 PRESIDENTS HOUSE
10 UNIVERSITY COMPUTER SERVICES	34 CERAMICS
11 BUSINESS ADMINISTRATION	35 PUBLIC SAFETY
12 STUDENT HEALTH & WELLNESS CENTER	36 DUPLICATING CENTER
13 LABOR CENTER	37 INFORMATION CENTER
14 EDUCATION BUILDING	38 TAMAMI STADIUM
15 BASEBALL STADIUM	39 LAND BANK
16 ARTS COMPLEX I	40 JOINT USE LAND BANK
17 CHILD CARE CENTER	P1 PARKING GARAGE
18 CAMPUS SUPPORT COMPLEX	P2 PARKING GARAGE
19 EXISTING RESIDENCE FACILITIES	P3 PARKING GARAGE
19A STUDENT HOUSING	P4 PARKING GARAGE
19B STUDENT HOUSING	P5 PARKING GARAGE
	P6 PARKING GARAGE

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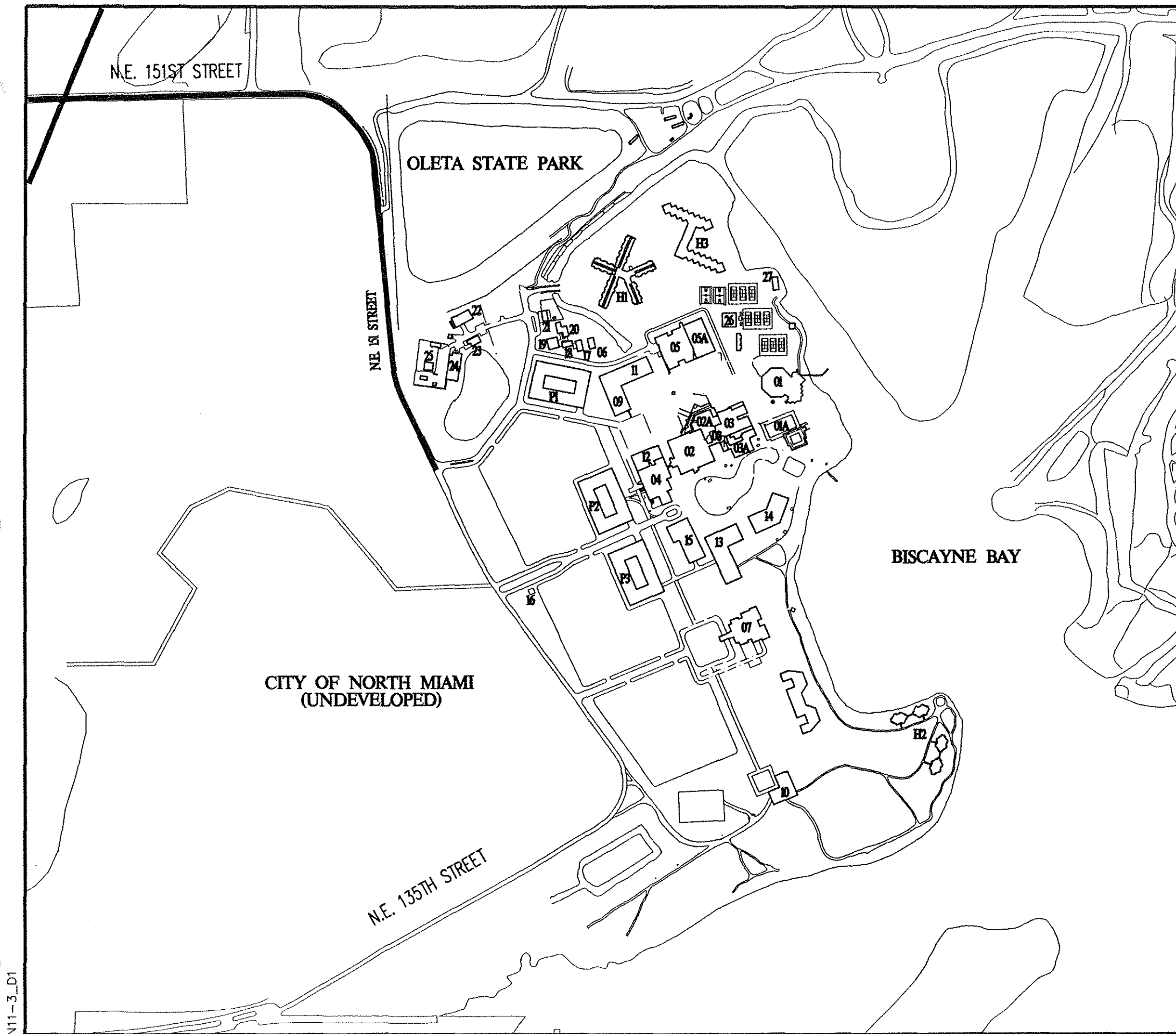


FIGURE 11.3.D1

PLANNED BIKEWAY FACILITIES CONTEXT AREA

LEGEND

PLANNED BIKEWAY PATH

01 HOSPITALITY MANAGEMENT	16 INFORMATION
01A AQUATIC CENTER	17 HOLOCAUST DOCUMENTATION
02 ACADEMIC ONE	18 HRS PRACTICE CENTER
02A CENTRAL UTILITIES	19 HRS CLASSROOM
03 STUDENT CENTER	20 HRS ADMINISTRATION
03A STUDENT CENTER ADDITION	21 CHILD CARE CENTER
04 ACADEMIC TWO	22 CENTRAL RECEIVING
05 LIBRARY	23 PUBLIC SAFETY
05A LIBRARY ADDITION	24 PHYSICAL PLANT
06 STUDENT HEALTH CENTER	25 GROUNDS
07 CONFERENCE CENTER	26 GYMNASIUM
08 AUXILIARY SUPPORT COMPLEX	27 MARINE BIOLOGY
09 CLASSROOM/OFFICE BUILDING	H1 BAY VISTA HOUSING
10 HONORS COMPLEX	H2 HONORS HOUSING
11 PUBLIC AFFAIRS	H3 STUDENT HOUSING
12 ADMIN OFFICES	P1 PARKING GARAGE
13 CLASSROOM/OFFICE BUILDING	P2 PARKING GARAGE
14 NURSING BUILDING	P3 PARKING GARAGE
15 ADMIN OFFICES	

WALLACE ROBERTS & TODD
DAVID PLUMMER & ASSOCIATES, INC
GARY & GARY, INC
KETH & SCHWAB
SDM ENGINEERS
ZYSCOVICH, INC

CORAL GABLES, FL
CORAL GABLES, FL
MIAMI, FL
FT. LAUDERDALE, FL
CORAL GABLES, FL
MIAMI, FL

FLORIDA INTERNATIONAL UNIVERSITY
NORTH MIAMI CAMPUS
MIAMI, FLORIDA

DATE:

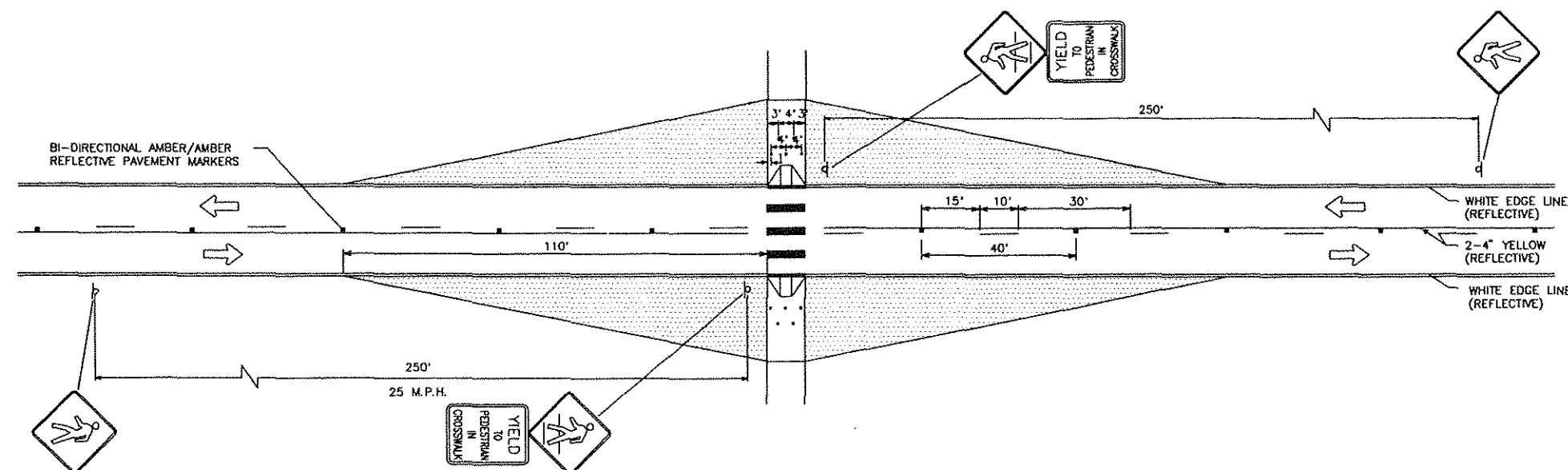


FIGURE 11.4.A1

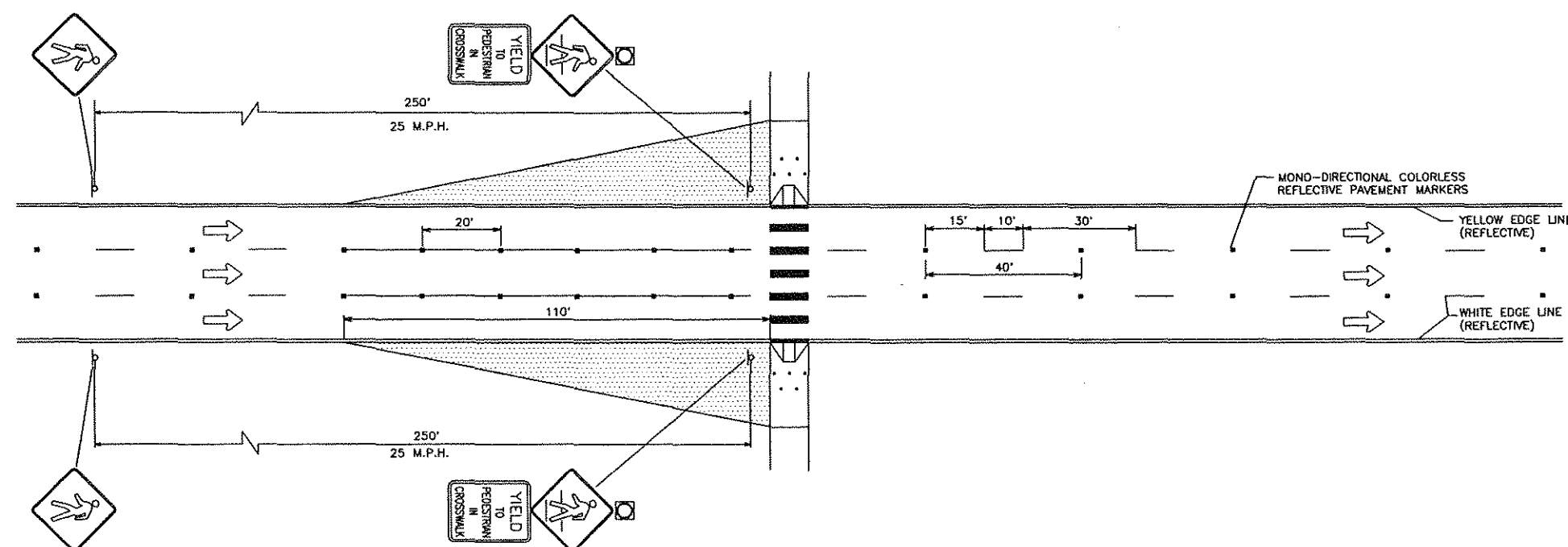
TYPICAL PEDESTRIAN CROSSING LAYOUT

LEGEND

 - CLEAR SIGHT TRIANGLE
(NO VISUAL OBSTRUCTIONS
HIGHER THAN 24')



TYPICAL TWO LANE, TWO WAY APPROACH



TYPICAL MULTI-LANE, ONE-WAY APPROACH

WALLACE ROBERTS & TODD
DAVID PLUMMER & ASSOCIATES, INC.
GARY & GARY, INC.
KEITH & SCHWAB
SCM ENGINEERS
ZYSCOVICH, INC.

CORAL GABLES, FL
CORAL GABLES, FL
MIAMI, FL
FT. LAUDERDALE, FL
CORAL GABLES, FL
MIAMI, FL

FLORIDA INTERNATIONAL UNIVERSITY
UNIVERSITY PARK
MIAMI, FLORIDA

DATE:



12.0 INTERGOVERNMENTAL COORDINATION ELEMENT

Issue 1: Assure that the land uses on campus and those proposed as part of this Master Plan are compatible with those allowed in the host communities Land Use Plan Element.

Description

In order to maintain the land use compatibility between the University and the host community a reciprocal review of development plans on and adjacent to the campuses should be instituted.

Both campuses have external buffers. In the case of University Park, major highways and Tamiami Park insulate the campus from adjacent areas and Munisport and Biscayne Bay and Oleta River State Park serve as isolating land uses for the North Miami Campus. In order to maintain land use compatibility, a program of reciprocal review should be instituted to provide a mechanism that allows input from potentially affected entities as part of formal land use review procedures.

Coordinating Entities

Metro-Dade County Planning Department
City of Sweetwater
City of North Miami Beach
FIU Urban Design Liaison

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

The Chapter 163 Florida Statutes, comprehensive plan amendment process gives the University formal standing to comment on land use issues related to amendments to Comprehensive Plans. The host community 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.

Recommendation

Establish a urban design liaison with the planning staff of Metro-Dade County, City of Sweetwater and the City of North Miami to provide the mutual review of urban design implications of future development and redevelopment activities on or in proximity to the campuses.

12.0 INTERGOVERNMENTAL COORDINATION ELEMENT

Monitor land use planning activity, development regulations and proposed developments for the University context areas by Metro-Dade County, Sweetwater and the City of North Miami Beach.

Establish a defined context area for both campuses and formally request the administration of Metro-Dade County and the relevant municipalities for notification of proposed development activities within the context area.

Issue 2: Expansion of land resources availability for University facilities after the projected buildout date of 2003-04.

Description

Due the finite land resources available for University expansion and recognizing that the University Park campus is constrained from any potential expansion by major roadways and existing land uses on the northern, eastern and western boundaries, the University should initiate short and long term agreements for the use of Tamiami Park for University facility purposes. As indicated in the Urban Design Element, both Florida International University Campuses have developed in a sprawling "suburban fashion". Due to the realization that land resources available to the university are finite it has become apparent that campus development must become more compact for the reasons of land conservation. The projected buildout of the University Park campus resulting from the implementation of this Master Plan is 2003-04. Based on this buildout projection any future long term growth would necessitate the availability of lands south of the existing campus.

Coordinating Entities:

Primary:

State of Florida Board of Regents
Metro-Dade County Commission

Secondary:

FIU Department of Facilities Planning
Metro-Dade County Park and Recreation Department
Dade County Youth Fair

Coordinating Mechanisms

Short Term:

Agreements with Metro-Dade County for the joint use and development of student recreational and sport facilities at Tamiami Park through 2003-04.

12.0 INTERGOVERNMENTAL COORDINATION ELEMENT

Long Term:

Long term lease or acquisition by other means of Tamiami Park/Dade County Youth Fair sites by 2003-04.

Nature of the Relationship

Upon the closure of the Tamiami Airport, Dade County donated 340 acres for the construction of FIU University Park campus. The remaining 300 acres were retained by Dade County for the development of Tamiami Park and the Dade County Youth Fair. Both of the Tamiami Park and the Dade County Youth Fair are uses of regional significance and any potential for the relocation would require a lengthy planning horizon. FIU presently uses the existing athletic facilities for recreational, intermural and collegiate athletic events.

Recommendation

By 1996, Florida International University should finalize an agreement with Dade County which sets forth the level of and terms for the joint use of student recreational and sport facilities within the Dade County property. Prior to the preparation of the Campus Plan Update in 1994-99, complete the preparation of a feasibility and phasing study for the use of Tamiami Park for University purposes. As a component of the 1998-99 Campus Plan Update, include a master plan for the relocation of Tamiami Park and the expansion of University Park campus.

Issue 3: Obtain a jurisdictional wetland boundary determination.

Virtually all of the University Park and North Miami Campus were historically wetlands and no comprehensive jurisdictional wetland determination has been obtained. As campus expansion occurs the lack of such a determination could cause delays if conflicts between the proposed new facilities and wetland areas are identified.

Initiation of development without a binding delineation of jurisdictional wetlands could result in wetland mitigation or restoration projects being undertaken in an inefficient and haphazard manner causing high per project expense and delays.

Coordinating Entities

Dade County Department of Environmental Resources Management (DERM)
South Florida Water Management District (SFWMD)
State of Florida Department of Environmental Protection (DEP)
United States Army Corps of Engineers (ACOE)
Florida International University Department of Facilities Planning
Florida International University Natural Resource Protection Management Committee

Coordinating Mechanisms

The jurisdictional determination can be requested from the above reference agencies. This determination will delineate which areas of the campuses are jurisdictional wetlands and require mitigation, enhancement or other remediation will be required to alter the hydrological conditions of the site.

Nature of the Relationship

The jurisdictional authority of the above referenced agencies is derived from the following legislation, statutes and administrative rules:

U.S. Army Corps of Engineers: 33 CFR Parts 320 through 330

State of Florida Department of Environmental Regulation: Part IV of Chapter 373, Florida Statutes and Chapters 17-330 and 17-341, Florida Administrative Code.

South Florida Water Management District: The Florida Environmental Reorganization Act of 1994.

Recommendation

Conduct the necessary environmental studies to establish the University's position on what acreages should be considered for inclusion for a jurisdictional wetland determination. Upon completion of the University initiated background research, request the appropriate agencies to conduct the jurisdictional wetland determination. Based on the results of the determination the University may wish to initiate dredge and fill and surface water management permits for certain phases of campus expansion. The initiation of permitting action would allow existing and planned mitigation or enhancement areas to be factored into development plans for the campuses.

Issue 4: Metrorail Transit Availability

Description

The Florida Department of Transportation and the Federal Highway Administration are undertaking a transportation study that proposes the terminus of the proposed East-West Multi-Modal Corridor be at the Florida International University, University Park Campus. As part of this study alternatives have been developed in order to evaluate the placement of the proposed Metro-rail Station.

As part of the East-West Multi-Modal Corridor Study alternative Metro-Rail station locations and associated parking configuration have been developed. These alternative locations and the positive and negative aspects associated each were evaluated from the University's perspective

12.0 INTERGOVERNMENTAL COORDINATION ELEMENT

and these findings were presented in the "FIU Master Plan, Alternative Concept Plans, March 1994.

It is generally considered that a Metrorail station on or in close proximity to the University Park campus would be an asset to FIU. Of the alternative locations for the Metrorail facility presently being evaluated, from the University's perspective, Alternative 6, which sites the Metrorail facility along the west side of the Campus Support Complex is the preferred alternative for the following reasons:

- Most direct access to and from Turnpike, from which most passengers are expected to arrive.
- Direct ramp connections to Turnpike could be used in FIU also.
- Close to arena and other athletic areas.
- Better opportunity to extend line to the south.
- Least negative noise and visual impact on the University.

There are however, negative impacts and considerations associated with the implementation of siting the facility at this location:

- Long walk to center of campus, a shuttle service would be required.
- Possible impacts to buildings and facilities that are programmed in the future.
- Loss of land resources for uses unrelated to educational facilities.

Coordinating Entities

Florida International University Department of Facilities Planning
State of Florida Department of Transportation
Federal Highway Administration
Metro-Dade Transit Authority
Metro-Dade Metropolitan Planning Organization

Coordination Mechanisms

Metro-Dade Public Hearing Process
Metro-Dade Metropolitan Planning Organization

Nature of the Relationship

No formal relationship exists at this time.

Recommendation

The University should formally request that the Metro-Dade Metropolitan Planning Organization apprise FIU of all hearings associated with implementation of the East-West Metrorail extension. The University should participate in the review process. As the implementation process moves forward, the feasibility of locating the Metrorail facility on a site, which would offer mass transit service to the University, but not deplete University lands should be included as an alternative for discussion.

Issue 5: Availability of Sanitary Sewage Collection and Treatment Capacity

Description

These are no agreements for the provision of sanitary sewage collection and/or treatment between FIU and the Metro Dade Water and Sewer Authority Department (WASAD). There is a 1975 water distribution facility agreement that requires WASAD to provide an adequate supply of potable water to the University Park campus of 344 acres. At the present time, no agreement exists between FIU and WASAD 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, WASAD is accepting sewage for treatment at the South Regional Water Treatment Plant (SRWTP) from the University Park campus and treatment of sanitary sewage from the North Miami Campus at North Regional Wastewater Treatment Plant (NRWTP).

A lawsuit filed by the United States Environmental Protection Agency against Dade County has resulted in restrictions on the issuance of building permits throughout the County. An agreement between EPA and Dade County defines agency and county activities prior to issuance of a building permit. Presently, the twelve month rolling average for sewage treatment at the SRWTP is 92.7 million gallons per day (GPD) which exceeds the permitted capacity of 75 MGD. The twelve month rolling average for the sewage at the NRWTP is 87.6 MGD which is just below the permitted capacity of 90 MGD established by the Department of Environmental Protection. Dade County has indicated the improvements necessary to resolve the capacity issue within the next 16 months. Estoppel permits can be issued which restrict issuance of a certificate of occupancy until certain improvements are made.

As a Board of Regents 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.

As a result of implementation of the development program established in the campus master plan, the projected need for wastewater treatment at the North Miami Campus will increase by 47,500 GPD or 40% and will increase 83,000 GPD or 29% at University Park. Given the increased sanitary sewage flows coincident with the ongoing campus development an allocation or

12.0 INTERGOVERNMENTAL COORDINATION ELEMENT

measures which assure the acceptance of sewage from the University by WASAD should be obtained.

Coordinating Entities

Florida International University Department of Facilities Planning
Miami-Dade Water and Sewer Authority Department
Metro-Dade Department of Environmental Resources Management
United States Environmental Protection Agency
City of North Miami

Nature of the Relationship

The Miami-Dade Water and Sewer Authority 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 Metropolitan Dade County regarding sewer connections and septic tanks are administered and enforced by the Metro-Dade Department of Environmental Resources Management (DERM). As previously indicated, the FIU Department of Facilities Management Planning routinely forwards engineering plans for water and sewer improvements to WASAD and DERM for review. Comments are generally received only on the water component of the building design.

Recommendation

At the projected campus buildout date of 2003-04 the North Miami Campus will generate 120,160 GPD or .13% of the present NRWPT plant capacity and the University Park Campus will generate 287,450 GPD or .38% of the present SRWTP plant capacity. These sanitary sewage generation projections are based on a level of service of 10 gallons per capita per day consistent with WASAD's rate established in the Schedule of Daily Rated Gallonage for Various Occupancy. The FIU Facilities Management Department has monitored the metered flows of sanitary sewage leaving the campus and has observed flows of up to 50% less than those projected using the higher level of service standard. As indicated in the Sanitary Sewer Element of the Campus Master Plan, additional capacity is expected to become available at both treatment plants within 16 months. The sanitary sewage flows generated by the campus represent minute proportion of the total sewage being treated.

The University should undertake the following activities in order to assure uninterrupted acceptance of sanitary sewage generated by the existing and future campus development:

- 1) The University should request a letter of allocation from DERM for treatment capacity for the flows expected to be generated through 2003-04. This allocation should come from that capacity which is presently reserved for governmental purposes.
- 2) FIU should request that a single DERM employee be assigned to review FIU Plan submittals on an ongoing basis. This would allow for DERM staff to be familiar with the

12.0 INTERGOVERNMENTAL COORDINATION ELEMENT

Universities, campus master plan and ultimately the campus development agreement. This contact would promote plan processing expediency and allocation agreement familiarity.

Issue 6: Development Review

Description

The present procedure for the review of on-campus engineering and permitting requirements for FIU to submit engineering plans to DERM, WASAD 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 240.155, 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 240.155, 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 240.155 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 Board of Regents 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 Regents 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. The Board of Regents "fair share" cost associated with remediating any of the facility or services deficiencies identified and attributed to University impacts must be stated. Chapter 240.155, F.S. requires that the Board of Regents 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:

12.0 INTERGOVERNMENTAL COORDINATION ELEMENT

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 Board of Regents, the total cost which equals the "fair share" attributed to the University's impacts.

Coordinating Entities

Primary:

City of North Miami
City of Sweetwater
FIU Facilities Management
Metro-Dade Planning Department
Metro-Dade Water and Sewer Authority Department
Metro-Dade Department of Environmental
Metro-Dade Metropolitan Planning Organization
South Florida Water Management District
State of Florida, Department of Community Affairs
Board of Regents

Secondary:

South Florida Regional Planning Council
State of Florida, Department of Environmental Protection
State of Florida, Department of Transportation
State of Florida, Department of State
State of Florida, Game and Fresh Water Fish Commission

Coordinating Mechanism

Chapter 240.155, Florida Statutes

Nature of the Relationship

Primary:

The agencies, municipalities and Metro-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 Regents and Florida International University are required to prepare the Campus Master Plan in accordance with the provisions contained in Chapter 240.155, 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.

Recommendation

Chapter 240.155(18) F.S. provides that "once the campus development agreement is executed, all campus development may proceed without further review by the host government if it is consistent with the adopted campus master plan to be mitigated in a comprehensive manner. The statute require that the development agreement, at a minimum, have an effective duration of five years and a maximum duration of ten years. As a result of the projected buildout for the campus being 2003-04 and because the development agreement is amendable within certain parameters, the duration of this agreement should coincide with the project campus buildout.

13.0 CONSERVATION ELEMENT

13.(1)a-1: WETLANDS

Although, to our knowledge, no jurisdictional wetland determinations or delineations have been carried out at either the North Miami or the University Park campus, 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.** Based upon available soil data and observation of vegetation on site by Gaby & Gaby, Inc. personnel, we have identified **potential** jurisdictional wetland areas on the North Miami and University Park campuses. Most, if not all of the North Miami Campus was wetland prior to the development of the Interama Tract.

For descriptions of the vegetation and wildlife associated with the wetland areas described here, see Section 13.(1)a-7: **EXISTING VEGETATIVE COMMUNITIES**, and Section 13.(1)a-8: **EXISTING NESTING OR FEEDING HABITATS**, respectively.

North Miami Campus: Most, if not all of the North Miami Campus was wetland prior to the development of the Interama Tract. Potential wetlands on the North Miami Campus can be classified into the following categories:

Mangrove forests: There is virtually no doubt that the mangrove forests on the North Miami Campus are jurisdictional wetlands. What is unclear are the definitive boundaries of these areas. A complex analysis beyond the scope of work for this project is required to determine these boundaries.

Mangrove forests on the North Miami Campus are restricted to thin bands of mangroves lining an estuary on the north part of the campus and canals and ditches on the north and northeastern edges of the campus, and along the western edge of the campus (Figure 13-1). Within the context area, extensive mangrove forests occur in state mangrove preserves located to the north and west of the North Miami Campus, and within the Oleta River State Recreation Area, located to the north and east of the North Miami Campus. Mangrove mitigation work has been completed or is in progress at several sites in the Oleta River State Recreation Area. Additional work proposed for June 1993 at the southern edge of the North Miami Campus has apparently not yet been started (see Section 13.(1)a-6: **EXISTING MITIGATION SITES** for descriptions of mitigation projects at the North Miami Campus and context area). These mitigation projects are not related to North Miami Campus construction activities.

Back-mangrove associations: Back-mangrove vegetation associations occur in those areas that are transitional between mangrove forest and upland plant communities. On the North Miami Campus, back-mangrove associations occur on the landward side of the mangrove-lined canals

13.0 CONSERVATION ELEMENT

at the north and west boundaries of the campus (Figure 13-1). Within the context area, back-mangrove associations occur on the landward side of mangrove forests in the Oleta River State Recreation Area and in the State mangrove preserves.

Beach strand: Most of the eastern edge of the North Miami 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. Beach strand also occurs along portions of the south edge of the North Miami 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.

Littoral zone vegetation associated with lakes: Two lakes occur on the North Miami campus (Figure 13-1). The larger of the two lakes (west lake) is located immediately to the west of the main parking areas on campus. A shoreline investigation of this lake was conducted on 3 September 1993. The lake appears to have little or no submerged aquatic vegetation other than an alga that coats most visible surfaces; there is an approximately 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.

The only other littoral zones occurring within the context area are those associated with several small lakes located within the Munisport Landfill. For descriptions of these lakes the reader is referred to the EPA Record of Decision (EPA, 1990).

Disturbed areas containing wetland plant species: In the southeast corner of the North Miami Campus, a large area was cleared of vegetation sometime prior to January 1993 (Figure 13-1). Since that time, the scraped area has been recolonized by a mix of upland and transitional wetland weeds (see Section 13.(1)a-7: EXISTING VEGETATED COMMUNITIES below). **This area can, at best, be classified as a low grade wetland. It should be analyzed to determine if it is a jurisdictional wetland.**

Wetland soils: Only one of the four soil types that the Dade County Soil Conservation Service lists as present at the North Miami 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, is 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 North Miami campus and in the context area. Two of the remaining soil types, Urthodents (excavated limestone material) and Urban land (the built-up portion of campus)

13.0 CONSERVATION ELEMENT

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 the North Miami Campus were likely underlain by hydric soils prior to the development of the Interama Tract in 1962.

KEY ISSUES REGARDING WETLANDS: Virtually all of the North Miami Campus was wetlands, most likely mangrove forest, prior to development. 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. 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.

Development done in the absence of a clear understanding of which portions of the campus are jurisdictional wetlands could result in avoidable loss of wetlands and the need for wetlands mitigation or restoration that would not have been necessary had a jurisdictional determination been carried out.

We recommend immediate initiation of the studies appropriate to carry out prior to requesting a formal jurisdictional wetland boundary determination.

UNIVERSITY PARK: The entire University Park campus was probably a sawgrass wetland prior to development of the Tamiami Airport at this site. The context area was also historically wetland. Potential wetlands at the University Park campus can be classified into the following categories:

Exotic-invaded hardwood hammocks containing wetland vegetation: In the southeast corner, the four largest tree islands (Figure 13-2) 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 preserve ("the preserve"): This oval, approximately 900' x 600' hammock is located near the southwestern corner of the University Park campus. It 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. Wetland vegetation appears in the

13.0 CONSERVATION ELEMENT

hammock and along its margins. This area has been designated as an on campus botanical and wildlife preserve, and portions of it may be jurisdictional wetlands. **The preserve represents the most botanically valuable natural feature of the University Park campus.** Further, plans are underway to link the preserve to the adjacent artificial lake via extensive littoral zone enhancement (Dr. J. Parker, Dir. Environmental Studies Program, pers. comm.).

