University of Florida Campus Master Plan, 2005-2015

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March 2006

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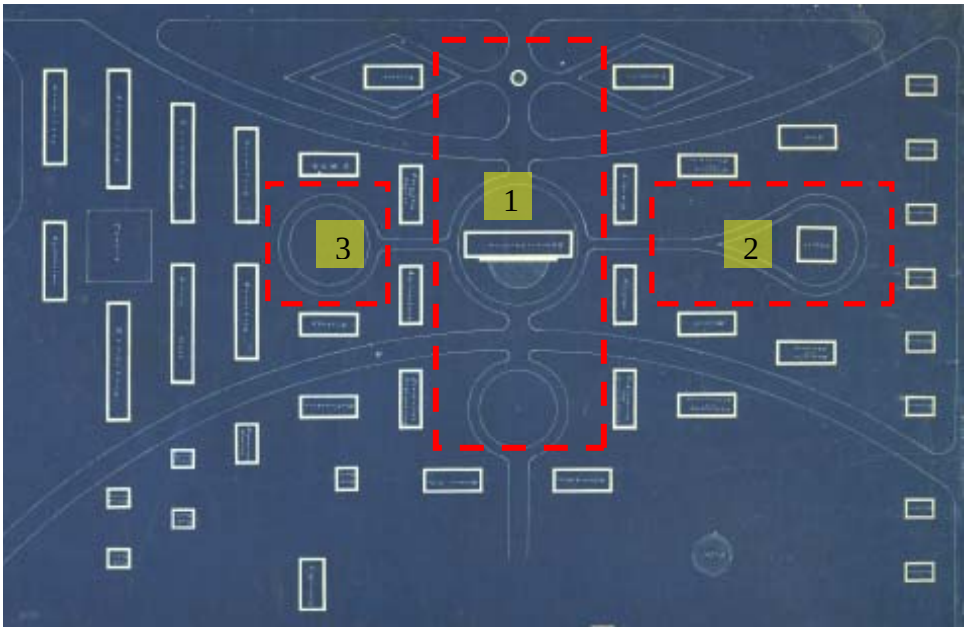
I. Historic Campus Master Plans

An important consideration in planning for the future of the University of Florida campus is to examine its past. The campus framework was first conceived as a series of arches, ellipses and circles, linking building sites situated on parallel axes. At a later stage, the campus followed grid patterns with rectangular buildings lining the access corridors and serving as focal points at terminating vistas. Eventually, unique building shapes appeared using arches and angles not previously seen in historic buildings. This later building form began to emphasize sweeping connections of open space that did not necessarily relate to the gridded roadway system. Remnants of these plans evolving over the past 100 years can be found in the built environment and the outdoor connections present in the Plaza of the Americas, Reitz Union Lawn, Flavet Field/Bandshell, Stadium Road (east end), Turlington Plaza and the recreation areas around Lake Alice.

A. The 1905 Campus Master Plan

The 1905 Master Plan is the first official master plan for the University of Florida. The plan was created by the architect William A. Edwards in an aim to give the University of Florida an image that compares favorably to more renowned institutions. Two monumental arches represent the back bone for this master plan. The arches provide connectivity within the campus in addition to their aesthetic value. Three major open spaces could be observed in this plan. The main central green space is in the same location of today's Plaza of the Americas. It was intended to be the main gathering area of campus, and this was further emphasized by the building organization around the space, its openness towards University Avenue, and the positioning of an administration building in the middle of the area.

Open Space Analysis of 1905 Master Plan



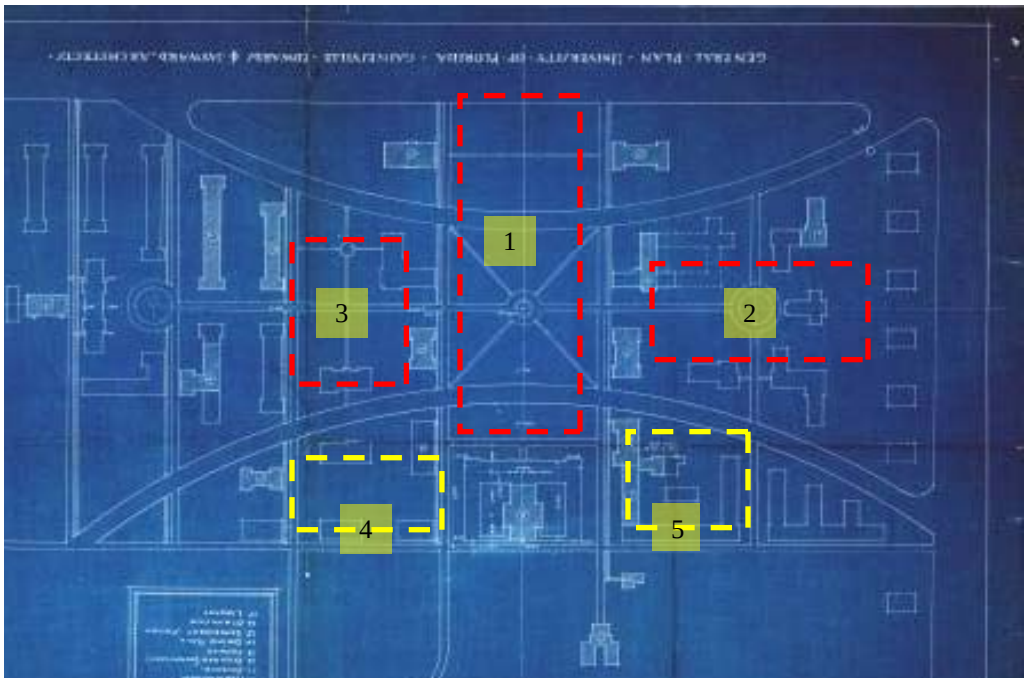
The second open space located to the east was distinguished by the chapel located in the middle, the space was intended to serve both the academic buildings, and the residence units located on

the east edge of campus. The third open space was located to the west and was also intended to serve both the academic units and the dormitories located on the west side of campus. Transportation and connectivity are major parts of this master plan. The two monumental arches were the main arteries of campus, providing access to most buildings within the campus area. Also, a series of geometrically-shaped pathways created linkage between the different areas of campus and the different open spaces. Also noteworthy, the master plan is nearly symmetrical in building distribution north and south of the administration building and chapel. Additionally, all buildings are at right angles from each other.

B. The 1920 Master Plan

The architect of the 1920 master plan was also William A. Edwards. This plan shared a lot of commonalities with the 1905 plan. The two monumental arches remained significant features of this plan, but some obvious changes occurred in building locations and distributions. The administration building as suggested in 1905 was omitted in the 1920 plan. A new building, the University Auditorium, was built in the north side of the main open green space that was later known as the plaza of the Americas. The landscape of the Plaza of the Americas was designed by Fredrick Law Olmsted, Jr. in 1927, and the space was dedicated in 1931. The chapel also suggested in the 1905 plan was not present in the 1920 plan.

Open Space Analysis of 1920 Master Plan



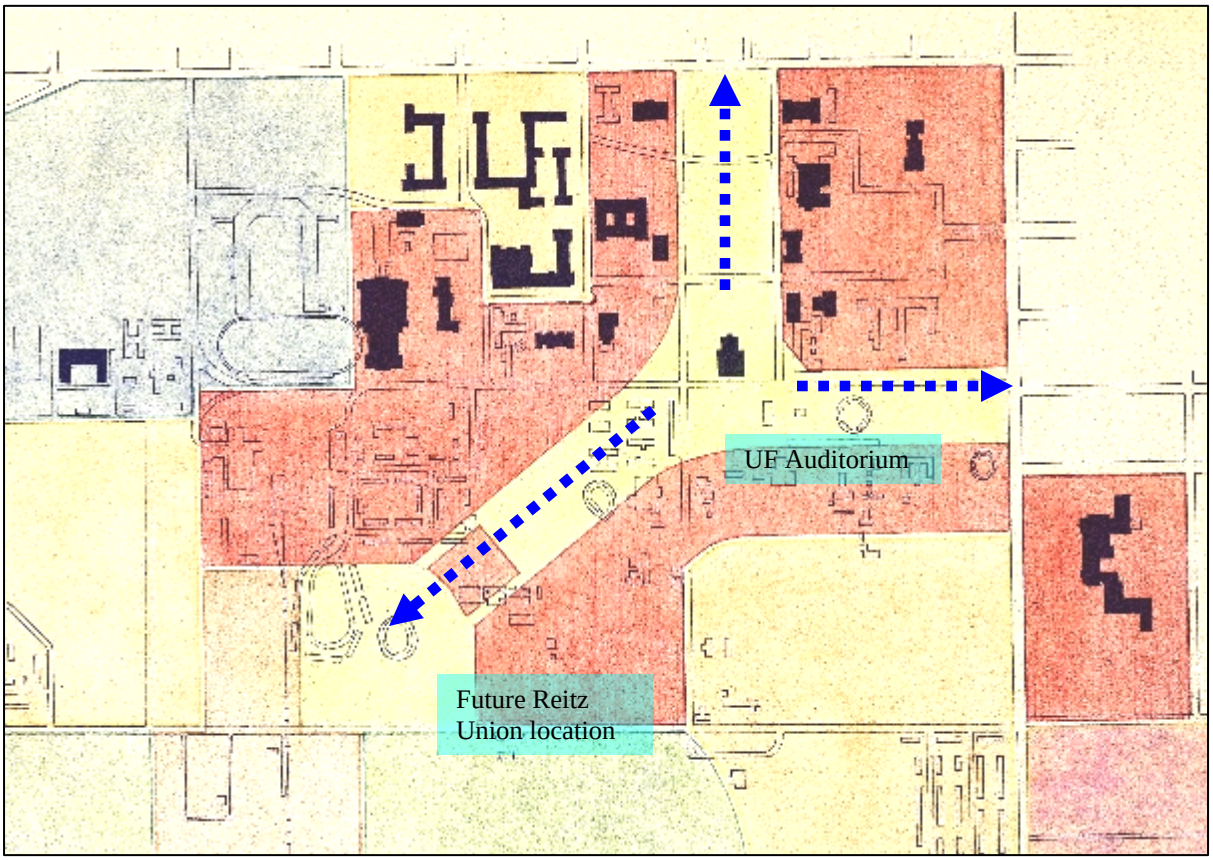
In 1920, the same three main open spaces from 1905 remained in the layout with some variations. Also, new open spaces and courtyards started to emerge due to building shapes and placements. The symmetry in building shapes and distribution noticeable in the 1905 plan began to disappear by 1920. An important aspect of this master plan was that some of the buildings in the plan actually existed by 1920, which meant that the plan was becoming more set compared to that of 1905. Some of these buildings include the halls of Flint, Anderson, Buckman, Thomas, Bryan, Peabody, Floyd, the University Auditorium, and Smathers Library. Despite all the modifications since 1905, the Plaza of the Americas space maintained its openness towards University Avenue helping to keep the campus open to the general public. Some changes were made to the campus

walkways layout; the geometric shapes disappeared and a more grid-like pattern began to emerge. Also the walkways became narrower, simpler, and less monumental.

C. The 1947/1948 Master Plan

The 1947 land use master plan reflected a number of significant changes when compared to the previous years. The architect of this plan was Guy Fulton, and the period was the post World War II boom period. One of the most outstanding differences is the disappearance of the two monumental arches which were major features of the 1905 and the 1920 plans. By 1947, the area covered by campus grew significantly compared to previous years. The campus extended south to Archer Road. Norman Hall was built on the east side of 13th Street, to be the first campus building built beyond the original campus site. In the west, the expansion was mostly in athletic facilities and housing. The residence units suggested adjacent to SW 13th Street in the previous master plans were relocated to the west. A more diverse land use pattern emerged, with more emphasis on sports and agriculture especially to the south (for agriculture functions).

Open Space Analysis of 1947 Land Use Plan



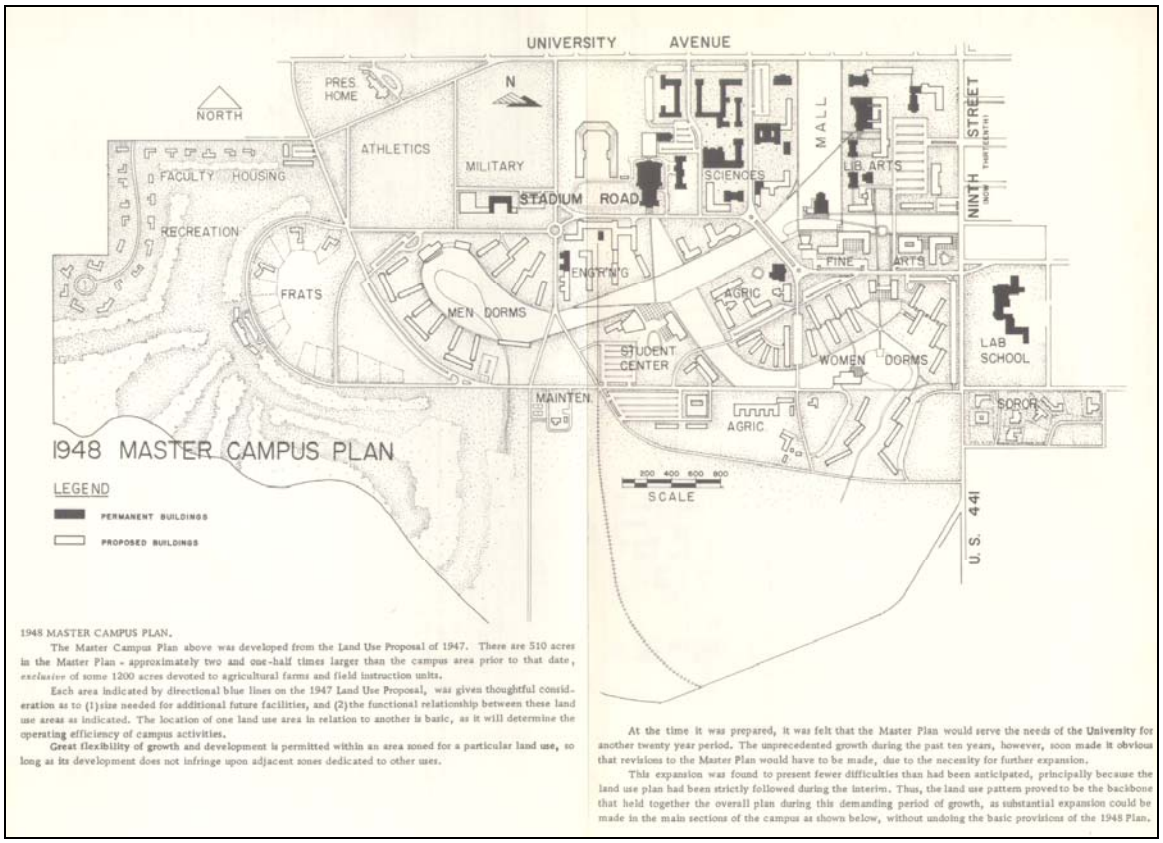
The open space distribution was also significantly different compared to previous years. The main open space remained the Plaza of the Americas, however, the open space was extended east towards SW 13th street. It also branched out south towards the location of today's Reitz Union, forming an open space corridor. The University Auditorium was the focal point of the space located at the intersection of the three open spaces. Another significant building was planned, but never built, as the focal point of the open space to the southwest. This new proposed spatial

configuration proved later to have a significant impact on building locations, orientations, and the future growth of campus.