Poorly drained lawn areas containing wetland vegetation: During visits to the University Park campus on 9 and 13 August, and on 8 September 1993, two areas in the northern part of the campus were identified as sites that might qualify as jurisdictional wetlands. The first of these areas, composed of two patches, lies immediately west of the main access road leading onto the campus from Tamiami Trail (Figure 13-2), and is bounded by the access road to the east, an earth berm and parking lot to the west, and by footpaths and access roads to the north and south. According to conversations with personnel at the University Park campus, this area was created by landscaping activities that left the area with little or no drainage. Because it is too wet to mow for most of the year, the site has been colonized by wetland vegetation.

The second site is located in the northwestern corner of the campus (Figure 13-2). Here low-lying land between built-up playing fields collects runoff and consequently supports a variety of upland and transitional wetland plants. The poorly drained region near the playing fields appears to be mowed more frequently than the previously discussed area.

Littoral zones associated with lakes: On the University Park campus there are 13 small bodies of water, all of which are apparently artificial (Figure 13-2). 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 and was visited by Gaby & Gaby, Inc. personnel on 8 September 1993. This artificial lake, located near the intersection of SW 122 Avenue and SW 11 Street, is surrounded by residential units and landscaped lawn areas and contains a reasonably well-developed littoral zone.

Wetland soils: Only one of the three soil types that the Dade County Soil Conservation Service lists as present at the University Park campus 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, is 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.

13.0 CONSERVATION ELEMENT

KEY ISSUES REGARDING WETLANDS: Virtually all of the University Park campus was historically a wetland. 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.

Development in the absence of a clear understanding of which portions of the campus are jurisdictional wetlands could result in avoidable loss of wetlands and the need for wetlands mitigation or restoration that would not have been necessary had a jurisdictional determination been carried out.

We recommend immediate initiation of the studies appropriate to carry out prior to requesting a formal jurisdictional wetland boundary determination.

13.(1)a-2: LAKES, RIVERS AND OTHER SURFACE WATERS

For descriptions of the vegetation and wildlife associated with the surface waters described here, see Section 13.(1)a-7: EXISTING VEGETATIVE COMMUNITIES, and Section 13.(1)a-8: EXISTING NESTING OR FEEDING HABITATS, respectively.

North Miami Campus:

Fresh and brackish water: Bodies of fresh or brackish water at the North Miami campus are restricted to two lakes on campus. A shoreline investigation of these lakes was conducted on 3 September 1993. The larger of the two lakes (west lake) is located immediately to the west of the main parking areas on campus (Figure 13-1). The lake appears to have little or no submerged aquatic vegetation other than algal growth that coats most visible surfaces, and an approximately 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. The second lake (east lake) is located immediately to the south of the built-up area of campus. 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.

Within the context area of the North Miami campus, the Oleta River is the only river. The Oleta River extends into the context area to the north of the North Miami campus and is an important site for the endangered West Indian manatee (Trichechus manatus latirostris) (G. Milano, DERM, pers. comm.). Visual surveys of the river from adjacent roadways conducted by Gaby & Gaby, Inc. personnel 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

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the Oleta River, which has been filled and is now dominated by Australian pine (Casuarina sp.) (Figure 13-1).

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 (EPA, 1987). 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 the North Miami Campus are bounded by Biscayne Bay, the Intracoastal Waterway, and mangrove channels that join with the Bay. The northeastern edge of the North Miami Campus also abuts a small estuary that extends northward from the Intracoastal Waterway and Biscayne Bay.

Within the context area of the North Miami 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 (R. Redding, ORSRA, pers. comm.)

***KEY ISSUES REGARDING LAKES, RIVERS AND SURFACE WATERS:** 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.*

UNIVERSITY PARK: On the University Park campus there are 13 small bodies of water which are apparently all artificial (Figure 13-2). None of these small lakes is 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 and was visited by Gaby & Gaby, Inc. personnel on 8 September 1993. This apparently artificial lake, located near the intersection of SW 122 Avenue and SW 11 Street, is surrounded by residential units and landscaped lawn areas and possesses a reasonably well-developed littoral zone.

Canals bordering the University Park campus and the Youth Fair Grounds 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.

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KEY ISSUES REGARDING LAKES, RIVERS, AND SURFACE WATERS: There are opportunities to improve the habitat values of the lakes on campus. These should be taken into account in deriving goals for campus development.

13.(1)a-3: FLOODPLAINS

North Miami Campus: According to Flood Insurance Rate Maps (revised 16 October 1992), the entire North Miami campus is at an elevation of 9 feet, and is zoned AE. This area is characterized as a special flood hazard area inundated by 100-year flood. According to undocumented sources at FIU, a SLOSH model run in the 1960's indicated a 15-foot hurricane flood elevation for the area.

UNIVERSITY PARK: According to Flood Insurance Rate Maps (revised 16 October 1992), the entire University Park campus is designated as Zone X. This zone is an area of 500-year flood, or of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 100-year flood. The campus itself is designated as a hurricane evacuation site for Monroe County.

KEY ISSUES REGARDING FLOODPLAINS: Potential conflicts regarding floodplains are primarily concerned with flooding of the campus and flood protection for buildings and structures. During severe storms, saltwater could impact the fresh water areas on campus. Building design should respond to state-of-the-art data and modeling, not to out-of-date studies.

13.(1)a-4: BOTTOM LANDS

No bottom lands are known to occur at either the North Miami Campus or the University Park campus or in their respective context areas.

13.(1)a-5: UNIQUE GEOLOGICAL FEATURES

No unique geological features are known to occur at either the North Miami Campus or the University Park campus or in their respective context areas.

13.(1)a-6: EXISTING MITIGATION SITES

North Miami Campus: Within the North Miami 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 Dade County Beach Restoration and Preservation Program, a portion of the funding for which comes from mitigation bank payments (G. Milano, pers. comm.).

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Documentation concerning the existence and location of additional mitigation sites was requested from FIU but not received.

A brief description of each of these mitigation sites follows.

A shoreline stabilization project along Biscayne Bay was carried out by Dade County Department of Environmental Resources Management (DERM) at the North Miami Campus from 1989-1991. This project was to involve placement of boulder rip-rap along 1225 linear feet of shoreline along the southern and southeastern edges of FIU property, construction of mangrove planters totaling 1525 linear feet along the southern and southeastern edges of FIU property (mangroves interspersed with rip-rap), construction of a 1200 linear foot cordgrass (Spartina sp.) planter on the southeast edge of FIU property, and planting of cordgrass along 500 feet of shoreline (no rip-rap) along the southeast edge of FIU property.

On a recent visit to the FIU campus, rip-rap was observed in this mitigation area, but mangrove or cordgrass planters were not inspected. Analysis of aerial photographs indicates that planters have been constructed along part of the southeast shoreline.

Another mangrove mitigation project is planned by DERM for the North Miami Campus. This project will involve 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. Work has not yet begun on this project.

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 13-1), 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. On a recent visit to Oleta

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River State Recreation Area, Gaby & Gaby, Inc. personnel inspected this mitigation site and found it to be healthy and thriving. 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 13-1 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.

On 5 August and 3 September 1993 Gaby & Gaby, Inc. personnel observed these mangrove planters 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.

Currently, mitigation work is underway to the southwest of the headquarters building of Oleta River State Recreation Area, opposite a previously completed mitigation site. During the visit of 5 August 1993, Australian pines were being removed from an area surrounding a nucleus of mature mangroves, and the ground level was being reduced by 2.5 to 3 feet. By the time of the 3 September visit, Australian pine removal and excavation of the site had been completed, and planting of mangrove seedlings was taking place.

An ongoing mitigation project on Sandspur Island (a part of the Oleta River State Recreation Area), located immediately south of the North Miami Campus and within the context area, was begun in 1992 and involves 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).

UNIVERSITY PARK: There are no mitigation projects at University Park Campus. However, there is a hardwood hammock preserve that is being restored/enhanced by the Environmental Studies program (see Section 13 (1)a-7).

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KEY ISSUES REGARDING MITIGATION: No conflicts regarding mitigation have been identified. Existing and planned mitigation areas should be factored into development plans for the North Miami Campus.

Table 13-1 County, State and Federally Listed Plant and Animal Species Known to Occur within the Context Areas of the North Miami and University Park Campuses

LISTED PLANT SPECIES:

Common name	Scientific name	Agency	Status
Paurotis palm	<u>Acoelora pheidippiae</u>	FDA	T
Leather fern	<u>Acrostichum danneifolium</u>	FDA	T
Pine fern	<u>Anemia adiantifolia</u>	FDA	T
Silver palm	<u>Coccothrinax argentata</u>	FDA	CE
Forestiera	<u>Forestiera segregata</u>	USFWS	C1
Lignum vitae	<u>Guaiacum sanctum</u>	FDA	E
Dahoon holly	<u>Ilex cassine</u>	FDA	CE
Lantana	<u>Lantana depressa</u>	USFWS	C2
Sml-lvd cat tongue	<u>Melanthera parvifolia</u>	USFWS	C2
Simpsons stopper	<u>Myrcianthes fragrans</u>	USFWS	C2
Whisk fern	<u>Psilotum nudum</u>	FDA	T
Pineland brake fern	<u>Pteris vittata</u>	FDA	T
Royal palm	<u>Roystonea elata</u>	FDA	E
		USFWS	C1
Mahogany	<u>Sweitenia mahogany</u>	FDA	T
Tetrazygia	<u>Tetrazygia bicolor</u>	FDA	T
Shield fern	<u>Thelypteris palustris</u>	FDA	T
Cardinal air plant	<u>Tillandsia fasciculata</u>	FDA	CE
Coontie	<u>Zamia pumila (floridana)</u>	FDA	CE

LISTED BIRD SPECIES:

Little blue heron	<u>Egretta caerulea</u>	FGFWFC	SSC
White ibis	<u>Eudocimus albus</u>	FGFWFC	SSC
Roseate spoonbill	<u>Aiaia aiaia</u>	FGFWFC	SSC
Least tern	<u>Sterna antillarum</u>	FGFWFC	T
Burrowing owl	<u>Speotyto cuniculata</u>	FGFWFC	SSC
White-crwn'd pigeon	<u>Columba leucocephala</u>	FGFWFC	T
		USFWS	C2
East'n am. kestrel	<u>Falco s. sparverius</u>	CITES	II
S-est'n am. kestrel	<u>Falco s. paulus</u>	FGFWFC	T
		USFWS	C2
		CITES	II
Loggerhead shrike	<u>Lanius ludovicianus migrans</u>	USFWS	C2

LISTED MAMMAL SPECIES:

Bobcat	<u>Lynx rufus</u>	CITES	II
West Indian manatee	<u>Trichechus manatus</u>	FGFWFC	E
		USFWS	E
		CITES	I

LISTED INVERTEBRATE SPECIES:

Fl. atala butterfly	<u>Eumaeus atala florida</u>	USFWS	C2
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STATUS CODES:

E: Endangered
T: Threatened
CE: Commercially exploited

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- C1: Candidate for federal listing, with enough substantial information on biological vulnerability and threats to support proposals for listing.
- C2: Candidate for federal listing, with some evidence of vulnerability, but for which not enough data exist to support listing.
- I: Appendix I species
- II: Appendix II species
- SSC: Species of special concern

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
- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

13.(1) a-7: EXISTING VEGETATIVE COMMUNITIES

For descriptions of the wildlife associated with the vegetative communities described here, see Section 13.(1)a-8: EXISTING NESTING OR FEEDING HABITATS below.

A preliminary plant species list for both campuses is given as Table 13-2.

North Miami Campus: On 12 August and 3 September 1993, Gaby & Gaby, Inc. personnel conducted brief surveys of the vegetated areas at the North Miami Campus. Because of weather and time constraints, 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.

The North Miami Campus contains relatively few naturally vegetated areas. Non-landscape vegetation associations at the North Miami Campus can be classified into the following categories:

Australian pine-dominated upland forest: Much of the non-landscape vegetation at the North Miami Campus, including the forested parcels to the southwest of the main building area and to the north of the canal at the north edge of the building area (Figure 13-1), is dominated by Australian pine (Casuarina equisetifolia and C. glauca). Interspersed with the Australian pines are scattered individuals of Brazilian pepper (Schinus terebinthifolius) and sea grape (Coccoloba uvifera). Understory vegetation is largely lacking in the Australian pine forests, and here is restricted to scattered individuals of common reed (Neyraudia reynaudiana), Florida tremma (Trema micrantha), Madagascar periwinkle (Catharanthus roseus), alligator weed (Alternanthera maritima), and painted leaf (Poinsettia cyathophora). Most of these are weedy plant species

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typical of disturbed sites, and many are invasive exotics. No County, State or Federally listed plant species were found in the Australian pine-dominated forests at the North Miami Campus.

Mangrove Forest: Mangrove vegetation at the North Miami Campus is restricted primarily to two areas (Figure 13-1): 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 North Miami Campus are dominated by red mangrove, with buttonwood, black mangrove, white mangrove, and seaside mahoe (Thespesia populnea) also commonly found.

Within the context area of the North Miami 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 (Figure 13-1). Mangrove replanting has been completed or is in progress at several sites in the Oleta River State Recreation Area. Additional mangrove replanting has been approved for the southern edge of the North Miami Campus (see Section 13.(1)a-6: EXISTING MITIGATION SITES, above).

Back-mangrove associations: Back-mangrove associations are found on the North Miami 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 (Figure 13-1), and landward of mangrove forests elsewhere in the context area of the North Miami Campus. Back-mangrove canopy is dominated by a mix of upland and wetland trees, including Australian pine, buttonwood, seaside mahoe, and sea grape. Understory vegetation in the back-mangrove associations at the North Miami Campus includes beach naupaka (Scaevola frutescens), sea purslane (Sesuvium portulacastrum), camphor weed (Pluchea odorata), saltbush (Baccharis halimifolia), corky passionflower (Passiflora suberosa) and silver sea oxeye (Borrchia frutescens).

Beach strand: Most of the eastern and southern edge of the North Miami Campus is Biscayne Bay shoreline, a portion of which has been rip-rapped for shoreline stabilization (Figure 13-1). Behind the rip-rap areas, and in those portions of the shoreline that lack rip-rap, beach strand vegetation dominates. Beach strand vegetation includes railroad vine (Ipomoea pes-caprae), sea purslane, silver sea oxeye, alligator weed, beach bean (Canavalia rosea), beach naupaka, salt jointgrass (Paspalum vaginatum), and sea lavender (Tournefortia gnaphalodes). In addition, scattered buttonwood trees and a few red mangroves occur along the shoreline behind the rip-rap.

Within the context area of the North Miami 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.

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Littoral zone and submerged vegetation associated with lakes: The North Miami Campus contains two lakes, both apparently human-created (Figure 13-1). 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*), miterwort (*Mitreola angustifolia*), flat sedge (*Cyperus ligularis*), and diodia (*Diodia virginiana*). Deep-water vegetation in the eastern lake consists mainly of elodea.

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. Scattered individuals of *Caulerpa* and other species of algae were also noted in this area.

Disturbed areas containing wetland plant species: In the southeast corner of the North Miami Campus, a large area was cleared of vegetation sometime prior to January 1993 (Figure 13-1). Since that time, the scraped area has been recolonized by a mix of upland and transitional wetland weeds, including ragweed (*Ambrosia artemesiifolia*), dog fennel (*Eupatorium capillifolium*), camphor weed, beach naupaka, corky passionflower, saltbush, silver sea oxeye and yellowtops (*Flaveria linearis*).

UNIVERSITY PARK: On 9 and 13 August and 8 September 1993, Gaby & Gaby, Inc. personnel conducted brief surveys of the vegetated areas at the University Park campus. These surveys were mainly limited to examination of the exterior vegetation of tree islands, a walk through the paths of a hardwood hammock preserve, examination of littoral zone vegetation in the human-created ponds and lakes and of other potential wetland sites on campus, and a walkthrough of the grassed areas along the south edge of the campus, where burrowing owl burrows had been reported (Dr. P. Stoddard, pers. comm.).

The University Park campus 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

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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 the University Park campus.

Gaby & Gaby, Inc. personnel examined approximately 10 tree islands located in the southeast corner of the University Park campus (Figure 13-2). Trees include cabbage palm (Sabal palmetto), black olive (Bucida buceras), pigeon plum (Coccoloba diversifolia), mahogany (Sweitenia mahogani) and wax myrtle (Myrica cerifera). Understory vegetation commonly associated with these tree islands includes muscadine grape (Vitis rotundifolia), Brazilian pepper, Spanish needles (Bidens pilosa), Indian mallow (Sida rhombifolia), and other plants typical of disturbed areas. Several of the cabbage palms have strangler figs (Ficus aurea and F. microcarpa) and other hemiepiphytes growing in their boots. Further, one cabbage palm has a single large individual of small-leaved cat tongue (Melanthera parvifolia, a Dade County pineland endemic species that DERM has targeted for protection) growing underneath it.

Exotic-invaded hardwood hammocks: In the southeast corner of the University Park campus, four wooded areas are interspersed with the tree islands (Figure 13-2). These small hammocks contain a mix of native and exotic hardwood trees and shrubs, wetland herbs and graminoids, and other disturbance-adapted plants. Dominant trees and shrubs include myrsine (Myrsine guianensis), Florida trema, Brazilian pepper, Australian pine and mahogany. Understory vegetation includes wild coffee (Psychotria nervosa), Florida white-tops (Dichromena floridensis), muscadine grape, musky mint (Hyptis alata), and lantana (Lantana camara and L. involucrata). At least one of the small hammocks appears to be an old pond that has been overgrown; here, dominant plant species include willow bustic (Bumelia salicifolia), wax myrtle, saltbush, camphor weed, and sawgrass (Cladium jamaicensis).

Sweet bay-dominated hardwood hammock preserve ("the preserve"): This oval, 600' x 450' hammock is located near the southwestern corner of the University Park campus (Figure 13-2). It 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, including firebush (Hamelia patens), lantana, Egyptian starclusters (Pentas lanceolata) and scarlet milkweed (Asclepias curassavica). In the relatively undisturbed portions of the preserve, 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). Common understory plants include Asian marlberry (Ardisia elliptica), wild coffee, corky passionflower, shield fern (Thelypteris palustris), brake fern (Pteris vittata), randia (Randia aculeata) and saltbush, as well as a number of disturbance-adapted herbs.

This area has been designated as an on-campus botanical and wildlife preserve. An interpretive trail system has been established, and individuals of several species are flagged throughout the

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preserve. The preserve represents the most botanically valuable natural feature of the University Park campus. Further, plans are underway to link the preserve to the adjacent artificial lake via extensive littoral zone enhancement (J. Parker, pers. comm.).

Littoral zone and submerged vegetation associated with lakes: The University Park campus contains 13 ponds and lakes, all apparently artificial (Figure 13-2). 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 the University Park campus (Figure 13-2), was examined in some detail. This lake contains a spoil island called Hennington Island, which is apparently intended to serve as a "rainforest island" (J. Parker, pers. comm.). Gaby & Gaby, Inc. 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 diodia, with scattered planted bald cypress and wax myrtle.

Littoral zone vegetation also occurs in association with the off campus lake within the context area (west of Highway 821), consisting of extensive areas of cattail and soft rush which extend away from the shoreline for up to 20-30 feet in some places. Submerged vegetation consists of dense beds of elodea.

Periodically inundated lawn areas overgrown with wetland vegetation: The northwest corner of the University Park campus 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.

The first of the marshy areas occupies two small (200' X 80' and 150' X 80') patches in the swale area between the road and the parking lot just north of the athletic building (Figure 13-2). Vegetation is dominated by soft rush, spike rush (Eleocharis geniculata), bulrush (Scirpus sp.), maidencane (Panicum hemitomon), cattail, primrose willow, duck potato and white-tops.

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The second of the marshy areas (approximately 500' X 300') occupies much of the northwest corner of the University Park campus, and basically surrounds the athletic fields there. Vegetation here is a mix of upland weeds (dog fennel, buttonweed [*Borreria laevis*], ragweed) and transitional wetland plant species, including camphor weed, water pennywort, white tops, maidencane, broomsedge (*Andropogon glomeratus*), primrose willow, flat sedge, and toothcups (*Ammania coccinea*).

KEY ISSUES REGARDING EXISTING VEGETATIVE COMMUNITIES: *Adjacent to the beach strand vegetation on the North Miami Campus is an area where FIU staff has planted vegetation that has been donated to the University. Many of the species planted here are non-native, and some are considered to be undesirable because they are invasive exotic species. Furthermore, the density at which some of these species are planted could result in densely vegetated areas which could serve as hiding places for muggers, rapists, etc. Landscape standards should be established that ensure that only appropriate native vegetation will be planted at the campuses.*

Table 13-2 Preliminary Plant Species List for FIU North Miami and University Park Campuses

* listed as present in the landscape design manual
(University Park campus only)

N=Native, E=Exotic, NM=North Miami Campus, UP=University Park Campus

Common Name	Scientific Name	Presence			
		N	E	NM	UP
Ear-leaf acacia	<i>Acacia auriculaeformis</i>		X	X	X
Paurotis palm	<i>Acoelora wrightii</i>	X			X
Leather fern	<i>Acrostichum danaeifolium</i>	X		X	
Woman's tongue	<i>Albizia lebeck</i>		X	X	X
Golden trumpet	<i>Allamanda cathartica</i>		X	X	
Ginger lily*	<i>Alpinia zerumbet</i>				X
Alligator weed	<i>Alternanthera maritima</i>		X	X	
Slender amaranth	<i>Amaranthus viridis</i>	X		X	
Ragweed	<i>Ambrosia artemisiifolia</i>		X	X	X
Toothcups	<i>Ammania coccinea</i>	X		X	
Cashew	<i>Anacardium sp.</i>		X		X
Broomsedge	<i>Andropogon glomeratus</i>	X			X
Pine fern	<i>Anemia adiantifolia</i>	X			X
Sugar apple*	<i>Annona squamosa</i>			X	X
Anthurium*	<i>Anthurium heiglyi</i>		X		X
Alexandra palm*	<i>Archoneophoenix alexandrae</i>		X		X
Asian marlberry	<i>Ardisia elliptica</i>		X	X	X
Queen palm*	<i>Arecastrum romanzofianum</i>	X		X	
Scarlet milkweed	<i>Asclepias curassavica</i>		X		X

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(Table 13-2 continued)

Common Name	Scientific Name	Presence			
		N	E	NM	UP
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*	Borreria frutescens	X		X	X
Bougainvillea*	Bougainvillea spectabilis		X	X	X
Black olive	Bucida buceras	X			X
Willow bustic	Bumelia salicifolia	X			X
Pindo palm*	Butia capitata		X		X
Beauty berry	Callicarpa americanum	X			X
Bottlebrush	Callistemon vinnialis		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 lepidophloia		X		X
Madagascar periwinkle	Catharanthus roseus		X	X	X
Silk cotton tree*	Ceiba pentandra		X		X
Sandspur	Cenchrus sp.	X		X	X
Coin-wort	Centella asiatica		X	X	X
Day jasmine	Cestrum diurnum		X	X	
Night blooming jasmine*	Cestrum nocturnum		X	X	X
Spurge	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

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(Table 13-2 continued)

Common Name	Scientific Name	Presence			
		N	E	NM	UP
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
Variegated tiger claw*	Erythrina variegata		X		X

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(Table 13-2 continued)

Common Name	Scientific Name	Presence			
		N	E	NM	UP
Gum tree*	Eucalyptus spp.		X		X
White stopper	Eugenia axillaris	X			X
Surinam cherry*	Eugenia uniflora		X		X
Dog fennel	Eupatorium capillifolium	X		X	X
Mistflower	Eupatorium coelestinum	X			X
Blue daze*	Evolvulus glomerata	?			X
Strangler fig	Ficus aurea	X			X
Weeping fig*	Ficus benjamina		X		X
Edible fig*	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 siliciola	X			X
Life plant	Kalanchoe sp.		X	X	
Golden rain tree*	Koelreuteria formosana		X	X	X
Black ironwood*	Krugiodendron ferreum	X			X
Crape myrtle*	Lagerstroemia indica		X		X
Queen crape myrtle*	Lagerstroemia speciosa		X		X

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(Table 13-2 continued)

Common Name	Scientific Name	Presence			
		N	E	NM	UP
White mangrove	Laguncularia racemosa	X		X	
Lantana	Lantana camera		X	X	X
Lantana	Lantana depressa	X			X
Lantana	Lantana involucrata	X		X	X
Lantana*	Lantana montevidensis		X		X
Lead tree	Leucaena leucocephala		X	X	X
Southern wax privet*	Ligustrum japonicum		X		X
Lippia	Lippia nodiflora	X		X	X
Liriope*	Liriope muscari		X		X
Chinese fan palm*	Livistona chinensis		X		X
Primrose willow	Ludwigia peruviana	X		X	X
Wild tamarind	Lysiloma bahamensis	X			X
Macadamia nut*	Macadamia tetraphylla		X		X
Sweet bay*	Magnolia virginiana	X			X
Apple*	Malus pumila (ana)		X		X
Mango*	Mangifera indica		X	X	X
Sapodilla*	Manilkara zapota		X		X
Mastic	Mastichodendron foetidissimum	X		X	
Melaleuca*	Melaleuca quinquernervia		X	X	X
Melanthera	Melanthera nivea	X		X	
Small-leaved cat tongue	Melanthera parvifolia	X			X
Creeping cucumber	Melothria pendula	X		X	X
Poisonwood	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 hemitomom	X			X
Jerusalem thorn*	Parkinsonia aculeata		X		X
Bahia 'Argentine' sod*	Paspalum notatum		X		X

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(Table 13-2 continued)

Common Name	Scientific Name	Presence			
		N	E	NM	UP
Salt jointgrass	<i>Paspalum vaginatum</i>	X		X	
Corky passionflower	<i>Passiflora suberosa</i>	X		X	X
Egyptian starclusters	<i>Pentas lanceolata</i>		X		X
Avocado*	<i>Persea americana</i>		X	X	X
Sweet bay	<i>Persea borbonia</i>	X			X
Yellow Poinciana*	<i>Petophorum pterocarpum</i>		X		X
Queen's wreath*	<i>Petrea volubilis</i>		X		X
Philodendron*	<i>Philodendron selloum</i>		X		X
Senegal date palm*	<i>Phoenix reclinata</i>		X		X
Pygmy date palm*	<i>Phoenix roebelenii</i>		X		X
Wild date*	<i>Phoenix sylvestris</i>		X		X
Pokeweed	<i>Phytolacca americana</i>	X		X	X
All spice*	<i>Pimenta officinalis</i>		X		X
Slash pine	<i>Pinus elliottii</i> var. <i>densa</i>	X			X
Jamaica dogwood	<i>Piscidia piscipula</i>	X			X
Black bead*	<i>Pithecellobium keyense</i>	X			X
Camphor weed	<i>Pluchea odorata</i>	X		X	
Camphor weed	<i>Pluchea rosea</i>	X		X	X
Leadwort	<i>Plumbago capensis</i>		X	X	
Frangipani*	<i>Plumeria rubra</i>		X		X
Japanese yew*	<i>Podocarpus macrophyllus</i>		X		X
Painted leaf	<i>Poinsettia cyathophora</i>	X		X	X
Fiddler's spurge	<i>Poinsettia heterophylla</i>	X		X	
Procession flower	<i>Polgala incarnata</i>	X			X
Pongam*	<i>Pongamia pinnata</i>		X		X
Peach*	<i>Prunus persica</i>		X		X
Buccaneer palm*	<i>Pseudophoenix sargentii</i>		X		X
Guava*	<i>Psidium guajava</i>		X		X
Whisk fern	<i>Psilotum nudum</i>	X		X	
Wild coffee	<i>Psychotria nervosa</i>	X			X
Pineland brake fern	<i>Pteris vittata</i>	X		X	X
Solitaire palm*	<i>Ptychosperma elegans</i>		X		X
Macarthur palm*	<i>Ptychosperma macarthuri</i>	X		X	
Laurel oak*	<i>Quercus laurifolia</i>	X			X
Live oak	<i>Quercus virginia</i>	X		X	X
Randia	<i>Randia aculeata</i>	X			X
Travellers palm*	<i>Ravenala madagascarensis</i>	X		X	
Lady palm*	<i>Rhapis excelsa</i>		X		X
Red mangrove	<i>Rhizophora mangle</i>	X		X	?
Oyster plant	<i>Rhoeo spathacea</i>		X	X	X
Winged sumac	<i>Rhus copallina</i>	X			X
Beak rush	<i>Rhynchospora</i> sp.	X			X

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(Table 13-2 continued)

Common Name	Scientific Name	Presence			
		N	E	NM	UP
Castor bean	<i>Ricinus communis</i>		X	X	X
Royal palm*	<i>Roystonea elata</i>	X			X
Firecracker plant*	<i>Russelia equisetiformis</i>		X	X	X
Cabbage palm	<i>Sabal palmetto</i>	X		X	X
Duck potato	<i>Sagittaria falcata</i>	X		X	X
Willow	<i>Salix carolinensis</i>	X			X
Beach naupaka*	<i>Scaevola frutescens</i>		X	X	X
Umbrella tree	<i>Schefflera actinophylla</i>		X	X	X
Brazilian pepper	<i>Schinus terebinthifolius</i>		X	X	X
Bullrush	<i>Scirpus sp.</i>	X		X	X
Saw palmetto	<i>Serenoa repens</i>	X			X
Sesban	<i>Sesbania punicea</i>		X	X	
Sea purslane	<i>Sesuvium portulacastrum</i>	X		X	
Bristlegrass	<i>Setaria geniculata</i>	X		X	X
Indian mallow	<i>Sida rhombifolia</i>	X		X	X
Paradise tree	<i>Simarouba glauca</i>	X			X
Goldenrod	<i>Solidago sp.</i>	X			X
Necklace pod*	<i>Sophora tomentosa</i>	X			X
Cordgrass	<i>Spartina sp.</i>	X		X	X
Peace lily*	<i>Spathiphyllum 'Mauna Loa'</i>	X		X	
African tulip tree*	<i>Spathodea campanulata</i>		X		X
Buttonweed	<i>Spermacoce verticillata</i>	X		X	X
Dropseed	<i>Sporobolus spp.</i>	X		X	X
Blue porterweed	<i>Stachytarpheta jamaicensis</i>	X			X
St. Augustine grass	<i>Stenotaphrum secundatum</i>	X		X	
Pencil flower	<i>Stylosanthes hamata</i>	X		X	
Sea blite	<i>Suaeda linearis</i>	X		X	
Mahogany	<i>Sweitenia mahogani</i>	X		X	X
Syngonium	<i>Syngonium podophyllum</i>	X	X		
Rose apple*	<i>Syzygium jambos</i>		X		X
Silver trumpet-tree/yellow*	<i>Tabebuia caraiba</i>		X		X
Silver trumpet-tree/pink*	<i>Tabebuia heterophylla</i>		X		X
Indian tamarind*	<i>Tamarindus indica</i>		X		X
Pond cypress*	<i>Taxodium ascendens</i>	X			X
Bald cypress	<i>Taxodium distichum</i>	X			X
Indian almond	<i>Terminalia catappa</i>		X	X	X
Tetrazygia	<i>Tetrazygia bicolor</i>	X			X
Turtle grass	<i>Thalassia testudinum</i>	X		X	
Shield fern	<i>Thelypteris palustris</i>	X			X
Seaside mahoe	<i>Thespesia populnea</i>		X	X	
Key thatch*	<i>Thrinax morrisii</i>		X		X

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(Table 13-2 continued)

Common Name	Scientific Name	Presence			
		N	E	NM	UP
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
Florida trema	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 fagara	X			X
Wandering Jew*	Zebrina pendula		X	X	X

13.(1)a-8: EXISTING NESTING OR FEEDING HABITAT TYPES AND ASSOCIATED NATIVE OR MIGRATORY HABITAT SPECIALISTS, AND SPECIES LISTED BY FEDERAL, STATE OR LOCAL AGENCIES AS ENDANGERED, THREATENED OR SPECIES OF SPECIAL CONCERN

This study is of short duration. Limited field observations were made during one season only (Summer 1993) and, therefore, the data contained herein are likely incomplete due to seasonal changes in faunal composition.

Descriptions of the vegetation in each habitat type discussed below are given above in Section 13.(1)a-7: EXISTING VEGETATIVE COMMUNITIES.

A preliminary bird species list for both campuses is included as Table 13-3. A preliminary listing of non-avian animal species for both campuses is given as Table 13-4.

North Miami 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

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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 North Miami Campus.

Mangrove forest: The primary value of the mangrove areas on the North Miami Campus itself is probably as wildlife corridors. 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, however, and 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 (for instance, at the southwest corner of 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.

Mangroves within the context area (the State mangrove preserves and Oleta River State Recreation Area) comprise the largest block of mangrove habitat in the northern section of Biscayne Bay. These mangroves are vital in contributing to resources for the endangered West Indian manatee, and are very important nursery areas for fish and invertebrates in Biscayne Bay and surrounding areas. The mangroves are also an important feeding area for migratory insectivorous birds, and a contributing source of detrital materials to the Bay.

Table 13-3 Preliminary Bird Species List for the FIU Campuses

Campus bird lists are compiled from information provided by P. Stoddard* (University Park campus) and from visits by Gaby & Gaby, Inc. personnel to the North Miami Campus on 5 and 12 August, and 3 September.

UP=University Park campus; NM=North Miami Campus.

Common Name	Scientific Name	Presence		
		UP	NM	CODE
Pied-billed Grebe	<u>Podilymbus podiceps</u>	x		pc
Dble-crested Cormorant	<u>Phalacrocorax auritus</u>	x	x	c/f
Anhinga	<u>Anhinga anhinga</u>	x		pc
Great blue heron	<u>Ardea herodias</u>	x	/f	
Little blue heron	<u>Egretta caerulea</u>	x	/i	
Cattle egret	<u>Bubulcus ibis</u>	x	x	c
Green-backed heron	<u>Butorides striatus</u>	x	x	pc

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Yllw-crowned nt-heron	<u>Nyctanassa violacea</u>		x	
Blck-crowned nt-heron	<u>Nycticorax nycticorax</u>	x		p
White ibis	<u>Eudocimus albus</u>	x	x	/ia
Roseate spoonbill ^b	<u>Ajaia ajaia</u>		x	
Turkey vulture	<u>Cathartes aura</u>	x		c
Osprey	<u>Pandion haliaetus</u>	x	x	pc/f
Sharp-shinned hawk	<u>Accipiter striatus</u>	x		p
Cooper's hawk	<u>Accipiter cooperii</u>	x		pc
Red-shouldered hawk	<u>Buteo lineatus</u>	x		
Broad-winged hawk	<u>Buteo platypterus</u>		x	p
American kestrel ^c	<u>Falco sparverius</u>	x		pc
Common moorhen	<u>Gallinula chloropus</u>	x		c*
American coot	<u>Fulica americana</u>	x		c
Killdeer	<u>Charadrius vociferus</u>	x	x	pc
Greater yellowlegs	<u>Tringa melanoleuca</u>	x		c
Spotted sandpiper	<u>Actitis macularia</u>		x	
Laughing gull	<u>Larus atricilla</u>	x	x	pc
Ring-billed gull	<u>Larus delawarensis</u>	x		c
Least tern	<u>Sterna antillarum</u>	x		c
Black skimmer	<u>Rynchops nigra</u>	x		c
Rock dove	<u>Columba livia</u>	x	x	c
White-crowned pigeon	<u>Columba leucocephala</u>	x	/f	
(Table 13-3 continued)				
Common Name	Scientific Name	UP	Presence NM	CODE
Mourning dove	<u>Zenaida macroura</u>	x	x	p*
Eurasian collared dove	<u>Streptopelia decaocto</u>	x		p
Common ground-dove	<u>Columbina passerina</u>		x	
Monk parakeet	<u>Myiopsitta monachus</u>	x		pc*
Red-masked parakeet	<u>Aratinga erythrogenys</u>	x		pc
Cockatiel	<u>Nymphicus hollandicus</u>	x		c
Smooth-billed ani	<u>Crotophaga ani</u>	x		p
Burrowing owl	<u>Speotyto cunicularia</u>	x		c
Common nighthawk	<u>Chordeiles minor</u>		x	
Chuck-will's widow	<u>Caprimulgus carolin.</u>	x		p
Rufous hummingbird	<u>Selasphorus rufus</u>	x		p
Belted kingfisher	<u>Ceryle alcyon</u>	x	x	pc
Red-bellied woodpecker	<u>Melanerpes carolinus</u>	x	x	pc
Yllw-bellied sapsucker	<u>Sphyrapicus varius</u>	x		c
Northern flicker	<u>Colaptes auratus</u>	x		c*
Empidonax sp.	<u>Empidonax sp.</u>	x		p
Gt-crested flycatcher	<u>Myiarchus crinitus</u>	x		c
Eastern kingbird	<u>Tyrannus tyrannus</u>	x		p
Gray kingbird	<u>Tyrannus dominicensis</u>	x	x	pc*
Barn swallow	<u>Hirundo rustica</u>	x	x	pc

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N. rugh-winged swallow	<u>Stelgidopteryx serri.</u>	x		pc
Blue jay	<u>Cyanocitta cristata</u>	x	x	p
Fish crow	<u>Corvus ossifragus</u>	x	x	c
House wren	<u>Troglodytes troglody.</u>	x		p
Blue-gray gnatcatcher	<u>Poliopitila caerulea</u>	x	x	pc*
American robin	<u>Turdus migratorius</u>	x		p
Grey catbird	<u>Dumetella carolinen.</u>	x		p
Northern mockingbird	<u>Mimus polyglottos</u>	x	x	pc*
Brown thrasher	<u>Toxostoma rufum</u>	x		p
Cedar waxwing	<u>Bombycilla cedrorum</u>	x		p
Loggerhead shrike	<u>Lanius ludovicianus</u>	x	x	pc*
European starling	<u>Sternus vulgaris</u>	x	x	c
White-eyed vireo	<u>Vireo griseus</u>	x		p
Red-eyed vireo	<u>Vireo olivaceus</u>	x		p
Northern parula	<u>Parula americana</u>	x		pc
Prairie warbler	<u>Dendroica discolor</u>	x	x	pc
Palm warbler	<u>Dendroica palmarum</u>	x		pc
Black-and-white wrblr	<u>Mniotilta varia</u>	x	x	p
American redstart	<u>Setophaga ruticilla</u>	x	x	pc
Ovenbird	<u>Seiurus aurocapillus</u>	x		p
Common yellowthroat	<u>Geothlypis trichas</u>	x		p*
Northern cardinal	<u>Cardinalis cardinalis</u>	x	x	p*
(Table 13-3 continued)				
Common Name	Scientific Name	UP	Presence NM	CODE
Painted bunting	<u>Passerina ciris</u>	x		p
Red-winged blackbird	<u>Agelaius phoeniceus</u>	x		p*
Boat-tailed grackle	<u>Quiscalus major</u>	x	x	pc*
Common grackle	<u>Quiscalus quiscula</u>	x		pc*

*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 North Miami Campus,
all other codes refer to the University Park campus.

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

Unless otherwise noted, all birds were adults.

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Table 13-4 Animal Species (Excluding Birds) Observed or Reported
at the FIU Campuses and in the Surrounding Context Areas

The following is a preliminary list of non-avian animal species observed by Gaby & Gaby, Inc. personnel during visits to the North Miami (NM) and University Park (UP) campuses of FIU. Also included are species reported to occur by P. Stoddard (FIU) and G. Milano (DERM).

COMMON NAME	SCIENTIFIC NAME	NM	UP
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MAMMAL SPECIES:

Bobcat ^a	<u>Lynx rufus</u>		x
Raccoon	<u>Procyon lotor</u>	x	
West Indian manatee	<u>Trichechus manatus</u>	x	
Atl. bottlenose dolphin	<u>Tursiops truncatus</u>	x	
Red fox ^a	<u>Vulpes vulpes</u>		x

FISH SPECIES:

Snook	<u>Centropomus sp.</u>		x
Mosquito fish	<u>Gambusia sp.</u>	x	x
Mojarra	<u>Gerres sp.</u>	x	
Herring	<u>Jenkinsia sp.</u>	x	
Pinfish ^b	<u>Lagodon rhomboides</u>	x	
Bluegill	<u>Lepomis macrochirus</u>		x
Tarpon	<u>Megalops atlantica</u>	x	
Largemouth bass	<u>Micropterus salmoides</u>		x
Mullet	<u>Mugil curema</u>	x	
Tillapia sp.	<u>Oreochromis spp.</u>		x
Barracuda	<u>Sphyraena barracuda</u>	x	
Mangrove snapper	Serranidae	x	
Needlefish	Belonidae	x	
Silversides	Atherinidae	x	
Pufferfish		x	

AMPHIBIAN SPECIES:

Cane toad	<u>Bufo marinus</u>		x
East. narrow-mouthed toad	<u>Gastrophryne carolinensis</u>		x

(Table 13-4 continued)

COMMON NAME	SCIENTIFIC NAME	NM	UP
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REPTILE SPECIES:

Carolina anole	<u>Anolis carolinensis</u>	x	x
Cuban brown anole	<u>Norops sagrei</u>	x	x
Bark anole	<u>Norops distichus</u>	x	x

NOTABLE INVERTEBRATE SPECIES:

Limpet	<u>Acmaea sp</u>	x	
Gulf fritillary	<u>Agraulis vanillae</u>		x
Battalaria snail	<u>Battalaria sp.</u>	x	
Barnacle	<u>Chthamalus sp.</u>	x	
Queen butterfly	<u>Danaus gilippus berenice</u>		x
Julia butterfly	<u>Drvas iulia</u>	x	
Blue sponge ^b	<u>Dysidea etherea</u>	x	
Florida atala butterfly	<u>Eumaeus atala florida</u>		x
Zebra butterfly	<u>Heliconius charitonius</u>		x
Sulfur butterfly	<u>Phoebis spp.</u>		x
Orange sponge	<u>Demospongiae</u>	x	
Sea cucumber	<u>Holothuroidea</u>	x	
Periwinkle	<u>Gastropoda</u>	x	
Mussel	<u>Bivalvia</u>	x	
Amphipods	<u>Amphipoda</u>	x	
Fiddler crab	<u>Decapoda</u>	x	
Sea urchin	<u>Echinoidea</u>	x	

^a Reported to occur by P. Stoddard

^b Reported to occur by G. Milano

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. Nonetheless, considerable cover is already available for animals along this vegetated strip of shoreline, and habitat value should increase in the future. The beach strand vegetation undoubtedly 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 North Miami Campus do not appear to be very important wildlife habitat. The west lake is depauperate of both vegetation and animal

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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 on 12 and 15 August and 3 September 1993, during visits to the North Miami campus of FIU and 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.

No detailed survey of invertebrates was conducted. Several species of sponges, mussels, periwinkles and various gastropods were observed to have colonized the rip-rap areas of the shoreline. Sea urchins and burrowing sea cucumbers were observed in turtle grass areas and algae-covered mud flat areas, respectively. Amphipods and fiddler crabs were abundant in the beach litter.

The shoreline of the North Miami 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 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, however. A stretch of rubble beach may be better habitat for wading birds, but is unlikely to be used by shorebirds due to the large particle size. 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 on the North Miami 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. These habitat islands may also be used on a temporary basis as foraging sites by migrant species of warblers, vireos, thrushes and other insectivorous species.

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UNIVERSITY PARK CAMPUS: Note that on 22 March 1977, Florida International University signed an agreement with the Tropical Audubon Society, Inc. designating the entire University Park campus as a wildlife sanctuary.

Exotic-invaded hardwood hammocks: Hardwood hammocks at the University Park campus probably serve as nesting and foraging habitat for several bird species. Mockingbirds and bluejays were observed foraging in several of the hammocks we examined. These areas may also be used as foraging sites by many of the 30-odd migrant land-bird species recorded on campus by Dr. P. Stoddard, a member of the biology department, since 2 December 1992, during spring and fall migration (Table 13-3).

Preserve: This area was designated as an on-campus botanical and wildlife preserve in 1977. The size of the hammock preserve (600' x 900') and the mature state of the vegetation in the preserve make this the most valuable area of wildlife habitat on the campus. The preserve is an important foraging and nesting site for several resident bird species, and is heavily used by migrant species. Mammal species using the preserve include red foxes (Vulpes vulpes), with a pair currently resident in the preserve (P. Stoddard, pers. comm.). P. Stoddard (pers. comm.) also indicated that a bobcat (Lynx rufus) was resident in the preserve in the recent past.

At least one rare invertebrate species, the Florida atala butterfly (Eumaeus atala florida; listed as threatened by the Florida Committee on Rare and Endangered Plants and Animals), has been deliberately introduced into the preserve. The butterfly garden portion of the preserve supports a number of butterfly species, including zebra butterflies (Heliconius charitonius), Gulf fritillaries (Agraulis vanillae), julias (Dryas iulia), queen butterflies (Danaus gilippus berenice), and sulfurs (Phoebis spp.).

Tree islands: Tree islands at the University Park campus probably serve as nesting and foraging habitat for a limited number of bird species. Mockingbirds and bluejays were observed foraging in several of the tree islands examined by Gaby & Gaby, Inc. personnel. Less aggressive and more secretive species are unlikely to nest or habitually forage in the tree islands, although they may be used on a temporary basis as foraging sites by some of the approximately 30 migrant land-bird species recorded on campus since 2 December 1992, during spring and fall migration (Table 13-3).

Lakes and littoral zones: The 13 lakes on the University Park campus vary considerably in habitat quality. Those lakes with well developed littoral zone vegetation are used by a variety of wading and swimming birds, some of which may nest on campus. At least one migratory species, the pied-billed grebe (Podilymbus podiceps), also winters on some of the lakes. Steep-banked lakes with poorly developed littoral zones are unlikely to be used as frequently by wading

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birds, although they also support the same species of exotic and native fishes as the "high-quality" lakes.

Several species of fish were observed in the lakes at the University Park campus. Common species included tilapia (Oreochromis spp.), mosquitofish (Gambusia spp.), bluegill (Lepomis macrochirus) and largemouth bass (Micropterus salmoides). One turtle was observed near Hennington Island, but we were unable to see it sufficiently clearly to identify it.

A number of birds were observed in or near the lakes on the University Park campus, including Muscovy ducks (Cairina moschata), green herons (Butorides striatus), pied-billed grebes, and American coots (Fulica americana).

Within the context area of the University Park campus, the off campus lake provides feeding and nesting area for a number of bird species, including common gallinules, boat-tailed grackles, fish crows (Corvus ossifragus) and mourning doves. An unidentified turtle and Tilapia sp. were also observed in this lake.

Lawns and undeveloped areas: The extensive lawn areas at the University Park campus, and particularly those areas at the northwest corner of the campus (occasionally flooded areas) are used as foraging areas by a few species of birds, notably boat-tailed grackles, common grackles (Quiscalus quiscula) and killdeer (Charadrius vociferous). Additional species of shorebirds may use these areas during migration.

Two fenced enclosures are located along the south edge of the campus, near the Dade County Youth Fairgrounds. During a visit by Gaby & Gaby, Inc. personnel on 13 August 1993, one of the enclosures contained an active burrowing owl (Speotyto cunicularia) burrow. A burrow occupant was observed sitting on a fencepost near the burrow entrance. An examination of the other fenced enclosure revealed no active burrow, although it is apparent that the enclosure at one time surrounded an active owl burrow. The vegetation in both enclosures was rather high and thick, and appeared unsuitable for owl burrows. A careful examination of the sodded areas along the south edge of the campus and along the corresponding north edge of the Youth Fair property revealed no evidence of additional burrowing owl burrows. According to the FIU ornithologist, P. Stoddard, the enclosures were erected to prevent disturbance to the owls during the 1987 papal visit to the Dade County Youth Fairgrounds. He also indicated that no owls have used the one enclosure during the past year, and that there was no indication of successful breeding by the pair of owls resident at the other enclosure. No active management of vegetation within the enclosures is currently being undertaken.

13.(1)a-9: KNOWN CORRIDORS FOR ANIMAL SPECIES BELONGING TO THE FAUNAL TYPES NOTED IN 13.(1)a-8 ABOVE.

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North Miami Campus: The primary value of the mangrove areas along the estuary and canals on the North Miami Campus is probably as wildlife corridors. These areas of mangroves on campus are 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, however, along with a sizable patch of mangroves at the northwest corner of the campus, and 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 (for instance, at the southwest corner of the campus) may be important roosting and/or nesting sites for several species of wading birds and foraging habitat for migrant insectivores.

Mangroves within the context area (the State mangrove preserves and Oleta River State Recreation Area) comprise the largest block of mangrove habitat in the northern section of Biscayne Bay. These mangroves are vital in contributing resources for the endangered West Indian manatee, and are very important nursery areas for fish and invertebrates in Biscayne Bay and surrounding areas.

UNIVERSITY PARK: No known animal corridors exist within the University Park campus context area. The campus and context area are surrounded on all sides by residential and commercial development.

13.(1)a-10: WELL-FIELD CONES OF INFLUENCE

According to the 1992 Dade County Comprehensive Development Master Plan (DCMP), neither the North Miami Campus and context area nor the University Park campus and context area lie within any well-field cones of influence.

13.(1)a-11: AQUIFERS AND AQUIFER RECHARGE AREAS

Technically, all of Dade County is an aquifer recharge area, in that there is no impermeable layer between the surface and the aquifer. However, aquifer recharge areas of concern to South Florida Water Management District (SFWMD) are the major wetlands systems in western and southern Dade County (T. Singleton, SFWMD, pers. comm.). Neither campus is considered to be an important aquifer recharge area.

North Miami Campus: The North Miami Campus and context area receive water from the Miami Dade Water and Sewer Authority Department (MDWASAD), which in turn draws its water from the Biscayne aquifer. However, potable water is not drawn from the Biscayne aquifer within the North Miami Campus context area because of saltwater intrusion.

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UNIVERSITY PARK: The University Park campus and context area receive water from the MDWASAD which in turn draws its water from the Biscayne aquifer. The University Park campus and context area lack extensive wetland systems, and are thus not important aquifer recharge areas.

13.(1)b-1: AIR QUALITY

Air quality information was obtained from Dade County DERM. The 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. The most recent data available are from 1988 through the end of 1991. Data from 1992 are not available at this time.

Methods and objectives of Dade County's air quality monitoring program are discussed in Appendix A.

Air quality in Dade County: 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 5 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

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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.

The AQI summary for Dade County for 1989, 1990, and 1991 is shown in Table 13-5. It shows that air quality in Dade County has improved over the years for which data are available, with the percentage of "unhealthful" days decreasing and more than 50% of each year being in the "good" range. The AQI in Dade County has never registered higher than the "unhealthful" stage and has only reached that stage a few times.

North Miami Campus: Very few Dade County air quality monitoring sites are located close to the North Miami Campus of FIU. The closest site is approximately 8.1 miles southwest of the campus. All of the monitoring sites are located to the south of the North Miami Campus except the Thompson Park site, which is located nearly 19 miles west-northwest of the campus.

Following are locations and descriptions of the air quality monitoring sites within 10 miles of the North Miami Campus.

Dade County site #01, the Lab/Annex site, is located on the second floor of 864 NW 23rd Street and is approximately 8.5 miles southwest of the North Miami Campus. It is a NAMS nitrogen dioxide and SLAMS carbon monoxide site with a neighborhood spatial scale and a maximum concentration objective. Available data from this site are shown in Tables 13-6 and 13-7.

Dade County site #10, the 27th Avenue site, is located on the roof of the second floor of 6400 NW 27th Avenue and is approximately 8.1 miles southwest of the North Miami Campus of FIU. It is a NAMS PM10 site with a neighborhood spatial scale and a maximum population exposure objective. Available data from this site are shown in Table 13-8.

Dade County site #11, the Hialeah High School site, is located on the roof of the second floor library at 251 E. 47th Street, Hialeah, and is approximately 9.1 miles southwest of the North Miami Campus. It is a NAMS lead site with a neighborhood spatial scale and a maximum population exposure objective, as well as a SLAMS PM10 surrogate (TSP) site with an urban spatial scale and a maximum population exposure objective. It is a collocated site. Available data from this site are shown in Table 13-9.

Dade County site #38, the Miami fire station site, is located on the roof of the Miami fire station at 1200 NW 20th Street. It is a NAMS PM10 site with a middle spatial scale and a maximum concentration objective. It is a collocated site. The AQI PM10 sampler is also located at this site. Available data from this site are shown in Table 13-10.

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Dade County site #42, the Dade Federal site, was located on a second floor ledge in a stairwell in the CenTrust building located at 101 E. Flagler Street, and was approximately 9.7 miles southwest of the North Miami Campus. It was a NAMS carbon monoxide site with a micro (canyon) spatial scale and a maximum concentration objective. It was closed in 1990 when the building was closed. Available data from this site are shown in Table 13-11.

Table 13.5 AQI Report for 1989, 1990, and 1991 *

Percent Reported Compared with Annual Total **

	REPORTED			TOTAL		
YEAR	1989	1990	1991	1989	1990	1991
% Good	59.13	51.20	69.72	61.09	58.90	73.97
% Moderate	40.47	48.80	30.28	37.81	40.82	25.48
% Unhealthful	0.40	0.00	0.00	1.10	0.27	0.55

Percent Annual Total by Parameter and Air Quality

Year	1989	1990	1991
Good O3	29.86	31.51	41.64
Good CO	13.16	6.03	2.19
Good TSP	18.08	21.37	30.14
Moderate O3	16.99	17.53	8.77
Moderate CO	9.59	3.01	3.01
Moderate TSP	11.23	20.27	13.70
Unhealthful O3	0.82	0.27	0.55
Unhealthful CO	0.27	0.00	0.00
Unhealthful TSP	0.00	0.00	0.00

* From Ambient Air Monitoring in Dade County 1988-1991

** See text for explanation

Table 13-6 Nitrogen Dioxide, Lab/Annex D.C. Site #01 *

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From 1988 to 1990, the average monthly pattern shows the lowest average in June/July and the highest in December. In 1991, the average monthly pattern shows the lowest average in May and the highest in November. From 1988 to 1991, the average hourly pattern is a hump starting at 0600 and ending at 1100, peaking at 0800 hours.

Year	1988	1989	1990	1991
Total # Readings	8126	8029	7939	8002
% Data Recovery	92.5	91.7	90.6	91.3
Max. Yearly Reading PPB	92	96	88	82
Avg. Yearly Reading PPB	16.7	17.8	16.1	15.0
% of Readings <= 50 PPB	98.18	98.47	99.33	99.23
% of Readings 51 to 100 PPB	1.82	1.53	0.67	0.77
% of Readings > 100 PPB	0.00	0.00	0.00	0.00
# of Days With:				
Max. Hour Reading > 101 PPB	0	0	0	0
Max. Hour Reading 51 to 100 PPB	51	46	22	22
Max. Hour Reading <= 50 PPB	302	306	323	329
No Reading	13	13	20	14
Exceedance (AAM > 50 PPB)	0	0	0	0

* From Ambient Air Monitoring in Dade County 1988-1991

Table 13.7 Carbon Monoxide, Lab/Annex D.C. Site #01 *

Year	1988	1989	1990	1991
Total # Readings	8335	8362	8455	8601
% Data Recovery	94.9	95.5	96.5	98.2
Max. Yearly Reading PPM	11.9	18.6	9.5	10.5
Avg. Yearly Reading PPM	0.97	1.03	0.89	0.81
Max. 8 Hr. Average	5.7	9.4	5.2	8.8
% of Readings <= 5.0 PPM	99.53	98.93	96.42	99.74

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% of Readings 5.1 to 10.0 PPB	0.46	1.02	3.54	0.24
% of Readings 10.1 TO 15.0 PPM	0.01	0.01	0.04	0.02
% of Readings > 15.0 PPM	0.00	0.00	0.00	0.00
# of Days With:				
8 Hour Exceedances (> 9.4 PPM)	0	0	0	0
1 Hour Exceedances (> 35.4 PPM)	0	0	0	0
Max. Hour Reading > 15.0 PPM	0	1	0	0
Max. Hour Reading 10.1 to 15.0 PPB	1	1	0	1
Max. Hour Reading 5.1 to 10.0 PPM	25	37	23	9
Max. Hour Reading < = 5.0 PPM	330	321	341	355
No Reading	10	5	1	0

* From Ambient Air Monitoring in Dade County 1988-1991

Table 13-8 PM10, 27TH Avenue D.C. #10*

YEAR	SAMPLE #	MAXIMUM	MINIMUM	AAM
1988	26	47.0	14.0	25.58
1989	61	49.3	13.5	25.53
1990	60	50.1	14.2	24.86
1991	60	55.0	12.0	24.00

OFFICIALLY STARTED OPERATION 8/1/88

*From Ambient Air Monitoring in Dade County 1988-1991

**Table 13-9 Total Suspended Particulates (TSP),
Hialeah High School D.C. Site #11***

YEAR	SAMPLE #	MAXIMUM	MINIMUM	AAM
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1988	56	86	19	43.88
1989	57	127.7	21	47.71
1990	58	77.2	26.3	43.95
1991	55	75	22	41.00

HIALEAH HIGH SCHOOL COLLOCATED

1988	54	90	19	42.52
1989	54	81.4	21.4	43.14
1990	58	70.4	26.2	44.55
1991	56	75	22	41

*From Ambient Air Monitoring In Dade County 1988-1991

UNIVERSITY PARK: Several Dade County air quality monitoring stations are located within 10 miles of the University Park campus. Following are locations and descriptions of each of these sites.

Dade County site #32, the West Airport site, is located on the roof of the Dade County Traffic Control building at 7100 NW 36th Street and is approximately 5.2 miles northeast of the University Park campus. It was a SLAMS PM10 surrogate site with a neighborhood spatial scale and a maximum population exposure objective until 1990 when it became a SLAMS PM10 site. Available data from this site are shown in Table 13-12.

Dade County site #33, the South Miami site, was located on the roof of the second floor of JRE Lee School at 6135 SW 66th Street, South Miami and is approximately 5.9 miles southeast of the University Park campus. It was a SLAMS PM10 surrogate (TSP) site with a neighborhood spatial scale and a maximum population exposure objective. It was discontinued on 31 December 1991. Available data from this site are shown in Table 13-13.

Dade County site #34, the Pennsuco site, is located in a shed at the intersection of SR 821 and US 27 and is approximately 9.5 miles north of the University Park campus. It is a SLAMS sulfur dioxide site and a SLAMS PM10 surrogate (TSP) site with a neighborhood spatial scale and a source impact objective. Available data from this site are shown in Tables 13-14 and 13-15.

Dade County site #44, the Palmetto site, is located on the west side of the Palmetto Expressway at approximately 77th Court and SW 4th Street, approximately 3.3 miles east-northeast of the University Park campus. It is a NAMS lead site with a micro spatial scale and a maximum

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concentration objective. It is a collocated site. Available data from this site are shown in Table 13-16.

Dade County site #53, the Coral Reef site, is located in a shed in the southeast area of the Palmetto Golf Course. Its approximate address is 16000 South Dixie Highway (US 1), and is located approximately 9.5 miles south-southeast of the University Park campus. It is a SLAMS carbon monoxide site with a neighborhood spatial scale and a maximum population exposure objective. DERM personnel informed Gaby & Gaby, Inc. staff that the monitoring device at this site blew away in August 1992 as a result of Hurricane Andrew and has not yet been replaced. Available data from this site are shown in Table 13-17.