Transportation changes were also significant in this master plan. The two monumental arches disappeared from the plan. A larger network of roads and sidewalks emerged. Most sidewalks and roads remained at right angles from each other, with a few exceptions. By 1947, the automobile was becoming more common compared to previous years. Interestingly, no parking category was suggested in this land use plan although a large surface parking lot was shown in what is now known as the Criser Lot. It is also important to notice that railroad tracks were present on campus terminating south of the stadium. The tracks were connected to a railroad line parallel to Archer Road.

Interestingly, the 1947 Land Use Plan was quickly followed by the 1948 Master Plan which added one additional open space linkage along a northwest-to-southeast alignment connecting the Florida Gym to the new student union proposed location (roughly today's Reitz Union location) and southeast through McCarty Woods to what is now the Broward recreation area. This design plan retained a land use allocation in the middle of the Reitz Lawn open space that would allow for building construction.

The 1948 Campus Master Plan



1948 MASTER CAMPUS PLAN.

The Master Campus Plan above was developed from the Land Use Proposal of 1947. There are 510 acres in the Master Plan - approximately two and one-half times larger than the campus area prior to that date, *exclusive* of some 1200 acres devoted to agricultural farms and field instruction units.

Each area indicated by directional blue lines on the 1947 Land Use Proposal, was given thoughtful consideration as to (1) size needed for additional future facilities, and (2) the functional relationship between these land use areas as indicated. The location of one land use area in relation to another is basic, as it will determine the operating efficiency of campus activities.

Great flexibility of growth and development is permitted within an area zoned for a particular land use, so long as its development does not infringe upon adjacent zones dedicated to other uses.

At the time it was prepared, it was felt that the Master Plan would serve the needs of the University for another twenty year period. The unprecedented growth during the past ten years, however, soon made it obvious that revisions to the Master Plan would have to be made, due to the necessity for further expansion.

This expansion was found to present fewer difficulties than had been anticipated, principally because the land use plan had been strictly followed during the interim. Thus, the land use pattern proved to be the backbone that held together the overall plan during this demanding period of growth, as substantial expansion could be made in the main sections of the campus as shown below, without undoing the basic provisions of the 1948 Plan.

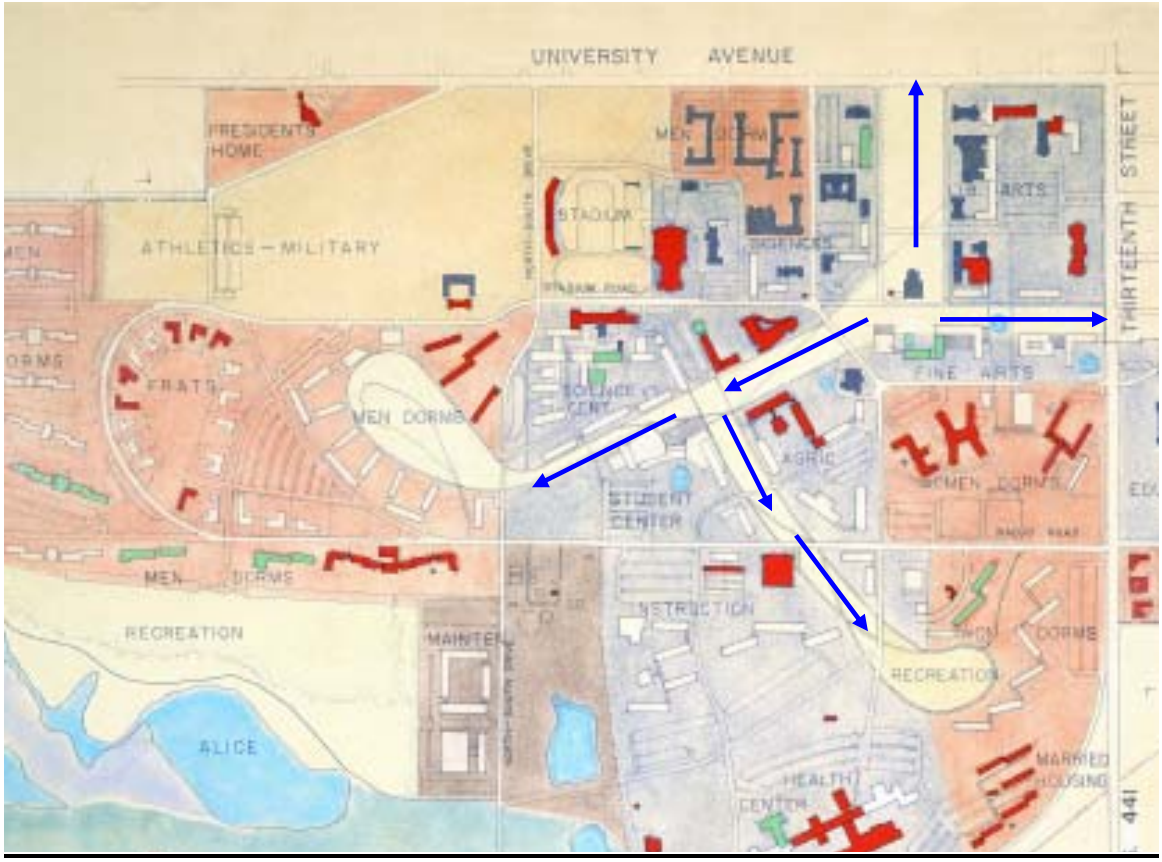
D. The 1957/1958 Master Plan

The 1957/1958 plan continued to reiterate some of the recent campus planning directions that first emerged in the 1948 master plan. The new spatial configuration suggested in the 1948 plan became the major feature of the 1957/1958 plan. The open space branched out even further than that suggested in 1948 to create a new open space corridor starting from the suggested location of the student center, and ending close to the married housing units near Archer Road. Consistent with the 1948 plan, the open space corridor also extended west to the location of Flavet Field today, where men's dorms are suggested in the plan.

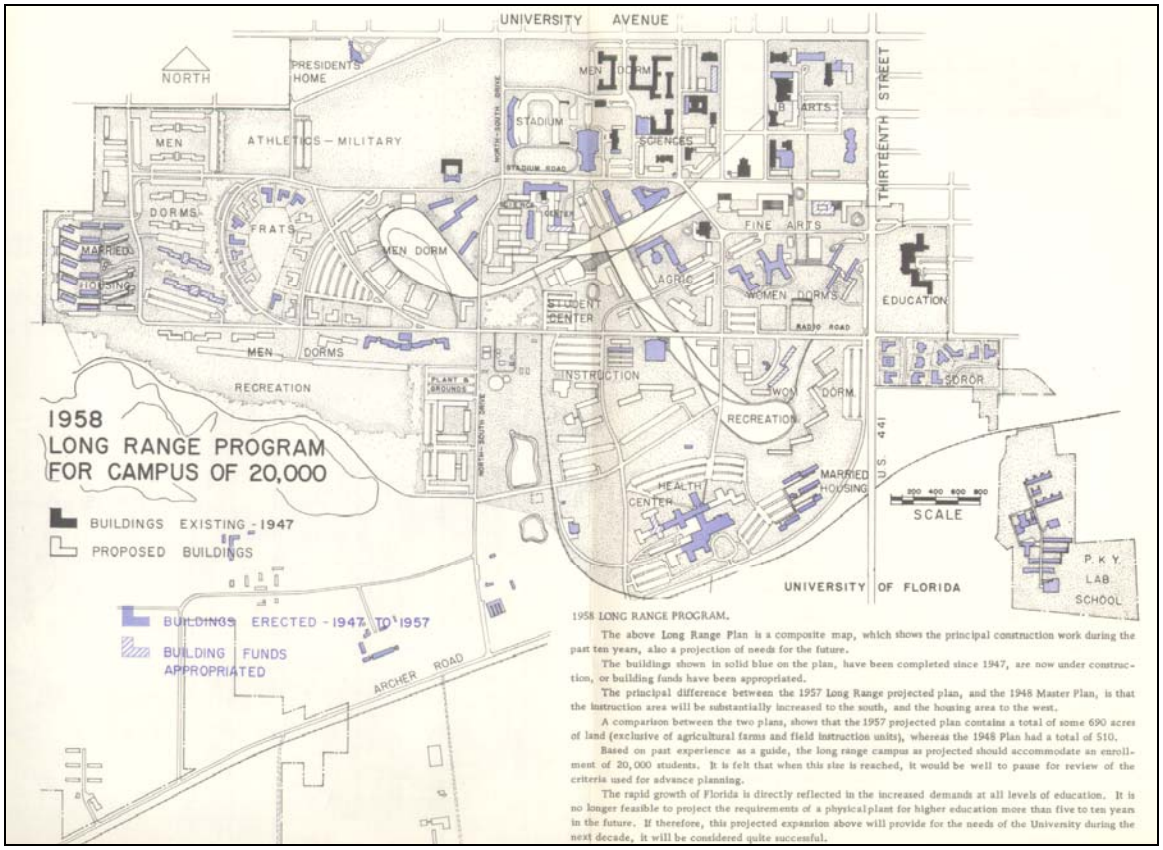
Another significant difference is related to building orientations. Most of the newer buildings are not at right angles and have different orientations. A large number of the suggested buildings frame the new open space corridors. In some cases, particularly the new dormitories, the angular placement of some buildings was designed to take advantage of prevailing winds. In this master plan, the area covered by campus land uses grew dramatically especially through agricultural functions. The agriculture land use expanded south beyond Lake Alice, and even further beyond Archer Road. Some important buildings were also shown in this plan. Such buildings include the Health Science Center, Shands Hospital, married housing units, Corry Village, sororities, fraternities, the president's home, P.K. Yonge Laboratory School, Tigert Hall, and women's dormitories.

Another major difference in the 1957/1958 plan is that it shows a number of parking lots in different areas of campus. This indicates the wide use of vehicles on campus for the first time, and could be one of the most dramatic changes in campus development history. Yet, although there are a number of parking lots shown in the map, no separate land use is designated for parking. Such designation took place in later stages of the campus planning evolution. The presence of automobiles on campus influenced and continues to influence the development of campus, especially campus open-spaces and circulation. Other than sweeping open spaces, the 1957/1958 master plan reflects few pedestrian sidewalks with most of the emphasis on automobile-oriented access. The 1958 Master Plan document includes the land use and open space patterns consistent with the 1957 document.

Space Analysis of 1957 Land Use Plan



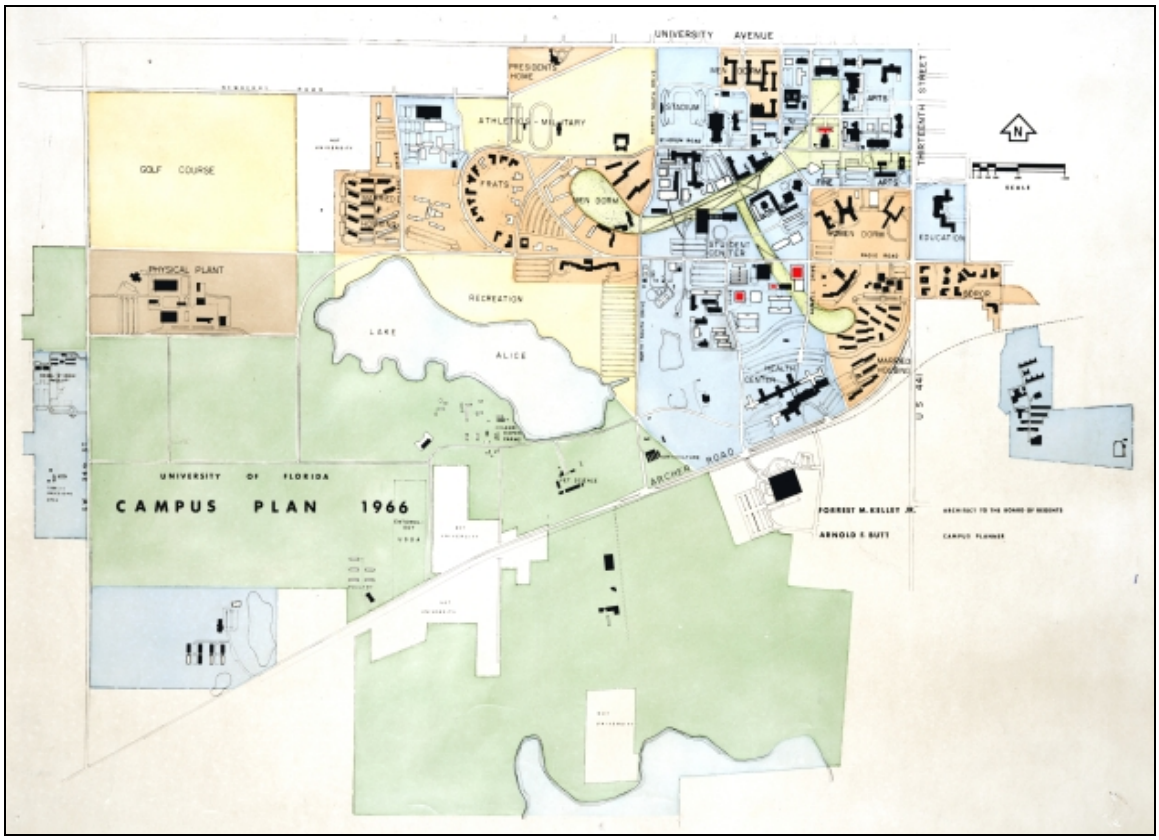
The 1958 Campus Master Plan



E. The 1966 Master Plan

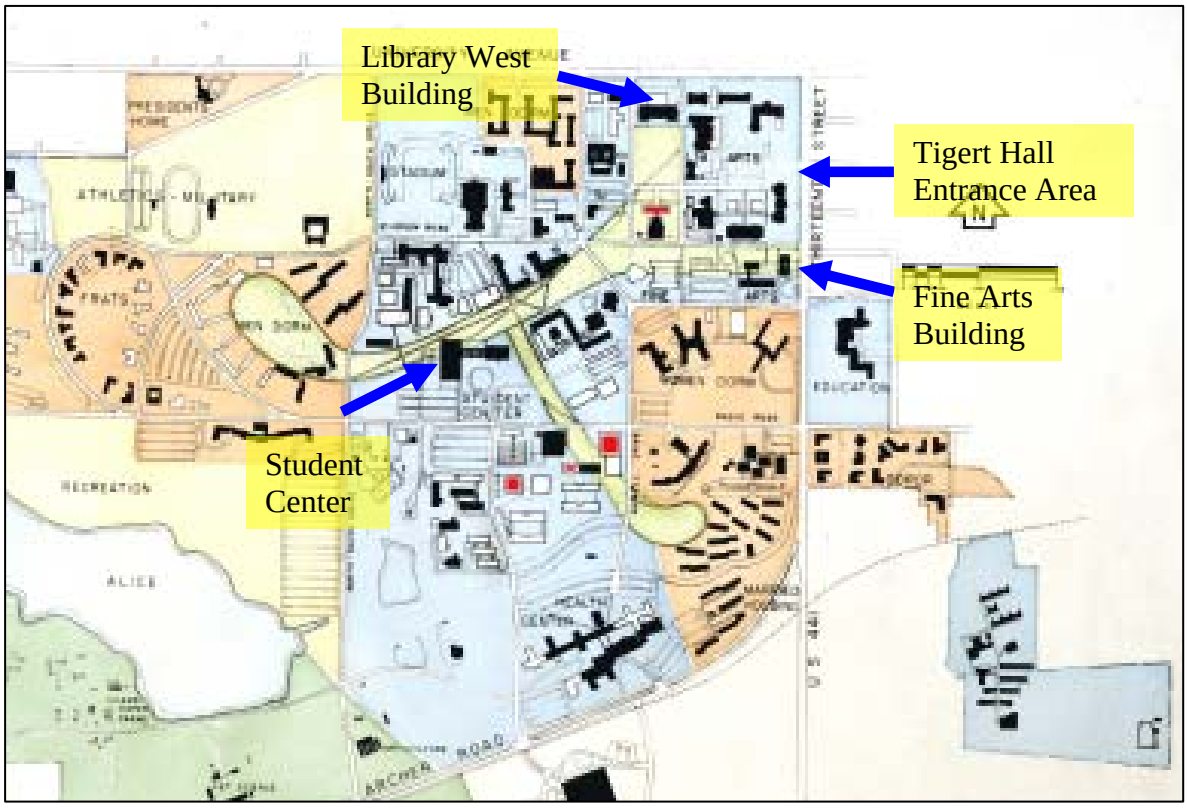
The 1966 master plan was quite similar to the 1957 master plan. The campus area grew even further west and south by 1966. Most of the growth to the west and south was low density. Only a few buildings were constructed in the south and west, such as those at Physical Plant. The bulk of new buildings were established in the northeast part of campus around the open space corridors, particularly with new construction for family housing and dormitories. For the first time, the campus area expanded beyond SW 34th Street. Also the golf course area was considered a part of campus and included in the campus plan.

The 1966 Master Plan



One of the significant changes to campus and its planning evolution was the construction of the Library West building. Although the building is not in itself monumental, its impact on campus and campus planning was monumental. The location of library west on the north end of the Plaza of the Americas signaled the end of this plaza as the main entrance to campus, a role it successfully fulfilled since the beginning of the century. Also, the new Fine Arts building was located on the east end of the open space extending from the University Auditorium to SW 13th Street. Although the impact of the Fine Arts building was less significant, both of these buildings helped shift the focus away from these areas as entrance points to campus. More emphasis was placed on the new student center, the Reitz Union, as the center point of campus. Also, the open space north of Tigert Hall became the main gateway to campus, especially due to the major vehicle entrance area from SW 13th Street, the parking lot, and the monumental features of Tigert Hall itself. Like the previous master plan, the focus of transportation was on automobile access and few sidewalks were shown on the map. New streets were created on campus, particularly in the west.

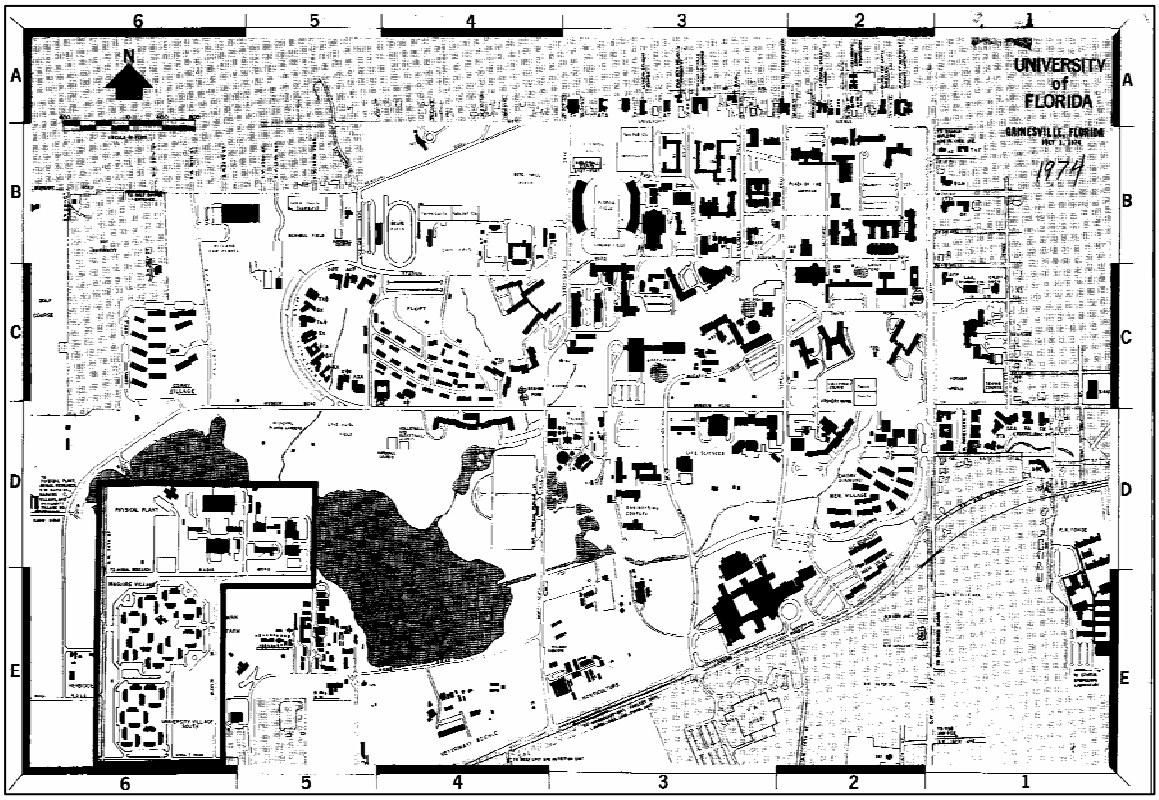
Space Analysis of 1966 Plan, Core Campus



F. The 1974 Master Plan

In terms of spatial layout point, the University of Florida campus in the 1974 plan reflected some important changes compared to the plan of 1966. Very little change took place in the northeast area of campus around the Plaza of the Americas between the two years. By 1974, most of the new developments on campus were being built in the south and the southwest areas. The open space originally planned in 1966 between the Reitz Union lawn and Diamond Village area disappeared, as did the open space that had extended into Flavet Field in 1966. The area of Flavet Field itself was re-planned, and reflected a different distribution of buildings. In the southwest area of campus, both University Village South and Maguire Village were built. Also, new buildings emerged in the area to the south of Lake Alice and in the vicinity of Shands Hospital.

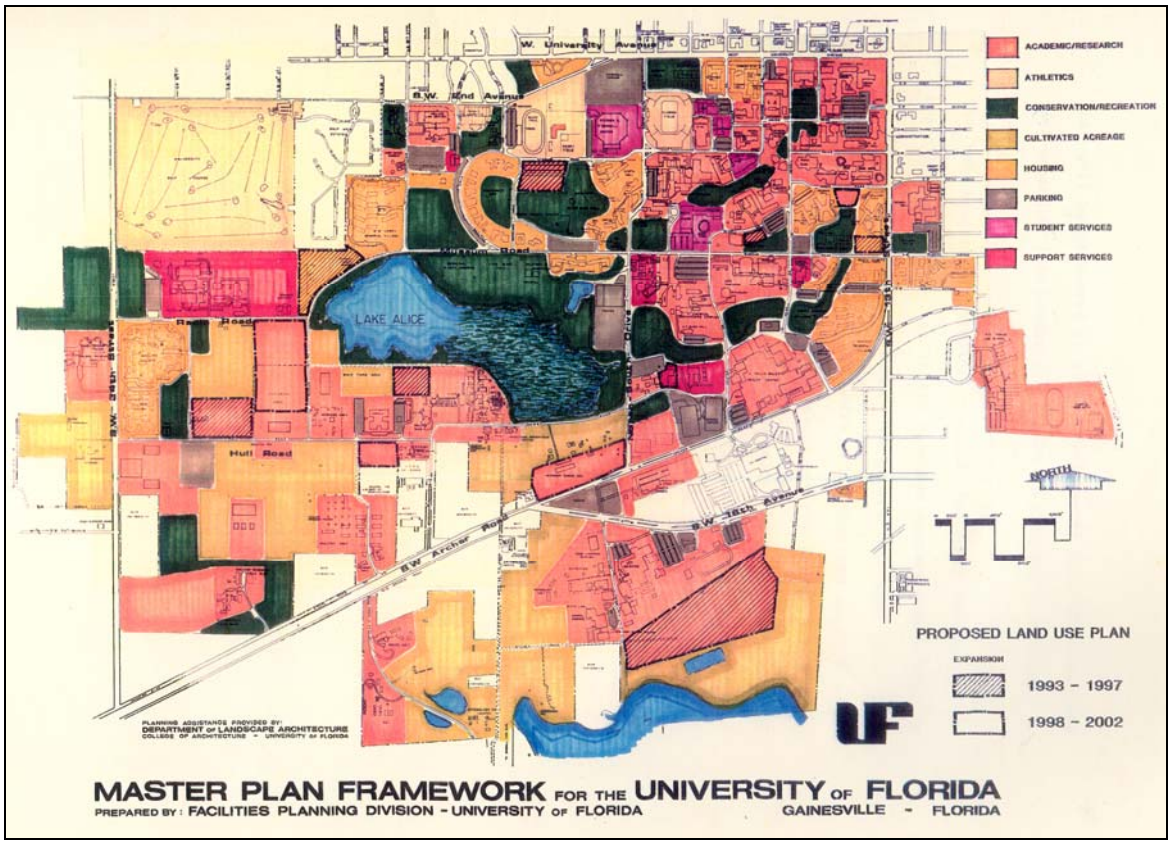
The 1974 Campus Master Plan



G. The 1987 Master Plan

The 1987 master plan reflects a campus quite similar to the university campus today. Most of the main open spaces and plazas in 1987 remain unchanged in 2005. The open spaces depict a more disconnected system than had been envisioned in the late 1950's and early 1960's. Some of the new structures on campus reflected in this map were the O'Connell Center, and a number of multi-level parking garages to accommodate increasing amounts of traffic. In this plan, the campus buildings expanded south beyond Archer Road. Most of this new expansion was through buildings associated with the Institute of Food and Agricultural Sciences and the College of Veterinary Medicine.

The 1987 Master Plan Framework



H. The Campus Today

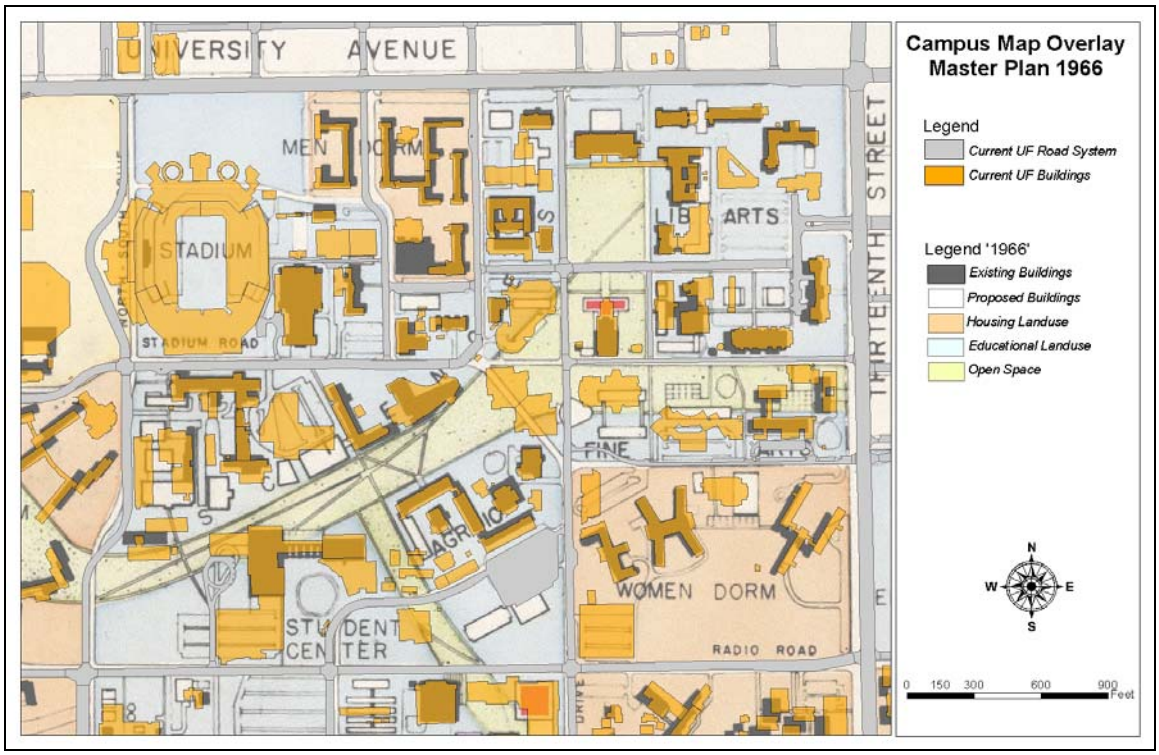
As the campus master plans have evolved, the placement of buildings, roads and green spaces have also been modified. Some recommendations of past plans can be recognized in today's built environment, while significant shifts from past plan schema can also be observed. The examination of historic campus master plans provides a glimpse into past decision making, as the campus evolved from a concept of arches and ellipses, to one of grids and rectilinear building orientations, to one of sweeping open spaces and irregular building shapes. In many ways these changing plan concepts reflect state-of-the-art thinking about urban design and architecture at the time they were conceived.

In early plans, significant buildings such as the University Auditorium were deliberately placed in the center of prominent open spaces to emphasize the importance of the building. Similarly, a Chapel was planned to be a central focus of a large open space, but was never built. Buildings planned in 1966 for the areas now known as McCarty Woods, Harmonic Woods and Bartram-Carr Woods also never materialized. At one time, the new student union was sited in the middle of a significant open space, much like the University Auditorium, but was later positioned to the outer edge of the open space. Other buildings lining the Reitz Union lawn continue to frame this significant linear open space that had been envisioned as early as 1947. But over time, buildings such as Library West, Computer Science Engineering and the Fine Arts Complex were placed in what had been identified as open space. Still, the Plaza of the Americas, Turlington Plaza, McCarty Woods, Graham Woods and Broward Beach remain as reflections of earlier campus planning concepts. Today's Flavet Field was filled with temporary student housing in the post World War II era, but was restored to open space with demolition of those buildings during the

late 1970's. The arrangement of land uses, building orientations and circulation systems also stand as testimony to the history of the University of Florida campus and its tradition of campus planning. Growth and change have come to the campus along with growth in prosperity and education of the people of Florida. However, the historic resources of the campus and its overall congruity have not been compromised. The University of Florida Historic Preservation Plan Report, prepared in 2004 for the Florida Division of Historic Resources, summarized this achievement as follows: "The University Record of 1906 predicted, 'It may take a hundred years for the completion of these plans, but as the State grows…, the University will finally grow into a splendid and harmonious whole….' It is through this 'harmonious whole' that the University of Florida campus stands significant among large public universities; it is this harmonious and compatible growth that the Historic Preservation Plan seeks to protect for future generations."