Table 13-10 TSP, Miami Fire Station D.C. #38*

YEAR	SAMPLE #	MAX	MIN	AAM
1988	53	125	27	70.89
1989	45	112	38.5	65.45

TSP SAMPLER DISCONTINUED 10/1/89. PM10 IN PLACE
FOR 1 YEAR

*From Ambient Air Monitoring in Dade County 1988-1991

Table 13-11 Carbon Monoxide, Dade Federal D. C. Site #42*

YEAR	1988	1989	1990
TOTAL # READINGS	8071	8455	6380
% DATA RECOVERY	91.9	96.5	85.0
MAXIMUM YEARLY READING PPM	14.0	10.1	22.6
AVERAGE YEARLY READING PPM	1.83	1.76	1.5
MAXIMUM 8 HR AVERAGE	9.2	8.5	9.3
% OF READINGS <=5.0 PPM	94.07	96.42	98.66
% OF READINGS 5.1 TO 10.0 PPM	5.83	3.54	1.27
% OF READINGS 10.1 TO 15.0 PPM	0.10	0.04	0.02

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% OF READINGS >15.0 PPM	0.00	0.00	0.05
# OF DAYS WITH:			
8 HR EXCEEDANCES (>9.4 PPM)	0	0	0
1 HR EXCEEDANCES (>35.4 PPM)	0	0	0
MAXIMUM HOUR READING >15.0 PPM	0	0	1
MAXIMUM HOUR READING 10.1 TO 15.0 PPM	5	2	1
MAXIMUM HOUR READING 5.1 TO 10.0 PPM	38	118	48
MAXIMUM HOUR READING <=5.0 PPM	216	245	227
NO READING	7	0	36

SITE CLOSED 31 DECEMBER 1990

*From Ambient Air Monitoring In Dade County 1988-1991

Table 13-12 PM10, West Airport D.C. Site #32*

YEAR	SAMPLE#	MAXIMUM	MINIMUM	AAM
1990	49	51.1	14.9	28.74
1991	60	65	4	26

STATION OFFICIALLY STARTED 3/18/90

*From Ambient Air Monitoring In Dade County 1988-1991

Table 13-13 Total Suspended Particulates (TSP), South Miami D.C. Site #33*

YEAR	SAMPLE #	MAXIMUM	MINIMUM	AAM
1988	35	67	15	34.77
1989	56	65.5	15.3	34.39
1990	57	71.2	19.8	36.42
1991	45	70	12	30.00

ROOF CONSTRUCTION PREVENTED SAMPLING UNTIL 5/15/88

SITE SHUT DOWN DECEMBER 31, 1991

*From Ambient Air Monitoring In Dade County 1988-1991

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Table 13-14 Sulfur Dioxide, Pennsuco D.C. Site #34*

YEAR	1988	1989%	1990	1991
TOTAL # READINGS	6604+		4634@	8282
DATA RECOVERY	94.4		96.8	8760
MAXIMUM YEARLY READING PPB	6		20	30
AVERAGE YEARLY READING PPB	0.3		0.33	0.89
% OF READINGS = 0 PPB	72.70		85.05	42.35
% OF READINGS <= 5 PPB	27.27		13.88	56.73
% OF READINGS 5 TO 15 PPB	0.03		1.05	0.88
% OF READINGS >15 PPB	0.00		0.02	0.04
# OF DAYS WITH:				
MAXIMUM HOUR READING >15 PPB	0		1	3
MAXIMUM HOUR READING 5.1 TO 15 PPB	1		32	63
MAXIMUM HOUR READING <5 PPB	157		68	232
MAXIMUM HOUR READING = 0 PP	131		98	62
NO READING	2		0	5
EXCEEDANCE (AAM>10 PPB)	0		0	0

+TOTAL POSSIBLE READINGS 6993. STOPPED OPERATION 10/18/88
@TOTAL POSSIBLE READINGS 4762. STARTED OPERATION 6/15/90
% NO DATA PENDING DER DECISION

*From Ambient Air Monitoring In Dade County 1988-1991

Table 13-15 TSP, Pennsuco D. C. Site #34*

YEAR	SAMPLE#	MAX	MIN	AAM
1988	60	204	19	77.50
1989	51	260.3	26.2	117.44

HIGH READINGS & EXCEEDANCES DUE TO CONSTRUCTION DIRT.
SAMPLER DISCONTINUED ON 10/31/89 DUE TO CONSTRUCTION
DIRT.

*From Ambient Air Monitoring In Dade County 1988-1991

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Table 13-16 Lead, Palmetto D.C. Site #44*

YEAR	SAMPLE #	QUARTERLY AVERAGE				
		MAX UGM	1	2	3	4
1988	59	0.30	0.1	0.0	0.0	0.1
1989	59	0.15	0.1	0.0	0.0	0.1
1990	60	0.30	0.0	0.0	0.0	0.0
1991	58	0.09	0.0	0.0	0.0	0.0

PALMETTO COLLOCATED D. C. SITE #44

1988	61	0.30	0.1	0.1	0.0	0.0
1989	60	0.17	0.1	0.0	0.0	0.1
1990	61	0.29	0.0	0.0	0.0	0.0
1991	60	0.08	0.0	0.0	0.0	0.0

*From Ambient Air Monitoring In Dade County 1988-1991

Air Quality at the North Miami and University Park Campuses: Air quality in the vicinity of the two FIU campuses is generally good.

There were 9 daily exceedances for TSP at the Pennsuco site in 1989. Exclusions of these 9 exceedances were requested, because dirt was being loaded and unloaded near the sampler and presumably affected the results. Because of this occurrence, the site was shut down and sampling discontinued on 31 October 1989. A replacement sampling site may be established in this area. The Pennsuco site is located approximately 9.5 miles north of the University Park campus, and more than 10 miles from the North Miami Campus. County-wide, a daily exceedance in TSP in 1990 at the Homestead monitoring site was explained by the fact that the firemen held a barbecue, and the sampler is located on the roof of the fire station. After this exceedance, the TSP sampler there was replaced with a PM10 sampler by 1 July 1991. The annual arithmetic mean was exceeded once in 1990 at the Homestead site (located more than 10 miles from either FIU campus) due to the barbecue and twice at the West Airport site, once in 1988 and once in 1989. Because of these exceedances, a PM10 sampler was installed on 18 March 1990 at the West Airport site. This site is located approximately 5.2 miles northeast of the University Park campus and more than 10 miles from the North Miami Campus.

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Table 13-17 Carbon Monoxide, Coral Reef Site #53 (Opened 7/1/91)*

YEAR	1991
TOTAL # READINGS	4291
% DATA RECOVERY	98.2
MAXIMUM YEARLY READING PPM	4.7
AVERAGE YEARLY READING PPM	0.91
MAXIMUM 8 HR AVERAGE	3.1
% OF READINGS <=5.0 PPM	100.00
% OF READINGS 5.1 TO 10.0 PPM	0.00
% OF READINGS 10.1 TO 15.0 PPM	0.00
% OF READINGS >15.0 PPM	0.00
# OF DAYS WITH:	
8 HR EXCEEDANCES (>9.4 PPM)	0
1 HR EXCEEDANCES (>35.4 PPM)	0
MAXIMUM HOUR READING >15.0 PPM	0
MAXIMUM HOUR READING 10.1 TO 15.0 PPM	0
MAXIMUM HOUR READING 5.1 TO 10.0 PPM	0
MAXIMUM HOUR READING <=5.0 PPM	183
NO READING	182

THERE ARE NOT ENOUGH DATA TO COMMENT ABOUT THE CORAL REEF SITE. A YEARLY PATTERN CANNOT BE SEEN FOR THE CORAL REEF SITE WITHOUT AT LEAST ONE COMPLETE YEAR OF DATA.

*From Ambient Air Monitoring In Dade County 1988-1991

County-wide, there were 3 ozone exceedances in 1988, none in 1989, one in 1990, and none in 1991. All of the ozone monitoring sites in Dade County are located more than 10 miles from either FIU campus.

The carbon monoxide monitoring site at Coral Reef, located approximately 9.5 miles south-southeast of the University Park campus, was put into operation on 1 July 1991. Therefore, only about 6 months of data are available for this location. Yearly trends in carbon monoxide levels for this site are not possible to determine without more data, but there were no exceedances for this site during the time period for which records are available. Dade County monitors carbon monoxide at 4 sites county-wide. There were no official 1-hour exceedances or 8-hour exceedances from 1988 to 1991 for carbon monoxide at any of these sites.

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Dade County has two sites where nitrogen dioxide is monitored. There were no exceedances at either of these sites from 1988-1991, the period for which records are available.

Dade County monitors sulfur dioxide at only one site, the Pennsuko location, approximately 9.5 miles north of the University Park campus and more than 10 miles from the North Miami Campus. This monitoring station was closed during 1989, but available records from 1988, 1990 and 1991 show no exceedances.

Dade County monitors lead at two sites. There were no exceedances for this pollutant at either site for the period for which records are available.

KEY ISSUES INVOLVING AIR QUALITY: At both campuses it appears that most university-related trips involve vehicles carrying only one person. Opportunities to reduce the number of trips, and increase the average number of individuals per vehicle should be explored. On campus air quality monitoring should be instituted (see Section 13 (2)c). Indoor air quality should be monitored. Air quality studies should be done before parking garages are planned.

13.(1)b-2: SURFACE WATER QUALITY

Water quality data for the North Miami and University Park campuses 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. For further information regarding the latter, the reader is referred to the EPA Record of Decision (EPA, 1990).

DERM monitors a variety of parameters, including ammonia, nitrate/nitrite, organic PO_4 , total PO_4 , 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, but the Department of Environmental Protection (DEP) has not yet developed standards for this compound. No information was available from DERM regarding coliform bacteria or dissolved oxygen levels.

North Miami Campus: There are two groundwater wells monitored by DERM near the North Miami Campus, each located 2.5 miles from the campus. For one of the two wells, data are available from 1981 through 1990. Data for the other well are available only from 1992.

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There was one exceedance of DEP water quality standards in wells in the vicinity of the North Miami Campus: in 1989, iron levels of 0.97 mg/L were measured in a well near the North Miami Campus. This level exceeded the DEP standard (0.3 mg/L).

All other parameters monitored by DERM were within DEP standards in these two wells.

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 the North Miami 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 the North Miami 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 (Carter, et al. 1973).

UNIVERSITY PARK: There are five groundwater wells monitored by DERM within three miles of the University Park 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.

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In the wells near the University Park campus, 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 University Park 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.

KEY ISSUES REGARDING WATER QUALITY: *There are no water quality monitoring stations on or very near either campus. The absence of monitoring precludes us from determining whether or not campus activities are significantly affecting ground or surface water quality.*

13.(1)b-3: KNOWN SEPTIC TANKS AND GREASE TRAPS

No known septic tanks are present at either the North Miami Campus or the University Park campus. According to Tom Cooper (FIU architect), the last septic tank was removed from the North Miami Campus two years ago. Grease traps have been installed on both campuses in the portions of the sewer lines associated with cafeteria facilities, and in association with the hospitality management facility on the University Park campus (Tom Cooper, pers. comm.)

13.(1)b-4: KNOWN STORAGE SITES OF HAZARDOUS, TOXIC OR MEDICAL WASTE, and

13.(1)b-5: CHEMICAL AND HAZARDOUS WASTE DISPOSAL SYSTEMS

North Miami 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 the University Park campus 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 the University Park campus, where it is stored in the Hazardous Waste Shed located on the west side of the University Park campus. Only small amounts of hazardous wastes (approximately 5-20 gallons per year) are generated at the North Miami Campus. Biohazardous wastes generated at the North Miami Campus are presumably picked up from the point of generation by the disposal company. No information was available as to the frequency of pickup. According to FIU Health and Safety Staff, no radioactive waste is generated at the North Miami Campus.

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Below-ground fuel storage tanks on the North Miami Campus are associated with motor pool/vehicle maintenance areas. Presumably there are underground emergency fuel storage tanks located under the main buildings, but Gaby & Gaby, Inc. has no specific information on this.

UNIVERSITY PARK: 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 west side of the University Park campus.

Biohazardous wastes generated at the University Park campus 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 on the University Park campus: the University Park 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 the University Park campus 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.

Information regarding the volumes of wastes generated at the University Park campus was requested, but no data were provided, save that the volumes and types of wastes generated by departments throughout the University fluctuate and often depend on the time of the semester, the number of students registered for a course and the amount of research activity.

Gaby & Gaby, Inc. was given limited information regarding fuel storage tanks on the University Park campus. All but three of the tanks at this campus are located underground. 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 the engineering and computer science buildings. Smaller

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emergency diesel tanks (550-600 gallons each) are located at the Public Safety, Charles E. Perry, Ernest R. Graham, and Deuxieme Maison buildings.

According to DERM personnel (Charles Hallis, pers. comm.), all hazardous materials for both campuses are handled under one EPA-Hazardous Waste Generator number, and this will result in problems related to tracking should spills, etc. occur. If this has not been done recently, it is advisable for the University to reconsider whether or not operating under a single generator number is in its best interest.

KEY ISSUES REGARDING HAZARDOUS MATERIALS: *There is, no doubt, much more information regarding hazardous material generation on the campuses than we were given, and therefore, it is not possible for us to identify some of the issues that may be significant.*

13.(2) CONSERVATION ELEMENT ANALYSIS

13.(2)a EXISTING COMMERCIAL, RECREATIONAL OR CONSERVATION USES

13.(2)a-1 WETLANDS

North Miami 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 that is in an area that likely was dominated by mangroves at one time.

Recreational Uses: The dominant recreational feature within the context area is the approximately 470-acre Oleta River State Recreation Area. There are, no doubt, some passive recreation uses in the mangrove areas of Oleta River State Recreation Area, but these likely consist of nature study and education. Fishing and snorkling likely 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.

The City of North Miami has a playing field complex adjacent to the water treatment plant.

On campus there is a jogging/fitness trail that runs adjacent to mangroves and also passes adjacent to some of the strand areas. While there may be other occasional recreational uses of portions of the mangrove areas at the North Miami Campus, we found no evidence that any of

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these relate to University activities. We observed no nature trails or evidence of planned passive or active recreation activities other than the jogging/fitness trails.

There are two over-water structures on campus; however, neither one appears to serve as a recreational facility. The northern one is a pier in good repair, but it is posted as a "no trespassing" area. The other is a floating dock that is in bad repair. It likely is used by the student rowing club and by occasional boaters.

There is a launch ramp adjacent to the red drum fish hatchery on campus. There is a service road that passes this ramp, but the absence of parking facilities and other amenities suggest that it is unlikely that this ramp has other than 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 13.(1)a-6 above.

UNIVERSITY PARK:

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 preserve on campus. The other potential wetland areas are located in vacant land and serve no recreational function.

Conservation Uses: The preserve area 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.

13.(2)a-2 LAKES, RIVERS AND OTHER SURFACE WATERS

North Miami 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.

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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. These projects are discussed in Section 13 (1)a-6 above.

Biscayne Bay and all natural waterways (including the Oleta River and the estuary at the north end of the North Miami Campus) tidally connected to the bay have been designated as the Biscayne Bay Aquatic Preserve, a Dade County preserve.

UNIVERSITY PARK: **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 the campus 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 preserve. No other surface water-related conservation uses were discovered.

13.(2)a-3 FLOODPLAINS

North Miami Campus: The entire North Miami 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.

UNIVERSITY PARK: There are no floodplains on campus or within the context area.

13.(2)a-4 BOTTOM LANDS

North Miami Campus: There are no bottom lands on campus or within the context area.

UNIVERSITY PARK: There are no bottom lands on campus or within the context area.

13.(2)a-5 KNOWN UNIQUE GEOLOGICAL FEATURES

North Miami Campus: There are no known unique geological features on campus or within the context area.

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UNIVERSITY PARK: There are no known unique geological features on campus or within the context area.

13.(2)a-6 EXISTING MITIGATION SITES

North Miami Campus: All of the known mitigation sites in the context area are within wetlands and are discussed in Sections 13 (2)a-1 and 13 (2)a-6 above.

UNIVERSITY PARK CAMPUS: There are no known mitigation sites on campus or within the context area.

13.(2)a-7 EXISTING VEGETATIVE COMMUNITIES

North Miami Campus: Mangrove forests and back-mangrove associations, as well as beach strand communities, are discussed in Section 13 (2)a-1 above. Other vegetative communities are discussed in Section 13 (2)a-7 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 13 (2)a-1 above, 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.

UNIVERSITY PARK: Wetland plant communities on campus and within the context area are discussed in Section 13 (2)a-1 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 above, there are no recreational uses associated with the vegetative communities in the context area.

Conservation Uses: Because the University Park campus 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 13 (1)a-7 above) are protected. Other conservation uses are discussed under wetlands above.

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13.(2)a-8 EXISTING NESTING OR FEEDING HABITAT TYPES AND ASSOCIATED NATIVE OR MIGRATORY HABITAT SPECIALIST, AND SPECIES LISTED BY FEDERAL, STATE OR LOCAL AGENCIES AS ENDANGERED, THREATENED OR SPECIES OF SPECIAL CONCERN

North Miami Campus: The habitat values of each of the vegetation communities in the context area are discussed in Section 13 (2)a-7 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 in Section 13 (2)a-2 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.

UNIVERSITY PARK: 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.

13.(2)a-9 KNOWN CORRIDORS FOR THE FAUNAL SPECIES NOTED IN a-8 ABOVE

North Miami Campus: The only significant wildlife corridors on campus or within the context occur in mangroves, beach strand and other wetland areas, and are discussed in Section 13.(2)a-1 above.

UNIVERSITY PARK: No animal corridors are known to occur on campus or within the context area.

13.(2)a-10 WELL-FIELD CONES OF INFLUENCE

North Miami Campus: There are no well-field cones of influence on campus or within the context area.

UNIVERSITY PARK: There are no well-field cones of influence on campus or within the context area.

13.(2)a-11 AQUIFER RECHARGE AREAS

North Miami Campus: There are no significant aquifer recharge areas on campus or within the context area (see Section 13 (1)a-11).

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UNIVERSITY PARK: There are no significant aquifer recharge areas on campus or within the context area (see Section 13 (1)a-11).

13.(2)b METHODS FOR PROTECTION OR RESTORATION OF RESOURCES IDENTIFIED ABOVE

13.(2)b-1 WETLANDS

North Miami Campus: The majority of wetland areas on campus and within the context area are mangrove forest or back-mangrove associations.

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.

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 should be 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 would be enhanced

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by removal of shading Australian pines, especially along the north side of the canal and along the north part of the estuary. On-going shoreline stabilization and mangrove replanting programs could create or restore mangrove vegetation in areas at the southern and south-west edges of the campus. Existing mitigation projects in the context area are discussed in Section 13 (1)a-6 above.

UNIVERSITY PARK: There are relatively few wetland areas on the University Park campus. The majority of wetlands on campus and within the context area fall into three categories: the preserve and associated lake, littoral zones associated with other lakes, and periodically flooded lawn areas.

Protective measures: The preserve contains patches of wetland plant vegetation and has a lake with a reasonably well-developed littoral zone. The preserve 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 12 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; these 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.

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Enhancement measures: Wetland areas associated with the preserve are currently undergoing an enhancement program, with exotic plant species being removed and littoral zone vegetation being replanted in the adjacent lake (J. Parker, pers. comm.).

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 (see Section 13 (2)b-1 above) would enhance the value of these areas as wildlife habitats.

13.(2)b-2 LAKES, RIVERS AND OTHER SURFACE WATERS

North Miami Campus: **Protective measures:** Routine monitoring of water quality at the two lakes on the North Miami 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. Methods for littoral zone protection are discussed in Section 13 (2)b-1 above.

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 Recreation Area 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 the North Miami Campus) tidally connected to the bay have been designated as the Biscayne Bay Aquatic Preserve, a Dade County 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

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greatly enhance its habitat and visual value. Methods for littoral zone protection and enhancement are discussed in Section 13 (2)b-1 above.

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 13-1) 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.

UNIVERSITY PARK: Protective measures: Protective measures for lakes are discussed in Section 13 (2)b-2, North Miami Campus, above. Methods for littoral zone protection are discussed in Section 13 (2)b-1 above.

Enhancement measures: Most of the lakes on the University Park campus 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. Currently, none of the lakes on campus is fenced. 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. Further methods for littoral zone enhancement are discussed in Section 13 (2)b-1 above.

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.

13.(2)b-3 FLOODPLAINS

North Miami Campus: The entire North Miami Campus is within the 100-year flood zone. All protection and enhancement activities discussed elsewhere fall within the floodplain.

UNIVERSITY PARK: There are no floodplains on campus.

13.(2)b-4 BOTTOM LANDS

North Miami Campus: There are no bottom lands on campus.

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UNIVERSITY PARK: There are no bottom lands on campus.

13.(2)b-5 KNOWN UNIQUE GEOLOGICAL FEATURES

North Miami Campus: There are no known unique geological features on campus.

UNIVERSITY PARK: There are no known geological features on campus.

13.(2)b-6 EXISTING MITIGATION SITES

North Miami Campus: All of the known mitigation sites on campus are within wetlands and are discussed in Section 13 (2)b-1 above.

UNIVERSITY PARK: There are no mitigation sites on campus.

13.(2)b-7 EXISTING VEGETATIVE COMMUNITIES

North Miami Campus: Most of the natural vegetative communities on campus and within the context area are wetlands and are discussed in Section 13 (2)b-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.

UNIVERSITY PARK: Most of the natural vegetative communities on campus and within the context area are wetlands and are discussed in Section 13 (2)b-1 above.

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 13 (2)a-7 above).

Enhancement Measures: Enhancement measures for wetland communities on the University Park campus and context area are discussed in Section 13 (2)b-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*). According to J. Parker, the University is investigating such a program.

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13.(2)b-8 EXISTING NESTING OR FEEDING HABITAT TYPES AND ASSOCIATED NATIVE OR MIGRATORY HABITAT SPECIALIST, AND SPECIES LISTED BY FEDERAL, STATE OR LOCAL AGENCIES AS ENDANGERED, THREATENED OR SPECIES OF SPECIAL CONCERN

North Miami Campus: The habitat values of each of the vegetative communities in the context area are discussed in Section 13 (1)a-7 above.

The only natural vegetative communities that provide significant habitat are wetlands. Protective and enhancement methods for these are discussed in Section 13 (2)b-1 above.

UNIVERSITY PARK: The habitat values of each of the vegetative communities are discussed in Section 13 (1)a-7 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 13 (2)b-1 above. Protective and enhancement measures for upland plant communities are discussed in Section 13 (2)b-7 above.

13.(2)b-9 KNOWN CORRIDORS FOR THE FAUNAL SPECIES NOTED IN A-8 ABOVE

North Miami 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 13 (2)b-1 above.

UNIVERSITY PARK: There are no known animal corridors on campus.

13.(2)b-10 WELL-FIELD CONES OF INFLUENCE

North Miami Campus: There are no well-field cones of influence on campus.

UNIVERSITY PARK CAMPUS: There are no well-field cones of influence on campus.

13.(2)b-11 AQUIFER RECHARGE AREAS

North Miami Campus: No significant aquifer recharge areas occur on campus (see Section 13 (1)a-11 above).

UNIVERSITY PARK: No significant aquifer recharge areas occur on campus (see Section 13 (1)a-11 above).

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13.(2)c KNOWN SOURCES AND RATES OF DISCHARGE OR GENERATION OF POLLUTION

Water Pollution

North Miami Campus: Information regarding known sources and rates of discharge or generation of pollution was conspicuously absent in the data transferred to us from FIU staff. To our knowledge, there are no ongoing pollution monitoring programs on campus, nor have any such programs been implemented in the past except in isolated cases, such as a known fuel-storage tank leak on campus (J. Mwaisela, FIU Environmental Health and Safety Officer, pers. comm.). Therefore, it is not possible to discuss the rates of discharge or generation of pollution with respect to the specific resources identified in part 1(a) of this section. Rather, we discuss known and potential sources of pollution, and their likely effects on some of those resources.

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; we found no data relating to this matter.

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 the North Miami 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.

UNIVERSITY PARK: Information regarding known sources and rates of discharge or generation of pollution was conspicuously absent in the data transferred to us from FIU staff. To our knowledge, there are no ongoing pollution monitoring programs on campus, nor have any such programs been implemented in the past except in isolated cases, such as when the chemistry

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department reported that faulty fume hoods allowed chemicals to drip into the labs on campus (J. Mwisela, pers. comm.). Therefore, it is not possible to discuss the rates of discharge or generation of pollution with respect to the specific resources identified in part 1(a) of this section. Rather, we discuss known and potential sources of pollution, and their likely effects on some of those resources.

Storm water runoff no doubt has some impact on surface water quality on the campus.

Air Pollution

North Miami 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 Dade County are within legal limits on campus. The reader is referred to Section 13 (1)b-1 for further information regarding air pollution.

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.

UNIVERSITY PARK: 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 Dade County are within legal limits on campus. The reader is referred to Section 13 (1)b-1 for further information regarding air pollution.

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There likely are some hydrocarbon emissions generated by on campus fuel storage.

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13.(2)d OPPORTUNITIES OR AVAILABLE AND PRACTICAL TECHNOLOGIES TO REDUCE POLLUTION OR ITS IMPACTS GENERATED BY UNIVERSITY ACTIVITIES

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.

Anticipated sources of pollution for the campus and context area discussed in Section 13 (2)c above.

13.(2)e ROLE OF ON-CAMPUS SITES IN MAINTAINING REGIONAL POPULATIONS OF SPECIES BELONGING TO FAUNAL TYPES NOTED IN (1)a-8 ABOVE

As south Florida becomes increasingly urbanized, the amount of habitat available for use by wildlife and native plant species diminishes. These two campuses, therefore, likely contain areas that are of some importance to native plant and animal species, and opportunities to maintain, increase and enhance habitat values should be incorporated into the proposed master plan changes. In the absence of a definition to the contrary, we have assumed that the term "regional" means the area included under the purview of the South Florida Regional Planning Council. It should be noted that information regarding regional population sizes of plant and animal species found on both campuses is lacking. Therefore, it is difficult to assess the degree to which on campus vegetative communities are important in maintaining these populations.

North Miami Campus: It is unlikely that on campus sites are important to the maintenance of regional populations of any of the species appearing in this report.

UNIVERSITY PARK: It is unlikely that on campus sites are important to the maintenance of regional populations of any of the species appearing in this report.

A population of the Florida atala butterfly has been introduced into the preserve (T. Pliske, FIU Biology Department, pers. comm.), but it is unlikely, even if the introduction is successful, that this population would have a meaningful effect on the maintenance of regional populations.

There is only one pair of burrowing owls on campus (P. Stoddard., pers. comm.); it is unlikely that this pair represents a significant proportion of the regional population of this species.

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13.(2)f QUALITY OF STORMWATER GENERATED BY UNIVERSITY ACTIVITIES AND RESULTING IMPACT TO THE LOCAL WATERSHED

Stormwater quality and generation rate data were to be provided to us by FIU; we requested but did not receive these data. Therefore, it is impossible to accurately assess the quality and environmental impact of stormwaters generated by University activities.

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; we found no data relating to this matter.

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.

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APPENDIX A. DADE COUNTY AIR QUALITY METHODS AND OBJECTIVES

Air quality in Dade County is monitored by DERM. The primary purpose of the network of air monitoring stations located throughout the County 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. The following information was taken from "Ambient Air Monitoring in Dade County 1988-1991", supplied to Gaby & Gaby, Inc. by DERM.

Both the spatial scale and the monitoring objective are used to describe the physical dimensions of the air parcel around a monitor. The spatial scales used in the monitoring sites closest to the FIU campuses are:

Micro scale - The micro spatial scale has typical dimensions ranging from several meters to 100 meters and is normally used for siting lead and carbon monoxide monitors. Micro scale areas are characterized by slow to moderate vehicle speeds and high traffic volumes. Typical areas include street canyons, sidewalks and areas adjacent to major roadways.

Middle Scale - The middle spatial scale has dimensions ranging from 100 to 500 meters. Many of the measurements of short-term public exposure are on this scale. Some examples of middle spatial scales include downtown areas, major roadways, parking lots, etc. Areas for carbon monoxide middle scale measurement can also include strip commercial developments and freeway corridors.

Neighborhood scale - The neighborhood spatial scale is the most widely used. Its dimensions range from 0.5 to 4.0 kilometers. Often these stations represent suburban areas with moderate to high population densities. Generally, monitoring sites of this type provide good information on trends and compliance with standards because they often represent conditions in areas where people commonly work and live.

Urban scale - The urban spatial scale has dimensions ranging from 4 to 50 kilometers. This scale represents conditions over an entire metropolitan area. These measurements are useful for citywide trends in air quality.

The four monitoring objectives used are maximum concentration, maximum population exposure, source impact, and background.

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METHODS

Ozone, carbon monoxide, nitrogen dioxide and sulfur dioxide are measured continuously in Dade County by continuous monitors or analyzers. The term "continuous" is used because the air is pulled continuously from the outside by the monitor. The measurements are sent to a data logger at the monitoring site. They are stored in a data logger for one hour, then averaged and stored as that hour's reading. Up to seven days of data can be stored in the data logger. Every working day, the data are reported to the office computer via the telephone line. It is possible to contact each data logger and obtain the current readings at any time. The units for the measurements are either parts per million (PPM) or parts per billion (PPB).

Ozone is measured with either a Dasibi 1003 RS or a TECO 49 monitor using ultraviolet (UV) absorption photometry. In both monitors, a mercury vapor lamp produces ultraviolet light, which is shined through a tube containing the air sample. The concentration is determined by measuring the absorption of a certain wavelength of UV light by the ozone present in the air sample, then output to the data logger.

Carbon monoxide is measured with a TECO 48 monitor using the gas filter correlation (GFC) type of nondispersive infrared radiation (NDIR) absorption photometry. Infrared radiation from a hot filament is transmitted through a tube containing sample air and a wheel, half of which contains nitrogen and the other half a high concentration of carbon monoxide. The absorption of the NDIR by the carbon monoxide present in the air is determined and the concentration output to the data logger.

Nitrogen dioxide is determined with either a TECO 14B/E or a TECO 42 analyzer. Its concentration is not measured directly; instead, the amount of nitric oxide (NO) and nitrogen oxides (NO_x) are determined by the chemiluminescent reaction method, then the difference is calculated. This difference is the nitrogen dioxide concentration. In the chemiluminescent reaction method, nitric oxide undergoes a gas phase reaction with a high concentration of ozone and gives off light which is measured. The concentration of nitrogen oxides is determined by passing the air through a catalyst to reduce all nitrogen oxides to nitric oxide, then treating it the same way to determine the amount of nitric oxide now present. The concentrations of nitrogen dioxide, nitric oxide and nitrogen oxides are output to the data logger.

Sulfur dioxide is measured with a TECO 43A analyzer using pulsed fluorescent spectrophotometry. Pulsating ultraviolet light is filtered and focused into a fluorescence chamber, where the sulfur dioxide molecules in the sample air are excited into higher energy states. When the sulfur dioxide molecules return to their normal energy state, they release energy (fluoresce). This fluorescence is measured and the concentration determined and output to the data logger.

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Total suspended particulates (TSP), particulate matter less than 10 microns (PM10), and lead are sampled manually. These parameters are sampled from midnight to midnight every six days on a schedule determined by the USEPA. The samples must be manually set up before and removed after a sampling run. The data are the result of manual testing of each individual run. The data are in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$ or UGM). At least one collocated sampler must be established for each parameter. A collocated sampler is a sampler at the same site as the official sampler, which is operated exactly as the official sampler, except that the flow measurements use a separate set of measurement devices.

A total suspended particulates (TSP) sample is collected by drawing air through a preweighed glass fiber filter for 24 hours at a rate of 1.1 to 1.7 cubic meters per minute. The filter is then redessicated and weighed again to determine the total mass collected. The flow rate and sampling time are then used to determine the concentration of particles in the air. This method has been superseded by the PM10 method for particulate matter but is still used to collect samples for lead analysis.