1905 Campus Master Plan Overlay

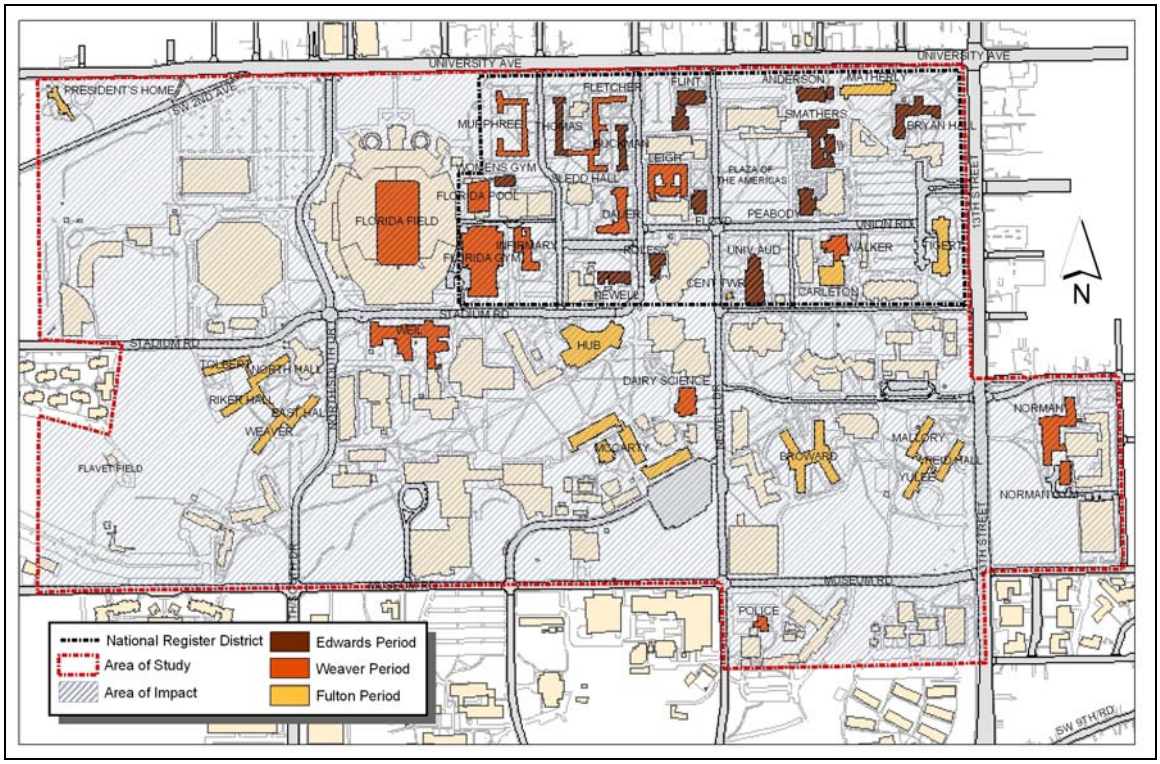
1966 Campus Master Plan Overlay



I. Historic Impact Area

In 1989, the University of Florida's Historic District was placed on the National Register of Historic Places. Subsequently, the university entered into a Memorandum of Agreement in 2001 with the State of Florida Division of Historical Resources (DHR) to address the management of this District. During 2003 and 2004, an extensive analysis of campus historic features was conducted with funding from the State DHR. This analysis included the designated National Register Historic District, and also an area around it containing buildings that are turning fifty years-of-age and are thereby eligible for registration. An ongoing research effort, funded through 2006 by the Getty Foundation, will continue to develop design guidelines, preventive maintenance protocols and other mechanisms for the continued care of the university's historic resources. One result of the initial study was the identification of an historic impact area as delineated in the following figure. This impact area contains the significant structures of the university architects William A. Edwards, Rudolph Weaver and Guy Fulton spanning 1905 to 1956. The architecture and context of the historic impact area should be the framework for design guidelines and infill projects that could have an impact on historic resources.

Campus Historic Impact Area



J. Archaeological Resources

In 2001, the University of Florida entered into a Memorandum of Agreement with the State of Florida Division of Historic Resources for the preservation of the campus historic district and archaeological resources. This Agreement included a map of known Archaeological sites and zones of sensitivity, in which archaeological exploration must be conducted prior to any construction or significant earthwork. The locations of these resources are considered prior to any construction project and are depicted in a map that is part of the memorandum of agreement. The archaeological resources data is also included in the analysis performed as part of a campuswide composite constraints evaluation that is described elsewhere in this report.

K. History and Archaeological Resources of the Alachua County Satellite Properties

Historic and archaeological data was gathered from Alachua County and the Florida Department of State for the thirteen satellite properties in Alachua County. The findings of this inquiry revealed that there are few archaeological sites or historically significant structures on the properties. There are six archaeological sites on the Millhopper Horticulture Unit site; however, these areas are placed in the Conservation Future Land Use and considered for transfer to the State of Florida and Alachua County. Lake Wauburg North contains two identified historically significant structures, and is the only satellite property with historic buildings. Seven archaeological sites and an historic bridge exist on the Santa Fe River Beef Ranch site that are all placed within the Conservation Future Land Use that is owned by the Suwannee River Water Management District and managed by the University of Florida. The old warden's house on the Eastside Campus may be of historical significance, but has not been thoroughly investigated or documented at this time.

II. Composite Constraints

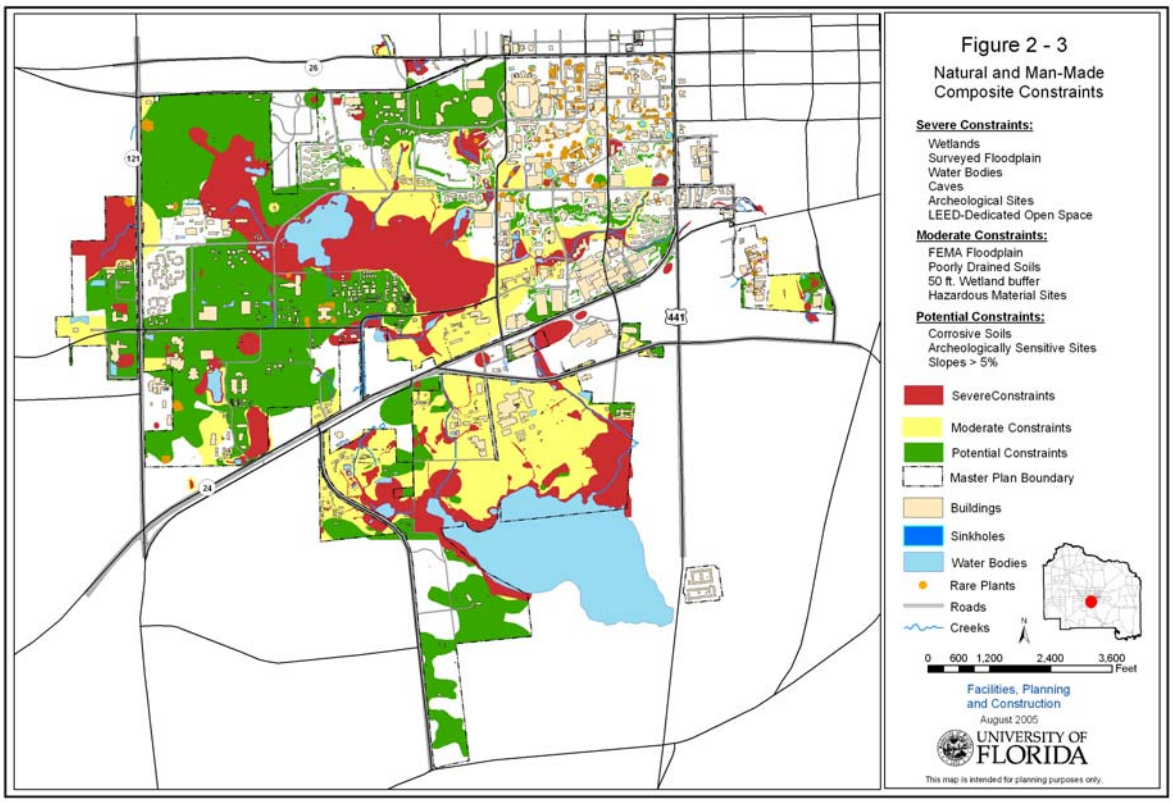
Before updating future building sites or land use designations, an analysis was conducted of the natural and man-made constraints to building construction throughout campus. To this end, a taxonomy was created to group together different constraints by the relative degree to which they limit development or make it inappropriate based on the guiding principles of this master planning process. For each of these constraints, the best available data were used including some that was newly gathered for this purpose. The constraints were grouped in the following categories.

- **Severe Constraints** include wetlands, surveyed floodplains, water bodies, caverns, archaeological sites and LEED-dedicated open space. Surveyed floodplains were included in this category because they are based on field-verified data that more accurately delineate boundaries. LEED-dedicated open space is a policy constraint that exists where open space was set aside for the express purpose of meeting requirements of the Leadership in Energy and Environmental Design (LEED) certification. Future applications of the LEED criteria will seek to apply the open space evaluation on a campus-wide conservation strategy, rather than a site-specific approach that creates these constraints in developed parts of campus. Land areas containing at least one of these severe constraints are depicted in red on the following figure.
- **Moderate Constraints** include FEMA floodplains, poorly drained soils, fifty-foot wetland buffers and hazardous materials sites. Floodplains identified by the Federal Emergency Management Agency are included as moderate constraints because they are delineated based on data extrapolated from aerial photography, and as such, have a lesser degree of accuracy than surveyed floodplains. Poorly drained soils were identified based upon the characteristics and mapping from the Soil Survey of Alachua County prepared by the U. S. Department of Agriculture and the Soil Conservation Service. Like FEMA floodplains, this information is not field-verified and lacks a high degree of accuracy, but it can still be useful as a guide. Poorly drained soils, where they exist, would not prevent construction but may require special construction techniques and mitigations. The fifty-foot wetland buffer identified as a moderate constraint is the area around a wetland which, if impacted, requires review by the St. Johns River Water Management District under the university's existing master stormwater permit. Hazardous materials sites were included in the moderate constraints because, although they could add considerable expense to a construction project, the quality of the site would likely be improved after construction and remediation. For this reason, they were not categorized as a criterion that would severely constrain construction activity. Land areas containing at least one of these moderate constraints are depicted in yellow on the following figure.
- **Potential Constraints** include corrosive soils (as identified in the Alachua County Soil Survey), Archaeologically Sensitive Sites and slopes of greater than five percent. Each of these constraints may pose additional design considerations or expense to a construction project, but would not necessarily be cause for abandoning an otherwise buildable site. Land areas containing at least one of these potential constraints are depicted in green on the following figure.

Rare Plants. In addition to the constraints outlined above, the analysis also mapped known rare plants. These plants include unique ornamental specimens and naturally occurring plants such as poppy mallow and trillium. Because the occurrence of these plants is somewhat scattered across campus, their presence was not included in a constraint map layer, but was depicted in order to identify sensitive considerations for any construction activity. Ongoing data collection in collaboration with the university's Department of Botany will expand the database of rare plant locations for future consideration.

Conclusions. Much of the already developed eastern portion of campus was identified as having no natural or man-made constraints to further development based on the analysis of these characteristics. This finding is not surprising because the built areas are consistent with those places where infrastructure, buildings, utilities, excavation, and other human activities over the past 100 years have significantly altered the environment and located infrastructure that supports development. For this reason, the already developed parts of campus should be evaluated for potential infill sites that benefit from existing infrastructure and minimize negative impacts to less altered natural areas. Correspondingly, the parts of campus constrained by significant habitat, hydrological functions, or cultural resources should be protected from encroachment of new development. Other parts of campus identified as moderately or potentially constrained for development should seek to find a balance between retaining open space and creating functional clusters of development.

Composite Constraints to Development

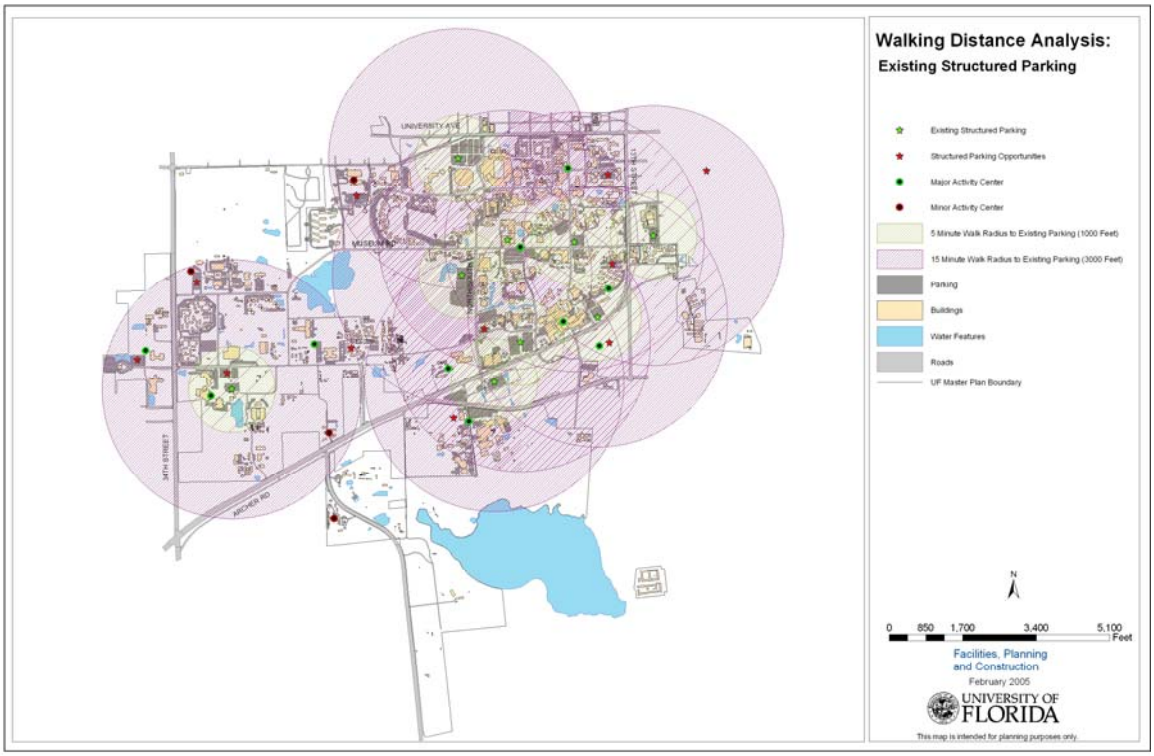


III. Walking Distance and Activity Center Analysis

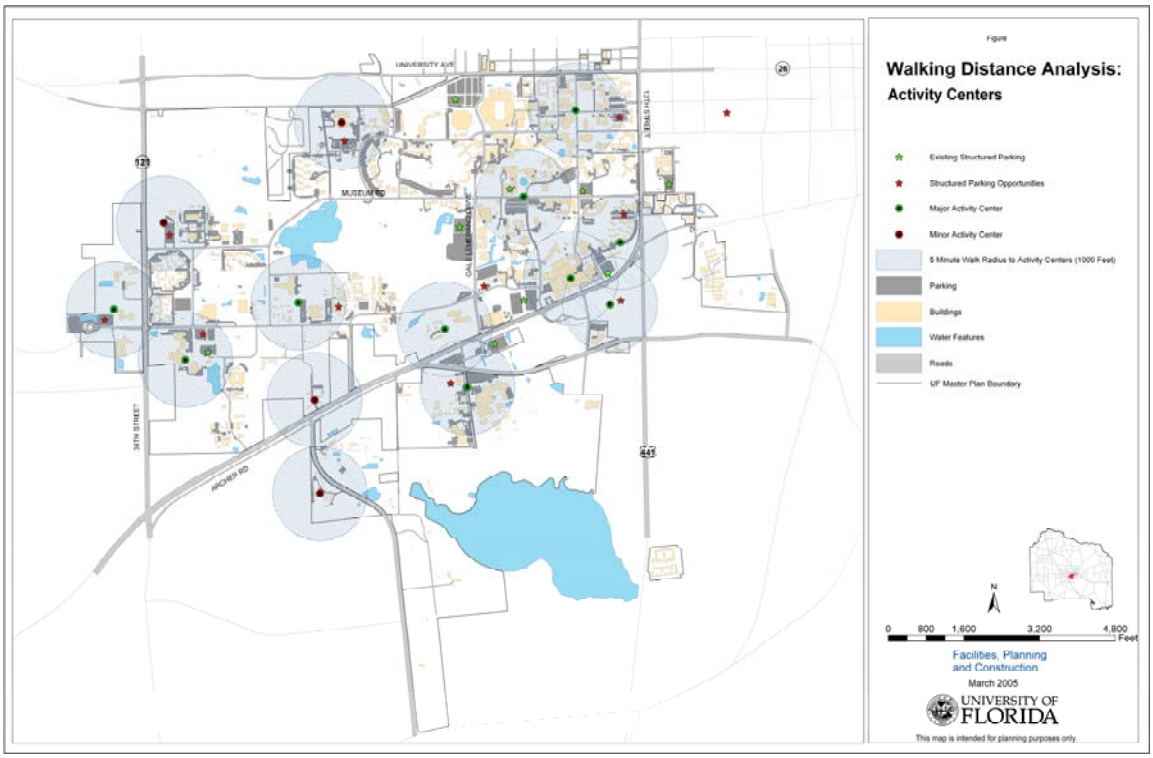
In order to understand the distances and travel options across campus, an analysis of walking distances between parking and activity centers was conducted. For this purpose, activity centers were defined as clusters of university development. These centers include existing clusters of development and those sites where existing development could be expanded to a more critical mass within an already impacted area. Similarly, existing parking structures and potential parking structure sites were analyzed to determine their proximity to activity centers. For this analysis, a five-minute walk distance was based on a 1,000-foot straight-line path. Although, the actual on-ground distance may be longer, the 1,000-foot path was based upon a very slow walking speed of three feet per second.

The university has been operating under a policy to provide parking within a fifteen minute walk of final destination for employees. By depicting a 15-minute walk distance from existing structured parking, the following figure indicates that this policy has been met. However, a different distance between destinations should be used to evaluate the degree to which the campus accommodates walkable distances. Research on pedestrian and bicycle behavior indicates that people will walk 1,000 to 1,500 feet between destinations, and will bicycle up to three miles for everyday utilitarian purposes. For the pedestrian, these distances translate to approximately five to ten minutes of walking. Analysis of the walking distances between existing and potential activity centers reveals that the campus areas on the east side of campus (i.e. Planning Sectors "C", "F" and "G" as defined elsewhere in this report) have the appropriate proximity for connectivity to destinations within and, in many cases, between these developed areas. The site of the Genetics/Cancer/Biotech Pavilion building has the necessary proximity to the College of Veterinary Medicine and several properties owned or occupied by the Shands-UF. The cultural plaza area has the necessary proximity to the University of Florida Hilton Hotel, the Southwest Recreation Center and the Natural Area Teaching Laboratory. The potential activity center on Radio Road near SW 34th Street is somewhat isolated, but could have convenient interactions with the existing village housing complexes and some student recreation areas. However, other sites including the area around the Law School, Fifield Hall, Mehrhof Hall and Energy Park will remain somewhat isolated for easy access by pedestrians. Although pedestrian movement within these activity centers can be accommodated, their more isolated locations will require that development be accessed by transit and automobile with appropriate parking facilities on site. Additionally, they will need to be more self-sufficient with either a mix of internal uses or a function that does not require frequent interaction with other entities on campus. Two additional figures presented below depict the five-minute walking distance analysis for activity centers and parking structures.

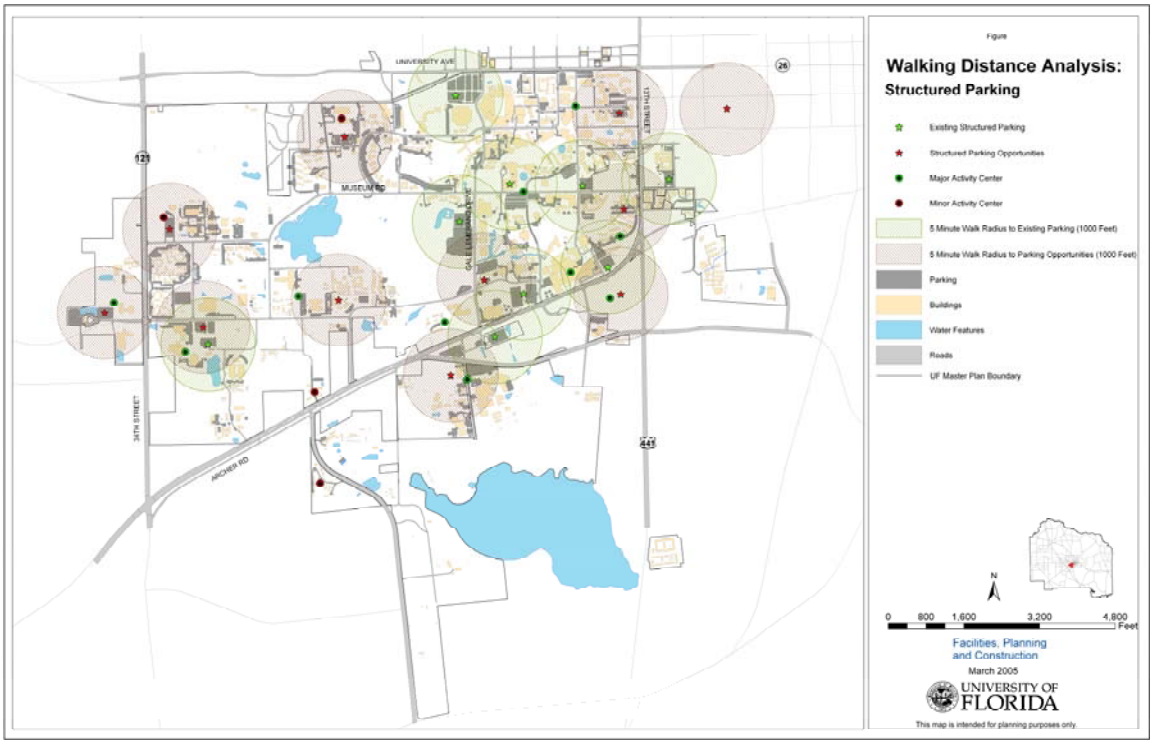
15-Minute Walking Distance from Existing Structured Parking



5-Minute Walking Distance from Existing and Potential Activity Centers



5-Minute Walking Distance from Existing and Potential Structured Parking



IV. Intensity and Density Analysis for Existing Development

A. Intensity and Density of Land Use

For the 2005-2015 campus master plan, an analysis was conducted of the existing development intensity and density by future land use classification. This analysis was also conducted for long-term potential development beyond the ten-year horizon as described in the build-out scenario presented in part II.B. of the data and analysis for capital improvements. Building density was calculated as Ground Area Coverage (GAC) measured by summing existing building footprints, then dividing by the total acreage of the future land use classification. Building intensity was calculated as Floor Area Ratio (FAR) measured by dividing the total gross square foot of building space by the total acreage of the future land use classification. Results of these calculations are presented in the table below. The Future Land Use Element includes a policy that establishes standards for densities and intensities for each land use classification expressed as a range of GAC and FAR. These standards are based on this analysis as well as comparison to the standards published in the University of Florida Campus Master Plan, 2000-2010.

Building Density and Intensity Analysis Based on Existing (2004) Buildings and Future Build-Out Scenario (beyond 2015)

Future Land Use Classification	Building Density or Ground Area Coverage, GAC (GSF of Building Footprint / GSF of Area		Building Intensity or Floor Area Ratio, FAR (GSF of Building / GSF of Area	
	Low Range	High Range	Low Range	High Range
Academic	0.25	0.42	0.66	1.51

Future Land Use Classification	Building Density or Ground Area Coverage, GAC (GSF of Building Footprint / GSF of Area		Building Intensity or Floor Area Ratio, FAR (GSF of Building / GSF of Area	
Academic – Outdoor	0.03	0.04	0.03	0.03
Active Recreation	0.18	0.22	0.21	0.26
Active Recreation – Outdoor	0.01	0.02	0.01	0.01
Buffer	0.00	0.00	0.00	0.00
Conservation	0.00	0.00	0.00	0.00
Cultural	0.20	0.38	0.30	1.23
Housing	0.17	0.20	0.41	0.55
Support	0.25	0.33	0.58	1.03
Urban Park	0.01	0.01	0.01	0.01
Utility	0.28	0.33	0.19	0.40

NOTE: The analysis does not include parking, since the future land use generally coincides with the paved area of a surface parking lot such that the GAC equals approximately 1.0. Structured parking is expressed as a factor of the GAC based on the number of floors of parking. In general, the intensity and density of parking is more appropriately evaluated in terms of the number of parking spaces and traffic impacts.

In 2002, an analysis was conducted for several sub-areas and sites on campus to determine the land use and development pattern in terms of building footprint, building bulk, open space, tree coverage and transportation infrastructure. For the analysis, each area or site was delineated and a total site area was measured in square feet. Building density was defined as the total building gross square footage divided by the site area in order to account for building height and bulk. Ground Area Coverage (GAC) was measured by summing the land area covered by the building footprint, parking lots, streets, plazas and sidewalks, then dividing by the site area. The GAC provides a measure of building intensity by describing the land consumption of the building footprint and its associated hard-surface areas. Open space was calculated to include both pervious and impervious surfaces that provide outdoor areas for people to congregate or move through. To that end, open space included a sum of land coverage in sidewalks, plazas, natural areas and water divided by the site area. Tree canopy coverage was calculated as a subset of open space by measuring the amount of area covered in tree canopy divided by the land area in open space (as defined previously). The measure of motor vehicle infrastructure included the area of land covered by streets and parking lots divided by the site area.

Conclusions. From the 2002 analysis, the variations in intensity and density of land use across campus become apparent. The differences in the site area size accounts for some, but not all, of this variation. The Shands/Health Science Center area has by far the densest and most intense land use pattern, nearly double the GAC of other campus areas and over three times the density of any other sub-area analyzed. Particularly, the difference is observed when comparing this area with the similarly-sized IFAS area around Fifield Hall. Areas with large athletic fields and natural areas, such as the Fraternity, Greater Southwest or Recreational sub-areas, have significantly lower densities and intensities with more open space as would be expected. Another observation that can be made is the generally efficient development patterns in the northeastern part of campus, including the Historic and Reitz Union sub-areas, where open space and building density are fairly balanced. Also of note is the generally minimal land area given over to motor vehicle infrastructure. Interestingly, the motor vehicle infrastructure component is highest in the Historic Sub-Area where the grid street pattern is a significant feature, and much lower in the Shands/HSC area where structured parking creates land use efficiency.

The analysis of individual sites is somewhat less useful for generalization, but does provide a glimpse into the allocation of land on development sites in different locations, time periods and building types. Each of these analyses, sub-area and site-specific, provide a range of measures currently found in the campus environment. The following table and maps summarize the analysis.

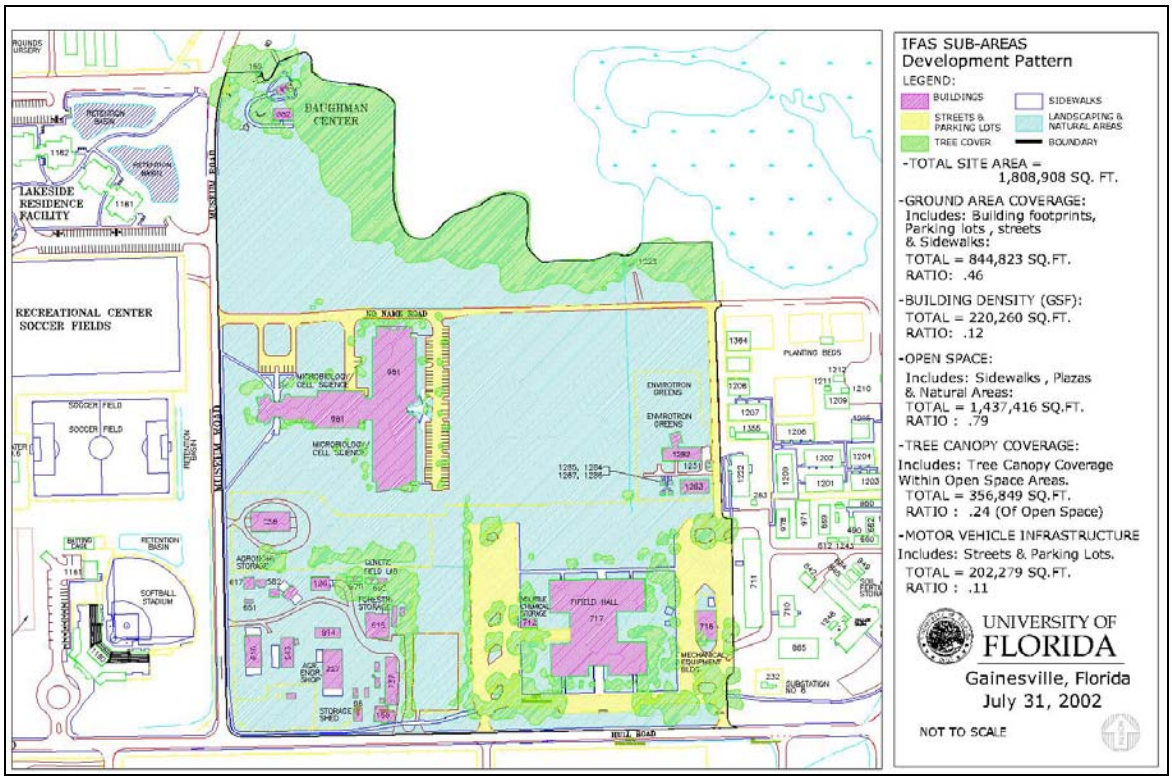
Campus Sub-Area and Site Land Use Development Pattern Analysis