Lead is extracted from a strip of the TSP filter after the determination of TSP. An acid/ultrasound extraction is used. The resulting solution is analyzed by either atomic absorption spectrophotometry (AA) or inductive coupled argon plasma (ICAP). The concentration of lead in solution, the flow rate and sampling time are then used to determine the concentration of lead in the air.

A PM10 sample is collected by drawing air first through a special sampling head and then through a preweighed quartz fiber filter for 24 hours at a rate of 1.017 to 1.243 cubic meters per minute. The special sampling head ensures that only particles equal to or less than 10 microns in diameter reach the filter. The filter is then redessicated and weighed again to determine the total mass collected. The flow rate and sampling time are then used to determine the concentration of particles in the air.

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

The New Guidelines for preparation of the Florida International University Master Plan Update were approved after the Inventory and Analysis document was prepared. The revisions and additions to the Inventory and Analysis called for in the New Guidelines are addressed in this addendum.

In response to the data requirements of the new Guidelines for the Master Plan, this addendum presents the additional information that has been requested as well as the headings under which already prepared information may be found. The analysis section follows the inventory section.

(1) DATA REQUIREMENTS

a) An inventory of the following existing natural and environmental resources, where present on the University campus and within the context areas:

a)1: Rivers, lakes, bays, wetlands (including estuarine marshes), and bottom lands.

This information was included in the original Inventory and Analysis in sections 13(1)a-1, 13(1)a-2, and 13(1)a-4. There are no estuarine marshes on either campus.

a)2: Floodplains.

Based on the definitions contained in the new guidelines and according to the Flood Insurance Rate Maps (revised 16 October 1992), the North Miami Campus is in a floodplain. See section 13(1)a-3 of the original Inventory and Analysis .

Additional information regarding floodplains was included in the original Inventory and Analysis in section 13(1)a-3.

a)3: Known unique geological features (springs, sink holes, etc.).

This information was included in the original Inventory and Analysis in section 13(1)a-5.

a)4: Existing mitigation sites

FIU has a planned joint mitigation project with Dade County to regrade, plant and maintain a 0.8 acre area comprised of land on both sides of the canal that enters the North Miami Campus from Biscayne Bay, to the south. This project resulted from impacts incurred in the expansion of 151st street by Metro- Dade County and FIU's road project connecting the day care center

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with a parking lot. The mitigation site on the east side of the canal begins about 30 feet north of the canal-Biscayne Bay intersection and continues north to the first roadway that crosses the canal. The mitigation site on the west side of the canal begins at the intersection of the canal and Biscayne Bay and also extends north to the same intersecting roadway. The site on each side of the canal is approximately 30 feet wide. The project is in the pre-construction phase.

Construction of dormitories resulted in impacts for which mitigation was required. We have no additional information on this mitigation project.

Additional information regarding mitigation sites was included in the original Inventory and Analysis in section 13(1)a-6. We requested, but did not receive information regarding other mitigation projects.

- a)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.**

MARINE HABITAT, VEGETATIVE COMMUNITIES AND ASSOCIATED WILDLIFE

Marine Habitat is hereby defined as those areas usually covered by salt water. Separate discussions of mangrove areas and beaches are found in 13(1)a-1, a-6, a-7, a-8 and a-9 of the Conservation Element. Discussions of estuaries and beaches also are found the Coastal Element in sections 18(1)c and 18(1)e, respectively.

North Miami Campus:

Marine Habitat: The only marine habitat on the North Miami Campus are the canals and ditches on the north and northeastern edges of the campus, and along the western edge of the campus (Figure 13-1).

The northeastern, eastern, and southern sides of the North Miami Campus are bounded by Biscayne Bay (an estuary), the Intracoastal Waterway, and mangrove channels that join with the Bay. Biscayne Bay and all natural waterways (including the Oleta River and the estuary at the north end of the North Miami Campus) tidally connected to the Bay and have been designated as the Biscayne Bay Aquatic Preserve, a Dade County preserve.

Biscayne Bay itself is considered to be an estuary.

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The Oleta River is the only river within the context area. It is located to the north of the North Miami campus and is included in this section because it is an important site for the endangered West Indian manatee (Trichechus manatus latirostris) (G. Milano, DERM, pers. comm.).

EXISTING MARINE VEGETATIVE COMMUNITIES:

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. Scattered individuals of Caulerpa and other species of algae were also noted in this area.

Mangroves: Mangroves within the context area (the State mangrove preserves and Oleta River State Recreation Area) comprise the largest block of mangrove habitat in the northern section of Biscayne Bay. Mangrove-lined canals are vital habitat for the endangered West Indian manatee, and are very important nursery areas for fish and invertebrates in Biscayne Bay and surrounding areas. The mangroves are also an important feeding area for migratory insectivorous birds, and are a contributing source of detrital material to Biscayne Bay.

WILDLIFE ASSOCIATED WITH MARINE HABITAT: Vertebrate species in and adjacent to Biscayne Bay and associated waterways were observed on 12 and 15 August and 3 September 1993, during visits to the North Miami campus of FIU and 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.

No detailed survey of invertebrates was conducted. Several species of sponges, mussels, periwinkles and various gastropods were observed to have colonized the rip-rap areas of the shoreline. Sea urchins and burrowing sea cucumbers were observed in turtle grass areas and algae-covered mud flat areas, respectively. Amphipods and fiddler crabs were abundant in the beach litter.

The shallow waters of the Bay adjacent to the shoreline appear to be good habitat for a variety of wildlife. Turtle grass and manatee grass beds were visible from shore, along with several species of algae. The sea grass areas in particular appear to be good habitat for a wide range of

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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, (*Trichechus manatus latirostris*).

FISHERIES: Currently, a red drum fishery is housed in a marine lab of about 2200 square feet at the North Miami Campus. The purpose of the fishery is restocking of red drum in Biscayne Bay. The program has been funded for the past 2 years by the Florida Department of Environmental Protection (DEP), and this funding is likely to continue for at least 2 more years. The program has been successful, with red drum being released into the Bay and data being collected on the released fish via tag recovery. There are also a few other (unfunded) fisheries programs/studies currently ongoing at the University Park campus.

UNIVERSITY PARK CAMPUS: There are no marine habitats associated with the University Park campus or its context area.

KEY ISSUES REGARDING MARINE HABITAT AND ANIMALS: *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. Also of concern is the quality of water draining into the marine habitats and its potentially negative effect on seagrass beds, etc. There are opportunities to limit activities along the waterways that abut the campus to ensure the safety of manatees, and to influence the quality of runoff into those waterways and Biscayne Bay in order to ensure that University activities do not degrade water quality in the waterways and Biscayne Bay. These should be considered in devising goals for campus development.*

Other portions of a)5 were covered in the Inventory and Analysis in sections 13(1)a-7 and 13(1)a-8. Table 2.13-1 has been reworked to show the presence of listed species by campus.

a)6: Wellfield cones of influence

This information was included in the Inventory and Analysis in section 13(1)a-10.

a)7: Aquifers and aquifer recharge areas

This information was included in the Inventory and Analysis in section 13(1)a-11.

a)8 Air quality, including but not limited to the pollutants subject to National Ambient Air Quality Standards (SO_x, NO_x, ozone, CO, HC, and particulates)

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

This information was included in the Inventory and Analysis in section 13(1)b-1 and in Appendix A.

- a)9: 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.**

Gaby & Gaby, Inc. requested surface water quality information from appropriate personnel at each campus in July 1993, but no information of this sort was available. We were told that there are 2 monitoring wells on the North Miami Campus: one at the road by the housing area and one by the tennis courts. These wells are in association with SFWMD and relate to the proposed use for irrigation of treated effluent from the sewage treatment plant. There is also a well near the sewage treatment plant. No data from these wells were made available to us. There are no Outstanding Florida Waters on either campus. Outstanding Florida Waters in the North Miami context area include the Oleta River State Recreation Area and Biscayne Bay (information from Chapter 17-3.041 F.A.C.).

What surface water quality data were available for the context area were included in the Inventory and Analysis in section 13(1)b-2.

- a)10: Known septic tanks, grease traps, storage sites of hazardous, toxic, or medical waste**

This information was included in the Inventory and Analysis in sections 13(1)b-3 and 13(1)b-4.

- a)11: Chemical and hazardous waste disposal systems**

This information was included in the Inventory and Analysis in section 13(1)b-5.

- a)12: Surface and groundwater hydrology**

Gaby & Gaby, Inc. requested hydrology information from appropriate campus personnel in July 1993; we were told in August 1993 that there were no hydrology data and that FIU had only recently hired a hydrologist.

(2) ANALYSIS REQUIREMENTS

- 2)a: For each of the resources identified in (1)a) identify existing commercial, recreational, or conservation uses.**

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

Commercial, recreational, and conservation uses of the resources identified in a)1 through a)4 were discussed of the Inventory and Analysis in the appropriate sections.

- a)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.**

Existing marine vegetative communities and mangroves:

Commercial Uses: There are no commercial uses in any of the existing marine vegetative communities or mangrove areas. However, seagrass and mangrove areas are important resources in the maintenance of fisheries, and as such may be important to commercial interests.

Recreational Uses: The dominant recreational feature within the context area is the approximately 470-acre Oleta River State Recreation Area. There are, no doubt, some passive recreation uses in the mangrove areas of Oleta River State Recreation Area, but these likely consist of nature study and education. Fishing and snorkeling likely 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.

The City of North Miami has a playing field complex adjacent to the water treatment plant.

On campus there is a jogging/fitness trail that runs adjacent to mangroves and also passes adjacent to some of the strand areas. While there may be other occasional recreational uses of portions of the mangrove areas at the North Miami Campus, we found no evidence that any of these relate to University activities. We observed no nature trails or evidence of planned passive or active recreation activities other than the jogging/fitness trails.

There are two over-water structures on campus; however, neither one appears to serve as a recreational facility. The northern one is a pier in good repair, but it is posted as a "no trespassing" area. The other is a floating dock that is in bad repair. It likely is used by the student rowing club and by occasional boaters.

There is a launch ramp adjacent to the red drum fish hatchery on campus. There is a service road that passes this ramp, but the absence of parking facilities and other amenities suggest that it is unlikely that this ramp has other than minor recreation value.

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

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.

Wildlife associated with marine habitat:

Commercial Uses: Biscayne Bay is a commercial fishing, crabbing and shrimping area. Other than this, there are no commercial uses for the wildlife associated with marine habitats in the context area.

Recreational Uses: Biscayne Bay is a popular recreational fishing, crabbing, shrimping, bird watching and scuba diving/snorkeling area. Other than this, there are no recreational uses for the wildlife associated with marine habitats in the context area.

Conservation Uses: Biscayne Bay and all natural waterways (including the Oleta River and the estuary at the north end of the North Miami Campus) tidally connected to the Bay have been designated as the Biscayne Bay Aquatic Preserve, a Dade County Preserve. In the vicinity of the Oleta River, approximately 470 acres have been designated by the state of Florida as the Oleta River State Recreation Area.

There are a number of habitat enhancement/mitigation projects that have been or will be completed along the shorelines of the Oleta River and Biscayne Bay. Additional mitigation work is in progress on Sandspur Island. These projects are discussed in Section 13 (1)a-6 of the Inventory and Analysis.

A red drum fishery is located in a marine lab at the North Miami Campus. The purpose of the fishery is restocking of red drum in Biscayne Bay. Young fish are currently being released into Biscayne Bay from the fishery.

Commercial Uses: In a few years, when these young red drum mature, they may become a potentially important part of the commercial fishing industry in Biscayne Bay.

Recreational Uses: In a few years, when these fish mature, they may become a potentially important catch for recreational anglers in Biscayne Bay.

Conservation Uses: The purpose of the fishery is to increase the depleted red drum population in Biscayne Bay.

Commercial, recreational, and conservation uses of the additional resources identified in a)5 were discussed in the Inventory and Analysis within each subsection.

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

Commercial, recreational, and conservation uses of the resources identified in a)6 through a)8 were discussed in the Inventory and Analysis in the appropriate sections.

- a)9: 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.**

The monitoring wells located on the North Miami Campus are in association with SFWMD and relate to the proposed use for irrigation of treated effluent from the sewage treatment plant. There are no commercial, recreational, or conservation uses for these wells.

Outstanding Florida Waters in the North Miami context area include the Oleta River State Recreation Area and Biscayne Bay.

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. These projects are discussed in Section 13(1)a-6 of the Inventory and Analysis.

Biscayne Bay and all natural waterways (including the Oleta River and the estuary at the north end of the North Miami Campus) tidally connected to the Bay have been designated as the Biscayne Bay Aquatic Preserve, a Dade County preserve.

Commercial, recreational, and conservation uses of the resources identified in a)10 through a)12 were discussed in the Inventory and Analysis in the appropriate sections.

- 2)b: For each of the resources identified in (1) a), assess the available and practical opportunities and methods for protection or restoration of those resources on University property.**

This information was discussed in the Inventory and Analysis within each subsection. Available and practical opportunities and methods for protection or restoration of the resources identified in a)1 through a)4 were discussed in the Inventory and Analysis in the appropriate sections.

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

a)5: The marine vegetative communities and wildlife associated with these communities occur within the context area rather than on University property.

FIU should support and help expand the red drum fishery and make a diligent effort to initiate and support other fisheries programs.

Available and practical opportunities and methods for protection or restoration of the resources identified in a)6 through a)8 were discussed in the Inventory and Analysis in the appropriate sections.

a)9: There are no designated Outstanding Florida Waters on either campus. Biscayne Bay and the Oleta River, both designated as Outstanding Florida Waters, are adjacent to the North Miami Campus.

Available and practical opportunities and methods for protection or restoration of the resources identified in a)10 through a)12 were discussed in the Inventory and Analysis in the appropriate sections.

- 2)c: For each of the resources identified in (1)a), identify known sources and rates of discharge or generation of pollution.**

This information was discussed in the Inventory and Analysis within each subsection.

North Miami Campus: Information regarding known sources and rates of discharge or generation of pollution was conspicuously absent in the data transferred to us from FIU staff. To our knowledge, there are no ongoing pollution monitoring programs on campus, nor have any such programs been implemented in the past except in isolated cases, such as a known fuel-storage tank leak on campus (J. Mwaisela, FIU Environmental Health and Safety Officer, pers.comm.). Therefore, it is not possible to discuss the rates of discharge or generation of pollution with respect to the specific resources identified in part (1)a) of this section in the Inventory and Analysis. Known and potential sources of pollution and their likely effects on some of those resources were discussed in the Inventory and Analysis.

- 2)d: For each of the resources identified in (1)a), assess opportunities or available and practical technologies to reduce pollution or its impacts generated by University activities. Investigation of emerging technologies to address these impacts is encouraged.**

This information was discussed in the Inventory and Analysis within each subsection.

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

Information regarding known sources and rates of discharge or generation of pollution was conspicuously absent in the data transferred to us from FIU staff. To our knowledge, there are no ongoing pollution monitoring programs on campus, nor have any such programs been implemented in the past except in isolated cases, such as a known fuel-storage tank leak on campus (J. Mwaisela, FIU Environmental Health and Safety Officer, pers. comm.). Therefore, it is not possible to discuss the rates of discharge or generation of pollution with respect to the specific resources identified in part (1)a) of this section. Rather, we discuss known and potential sources of pollution, and their likely effects on some of those resources.

- 2)e: An analysis of 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. The analysis should consider existing levels of water conservation, use and protection, and applicable policies of the water management district.**

This information was discussed in the original Inventory and Analysis within each subsection.

The analysis of current and projected water needs resulted in a sufficient supply of water to meet the demands. The present water demand per student is 50% of the level of service standard for water supply. The University receives its water from Metro Dade Water & Sewer Authority Department and the City of Miami for University Park and North Miami Campuses respectively. These utility companies are responsible for water quality and must meet state standards for water treatment for potable use.

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

ADDENDUM TABLE 13.1: COUNTY, STATE AND FEDERALLY LISTED PLANT AND ANIMAL SPECIES KNOWN TO OCCUR ON CAMPUS OR WITHIN THE CONTEXT AREAS OF THE NORTH MIAMI AND UNIVERSITY PARK CAMPUSES

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
CITES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora

LISTED PLANT SPECIES:

Common name	Scientific name	Campus	Agency	Status
Paurotis palm	<u>Acoelora wrightii</u>	UP	FDA	T
Leather fern	<u>Acrostichum danaeifolium</u>	NM	FDA	T
Pine fern	<u>Anemia adiantifolia</u>	UP	FDA	T
*Silver palm	<u>Coccothrinax argentata</u>	UP	FDA	CE
*Forestiera	<u>Forestiera segregata</u>	UP	USFWS	C1
*Lignum vitae	<u>Guaiacum sanctum</u>	UP	FDA	E
*Dahoon holly	<u>Ilex cassine</u>	UP	FDA	CE
Lantana	<u>Lantana depressa</u>	UP	USFWS	C2
Sml-lvd cat tongue	<u>Melanthera parvifolia</u>	UP	USFWS	C2
*Simpsons stopper	<u>Myrcianthes fragrans</u>	UP	USFWS	C2
Whisk fern	<u>Psilotum nudum</u>	NM	FDA	T
Pineland brake fern	<u>Pteris vittata</u>	B	FDA	T
Mahogany	<u>Sweitenia mahogani</u>	B	FDA	T
Tetrazygia	<u>Tetrazygia bicolor</u>	UP	FDA	T
Shield fern	<u>Thelypteris palustris</u>	UP	FDA	T
Cardinal air plant	<u>Tillandsia fasciculata</u>	UP	FDA	CE
Coontie	<u>Zamia pumila</u>	UP	FDA	CE
			CITES	II

LISTED BIRD SPECIES:

Little blue heron	<u>Egretta caerulea</u>	NM	FGFWFC	SSC	
White ibis	<u>Eudocimus albus</u>		B	FSFWFC	SSC
Roseate spoonbill	<u>Ajaia ajaja</u>		NM	FGFWFC	SSC
Least tern	<u>Sterna antillarum</u>		UP	FGFWFC	T
Burrowing owl	<u>Speotyto cuniculata</u>	UP	FGFWFC	SSC	
White-crwn'd pigeon	<u>Columba leucocephala</u>	NM	FGFWFC	T	
			USFWS	C2	
#East'n am. kestrel	<u>Falco s. sparverius</u>	UP	CITES	II	
#S-est'n am. kestrel	<u>Falco s. paulus</u>	UP	FGFWFC	T	USFWSC2
			CITES	II	
Loggerhead shrike	<u>Lanius ludovic. migrans</u>	B	USFWS	C2	

ADDENDUM 1: CONSERVATION ELEMENT REVISIONS

ADDENDUM TABLE 13.1 (continued)

LISTED MAMMAL SPECIES:

Common name	Scientific name	Campus Agency		Status
Bobcat	<u>Lynx rufus</u>	UP	CITES	II
West Indian manatee	<u>Trichechus manatus</u>	NM	FGFWFC	E
			USFWS	E
			CITES	I

LISTED INVERTEBRATE SPECIES:

Fl. atala butterfly	<u>Eumaeus atala florida</u>	UP	USFWS	C2
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CODES:

- E: Endangered
 - T: Threatened
 - CE: Commercially exploited
 - C1: Candidate for federal listing, with enough substantial information on biological vulnerability and threats to support proposals for listing.
 - C2: Candidate for federal listing, with some evidence of vulnerability, but for which not enough data exist to support listing.
 - I: Appendix I species
 - II: Appendix II species
 - SSC: Species of special concern
 - *: Listed as present in landscape design manual
 - UP: University Park Campus and/or context area
 - NM: North Miami Campus and/or context area
 - B: Present on both campuses and/or their context areas
 - #: Individual seen was not identified to subspecies level
-

14.0 CAPITAL IMPROVEMENTS ELEMENT

As defined in the SUS Guideline for the Comprehensive Campus Master Plan System "Capital Improvement" means physical assets constructed or purchased to provide, improve or replace a public facility and which are large scale and high in multi-year financing." The Master Plan has identified and illustrated areas of growth enhancement and support needed to accommodate the ten year projected student enrollment. Building construction, general infrastructure, utilities, transportation, vehicular and non-vehicular, conservation and landscape each have costs associated with them which have been estimated and make up the total campus capital improvement cost for the Master Plan.

Revenue sources and Funding Mechanisms

Capital improvements funding for the University currently comes from eleven various revenue sources of which, Public Education Capital Outlay (PECO) and Capital Improvement Trust Fund (CITF) are the greatest contributing sources. Florida International University currently rely on the following existing revenue sources and funding mechanisms for capital improvements:

- Public Education Capital Outlay (PECO)
- Capital Improvement Trust Fund (CITF)
- Auxiliary Revenue Bonds (housing, parking, etc.)
- Parking Decal Fees Auxiliary
- Student Health Fees Auxiliary
- Bookstore Auxiliary
- English Language Institute Auxiliary
- Food Service Auxiliary
- Other Auxiliaries
- Private Donations matched by Facilities Enhancement Challenge Grant Program
- Contracts and Grants for Sponsored Research

In addition to these existing sources, FIU currently has no other anticipated sources of revenue funding for future facilities proposed by this Master Plan.

Current Operations and Maintenance Costs for Existing Facilities

Operations and maintenance costs for existing facilities in 1993-94 included utilities at an average of \$2.73 per gross square foot and building maintenance costs at an average of \$1.28 per gross square foot.

14.0 CAPITAL IMPROVEMENTS ELEMENT

Table 14.1 Operations and Maintenance Costs for Existing Facilities

	Total Building Square Footage	Utilities Costs (\$2.73/gsf)	Building Maintenance (\$1.28/gsf)
University Park	787,361 gsf	\$2,149,496	\$1,007,822
North Miami Campus	254,468 gsf	\$694,697	\$325,719
Total	1,041,829 gsf	\$2,844,193	\$1,333,541

Source: 1. Facilities Management Report: FIU Master Plan - Capital Improvements Element, June 16, 1994
2. Deficiency Survey of E & G Buildings and Capital Renewal 5/92

Timing, Location and Cost of Construction

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 channelled for approval through the University Space Committee as an advisory committee to the University President.

A budget estimate is prepared and updated annually for the purpose of assessing anticipated project costs including planning fees, construction, surveys, testing services, contingencies, furnishings and equipment. A copy of the current CIP-2 document summarizes the next 5-year planning period and the 1993-94/1994-95 Summary of Capital Improvement Fee Projects.

No future off-campus capital improvements are currently anticipated which support future infrastructure and traffic functions of the University within the 10 year planning horizon.

Cost Estimates

Cost estimates are based on State University System (SUS) cost data provided each year with instructions for preparation of the 5-year capital improvement plan. This data is compiled by the SUS from projects bid since July 1, 1977. Projects selected for the database are classified by space type and averaged with ENR indexed adjustments for inflation and differences in the

14.0 CAPITAL IMPROVEMENTS ELEMENT

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.

Financing Capital Improvements

The University's ability to finance capital improvements depends heavily on the appropriation of PECO funding and CITF allocations. Projects listed in the 5 year Capital Improvement identifies a degree of commitment for funding each capital improvement. Levels of commitment vary from:

3-Year Committed

Current Appropriations

Funding Requested (Board of Regents recommended)

to

10-Year Projected

Funding Requested (fund source identified)

New Project (potential fund source identified)

Projected Operating Costs for Future Facilities

The analysis found in Element 5.0 Academic Facilities and Element 6.0 Support Facilities indicates the need for more than 800,000 gsf of space to accommodate the projected enrollment for 2003-2004. This in turn will generate new operating costs that must be planned for the future.

14.0 CAPITAL IMPROVEMENTS ELEMENT

Table 14.2 Projected Operations and Maintenance Costs for Future Facilities

	Additional Space Needed by the year 2003-2004	Utility Costs (\$2.73/gsf)	Building Maintenance (\$1.28/gsf)
University Park	708,825 gsf	\$1,935,092	\$907,296
North Miami Campus	146,187 gsf	\$399,090	\$187,119
Total	855,012 gsf	\$2,334,182	\$294,415

Note: Operating and Maintenance costs do not include inflation costs.

Comparing the projected operating costs with the existing inventory found in Table 14.1, it is apparent that by the year 2003-2004 the number of on campus facilities will almost double and the operation costs will also.

Projected Tax Bases and Revenue Sources

Revenue sources include user fees generated for faculty/staff and student parking, student health services, and student activity fees. Student activity fees contribute to the Capital Improvement Trust Fund (CITF) which is allocated by the BOR budget office by action of the State Legislature. Projections of other tax bases can not be determined at this time. No impact fees are anticipated at this time to be considered as a revenue source for capital improvements.

Host Communities Future Improvements costs Generated by University Infrastructure Impacts

All infrastructure impacts generated by the University are contained within University lands. Host Community infrastructure capacities are adequate to serve future infrastructure needs of the University. All costs of infrastructure impacts contained on University lands are the responsibility of the University and the State University System. Infrastructure costs of special "shared-use" facilities may be assessed on a prorated basis.

**Table 14.2 State University System of Florida
Summary of Capital Improvement Fee Projects for 1993-94/1994-95**

FLORIDA INTERNATIONAL UNIVERSITY

Project Name	Project Costs						Total Amount for Project
	1993-94			1994-95			
	Planning	Construction	Equipment	Planning	Construction	Equipment	
Fire Code/Asbestos Corrections - Student Unions		60,450					60,450
Fire Code/Asbestos Corrections - Student Housing		34,100					34,100
Golden Panther Arena - Sound System		20,000	230,000				250,000
Multi-Purpose Stadium Complex Supplement	20,000	288,450	2,000				310,450
Student Center Addition	267,274				4,712,269	420,457	5,400,000
Children's Creative Learning Center	32,416	459,179	8,405				500,000
Fitness Center - F&E Supplement						200,000	200,000
Residence Hall Pool Supplement	25,892				359,108	15,000	400,000
Graham Center Addition Supplement		750,000					750,000
TOTAL	345,582	1,612,179	240,405	0	5,071,377	635,457	7,905,000

Table 14.1

14.0 CAPITAL IMPROVEMENTS ELEMENT

As defined in the SUS Guideline for the Comprehensive Campus Master Plan System "Capital Improvement" means physical assets constructed or purchased to provide, improve or replace a public facility and which are large scale and high in multi-year financing." The Master Plan has identified and illustrated areas of growth enhancement and support needed to accomodate the ten year projected student enrollment. Building construction, general infrastructure, utilities, transportation, vehicular and non-vehicular, conservation and landscape each have costs associated with them which have been estimated and make up the total campus capital improvement cost for the Master Plan.

Revenue sources and Funding Mechanisms

Capital improvements funding for the University currently comes from eleven various revenue sources of which, Public Education Capital Outlay (PECO) and Capital Improvement Trust Fund (CITF) are the greatest contributing sources. Florida International University currently rely on the following existing revenue sources and funding mechanisms for capital improvements:

- Public Education Capital Outlay (PECO)
- Capital Improvement Trust Fund (CITF)
- Auxiliary Revenue Bonds (housing, parking, etc.)
- Parking Decal Fees Auxiliary
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- Bookstore Auxiliary
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- Other Auxiliaries
- Private Donations matched by Facilities Enhancement Challenge Grant Program
- Contracts and Grants for Sponsored Research

In addition to these existing sources, FIU currently has no other anticipated sources of revenue funding for future facilities proposed by this Master Plan.

Current Operations and Maintenance Costs for Existing Facilities

Operations and maintenance costs for existing facilities in 1993-94 included utilities at an average of \$2.73 per gross square foot and building maintenance costs at an average of \$1.28 per gross square foot.

14.0 CAPITAL IMPROVEMENTS ELEMENT

Table 14.1 Operations and Maintenance Costs for Existing Facilities

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Timing, Location and Cost of Construction

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 channelled for approval through the University Space Committee as an advisory committee to the University President.

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14.0 CAPITAL IMPROVEMENTS ELEMENT

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Projected Operating Costs for Future Facilities

The analysis found in Element 5.0 Academic Facilities and Element 6.0 Support Facilities indicates the need for more than 800,000 gsf of space to accommodate the projected enrollment for 2003-2004. This in turn will generate new operating costs that must be planned for the future.

14.0 CAPITAL IMPROVEMENTS ELEMENT

Table 14.2 Projected Operations and Maintenance Costs for Future Facilities

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Comparing the projected operating costs with the existing inventory found in Table 14.1, it is apparent that by the year 2003-2004 the number of on campus facilities will almost double and the operation costs will also.

Projected Tax Bases and Revenue Sources

Revenue sources include user fees generated for faculty/staff and student parking, student health services, and student activity fees. Student activity fees contribute to the Capital Improvement Trust Fund (CITF) which is allocated by the BOR budget office by action of the State Legislature. Projections of other tax bases can not be determined at this time. No impact fees are anticipated at this time to be considered as a revenue source for capital improvements.