Sub-Area	Site Area (sq. ft.)	Building Density	Ground Area Coverage (GAC)	Open Space	Tree Canopy Coverage	Motor Vehicle Infrastructure
IFAS	1,808,908	0.12	0.46	0.79	0.24	0.11
Greater Southwest	9,323,244	0.13	0.30	0.76	0.21	0.14
Recreational	4,215,463	0.13	0.33	0.81	0.14	0.10
Cultural	3,123,782	0.14	0.29	0.78	0.28	0.15
Veterinary Medicine	2,818,909	0.20	0.37	0.64	0.25	0.18
Fraternity	3,019,678	0.23	0.33	0.70	0.80	0.18
Reitz Union	2,828,379	0.55	0.44	0.69	0.54	0.12
Historic	3,210,538	0.67	0.43	0.57	0.66	0.21
Shands/HCS	1,671,724	2.07	0.71	0.40	0.46	0.16
Sites	**Site Area (sq. ft.)**	**Building Density**	**Ground Area Coverage (GAC)**	**Open Space**	**Tree Canopy Coverage**	**Motor Vehicle Infrastructure**
Entomology Bldg: Greater SW Sub-Area	497,310	0.20	0.31	0.67	0.45	0.11
Microbiology / Cell: Greater SW Sub-Area	263,229	0.26	0.44	0.60	0.14	0.13
Lakeside Residence: Greater SW Sub-Area	432,393	0.41	0.41	0.67	0.12	0.19
Gator Corner Dining: Fraternity Sub-Area	60,632	0.36	0.58	0.64	0.25	0.01
Mallory / Yulee / Reid: Reitz Sub-Area	251,638	0.51	0.46	0.65	0.57	0.22
University Auditorium: Historic Sub-Area	139,744	0.42	0.47	0.83	0.42	<.01
Turlington / Rolfs: Historic Sub-Area	147,680	0.32	0.87	0.53	0.51	0.04
Tigert Hall: Historic Sub-Area	126,317	0.63	0.43	0.82	0.64	0.02

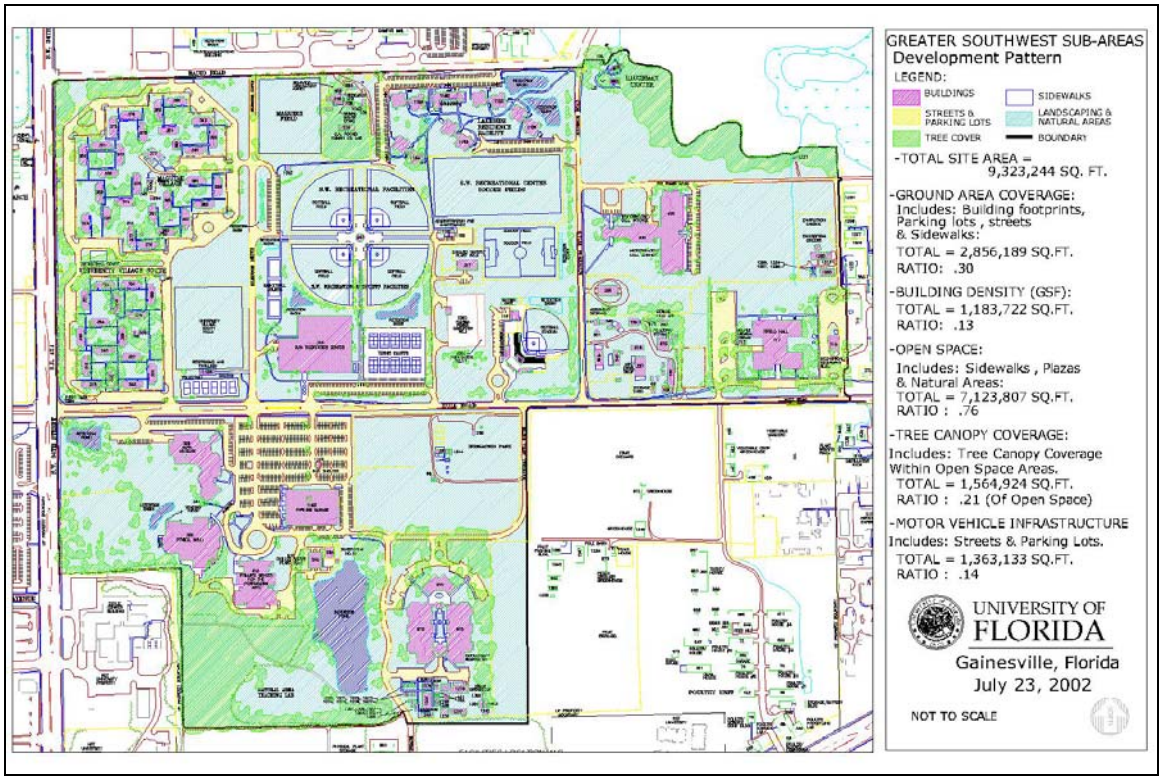
Murphree Hall: Historic Sub-Area	140,134	0.69	0.57	0.59	0.53	0.26
Peabody / Criser: Historic Sub-Area	77,537	1.20	0.74	0.56	0.09	<.01
Smathers Library East: Historic Sub-Area	91,167	1.20	0.64	0.62	0.30	0.04
Brain Institute: Shands/HCS Sub-Area	150,418	1.40	0.60	0.56	0.38	0.11

NOTES: Building Density = total building GSF / site area
GAC = (building footprints, parking lots, streets, plazas, sidewalks) / site area
Open Space = (sidewalks, plazas, natural areas, water) / site area
Tree Canopy Coverage = tree canopy / open space area

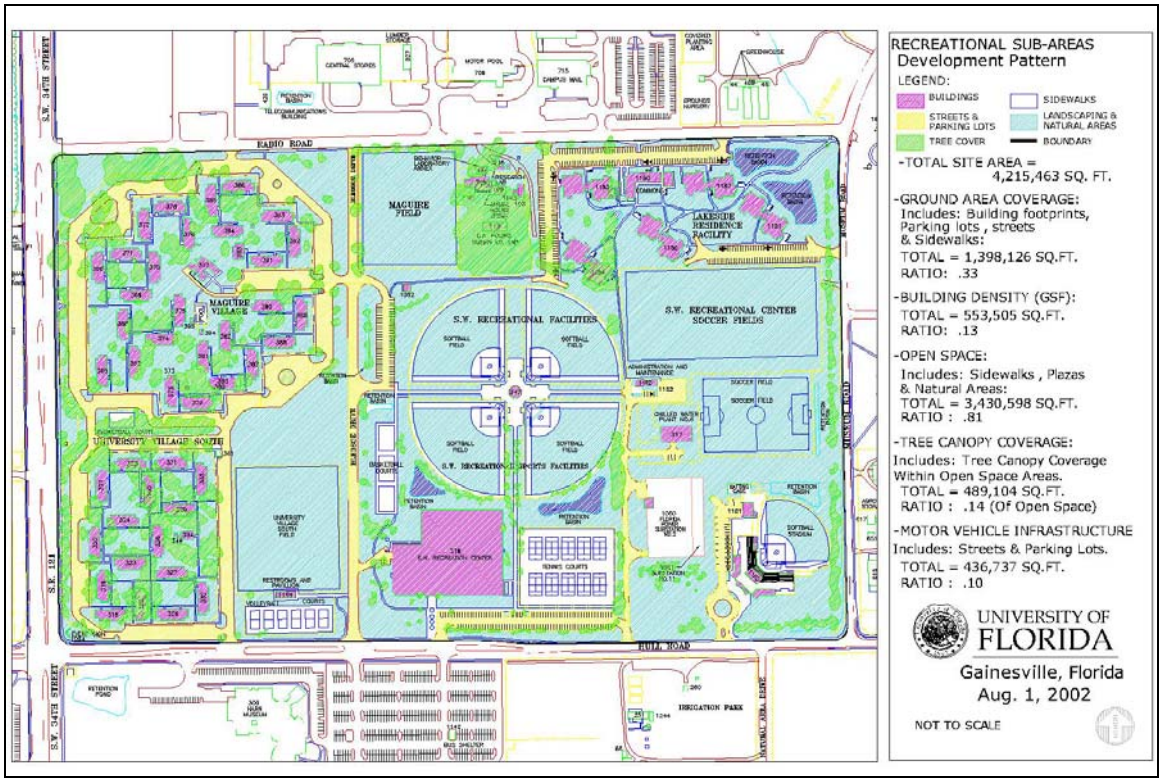
IFAS Sub-Area Development Pattern Analysis



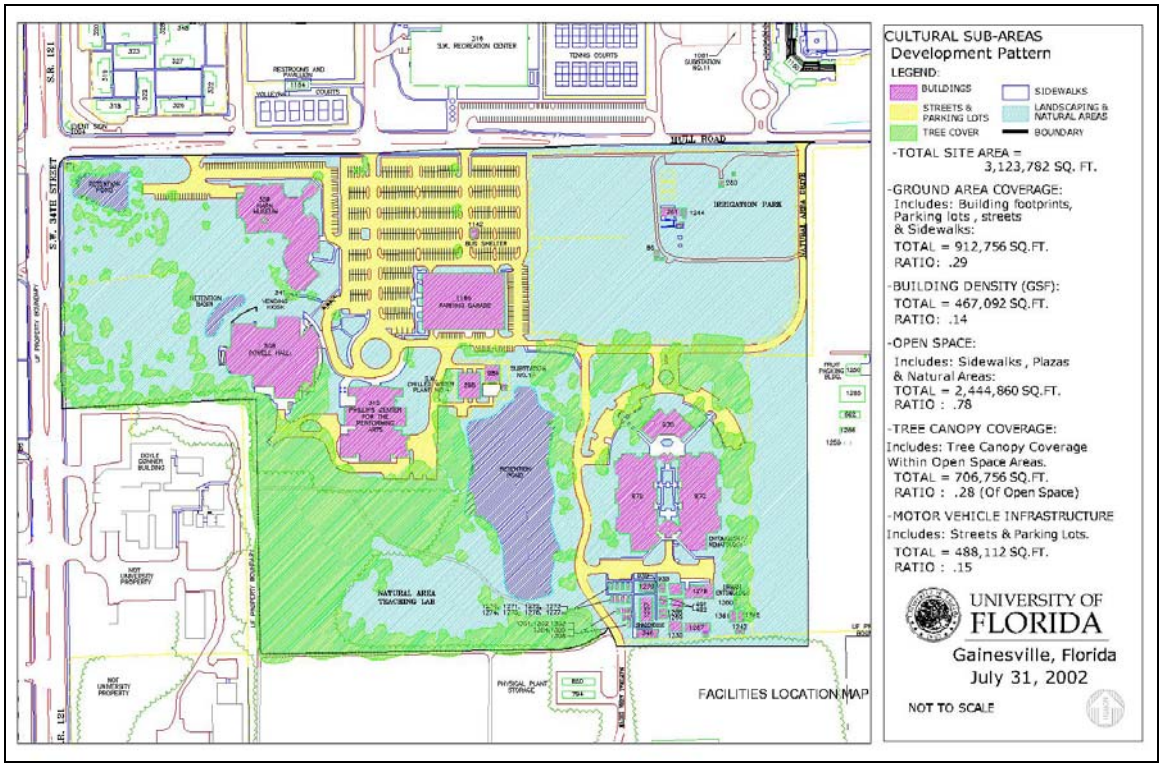
Greater Southwest Sub-Area Development Pattern Analysis



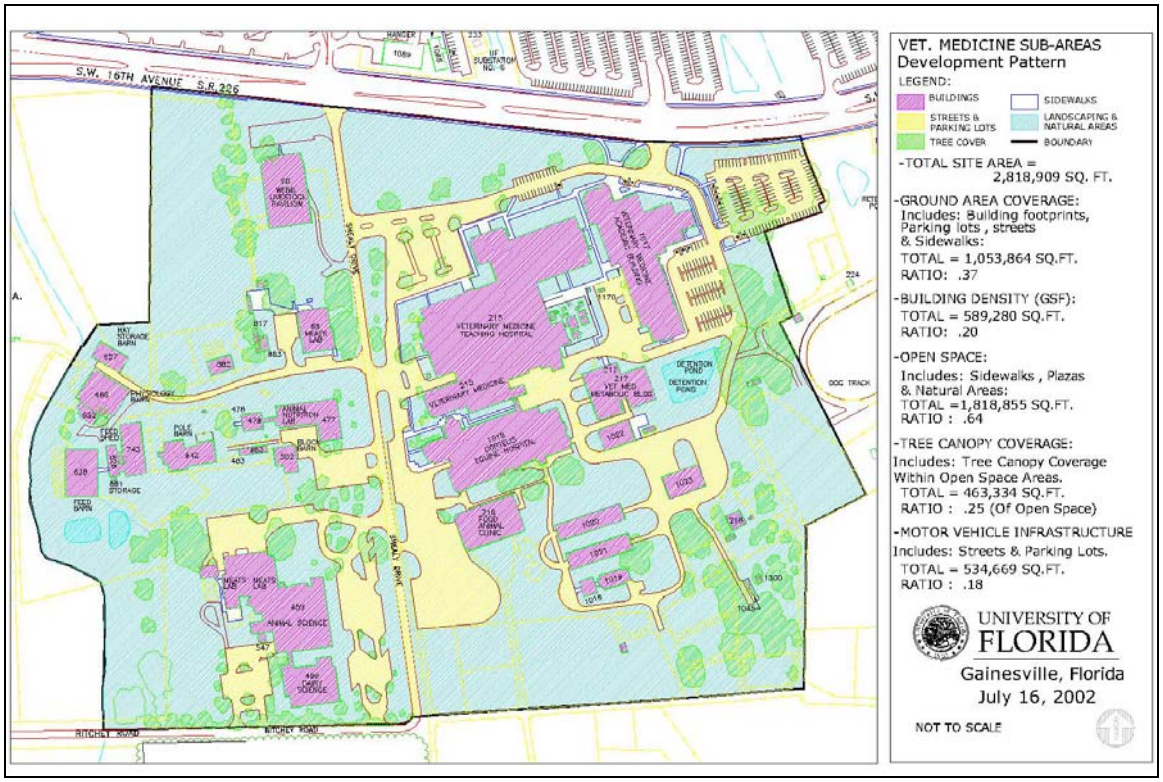
Recreational Sub-Area Development Pattern Analysis