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Table 14.1

STATE UNIVERSITY SYSTEM OF FLORIDA
Five-Year Capital Improvement Plan (CIP-2) and Legislative Budget Request
Period: 1995-96 through 1999-2000

10-May-94

Table 14.1

University: FLORIDA INTERNATIONAL UNIVERSITY

Priority No	Project		1995-96	1996-97	1997-98	1998-99	1999-2000	Total	FECGP Project*	Date Bldg Program Submitted	Educational Plant Survey Recommended Date/Rec No.	Academic or Other Programs to Benefit from Projects	Net Assignable Square Feet (NASF)	Gross Square Feet (GSF)	Building Efficiency Gross/Net Ratio (N/M)	Primary Space Type(s)	Construction Cost	Project Cost	Const Cost Per GSF (Q/N)	Project Cost Per GSF (R/N)
			\$	\$	\$	\$	\$	\$									\$	\$	\$	\$
1	ENGINEERING - Phase II (P,C)(C)(E)	UP	12,900,000	13,000,000	1,400,000			27,300,000		(a)	02/10/92 1.23	Engineering	119,590	167,426	1.40	Labs	23,222,020	27,300,000	136.70	163.06
2	CAMPUS SUPPORT COMPLEX & IFS (P,C,E)	UP	1,300,000					1,300,000		Rev 05/20/93	02/10/92 1.25	Support	7,400	10,360	1.40	Support Serv.	1,172,310	2,100,000	113.16	202.70
3	OE RENOVATIONS/Supplement (P,C,E)	UP	1,920,000					1,920,000		Rev 06/23/93	07/10/89 1.14	Biology	r/a	r/a	r/a	Labs	1,680,000	1,920,000	r/a	r/a
4	ARTS COMPLEX - Phase I (C)	UP	2,000,000					2,000,000		Rev 07/30/91	04/12/91 1.1	Fine Arts	r/a	r/a	r/a	Labs	1,830,479	2,000,000	r/a	r/a
5	HEALTH & LIFE SCIENCES (P)(C)(E) Remodeling/Renovation/Expansion	UP	750,000	11,260,000	800,000			12,810,000		Rev 05/20/93	02/10/92 1.21 1.10, 1.11, 1.12, 1.13, 1.16, 1.17, & 1.20	Health, Life Sci.	43,945	61,523 37,553	1.40	Labs	10,634,806	12,810,000	172.86 0.00	208.21 0.00
6	CLASSROOM/OFFICE (P)(C)(E)	NMC	700,000	10,000,000	700,000			11,400,000		(b)	(c)	All	46,563	67,988	1.40	Classroom	9,318,336	11,400,000	137.06	167.68
7	OFFICE/CLASSROOM (P)(C)(E)	UP	700,000	12,000,000	700,000			13,400,000		(b)	(c)	All	54,893	76,803	1.40	Classroom	11,021,950	13,400,000	143.50	174.46
8	LIBRARY F&E (E)	UP		2,600,000				2,600,000		02/01/92	02/10/92 1.24 1.15 & 1.19	Library, Media	r/a	r/a	r/a	Library	r/a	r/a	r/a	r/a
9	ARTS COMPLEX - PHASE II (P)(C)(E)	UP			700,000	11,000,000	700,000	12,400,000		(b)	02/10/92 1.22 1.14 & 1.18	Fine Arts	46,010	64,414	1.40	Labs	10,246,711	12,400,000	159.08	192.50
10	HONORS COMPLEX (P)(C)(E)	NMC			750,000	10,000,000	750,000	11,500,000		(b)	(d)	All	40,425	56,595	1.40	Classroom	9,339,941	11,500,000	165.03	203.20
11	ART MUSEUM (P,C,E)	UP	3,000,000					3,000,000	12/94	(b)	(d)	Fine Arts	24,575	34,407	1.40	Exhibition	5,070,789	6,000,000	147.36	174.36
	TOTAL		23,270,000	48,260,000	5,050,000	21,000,000	1,450,000	99,630,000												

FECGP = Facility Enhancement Challenge Grant Program

*If project is a FECGP project, report only the state share and cite date that the matching requirement is expected to be received.

(a) Projected program submittal by 5/30/94.

(b) Program in planning.

(c) New facility program needed. Partial DOE recommendation February 10, 1992 - Rec #2.10; Public Affairs/Communications at NMC. Need supplemental survey for campus change and increase of space and budget.

(d) Need supplemental survey.

FIU: CIP2000.WK1

CAPITAL
IMPROVEMENTS

Table 14.2 State University System fo Florida
Summary of Capital Improvement Fee Projects for 1993-94/1994-95

FLORIDA INTERNATIONAL UNIVERSITY

Project Name	Project Costs						Total Amount for Project
	1993-94			1994-95			
	Planning	Construction	Equipment	Planning	Construction	Equipment	
Fire Code/Asbestos Corrections - Student Unions		60,450					60,450
Fire Code/Asbestos Corrections - Student Housing		34,100					34,100
Golden Panther Arena - Sound System		20,000	230,000				250,000
Multi-Purpose Stadium Complex Supplement	20,000	288,450	2,000				310,450
Student Center Addition	267,274				4,712,269	420,457	5,400,000
Children's Creative Learning Center	32,416	459,179	8,405				500,000
Fitness Center - F&E Supplement						200,000	200,000
Residence Hall Pool Supplement	25,892				359,108	15,000	400,000
Graham Center Addition Supplement		750,000					750,000
TOTAL	345,582	1,612,179	240,405	0	5,071,377	635,457	7,905,000

WALLACE ROBERTS & TODD
DAVID FUDMER & ASSOCIATES, INC
GARY & GARY, INC
KEITH & SCHNAUS
SDM ENGINEERS
ZYSKOVICH, INC

CORAL GABLES, FL
CORAL GABLES, FL
MIAMI, FL
FT. LAUDERDALE, FL
CORAL GABLES, FL
MIAMI, FL

FLORIDA INTERNATIONAL UNIVERSITY

15.0 ARCHITECTURAL DESIGN GUIDELINES ELEMENT

The architectural guidelines are linked to the urban design and landscape components of this report. Common elements are prevalent on both campuses, but each campus has its own distinct character with unique problems and opportunities. The objective of the Inventory and Analysis phase of the work is to discover what is good in the present environment, define what is deficient and could be better, and begin to guide what is planned, so that a quality standard can be established to accommodate a point of view for the projected growth at each campus.

University Park

Description of Existing Campus Character

The initial buildings of the campus are still the largest structures on the campus. The buildings are not visually inviting and the common spaces and circulation spaces do not generally convey the principles of campus community that one would expect to find in an academic environment. The overall character of the campus lacks spatial definition and organization. There does not appear to be any particular architectural hierarchy or landmark whereby the student or visitor can become oriented.

Building Style, Scale and Form

The buildings, especially those that were built first (Primera Casa, Deuxieme Maison, Altheneum, etc.) are monolithic in their architectural articulation as well as in the sheer immensity of building mass. As the campus building program has been evolving, however, the building programs are becoming smaller and the buildings are turning away from the massiveness of the early structures. Buildings currently under design are showing a more classical approach to building form and massing.

Architecturally Significant Historic Buildings

A case could be made to consider the aviation tower as an historic building. It was in use well before FIU was conceived and could become an interpretive component of an overall historical and environmental history of the location. However, because of its unique function which predates FIU, this structure does not serve as a prototype for the architectural guidelines for the University Park campus.

15.0 ARCHITECTURAL DESIGN GUIDELINES ELEMENT

Existing Materials Inventory

Exterior materials in use at this campus are almost entirely precast and cast in place concrete. There is also a generous use of specialty concrete masonry units usually in the form of a fluted block or split faced block. Glass areas are predominantly storefront type although some of the more recent buildings use aluminum windows, regularly spaced, as rhythmic punctures in a wall. The use of stucco is limited. Color is for the most part limited to metal work details or panels and ceramic tile accent areas. At this time design guidelines do not exist nor has any formalized vocabulary pertaining to the use of building materials on campus been developed.

Contributions of Campus Buildings to Campus Context

Buildings on campus are of more than one type. Buildings already constructed share many attributes in material, bulk and style. Buildings currently in design demonstrate a different direction for this campus. The new designs incorporate "minimizing elements" including arcades and considerably more fenestration than the earlier buildings on campus. The direction of the University Campus is urbanistic and academic. It is arranged orthogonally and is ripe for the establishment of a series of districts, streets and squares.

Accessibility to Disabled Persons

An accessibility study has already been performed in the housing area although the results have not yet been published. The remainder of the campus is accessible however, a thorough study for compliance with the American Disabilities Act will be needed.

North Miami Campus

Description of Existing Campus Character

This is a waterfront campus. There is a quality at this site of being somewhat insulated from the campus' surroundings which could be conducive to the more traditional elements of a campus. Buildings are not visually inviting and the common spaces do not generally convey the principles of a campus community that one would expect to find in an academic environment. They also do not take adequate advantage of the waterfront

15.0 ARCHITECTURAL DESIGN GUIDELINES ELEMENT

opportunity. The North Miami campus has the benefit of relative seclusion and natural surroundings but the buildings lack personality and definition.

Building Style, Scale and Form:

The early buildings were conceived with an internal open air circulation spine that is covered for weather protection. The spine topology repeats at several buildings and establishes a beginning for an architectural theme. There is also a similarity in scale and architectural form and style among these buildings. The two levels of circulation dilutes what little "street life" exists.

Architecturally Significant Historic Buildings

There are no historic buildings at this site.

Existing Materials Inventory

Materials in use at this campus are primarily precast and cast in place concrete. There is also a generous use of specialty concrete masonry units usually in the form of a fluted block or split faced block. Glass areas are predominantly storefront type. The use of stucco is limited. Color is for the most part limited to metal work details or panels and ceramic tile accent areas. At this time design guidelines do not exist nor does any formalized vocabulary pertaining to the use of building materials on campus.

Contributions of Campus Buildings to Campus Context

The internal linear spine works well as covered circulation but paradoxically does not take advantage of the bay vista. Open air circulation is consistent in character with the natural setting of the site. The conference center building currently in design is a radical departure from the prevailing style and scale of the campus. Issues of design compatibility need to be discussed and resolved.

Accessibility to Disabled Persons

A thorough accessibility study should be performed for the entire campus to comply with the American Disabilities Act.

15.0 ARCHITECTURAL DESIGN GUIDELINES ELEMENT

Summary of Key Issues

- *Should the two campuses share one architectural style or should they each exhibit their own independent character? Urbanism (classical formalism) at University Park / Natural setting (informal "organic" style) at the North Miami Campus?*
- *What specific architectural elements should be incorporated in new "classical" architectural elements? (scale, cornice lines, building bases, patterns of fenestration, arcades, materials, selection, site organization, etc.). Where and how should they be applied?*
- *Is the new classical imagery of University Park better served by segregating an independent site area for the new buildings or should the new buildings be integrated into the existing core area of the campus as discrete structures or additions to existing structures?*
- *The construction of a classical vocabulary is dependent on a clearly established group of "space-defining" buildings that become the fabric with important buildings (special) placed in key (axial) locations as monumental elements in the composition. Which buildings are to be monumental and when are they scheduled to come on line?*
- *How should the previous generation of largely monolithic buildings at the University Campus be dealt with in light of the desire for a new campus vocabulary? Continue with the existing materials or introduce some new materials that further the academic imagery? Should the monolithic buildings be retrofitted with additions/modifications to reflect the new campus vocabulary?*
- *In what way should architectural elements be introduced to develop an academic campus community that encourages interchange?*

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

University Park

Vehicular Circulation Routes

Existing vehicular circulation primarily consists of a campus loop collector road, two major entrance roads and a south perimeter road. Currently the predominant landscape treatment for the campus loop road consists of a grass ground plane with a formal planting of canopy/shade trees in either a single or double row. The north western portion of the loop road appears recently planted with Oaks which will with time develop a nice canopy and enclose the roadway. The southern portion has some sections of existing Ficus and Mahoganys which have developed a canopy and help to define the roadway. Washingtonian Palms and Sabal Palms have been used to highlight the entrances to some parking areas. Where the loop road is adjacent to a parking area a 3-4' berm has been constructed. These berms appear a bit severe in form, exceeding the height and slope needed to screen the cars. The slope appears to be 2.5:1 or steeper which when planted with grass creates an ongoing maintenance problem. The southern perimeter road has minimum planted landscape treatment, some existing Brazilian Pepper, Palmettos, and Sabal Palms occur along a portion of the southern edge. The entrance road landscape is formal in character and described in greater detail in the Planted Areas section.

Parking Facilities

The majority of existing parking facilities are located in large parking lots on the exterior of the loop road, with the exception of parking lots #9, #10 & #2 which are inside of the loop road. Some parking occurs along the paved, abandoned air strip and in the proximity of the athletic fields most parking occurs informally on unpaved surfaces, wherever space is available.

Parking Lot #1

Proper layout of aisles allows pedestrian circulation to feed to a perimeter walk. The only planting occurs at the end aisles and along the perimeter walk which is planted with Gumbo Limbos. The expansion of parking lot #1 has allowed for planting islands the entire length of each aisle and has been planted with canopy trees which when mature will provide much needed shade. Hedge material has been planted along the perimeter walk to screen the cars from the loop road.

Student Housing Parking

This area has minimum planting of shade trees. A hedge along S.W. 107th Avenue does screen the parking located adjacent to this external roadway.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

Parking Lot #2

This small metered parking lot adjacent to the Student Center has minimum landscape treatment within the lot. An evergreen hedge does screen the lot from the loop road.

Parking Lots 3, 4, 5, 6, 7 & 8

These large parking lots do not provide sidewalks and are designed with the majority of pedestrian traffic having to walk in the main vehicular circulation aisles. Plantings only occur sporadically at the end of the aisle with a mixture of canopy trees in various states of decline. Ficus trees along the one way section of the loop road helps screen the bus stop area within parking lot #3. The berms occurring between the loop road and the lots as mentioned previously are a bit severe. Between parking lot #5 & #6 just off the loop road is a small paved area, reserved parking lot for state and maintenance vehicles. This area is not set apart from the main loop road with any landscape treatment and only accommodates a few vehicles.

Parking Lots 9 & 10

These parking lots are located inside of the loop road and do provide sidewalks for the pedestrian traffic. The plantings of Gumbo Limbo located in the few islands appear to have been planted very recently and have developed very little canopy. The perimeter of the lots have been treated with the grass berm mentioned previously.

The informal parking areas, although some are paved with curbstops and lighting currently have no landscape treatment.

Pedestrian Circulation Facilities

The current pedestrian circulation pattern responds to the loop road vehicular circulation and the location of the parking to the academic core area. The pedestrian traffic from the parking lots outside the loop road join to the core area connecting walkways and form a spaghetti pattern of pedestrian circulation. There are some major east -west pathways crossing the academic core and a straight / curved diagonal walk from student housing feeding the core area. In addition a pathway which follows inside the western portion of the loop road crosses at 3-4 locations to serve the Athletic / Support Area. The only landscape treatment specifically associated with the pedestrian circulation is the North South walk between parking lot #1 and the Chemistry - Physics building and a portion of the diagonal walk between student housing and the Chemistry - Physics building. In both cases the walks have been planted on one side with Royal Palms which tends to call attention to these small portions of the walkway without addressing any overall hierarchy of pedestrian circulation. Covered walkways connect the Library with the Owa Ehan, Student Center, Deuxieme Maison and the Viertes Haus.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

Bicycle Facilities

It appears that bicycle racks have been provided adjacent to most buildings in the academic core area although in many cases they were not being used, students opting for adjacent light poles or under cover. The concrete block type were rarely used and always exposed to the weather. The racks which were most often used were the upright metal racks and located under cover. Currently there are no bike pathways established on campus.

Public Transportation Facilities

The Metro-Dade bus system serves the campus internally as well as stops along S.W. 107th avenue. The major bus stop area located in Parking Lot 3 has designated bus aisle with 5 covered bus stops to accommodate students. In addition there are bus stops at the two entrances along S.W. 107th avenue with 2 uncovered benches located at the southern most S.W. 107th avenue entrance.

Emergency Access Facilities

No data was available for comment.

Planted Areas

In general the campus landscape is a mixture of very formally planted spaces (trees in single or double rows and grass), informally planted areas, (informal groupings of trees in bermed grass areas) or open spaces, areas which have not been planted with sporadic tree islands. It is currently difficult to define an established landscape character for the University Park FIU Campus. The planted areas do appear to be adequately maintained with the possible exception of some of the parking lot / roadway berms. Many of the berms throughout the campus do appear too large for the context of their surroundings. The limited use of shrub material in small masses & planters within the central academic core area is successful and helps to establish the appropriate scale for that specific area. Figure 15.5 is a proposed Landscape Concept Plan for University Park which FIU has loosely been using as a guideline. The concept of establishing theme gardens seems appropriate as any landscape but there needs to be some additional thought as to the correct size and location of these theme gardens. Figure 2.15.2 outlines the planted areas which are not addressed elsewhere in this section.

A. Entrances

The major entrances occur at S.W. 86th Street and S.W. 107th Avenue. The entrance at S.W. 8th Street is the ceremonial boulevard type entrance with symmetrical signage and formal planting of Royal Palms on either side of the roadway. This changes after the

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

intersection with the loop road to a double row of Oaks with Royal Palms in the median. The secondary entrance at S.W. 107th avenue is more informal with the sign located in the median with a row of Royal Palms and an informal planting on either side of Poincianas with gentle berms at the ground plane. A clump of Australian Pines forms a background mass to the south of this entry and Mahoganies line this entrance road. In addition, a sign and associated planting has been done at the corner of S.W. 8th Street & S.W. 107th Avenue. The planting is a mixture of Sabal & Royal Palms with some shrub underplanting.

B. Golden Panther Arena Entry

A mixture of Royal Palms, and Gumbo Limbos are planted in the island and Podocarpus in the paved plaza area. The Royals would be a stronger statement if they were to stand alone, as done at the Main entrance. The Podocarpus seem an inappropriate choice for a plaza tree.

C. College of Health and Central Utilities Building Courtyard

This space is strikingly in contrast to the immediately adjacent main entrance landscape. This area is informally treated with plantings of Bottlebrush, Mahoganies and Sabals in a bermed lawn with various site furniture (concrete urn, picnic table). This area needs to be addressed as a transition space from the rigidly formal landscape to the informal plantings within the central academic core.

D. Business Administration / Deuxieme Maison / Tower Area

This central space is gardenesque in character with a series of lakes with mounds and sporadic informal plantings. The lake currently could use some maintenance and the mounds are a bit too large for the space. This area does present an opportunity for the development of a pleasant study garden space.

E. Central Academic Core

This is the most developed area with walkways, planters and a central depressed fountain area. The plantings consist of various palms, canopy trees with fern and some shrub under plantings. The restrained palette is very successful for this intensively used institutional space.

F. Ernest R. Graham Center

This area functions as transition space between parking lot 3 and the student center. The berms and informal plantings have screened the building the berms appear too large for the scale of the space.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

G. Chemistry & Physics

The landscape treatment for this area includes Royal Palms adjacent to the walks leading to the building. In addition a grove of Crepe Myrtle has been planted at the NW entrance to the building.

H. Lake / Secondary Entrance Roadway

This area has a pastoral open character with gentle mounding and Bottlebrush Trees lining the roadway. The lake does have a littoral shelf planting. The Bottlebrush appear mature and due to the short life span and weak wood nature of the species, thought should be given towards a replacement canopy tree which would be consistent with the Loop Road Landscape Treatment.

I. Student Housing

This area is in desperate need of a landscape upgrade. Currently plantings are minimum with scattered trees and few foundation plantings.

J. Athletic / Support Area

This area with the exception of a planting of Australian Pines along the outfield of the Baseball Field.

Site Furnishings

Existing site furnishings appear to be a mixture of materials and style without much thought in their placement. In addition to the 4 different bench styles a typical seating area consisting 2 to 4 wooden benches and trash receptacle on paver blocks has been developed and "plopped" on campus in several locations without attention to the context of the surroundings. The student center has it's own palette of site furnishings. There is no available record of model number of the furnishings used on campus. See figure 15.3 & 15.4 for a photographic inventory of the variety of light fixtures, benches, trash receptacles and bicycle racks found on campus.

Lighting Location and Type

Like the other site furnishings a variety of lighting fixtures are found on campus. The loop roadway lighting is fairly consistent, using a shoe box type fixture on a short (12 - 15') post. Parking Lots 1, 2, 3, 4, 5, 9 & 10 all have the multiple shoe box type fixture on a tall post (24'). Parking lots 6 & 7 and the airstrip parking lots have the single or double Cobra type fixture on tall posts. Parking adjacent to the Golden Panther Arena uses the shoe box fixture. The pedestrian area lighting is a mixture of globe type fixtures, clear and opaque balls and a "jetson" type fixture. The clear globe fixture is the dominant fixture found within the academic core area. Bollard type lighting fixtures are used in front of the Engineering and Computer Science

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

building and adjacent to the Student 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. See Figure 15.4 for a photographic inventory of these light fixtures.

Trash Collection Facility

Most of the service areas / trash collection facilities are in desperate need of some type of screening, either walls, fences or landscaping.

Maintenance Facility

This facility is found in the Athletic / Support area and currently has no apparent landscape treatment.

Campus Edges

Currently the only edges which have any form of landscape treatment are the northern edge along S.W. 8th Street and the NE portion of S.W. 107th Avenue. These edges have been planted with Poinciana and Oak trees which is what appears to be a rather loose, open pattern. It will be a number of years before any type of mass is formed by these plantings. The edge along S.W. 117th Avenue and along the southern property line has not been landscaped but some sporadic planting occurs along this southern boundary, a mixture of Sabals, Brazilian Pepper and Bougainvillea and Australian Pines which are found elsewhere on site.

Signage

A recent signage graphics program has been adopted and has defined areas into color coded zones. The use of this program has not yet been fully adopted to the campus wide signage system. There are still many very different types of signs and often they are confusing or difficult to read. See Figure 15.3 for a photographic inventory of the signage found on campus.

Existing Vegetation

The University Park FIU campus was previously an airport and contains relatively few naturally vegetated areas. Non-landscape vegetation associations have been described in detail in Section 2.12 Existing Vegetative Communities.

There are no existing historic landscape features located on the University Park Campus.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

The only significant landscape feature currently on the University Park Campus is "Bay Hammock" which is described in detail in section 2.12 Existing Vegetative Communities.

North Miami Campus

Vehicular Circulation

The North Miami FIU US. 1 entrance consists of a sign and planting of Sabal Palms on the southern side of Bay Vista Boulevard, which leads into the campus and is currently maintained with a grass shoulder. Most roads on campus have minimum or no consistent landscape treatment and offer no visual clues as to the intended circulation hierarchy.

Parking Facilities

Landscape treatment for the parking lot is minimal with a few trees provided on the end aisle. The exception is the parking lot adjacent to the maintenance & public safety facility where Oaks have been recently planted to provide shade. All of the parking lots aisle widths seem adequate to accommodate additional planting islands necessary to establish a shade canopy. Adjacent to the HRS facility parking on non-paved surface creates a maintenance problem. None of the parking is screened from adjacent roadways.

Pedestrian Circulation

Current pedestrian circulation consists of covered and uncovered walkways criss-crossing the academic facilities, two paths connecting student housing and a series of curvilinear asphalt paths circulating through the open space south of the academic facilities. The plaza and any paths immediately adjacent to the academic facilities are currently under renovation; replacing the concrete / brick paving with a concrete / stamped concrete brick pattern. Work completed to date appears to be of poor quality. In general it appears that efforts have been made to accommodate disabled persons with ramps, drop curbs or minimizing outdoor stairs without alternative access. The covered walkways are effective in allowing access to classrooms in rainy weather.

Bicycle Facilities

Bicycle facilities consist of two types of bike racks located adjacent to the student housing, student center and most academic buildings. Many were located without cover from the weather. The racks adjacent to the student housing appear inadequate to accommodate the number of student bikes.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

Public Transportation

Current public transportation facilities consist of one covered bus stop at the drop off adjacent to plaza area between the Academic Bldg. 1 and the Library. The covered bus stop is not consistent with Dade County or the ones found on the University Park campus.

Emergency Access Facilities

No data was available for comment.

Planted Areas

In general the landscape character appears to have no clear direction and is greatly in need of some intensive maintenance. Most of the lawn areas are infested with weeds and there appears to be minimum foundation planting which would greatly help to soften some of the buildings, ie. Student housing. The planting beds need additional plant material, mulch and irrigation. The occasional use of topiary seems a curious allocation of funds in an area desperate for basic landscape coverage. Many of the buildings have left over spaces or provide planters in difficult locations without light or irrigation. This has created many spaces which can't easily be maintained as a successful landscape area. Currently the campus is undergoing the installation of a grey water irrigation system with affluent to be provided by the City of Miami Beach. See Figure 2.15.7 for Labeled Planted Areas.

A. Main Entrance

The campus entrance at Bay Vista Blvd. has been planted with Sabal Palms and an underplanting of Firecracker Plant. The northern side has been lined with pruned Australian Pines and some Sabal Palms. This landscape treatment does not address the adjacent lake which could be developed as a wonderful entrance feature.

B. Academic Core

Most developed area, plantings to the west of the covered walkway are spotty with a lack of continuity in plant palette or intent. Oaks planted in a bosque do provide a nice shade canopy along the plaza. Foundation plantings are minimum. FIU topiary can not be perceived from ground plane and use of deer topiary seems inappropriate to an institutional setting. Plantings to the east of the walkway focuses on centrally located flagpoles and an adjacent seating area adjacent to Student Center. Plantings at the Hospitality building appear to have a better level of maintenance but use of animals topiary and annuals seems a bit fussy for this area.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

- C. Plantings in this area south of the academic buildings are spotty at best. Tot lot adjacent to the student center does not appear to be used, perhaps this facility needs relocation to HRS training / Child care Center.
- D. This open area with informal planting has potential for development into a pleasant open space adjacent to the bay. Currently the plantings of Coconut Palms, Sabal Palms, Sea Grapes and Tabebuias are random without apparent design direction to define the space. The grass coverage in the area is spotty and infested with weeds. There are two wedelia covered mounds conspicuously located adjacent to the pool. These mounds are screening two propane tanks.
- E. This space between the Academic Core buildings and the Student Housing is open lawn with a few scattered trees. Some picnic tables, grills and a volleyball net has been located in an area between wings of Student Housing. This casual recreation area could desperately use some vegetation as well as the entire space defined by Parcel F. The courtyards found in each of the wings of the building are an example of those areas difficult to maintain a healthy landscape.
- F. This area currently has minimum landscape treatment and is currently being used as an unpaved parking area for HRS training facility.
- G. The area adjacent to the maintenance facility is currently being used as a shade house nursery and holding area for plant materials.

Site Furnishings

Existing site furnishings appear to be a "hodge podge" of materials and style and without much rational in their placement. There is no available record of model numbers of the furnishings used on campus. We have provided a photographic inventory of the variety of light fixtures, benches, trash receptacles and bicycle racks found on the campus. See Figures 2.15.8 & 2.15.9

Lighting Location and Type

The parking lots have a series of single or double shoe box type fixtures. Roadway lighting on campus is mostly with a shoe box type fixture on shorter posts. The "hodge podge" of lighting occurs within the academic core area. Bollard lighting occurs at the plaza adjacent to Student Center and at Tot Lot area. Other lighting in this area are shown in the photographic inventory.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

Trash Collection Facility

Most trash collection areas could use additional screening with either hard elements (fences, walls) or soft elements (landscaping).

Campus Edges

Most of the eastern edge of this campus is Biscayne Bay shoreline, a portion of which has been "rip rapped" for shoreline stabilization. Selective removal of vegetation (excluding Mangroves) in the academic core area would enhance the uniqueness of this campus adjacent to Oleta State Park is dominated by Australian Pine and scattered Brazilian Pepper adjacent to the canal.

The southern edge of the campus except for the cleared area is forested Australian Pine, Brazilian Pepper and Seagrape with some scattered upland mangroves.

The western edge, most visible along Bay Vista Blvd adjacent to the lake is planted with coconut palms and scattered flowering trees. South of the entrance it returns to Australian Pine Forest.

Signage

A current signage program has recently been adopted and defined areas into color code zones. This is not yet apparent at the North Miami campus. Current signage is confusing and sometimes difficult to read. See Figure 2.15.9 for a photographic inventory of the signage currently found on the North Miami campus.

Existing Vegetation

The FIU North Campus contains relatively few naturally vegetated areas. The non-landscape vegetation associations have been described in detail in **Section 2.12 Existing Vegetative Communities**.

There are no existing historic landscape features on the North Miami campus.

There are currently no specimen or significant landscape features on the North Miami campus.

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

PLANT PALETTE

FLORIDA INTERNATIONAL UNIVERSITY

The following plant palettes were developed per policy 1601.2.1.: Incorporate greater principles of xeriscape and "institutional" landscape character by developing two plant palettes distinguishing general campus and institutional type plants.

Note: Thematic courtyard campus spaces identified as institutional may expand the institutional plant palette to incorporate a greater variety of plant types.