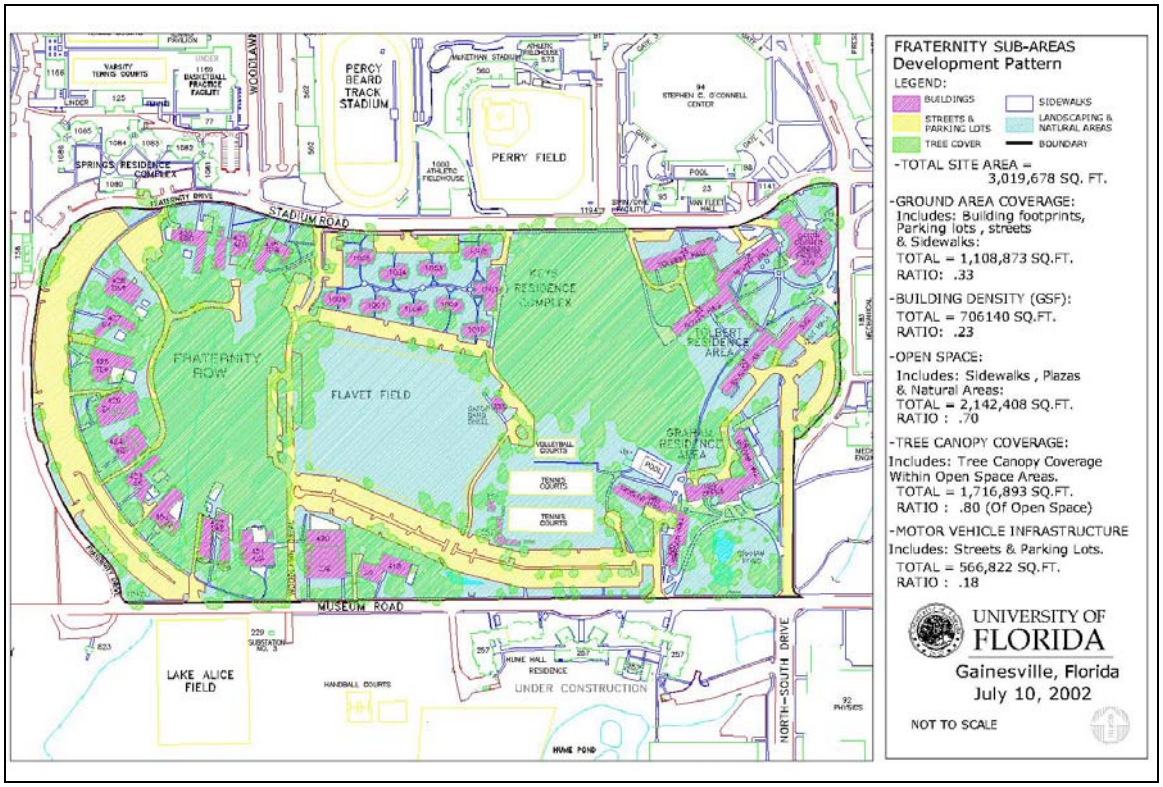
Cultural Sub-Area Development Pattern Analysis



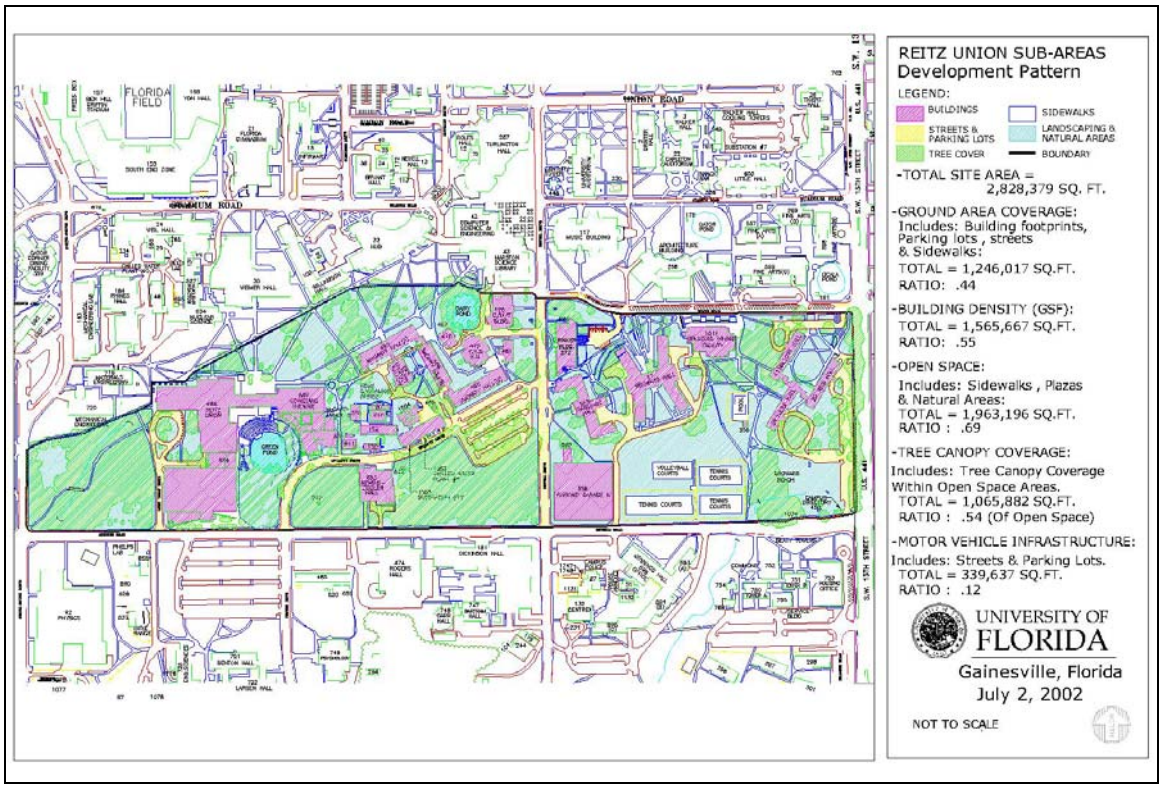
Veterinary Medicine Sub-Area Development Pattern Analysis



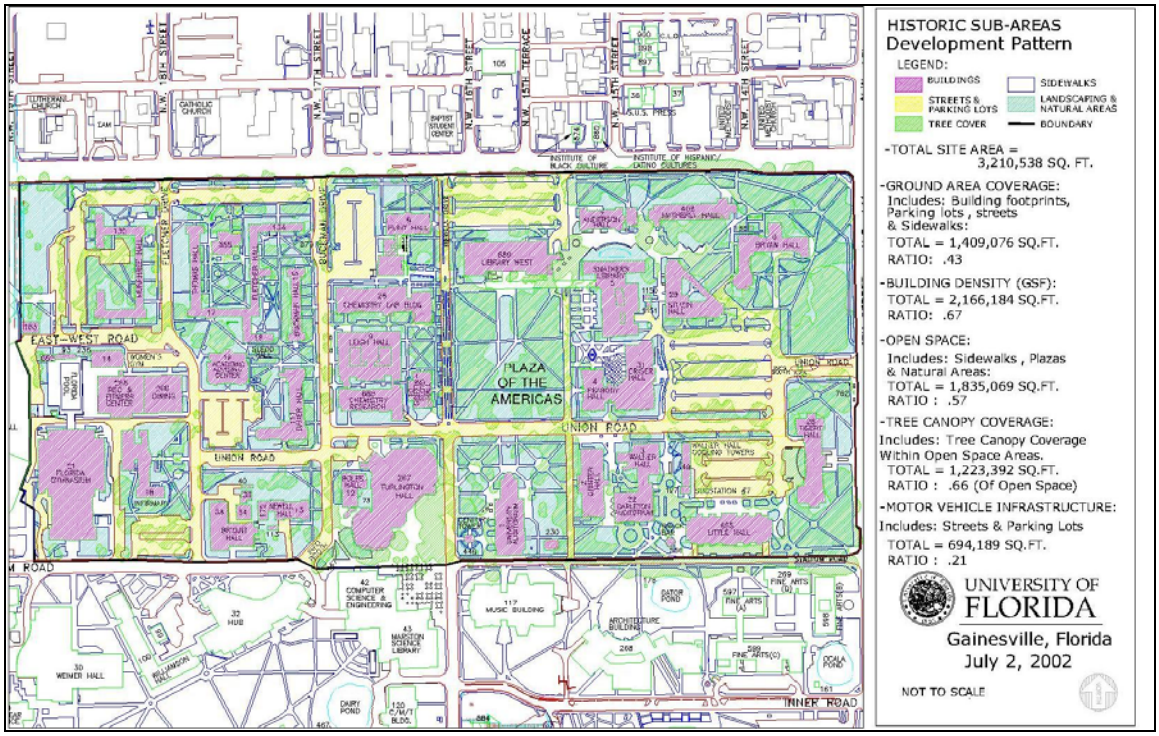
Fraternity Sub-Area Development Pattern Analysis



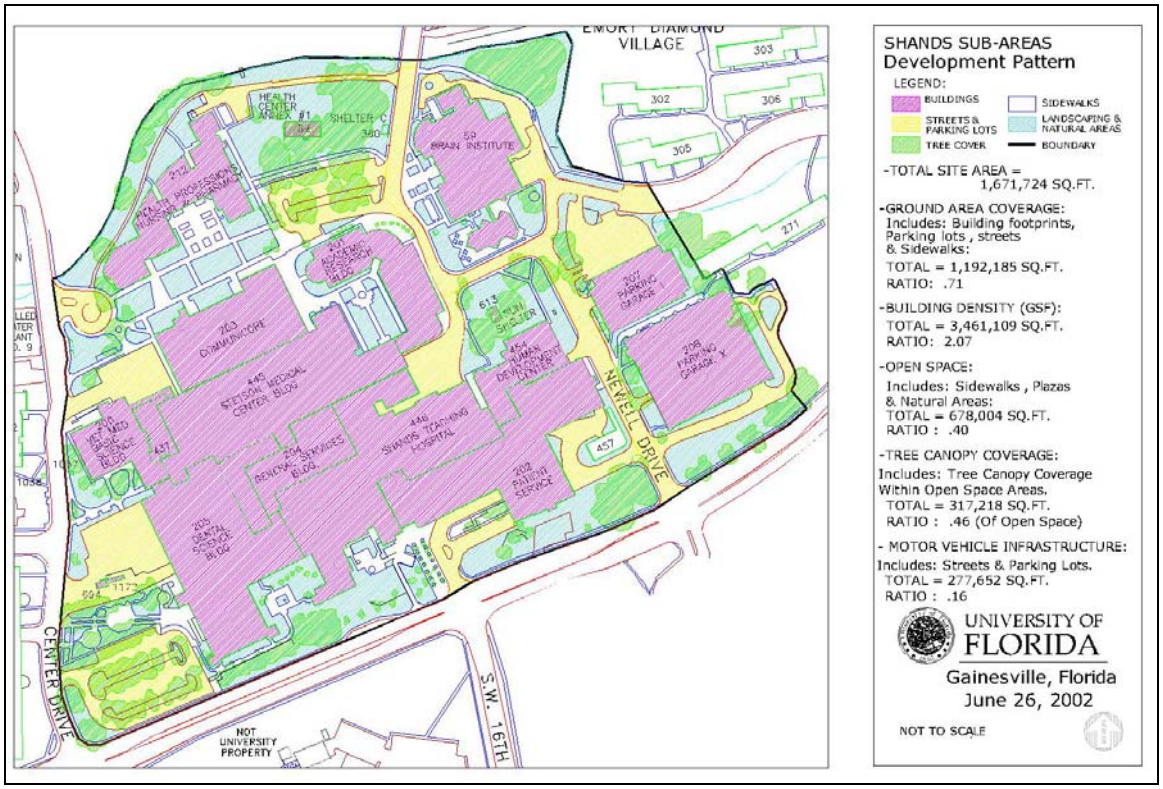
Reitz Union Sub-Area Development Pattern Analysis



Historic Sub-Area Development Pattern Analysis



Shands Sub-Area Development Pattern Analysis



V. Campus Sectors

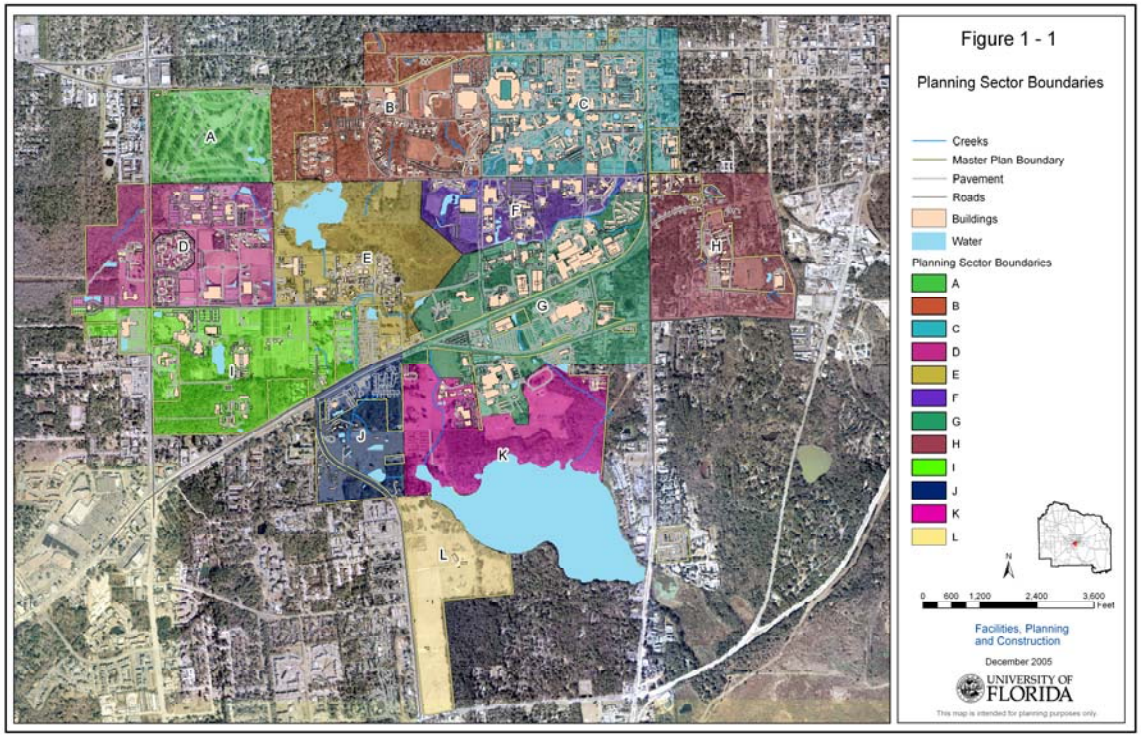
In order to evaluate and understand contiguous areas of campus at a smaller scale, the main campus was divided into twelve planning sectors as presented on the following figure. These sectors were delineated based, to some extent, on land use patterns and function. Pragmatically, they were also delineated so as to be proportionally correct for display on maps contained in this document. Some areas beyond the campus boundary were included in the planning sector coverage for the purpose of providing a community context and symmetric boundaries. However, this inclusion does not imply that the university will be making any recommendations in the non-campus areas.

A general description of each planning sector is as follows:

- **Planning Sector "A"** includes the University Golf Course as a unique land use situated on University Athletic Association lands and included in the campus master plan boundary.
- **Planning Sector "B"** includes the Law School, student housing complexes, Greek housing, athletic and recreation facilities, student support facilities and open spaces. Because it includes large athletic fields and open spaces, its character is largely one of lower density development with expansive open spaces between clusters of development. It includes small linear portion of the Historic Impact Area which straddles Gale Lemerand Drive to include Tolbert Hall and the former site of Flavet housing.
- **Planning Sector "C"** includes the National Register Historic District, the Historic Impact Area and a concentration of campus buildings often referred to as the "core campus" or "northeast corner". It is the portion of campus that is most interconnected with the Gainesville community across W. University Avenue and W. 13th Street. The building pattern in Sector "C" is one of generally modest building sizes places in close proximity to one another with formal open spaces defined by the building locations and gridded streets.
- **Planning Sector "D"** includes a large western part of campus containing student housing complexes, athletic and recreation facilities, physical plant facilities, and the new Orthopaedic Center west of SW 34th Street.
- **Planning Sector "E"** contains Lake Alice and its perimeter including a hydrologically-connected area south of Mowry Road, and the Bat House and student gardens north of Museum Road. Significant IFAS academic facilities also exist in this area including Fifield Hall, Microbiology and Cell Science building, and numerous greenhouses and support facilities some of which utilize access to Lake Alice for research.
- **Planning Sector "F"** includes a significant built area south of Museum Road containing a mix of academic buildings, student housing complexes, support facilities and open space. Its function is most similar to that of Planning Sector "C", although its newer development period resulted in somewhat different patterns than in the historic part of campus. It includes small linear portion of the Historic Impact Area which straddles Museum Road to include University Police Department building (former WRUF radio station). Compared to Sector "C", buildings in this sector tend to have larger footprints and modernistic designs. This Sector contains the only high-rise residence hall on campus at Beaty Towers. And unlike Sector "C", Sector "F" contains several large surface parking lots and open spaces that are retained in a more natural state (i.e. not manicured or formally landscaped).