INSTITUTIONAL ZONE

TREES

Bucida buceras	Black Olive	++
Bursera simaruba *	Gumbo Limbo	+
Delonix regia	Royal Poinciana	+
Ficus Benghalensis	Banyan Tree	
Quercus laurifolia *	Laurel Oak	
Quercus virginiana *	Live Oak	++
Swietenia mahogani *	Mahogany	+

PALMS AND PALM-LIKE PLANTS

Copernicia baileyana	Baily Copernicia Palm	+
Cocos nucifera 'Malayan'	Malayan Coconut Palm	++
Cocos nucifera 'Maypan'	Maypan Coconut Palm	++
Phoenix dactylifera 'Medjool'	Medjool Palm	++
Roystonea elata	Royal Palms	+
Washingtonia robusta	Washington Palm	+
Ptychosperma elegans	Solitaire Palm	
Ptychosperma macarthurii	Macarthur Palm	+

* native plant

++ = very salt tolerant

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

+ = moderately salt tolerant

SMALL TREES

Clusia rosea *	Clusia	++
Conocarpus e. sericeus	Silver Buttonwood	++
Lagerstroemia indica	Crape Myrtle	+
Ligustrum lucidum	Tree Ligustrum	
Myrica cerifera *	Wax Myrtle	++

SHRUBS

Chysobalanus icaco *	Inland Cocoplum	++
Ixora spp.	'Nora Grant', 'Maui',	+
Jasminum volubile	Wax Jasmine	+
Philodendron selloum	Philodendron	
Pittosporum tobira	Pittosporum	+
Podocarpus macrophylla	Podocarpus	+
Raphiolepis indica	Indian Hawthorn	+

GROUND COVER

Carrisa macrocarpa 'Emerald Blanket'	Dwarf Carissa	+
Liriope muscari	Blue Lily Turf	
Nephrolepis exaltata		
var. bostoniensis	Boston Fern	
Ophiopogon japonicus	Mondo Grass	+
Zamia floridana	Coontie	++

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

GENERAL CAMPUS

TREES

<i>Acer rubrum</i> *	Red Maple	
<i>Bauhinia blakeana</i>	Hong Kong Orchid	
<i>Bucida buceras</i>	Black Olive	++
<i>Bursera simaruba</i> *	Gumbo Limbo	+
<i>Chorisa speciosa</i>	Silk Floss Tree	++
<i>Chrysophyllum oliviforme</i> *	Satin Leaf	
<i>Clusea rosea</i> *	Pitch Apple	++
<i>Cocculoba grandifolia</i>	Big-Leaf Sea-Grape	++
<i>Cochlospermum vitifolium</i>	Buttercup Tree	+
<i>Conocarpus erectus</i> *	Buttonwood	++
<i>Conocarpus erectus</i> 'sericeus' *	Silver Buttonwood	++
<i>Cordia sebestena</i> *	Geiger	++
<i>Cupianopsis anacardiodes</i>	Carrotwood	+
<i>Dalbergia sissoo</i>	Indian Rosewood	+
<i>Delonix regia</i>	Royal Poinciana	+
<i>Eugenia confusa</i> *	Redberry Stopper	++
<i>Euphorbia lactea</i>	Brain Cactus	++
<i>Ficus aurea</i> *	Strangling Fig	+
<i>Ficus benjamina</i>	Weeping Fig	+
<i>Ficus nitida</i>	Cuban Laurel	+
<i>Guaiacum sanctum</i> *	Lignum Vitae	+
<i>Hamelia patens</i> *	Fire-Bush, Scarlet-Bush	+
<i>Hibiscus tiliaceus</i> *	Mahoe	++
<i>Ilex cassine</i> *	Dahoon Holly	+
<i>Ilex vomitoria</i> *	Yaupon Holly	++

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

Jacaranda acutifolia	Jacaranda	
Juniperus silicifolia *	Southern Red Cedar	++
Koelreuteria formosana	Golden Rain Tree	
Lagerstroemia indica	Crape Myrtle	+
Lagerstroemia speciosa	Queen Crape Myrtle	
Ligustrum japonicum	Privet	
Lysiloma bahamensis *	Wild Tamarind	++
Magnolia virginiana *	Sweet Bay	
Malus spp.	Apple	
Myrica cerifera *	Wax Myrtle	++
Noronhia emarginata	Madagascar Olive	++
Pandanus utilis	Screw Pine	++
Persea borbonia *	Red Bay	+
Pimenta officinalis	All-Spice	
Pinus clausa *	Sand Pine	++
Pinus elliottii *	Slash Pine	+
Piscidia picipula *	Jamaican Dogwood	++
Plumeria rubra	Frangipani	++
Podocarpus macrophyllus	Japanese Yew	+
Pongamia pinnata	Pongam	++
Quercus laurifolia *	Laurel Oak	
Quercus virginiana *	Live Oak	++
Ravenala madagascariensis	Travelers Tree	
Simarouba glauca *	Paradise Tree	+
Spathodea campanulata	African Tulip Tree	+
Swietenia mahogoni *	Mahogany	+
Tabebuia caraiba 'argentea'	Silver Trumpet-Tree/Yellow	+

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

<i>Tabebuia heterophylla</i>	Pink Trumpet-Tree/Pink	+
<i>Tamarindus indica</i>	Indian Tamarind	+
<i>Taxodium ascendens</i> *	Pond Cypress	+
<i>Taxodium distichum</i> *	Bald Cypress	+

PALMS AND PALM-LIKE PLANTS

<i>Acoelorrhaphe wrightii</i> *	Everglades, Paurotis Palm	+
<i>Archontophoenix alexandrae</i>	Alexandra Palm	
<i>Beaucarnia recurvata</i>	Pony Tail	+
<i>Bismarckia nobilis</i>	Bismarck Palm	+
<i>Butia capitata</i>	Jelly, Pindo Palm	+
<i>Caryota mitis</i>	Fishtail Palm	
<i>Chamaerops humilis</i>	European Fan Palm	
<i>Chrysalidocarpus lutescens</i>	Areca Palm	
<i>Coccothrinax argentata</i> *	Silver Palm	++
<i>Coccothrinax crinita</i>	Old Man Palm	++
<i>Cycas circinalis</i>	Queen Sago	+
<i>Cycas revoluta</i>	Dwarf/King Sago	+
<i>Hyophorbe lagenicaulis</i>	Bottle Palm	+
<i>Hyophorbe verschaffeltii</i>	Spindle Palm	+
<i>Livistona chinensis</i>	Chinese Fan Palm	
<i>Neodypsis decaryi</i>	Triangle Palm	
<i>Phoenix canariensis</i>	Canary Island Date Palm	+
<i>Phoenix reclinata</i>	Senegal Date Palm	
<i>Phoenix roebelenii</i>	Pygmy Date Palm	
<i>Phoenix sylvestris</i>	Wild Date, Date-Sugar Palm	+
<i>Pseudophoenix sargentii</i> *	Buccaneer Palm	++
<i>Ptychosperma elegans</i>	Solitaire Palm	

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

<i>Ptychosperma macarthuri</i>	Macarthur Palm	
<i>Rhapis excelsa</i>	Lady Palm	+
<i>Roystonea regia</i>	Royal Palm	+
<i>Sabal palmetto</i> *	Cabbage Palm	++
<i>Thrinax morrisii</i>	Key Thatch	
<i>Thrinax radiata</i> *	Thatch Palm	++
<i>Veitchia merrillii</i>	Manila, Christmas Palm	+
<i>Veitchia montgomeryana</i>	Montgomery's Palm	
<i>Washingtonia robusta</i>	Mexican Washingtonia Palm	+
FRUIT TREES		
<i>Annona squamosa</i>	Sugar Apple	+
<i>Averrhoa carambola</i>	Carambola, Starfruit	
<i>Blighia sapida</i>	Akee	
<i>Citrus aurantifolia</i>	Key Lime	
<i>Coccoloba diversifolia</i> *	Pigeon Plum	++
<i>Coccoloba uvifera</i> *	Sea Grape	++
<i>Cocos nucifera</i>	Coconut Palm	++
<i>Eriobotrya japonica</i>	Loquat	+
<i>Ficus carica</i>	Fig	
<i>Macadamia</i> spp. 'tetraphylla'	Macademia Nut	
<i>Malus pumila</i>	Apple	
<i>Mangifera indica</i>	Mango	
<i>Manilkara zapota</i>	Sapodilla	++
<i>Pachria aquatica</i>	Guinea Chestnut	+
<i>Persea americanum</i>	Avocado	
<i>Psidium guajava</i>	Guava	

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

SHRUBS

Alpinia zerumbet 'variegata'	Ginger Lily	+
Carissa macrocarpa	Natal Plum	++
Cestrum nocturnum	Night Blooming Jasmine	
Chrysobalanus icaco *	Cocoplum	++
Codiaeum variagatum	Croton	+
Cordyline terminalis	Ti Plant	
Dodonaea viscosa *	Varnish Leaf	++
Dracaena deremensis 'Janet Craig'	Dracaena Janet Craig	
Dracaena fragrans 'massangeana'	Corn Plant	
Dracaena marginata 'gracilis'	Dracaena	+
Duranta repens *	Golden Dewdrop	+
Hamelia patens	Firebush	
Hibiscus rosa-sinensis	Hibiscus	+
Ixora coccinea	Red Ixora	+
Ligustrum japonicum	Southern Wax Privet	+
Myrcianthes fragrans *	Simpson's Stopper	++
Murraya paniculata	Orange Jasmine	
Philodendron selloum	Philodendron	
Plumbago capensis	Plumbago	
Russelia equisetiformis	Firecracker Plant	++
Scaveola frutescens	Beach Naupaka	++
Sophora tomentosa *	Necklace Pod	++
Spathiphyllum 'Mauna Loa'	Peace Lily	
Trimezia martinicensis	Walking Iris	
Turnera ulmifolia *	Yellow Alder	++

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

GROUND COVERS

Asparagus densiflorus 'sprengeri'	Asparagus Fern	+
Borrichia arborescens *	Silver Sea Oxeye	++
Carissa macrocarpa	Dwarf Carissa	++
Chiococca pinetorum *	Pineland Snowberry	
Chlorophytum comosum	Spider Plant	
Crytomium falcatum	Holly Fern	+
Cynodon dactylon	Bermuda Grass	++
Epipremnum aureum	Pothos	
Evolvulus glomerata	Blue Daze	++
Helianthus debilis *	Beach Sunflower	++
Hemerocallis spp. *	Daylily	++
Lantana depressa *	Dwarf Lantana	+
Lantana montevidensis	Trailing Lantana	++
Liriope muscari	Liriope	+
Nephrolepis exaltata	Sword Fern	
Paspalum notatum	Bahia 'Argentine' Sod	
Stenotaphrum secundatum	St. Augustin "Floratum"	++
Vinca rosea	Periwinkle	++
Zebrina pendula	Wandering Jew	
Zamia floridana *	Coontie	++

16.0 LANDSCAPE DESIGN GUIDELINES ELEMENT

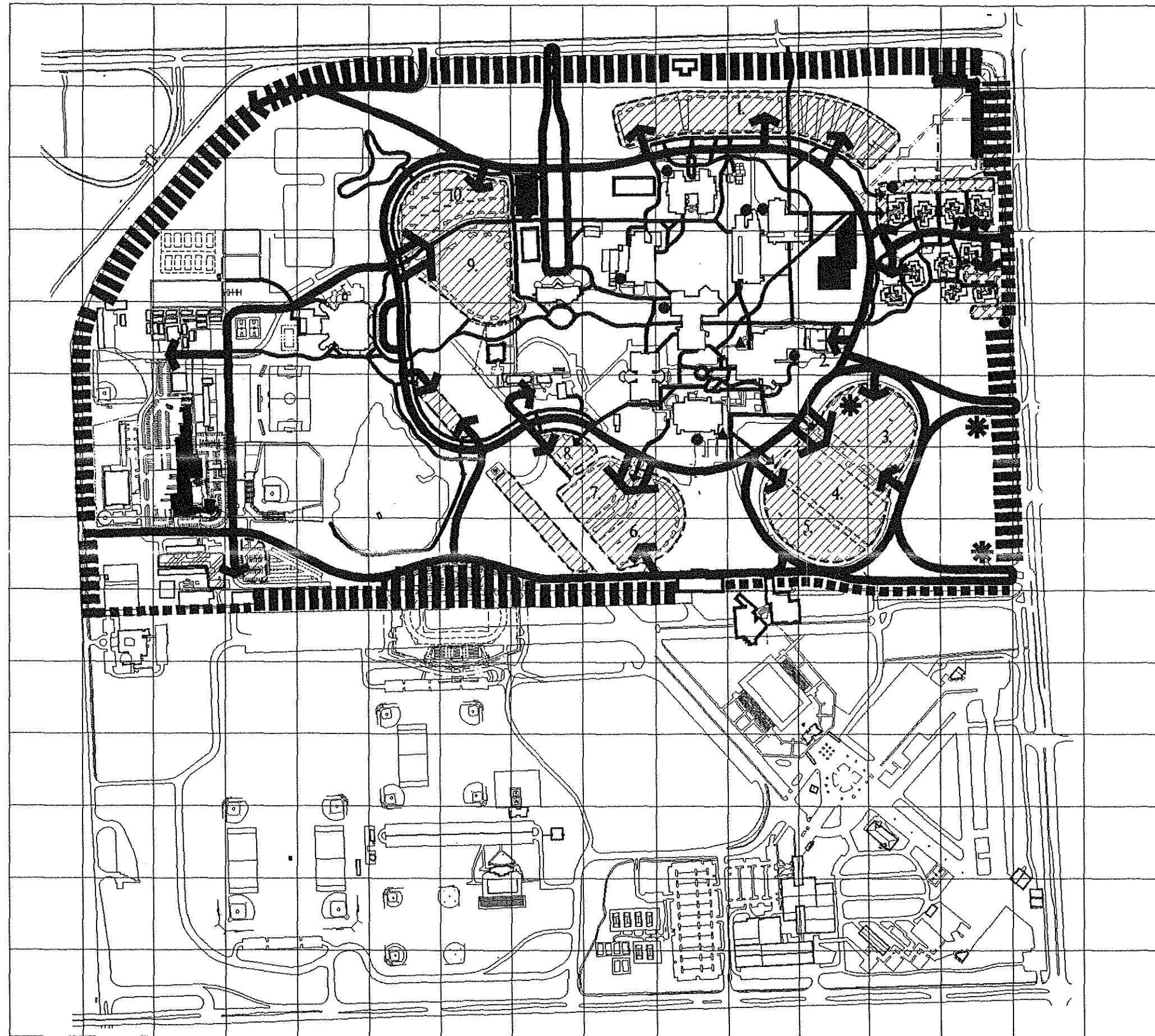
VINES

Bougainvillea spectabilis	Bougainvillea	++
Clerodendrum thomsoniae	Bleeding Heart	
Monstera deliciosa	Ceriman	
Parthenocissus quinquefolia *	Virginia Creeper	
Petrea volubilis *	Queen's Wreath	+

References:

Broschat, Timothy K. and Meerow, Alan W. Betrock's Reference Guide to Florida Landscape Plants. n.p. Betrock Information Systems. 1991.










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South Florida Water Management District. West Palm Beach, FL. n.d.



15.1 LANDSCAPE INVENTORY & ANALYSIS

UNIVERSITY PARK

LEGEND

-  VEHICULAR CIRCULATION
-  PEDESTRIAN CIRCULATION
-  PARKING FACILITIES
-  BICYCLE FACILITIES
-  PUBLIC TRANSPORTATION FACILITIES
-  TRASH COLLECTION /SERVICE AREAS
-  MAINTENANCE FACILITY
-  CAMPUS EDGES
-  PROPOSED BUILDINGS

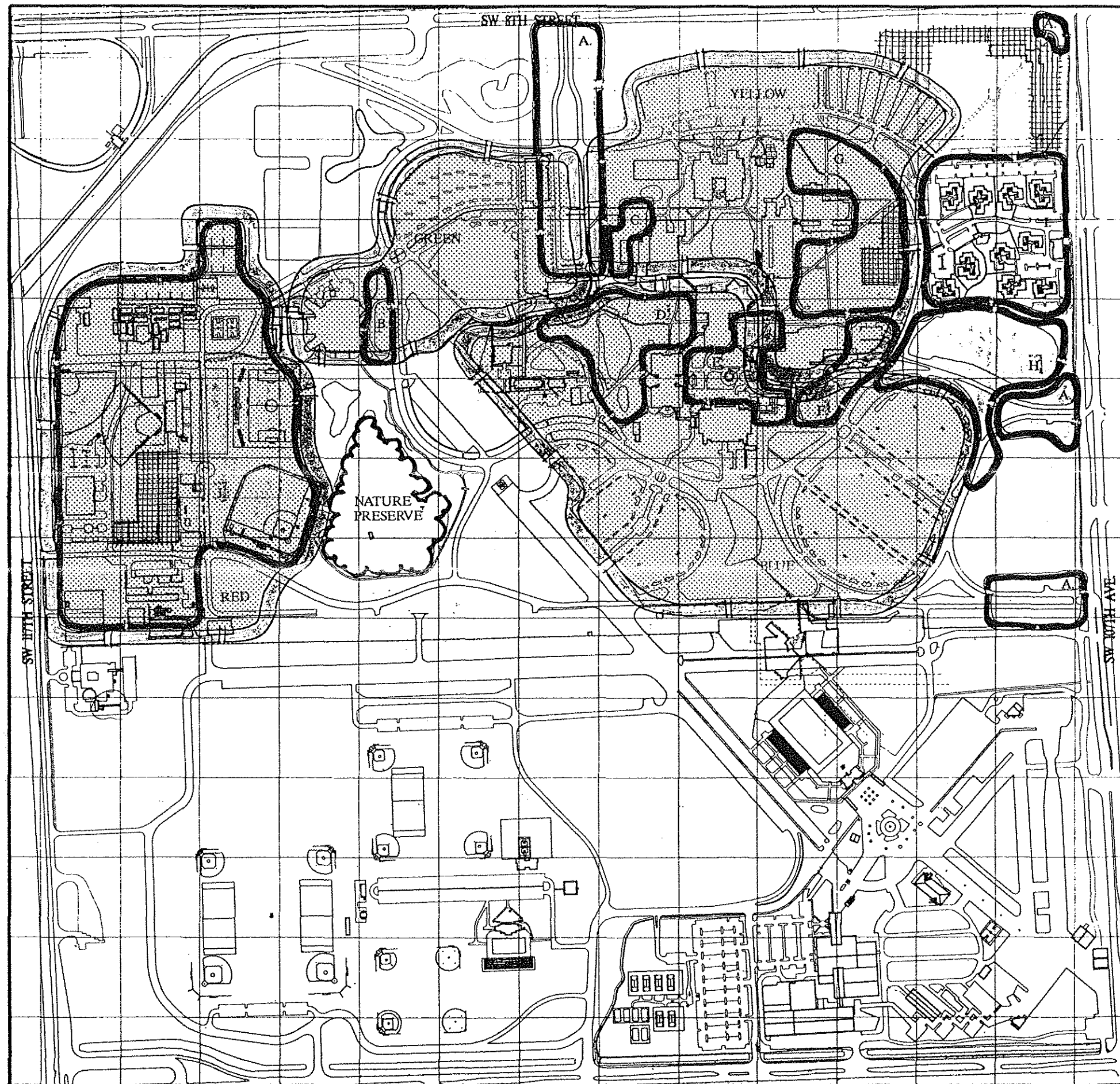
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

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15.2A LANDSCAPE INVENTORY & ANALYSIS UNIVERSITY PARK

LEGEND

-  PROPOSED SIGNAGE ZONES
-  PLANTED AREAS
-  PROPOSED BUILDING

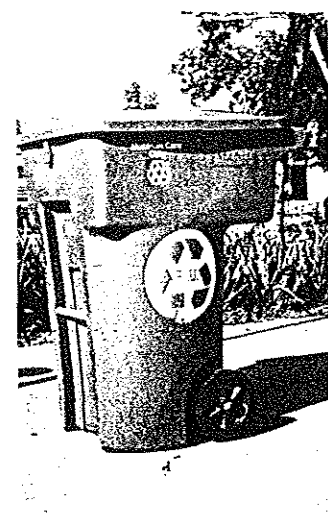
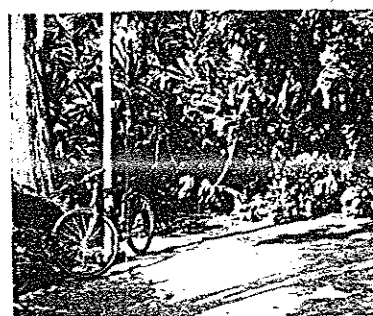
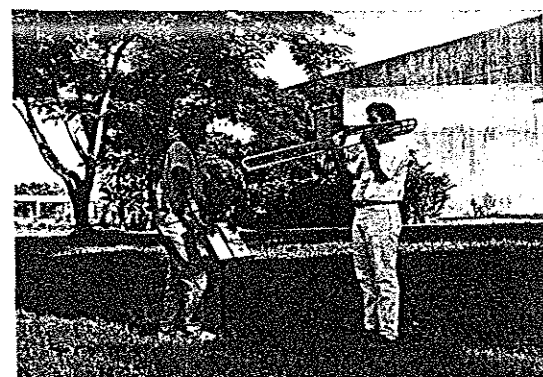
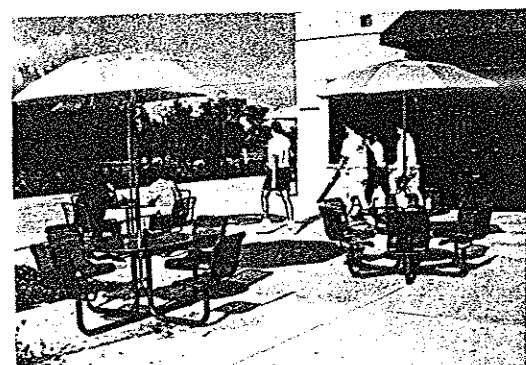
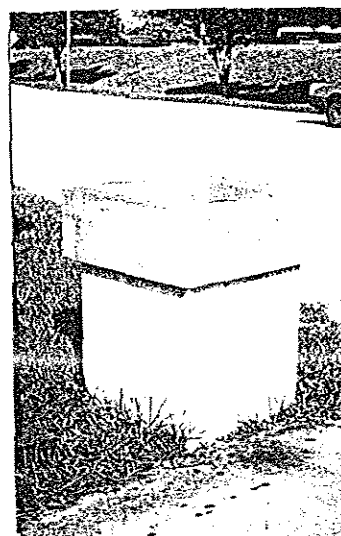
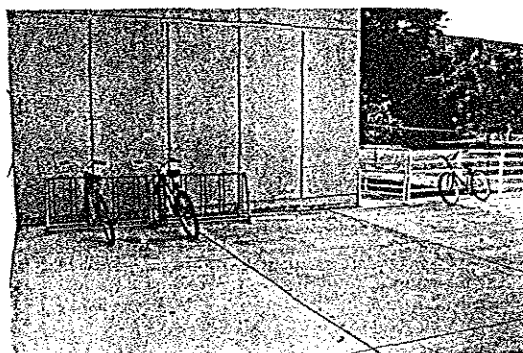
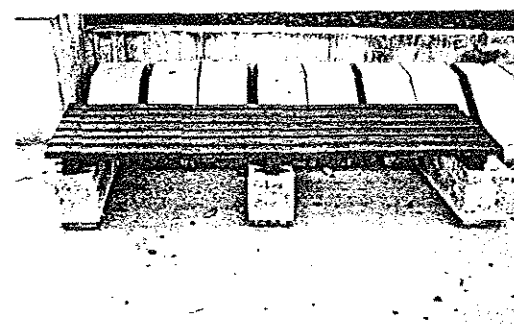
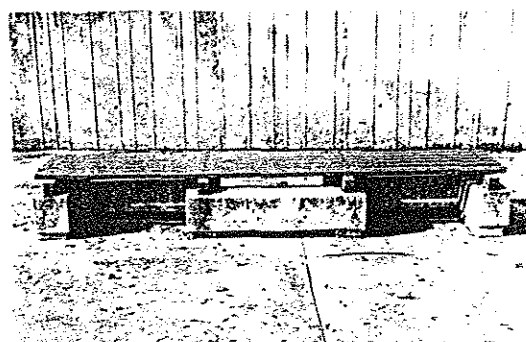
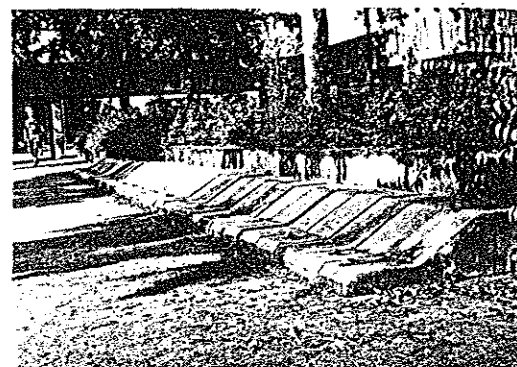
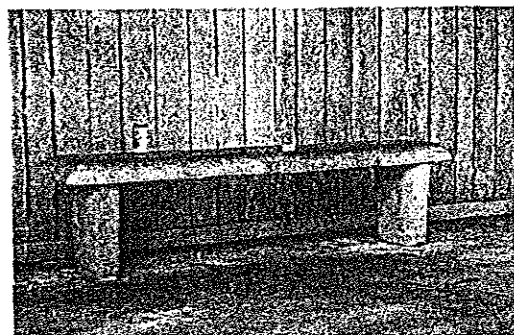
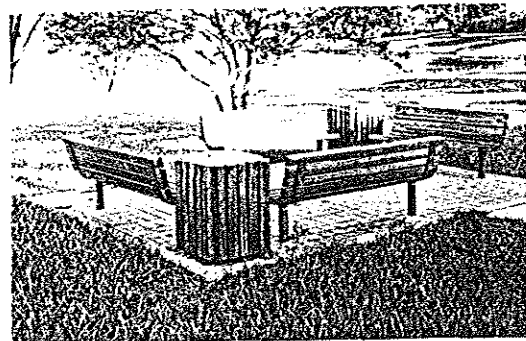
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15.3 SITE FURNISHINGS INVENTORY

UNIVERSITY PARK

BENCHES & TABLES

BIKE RACKS

BUS SHELTER

TRASH RECEPTACLES

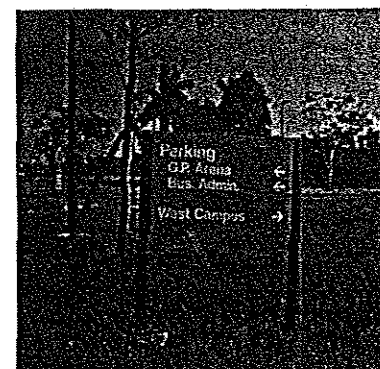
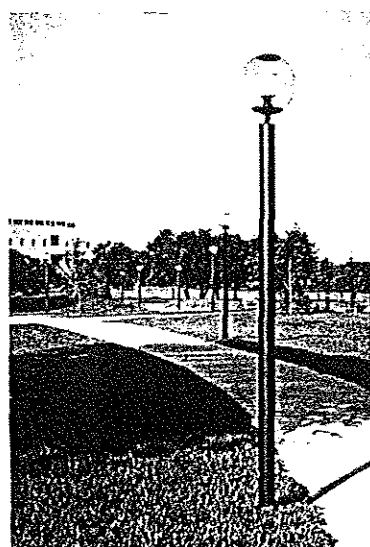
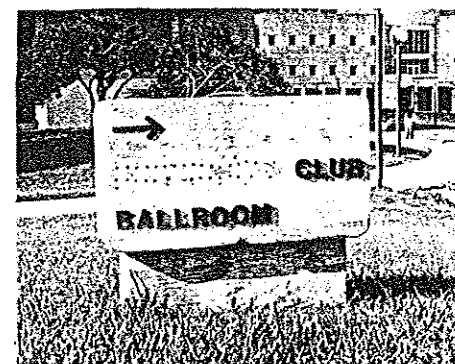
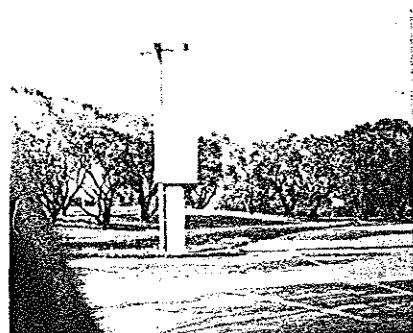
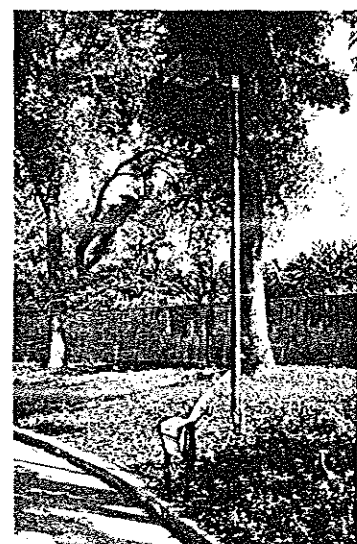
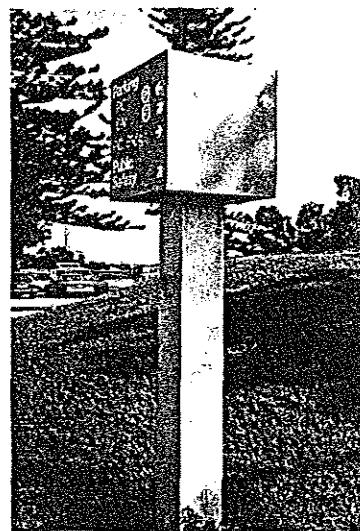
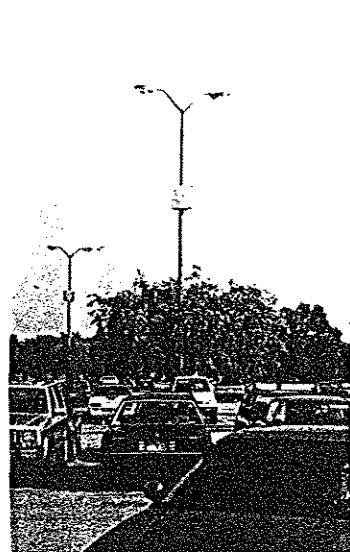
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15.4 SITE FURNISHINGS INVENTORY UNIVERSITY PARK

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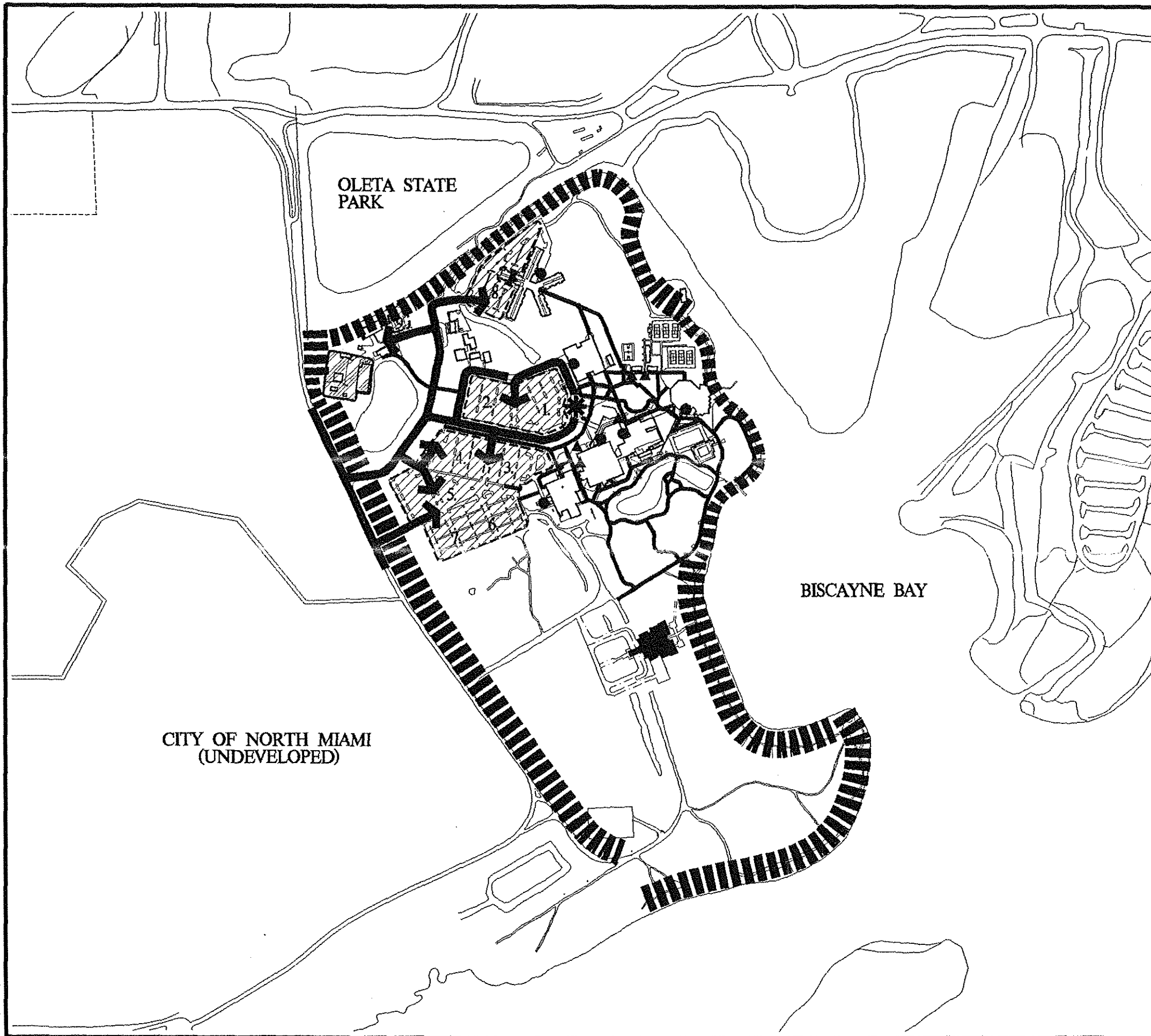
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







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15.6 LANDSCAPE INVENTORY & ANALYSIS

NORTH MIAMI CAMPUS

LEGEND

-  VEHICULAR
CIRCULATION
-  PEDESTRIAN
CIRCULATION
-  PARKING
FACILITIES
-  BICYCLE
FACILITIES
-  PUBLIC TRANSPORTATION
FACILITIES
-  TRASH COLLECTION
/SERVICE AREAS
-  MAINTENANCE
FACILITY
-  CAMPUS EDGES
-  PROPOSED
BUILDINGS

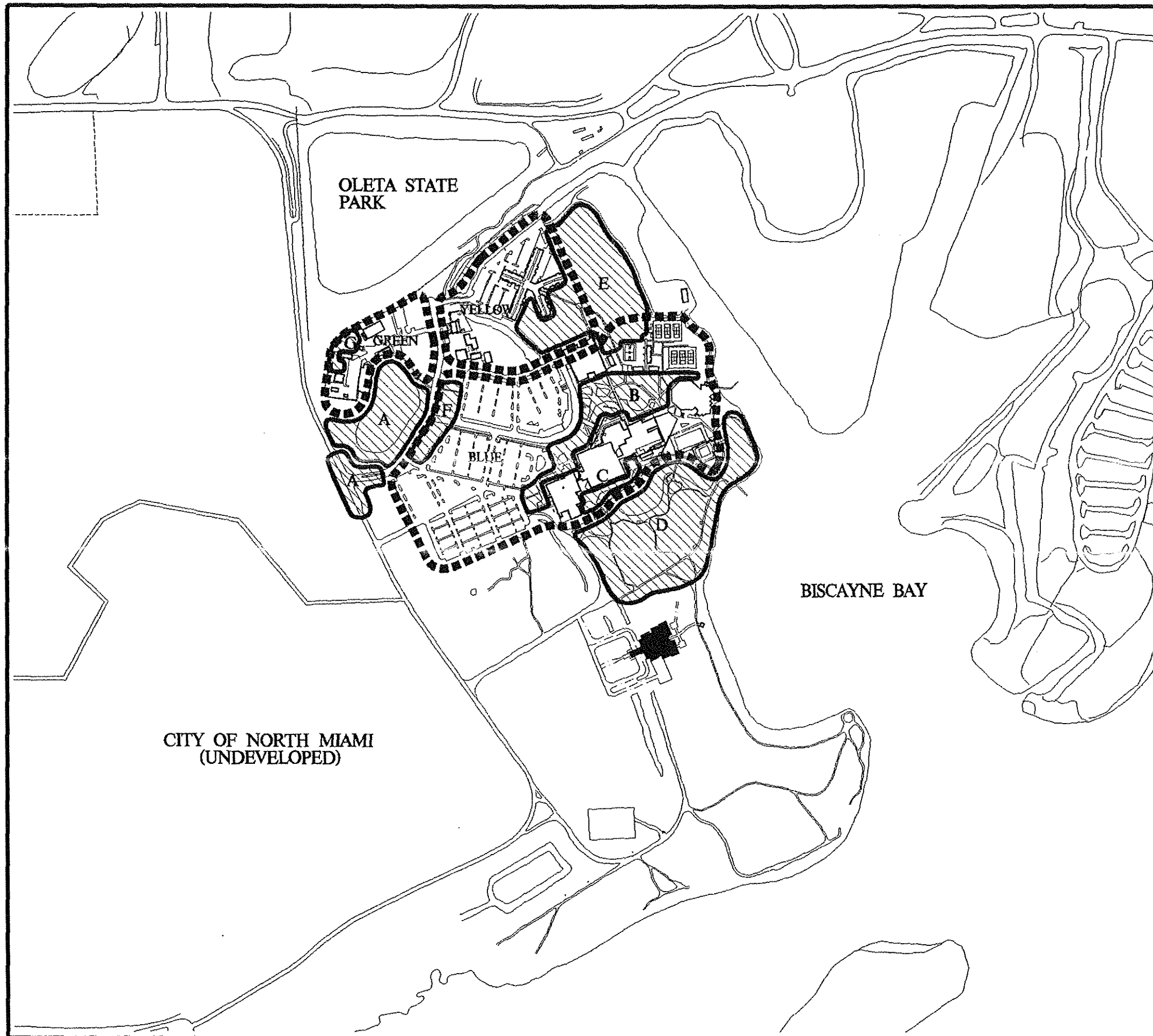
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15.7 LANDSCAPE INVENTORY & ANALYSIS

NORTH MIAMI CAMPUS

LEGEND

-  PROPOSED SIGNAGE ZONES
-  PLANTED AREAS
-  PROPOSED BUILDINGS

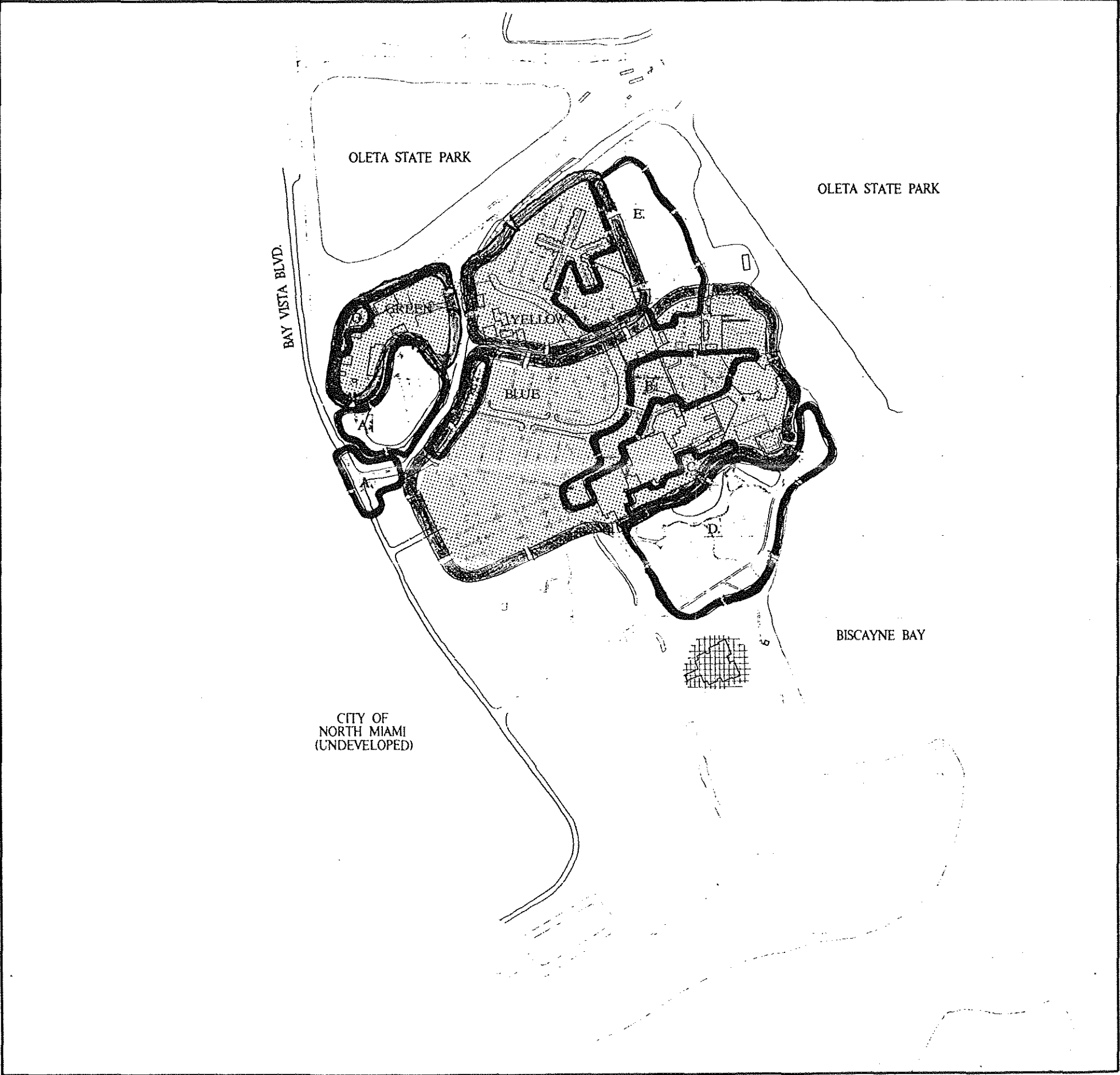
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15.7A LANDSCAPE
INVENTORY & ANALYSIS

NORTH MIAMI CAMPUS

LEGEND

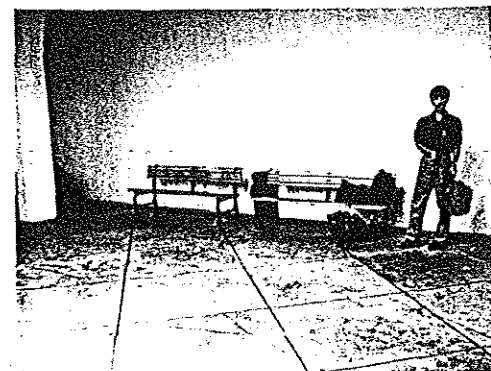
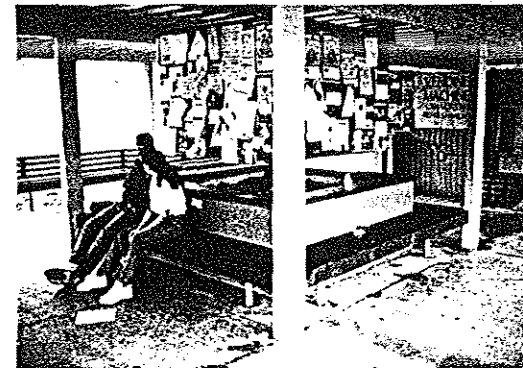
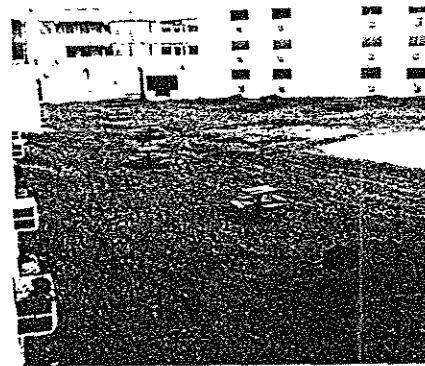
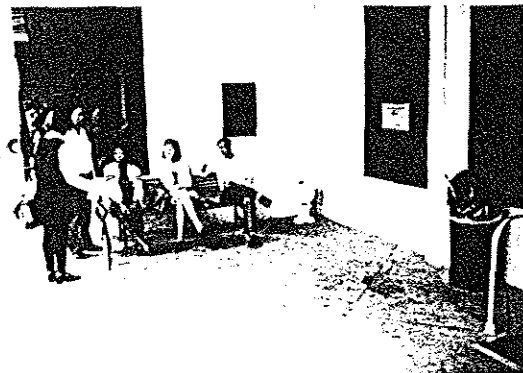
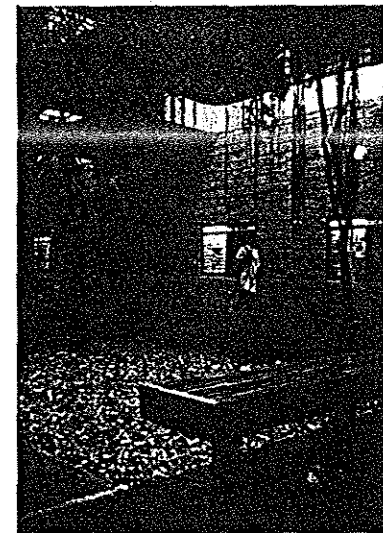
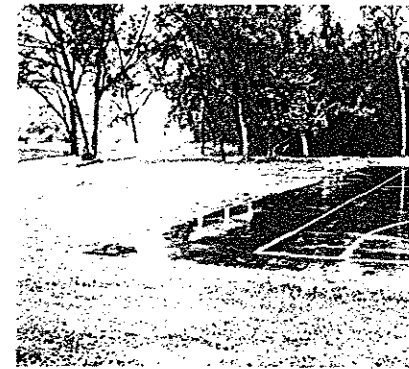
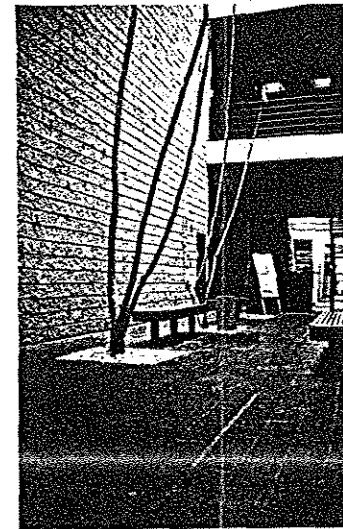
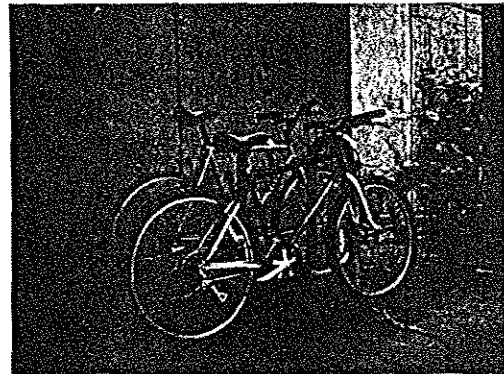
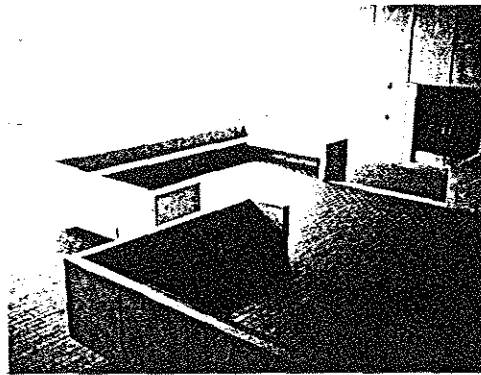
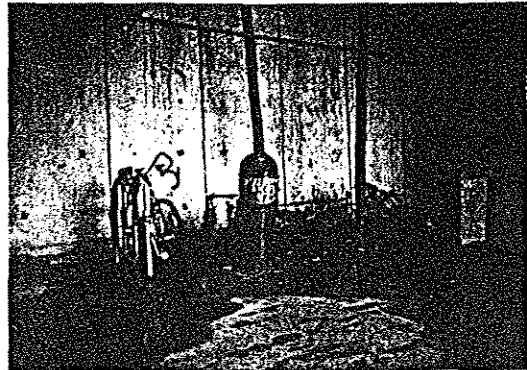
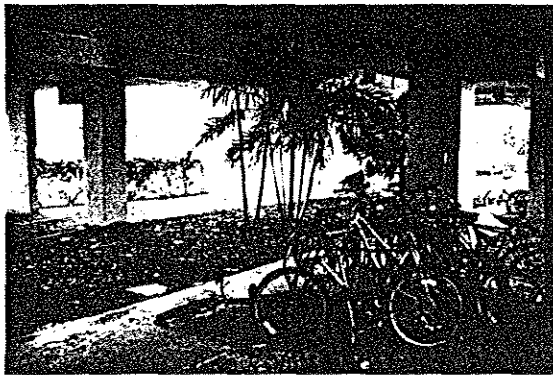
-  PROPOSED SIGNAGE ZONES
-  PLANTED AREAS
-  PROPOSED BUILDING

WALLACE ROBERTS & TODD	CORAL GABLES, FL
DAVID PLUMMER & ASSOCIATES, INC	CORAL GABLES, FL
GABY & GABY, INC	MIAMI, FL
KEITH & SCHNARS	FT. LAUDERDALE, FL
SDM ENGINEERS	CORAL GABLES, FL
ZYSCOVICH, INC	MIAMI, FL

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MIAMI, FLORIDA

DATE:





15.8 SITE FURNISHINGS INVENTORY NORTH MIAMI CAMPUS

BENCHES & TABLES
SEATING AREAS
BIKE RACKS
TRASH RECEPTACLES

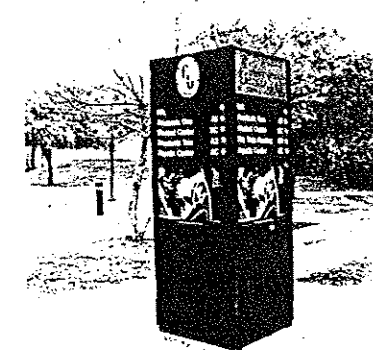
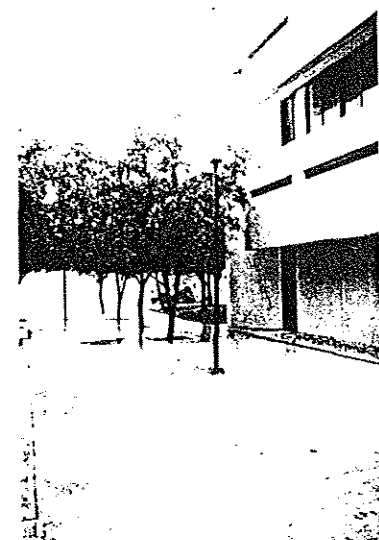
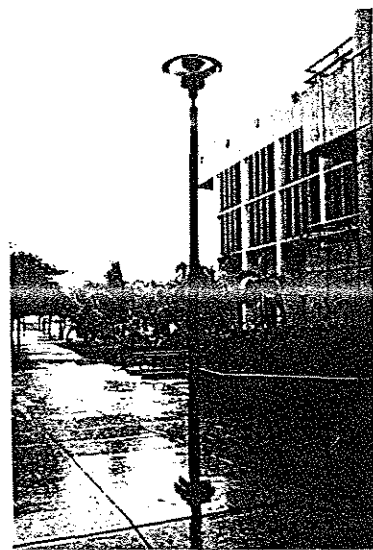
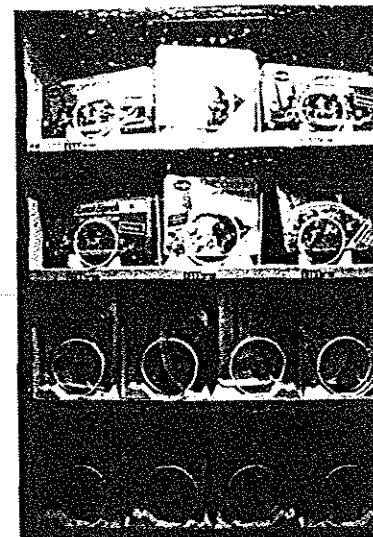
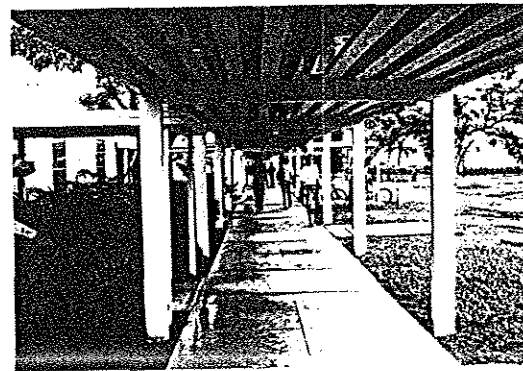
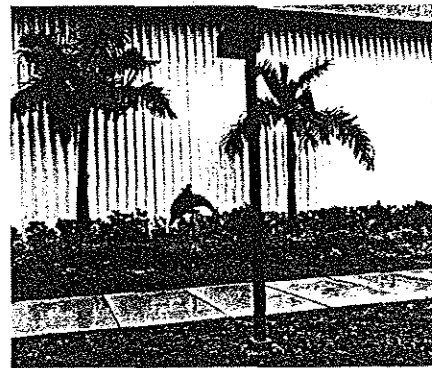
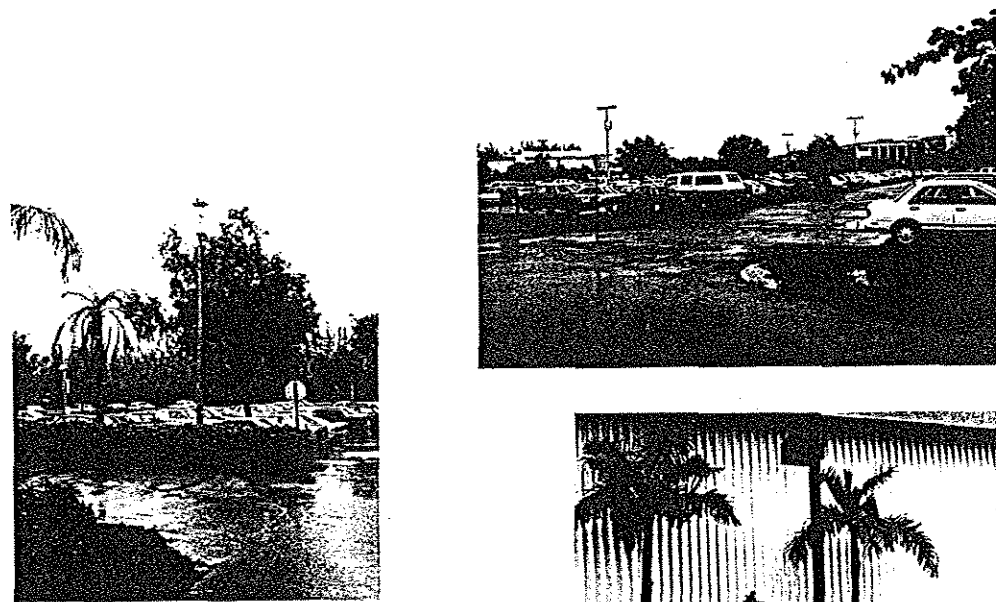
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DAVID FLEMMER & ASSOCIATES, INC.
GARY & GARY, INC.
KIRBY & SCHWARTZ
KIM ENGINEERS
ZYKOVICH, INC.

CORAL GABLES, FL.
CORAL GABLES, FL.
MIAMI, FL.
FT. LAUDERDALE, FL.
CORAL GABLES, FL.
MIAMI, FL.

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15.9 SITE FURNISHINGS
INVENTORY
NORTH MIAMI CAMPUS

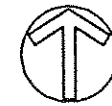
- LIGHT FIXTURES
- TOPIARY
- COVERED WALKWAYS
- BUS SHELTER
- VENDING MACHINE
- SIGNAGE

WALLACE ROBERTS & TODD
DAVID FLUMMER & ASSOCIATES, INC.
GARY & GARY, INC.
KENT & SCHWAB
RDM ENGINEERS
ZIMCOVIC, INC.

CORAL GABLES, FL
CORAL GABLES, FL
MIAMI, FL
FT. LAUDERDALE, FL
CORAL GABLES, FL
MIAMI, FL

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17.0 FACILITIES MAINTENANCE ELEMENT

Present Facility Data Base

Florida International University Architectural and Engineering Services maintains an extensive data base on virtually all campus facilities which includes the following items.

A. General Building Characteristics per record drawings and specifications

1. General

- a. Building/facility name
- b. Location (address, key maps, numerical identification)
- c. Gross area/net area
- d. Stories
- e. Existing use(s)
- f. Statement of historic significance

2. Exterior

- a. Material
- b. Condition
- c. Configuration, with comments on the following:
 - 1. Walls
 - 2. Doors/windows
 - 3. Envelope
 - 4. Roof

3. Interior

- a. Material
- b. Condition
- c. Configuration, with comments on the following:
 - 1. Floors
 - 2. Walls
 - 3. Ceilings
 - 4. Doors, windows and frames
 - 5. Stairs

17.0 FACILITIES MAINTENANCE ELEMENT

B. Status of Systems

1. Systems

- a. Material
- b. Condition
- c. Configuration, with comments on the following:
 1. HVAC
 2. Structural
 3. Plumbing
 4. Electrical (power/lighting)

Existing Deficiencies and Improvement Needs

Facility deficiencies at present are documented in a variety of data sources and studies aimed at a particular problem type. Virtually all such reports and the present facility maintenance process is reactive in nature, e.g. based on documentation of pre-existing conditions and their lack of conformance with life safety and other applicable standards. The documentation of present facility deficiencies are summarized in the Building Deficiency Survey on all systems prepared in 1989. These comprehensive assessments are supplemented by special studies and data as follows:

- Life Safety (Fire Marshall Report)
- Handicapped Accessibility (ADA Report)
- Hazardous Materials including asbestos (Law Engineering)
- Energy Efficiency (Johnson Controls Audit)
- Roof Management (Garland Report)

Substantial data necessary for a comprehensive facility management program is absent including specific materials issues such as documentation of lead based paint.

Deficiencies identified from these sources are then prioritized using the criteria referenced below, are then incorporated in programmed facility improvements in the 5 year CIP (Capital Improvement Program.)

17.0 FACILITIES MAINTENANCE ELEMENT

Prioritization Criteria:

- Emergency life-safety or plant-safety items
- Previously initiated uncompleted projects
- Threatening life-safety items
- Handicapped access corrections required by state law or ADA
- Threatening plant-safety items
- Critical needs for maintaining operations
- Expansion needs critical to University objectives
- New program or operations improvements

Projected Building Maintenance Needs

FIU at present has no process, procedures or criteria from which to project future routine and corrective maintenance based on such factors as life cycle cost analysis, current rates of materials and systems deterioration, etc. In recent years available funding has been limited to projects considered emergencies and those which continued safe and efficient operations.

As indicated in the Goals, Objectives and Policies FIU will continue its present procedures for prioritizing and addressing current deficiencies in the 5 year CIP until a complete Facility Maintenance Program including the necessary data and analysis can be developed by 1996.

18.0 COASTAL MANAGEMENT ELEMENT

18 (1)a: INVENTORY OF LAND USES AND FACILITIES WITHIN THE COASTAL AREA

NORTH MIAMI CAMPUS: According to Flood Insurance Rate Maps (revised 16 October 1992), the entire North Miami Campus and context area is classified as coastal zone. The reader is referred to the inventory of land uses and facilities contained in Section 13.0: Conservation Element of this Master Plan Revision and other appropriate sections of this document.

UNIVERSITY PARK: Not applicable (not a coastal zone).

18 (1)b: NATURAL FEATURES ON THE UNIVERSITY PROPERTY WITHIN THE COASTAL ZONE

NORTH MIAMI CAMPUS: According to Flood Insurance Rate Maps (revised 16 October 1992), the entire North Miami 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 Section 13.0: Conservation Element of this Master Plan.

UNIVERSITY PARK: Not applicable (not a coastal zone).

18 (1)c: INVENTORY OF ON-CAMPUS ESTUARINE CONDITIONS

NORTH MIAMI CAMPUS: The northeastern edge of the North Miami Campus abuts a small estuary that extends northward from the Intracoastal Waterway and Biscayne Bay (the reader is referred to the 1988 Master Plan update).

Biscayne Bay and all natural waterways (including the Oleta River and the estuary at the north end of the North Miami Campus) tidally connected to the Bay have been designated as the Biscayne Bay Aquatic Preserve, a Dade County preserve.

UNIVERSITY PARK: Not applicable (not a coastal zone).

18 (1)e: EXISTING BEACH AND DUNE SYSTEMS ON UNIVERSITY PROPERTY

NORTH MIAMI CAMPUS: Beaches at the North Miami campus are limited to short, poor quality stretches along the coastline. No dunes are present on the North Miami Campus. Rip-rap was installed along portions of the shoreline of the North Miami Campus and in various areas within the context area in order to stabilize shorelines and prevent erosion. The reader is referred to Section 13 (1)a-6, Existing Mitigation Sites for more information concerning these mitigation projects.

18.0 COASTAL MANAGEMENT ELEMENT

Golden Panther Arena (w/roof reinforcing)	49,483 sf	49,483 sf
Engineering & Computer Science	12,417 sf	24,487 sf
Business Administration	7,425 sf	7,425 sf
Chemistry & Physics	0 sf	35,468 sf
Health and Wellness Center	0 sf	13,576 sf
	144,483 sf	252,782 sf

Additional shelter space will become available as planned projects near completion of construction. The following projects are presently in construction or design and may be considered for shelter space.

Labor Center	4,040 sf	(Spring 1994)
Multi-Purpose Stadium Complex	1,465 sf	(Fall 1994)
Education Building	3,900 sf	(Winter 1995)
Fitness Center	800 sf	(Winter 1995)
Graham Center Addition	12,337 sf	(Winter 1995)
Arts Complex I	14,620 sf	(Summer 1995)
Campus Support Complex	3,585 sf	(Winter 1996)
AT Library Addition	7,070 sf	(Fall 1996)

Total	47,817 sf
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Based on the assumption that approximately 25% of the University population would seek shelter at University Park, 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 (5000 people) during a storm

18.0 COASTAL MANAGEMENT ELEMENT

(based on 20 sf/person)

:

100,000 sf

Given the space requirements and the future space availability at University Park, 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 that future buildings are coordinated with the American Red Cross to ensure that new buildings include hurricane shelter criteria.

Key Issues

- *Consider policies for additional housing at the North Miami Campus relative to the need for hurricane evacuation.*
- *Measure shelter capacity for Monroe County evacuees and evaluate options to increase capacity to approximately 11,000 evacuees.*
- *Measure shelter capacity for on-campus students and consider the need to provide shelter for commuter students residing in vulnerable areas.*

18 (2)g ADEQUACY OF EXISTING BEACH AND DUNE ENHANCEMENT MEASURES

No dunes are present on the North Miami campus, and beaches are limited to stretches along the coastline. Extensive shoreline enhancements have been done in the context area of the North Miami campus and are planned for the North Miami campus itself (G. Milano, pers. comm.). Because it appears that no appreciable accretion or erosion is occurring with regard to the beaches in the context area (see Section 18(1)e above), existing and planned enhancements are probably adequate to protect campus beaches.

18(2)h NEED FOR PUBLIC ACCESS FACILITIES TO THE BEACH AND SHORELINE

There is currently no need for public access facilities to the Biscayne Bay shoreline at the North Miami Campus due to the proximity of Oleta State park which provides many public waterfront activities. It is advisable that waterfront activity be limited to the University community and not be promoted for public use for liability reasons as well as to be able to better control who is using University facilities. The Master Plan does however include waterfront enhancement by adding a continuous promenade at the wateredge with intermittent structures and the continuation of the existing open space buffer towards the southern peninsula where beach activity could be developed.