- **Planning Sector "G"** is the most intensely and densely developed areas of campus containing one of the most populous employment concentrations in North Florida. It includes the Shands/Health Science Center Complex, the College of Veterinary Medicine area south of SW 16th Avenue, and numerous academic and research buildings as well as public hospital and clinic facilities. Four of the university's ten parking garages are located in Sector "G". Compared to other parts of campus, the buildings in Sector "G" tend to be modernistic and significantly taller, a trait which is blended into the rest of campus by virtue of being downhill from other structures. Despite its already intense development, Sector "G" also contains some sizeable tracts appropriate for redevelopment such as the site of the new Genetics/Cancer/Biotech Pavilion building. Its position within the larger Gainesville community also suggests the opportunity for new development connected to off-campus areas along SW 13th Street and Depot Avenue.
- **Planning Sector "H"** includes sorority row, P. K. Yonge Laboratory School and the Civil and Coastal Engineering facilities on SW 6th Street. It is embedded into the Gainesville community in an area that is aggressively redeveloping to support community housing and economic development needs.
- **Planning Sector "I"** includes the southwestern portion of campus containing the Hilton University Center Hotel and Cultural Complex along with a mix of mostly small-scale support facilities, academic buildings and resources focused on agriculture and environmental research. These research facilities include many outdoor teaching and research resources such as the orchard, irrigation park and various agricultural plots.
- **Planning Sector "J"** is located south of Archer Road and includes a mix of research clusters such as Energy Park, the Swine Unit, Bee Biology Unit and the Animal Research Facilities. It also includes significant expanses of conservation lands, pastures and the organic gardens.
- **Planning Sector "K"** includes the areas south of the major College of Veterinary Medicine buildings and north of Bivens Arm Lake. Facilities in this Sector include many small-scale research and academic support structures along with pastures and a dog track.
- **Planning Sector "L"** includes the southernmost university main campus properties bordered by SW 23rd Terrace, Bivens Arm Lake and Williston Road. This area is largely occupied by pasture, horticulture and other agricultural teaching resources. The few structures in this sector include pole barns, sheds and other small unoccupied buildings.

Planning Sectors, 2005-2015 Data and Analysis

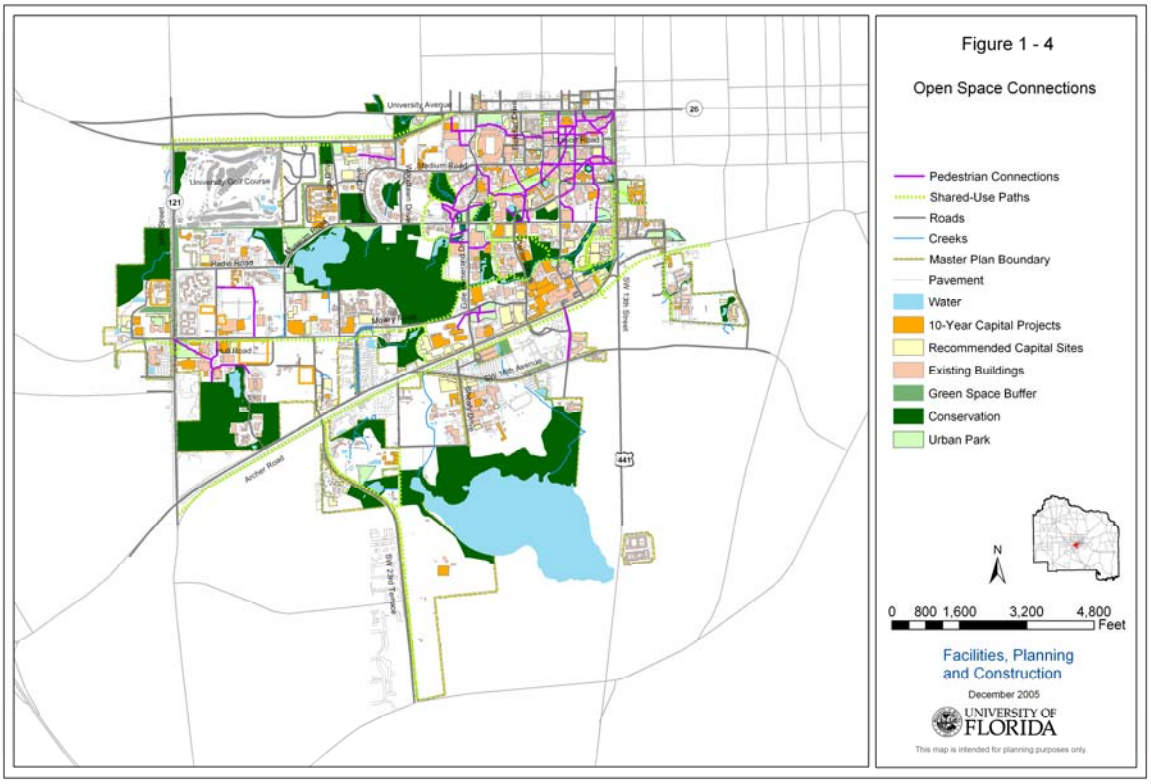


VI. Campus Connections

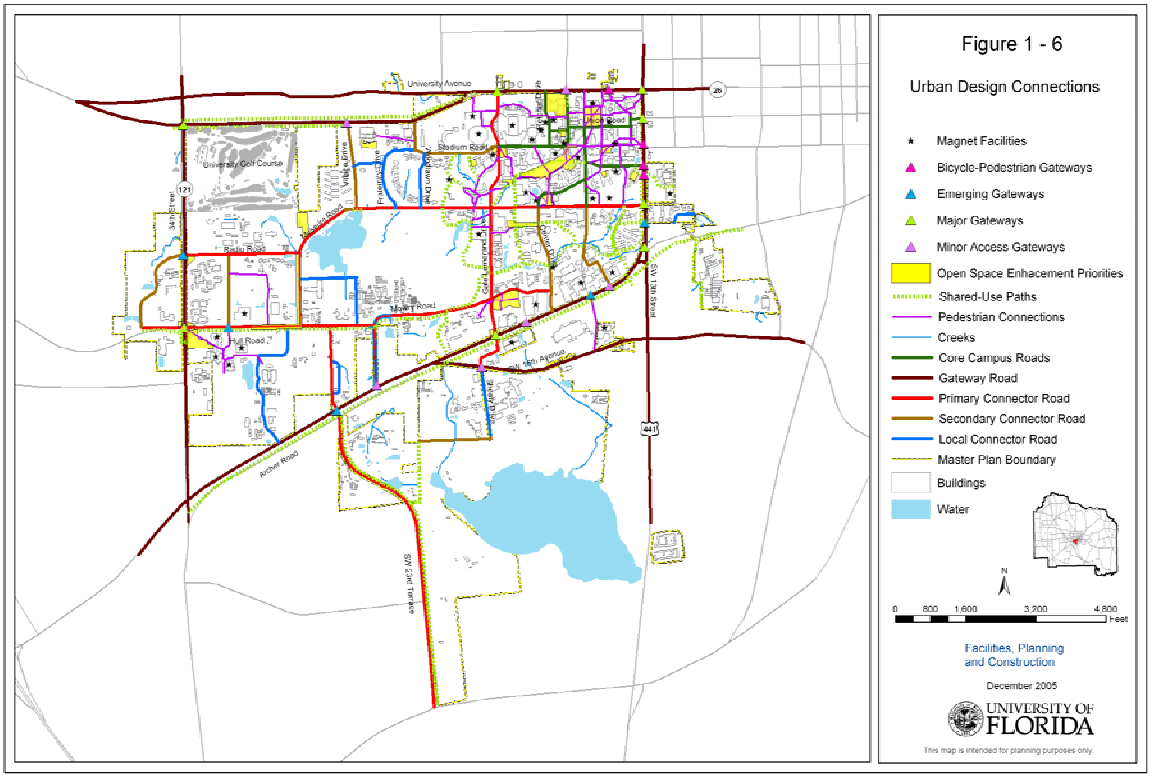
A. Open Space and Urban Design Connections

Through the campus master plan development process, important corridors were identified that provide connectivity between open spaces, campus entry points and major destinations on campus. These are depicted in two separate maps. The Open Space Connections map identifies important corridors that provide access for pedestrians and bicyclists moving through and between the various campus open spaces, as well as physical connections between open spaces that may accommodate movement of animals, birds, invertebrates and plant seeds. An Urban Design Connections map includes these corridors, but also adds a concept of a roadway hierarchy and identification of campus gateways and facilities that attract high volumes of many different users.

Open Space Connections



Urban Design Connections



B. Roadway Hierarchy

A roadway hierarchy is a means to distinguish different roadway types on campus that provide different levels of access. This differentiation can be used to develop design guidelines and traffic management approaches. In terms of open space connectivity, many of these roadways also provide pedestrian and bicycle access to urban parks and conservation areas. This typology is similar to that which is developed by other federal, state and local agencies to classify roadways for design and funding considerations. As part of the process of developing the Campus Master Plan for 2005-2015, definitions were developed for a campus roadway hierarchy as follows. A map of the recommended designations is also included below. The recommendations even suggest a hierarchy designation for roads that are not built, but are included as recommended new construction projects. These designations could guide the design of such facilities if and when they are constructed.

- Core Campus roads are within or immediately proximate to the University's Pedestrian Enhancement Zone. These roads are also within the University's Historic Impact Area. Their primary function is to provide access for bicyclists and pedestrians, with limited daytime access for service, delivery and emergency vehicles or vehicles accessing disabled and gated parking areas. Transit vehicles are allowed on core campus roads where necessary to provide convenient access to this core academic area. Slow speeds and pedestrian priority are emphasized on all core campus roadways.

- Local Connector roads provide access to campus facilities that are more internally focused with less emphasis on providing public access or through movement. They are low-volume roadways that are located in more isolated areas of campus and do not provide direct access to any primary destinations. Due to their low-volume of vehicles, bicycle access can be provided in bicycle lanes, wide-curb lanes or general shared-use pavements (with or without lane striping). Sidewalks may be provided on one side of the street only. Campus transit routes may run on local connector roads, but are discouraged when conflicting with bicycle and pedestrian access. Transportation planning should strive to maintain these roadways in low-volume use. Appropriate traffic calming techniques are compatible on local connectors where necessary to maintain low volumes and low speeds.

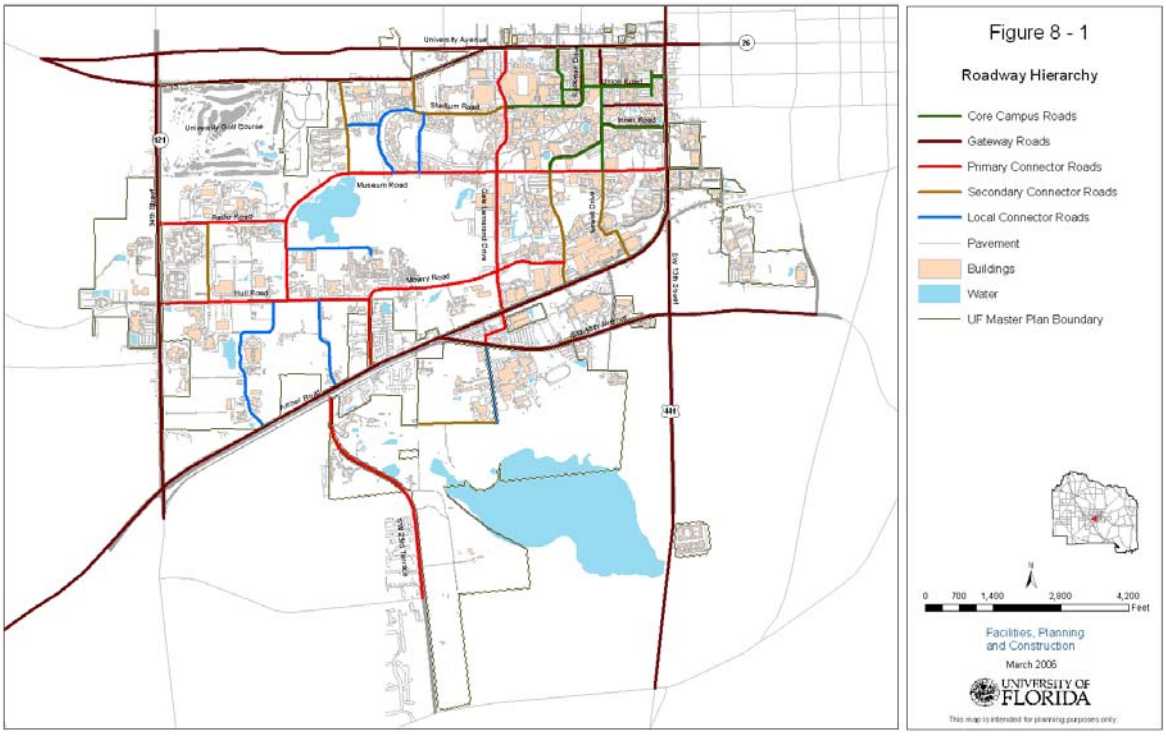
- Secondary Connector roads provide internal circulation, but also serve primary destinations and or gateways. They carry moderate vehicle volumes and should accommodate bicycles and pedestrians with bicycle lanes and sidewalks on both sides. When vehicle volumes are higher or a major gateway is served, access management to restrict turning vehicles and limited development on the road frontage are appropriate techniques to maintain traffic flow without the turn lanes and medians that would be expected on a Primary Connector. Campus and City transit routes may be present on these roadways. Appropriate traffic calming techniques are compatible on secondary connectors where feasible with designs that do not create hazards for transit or bicycle users.

- Primary Connector roads provide access into and through the campus. They serve primary destinations and gateways including critical intersections with state arterial roadways. They carry the highest vehicular volumes on campus and high volume transit routes including City and Campus routes. Transit service should be accommodated with bus shelters and bus pull-out bays where appropriate. Bicycles should be accommodated on bicycle lanes and, in some cases, additional shared-use paths that are located on parallel or alternate alignments. Pedestrians should be provided with sidewalks on both sides of the road, high-visibility crosswalks and other means of identifying conflict points

with vehicles. Appropriate traffic calming techniques are compatible on primary connectors where feasible with designs that do not create hazards for transit or bicycle users. Traffic calming and transportation system management techniques should strive to maintain low speeds, smooth traffic flow and provide safe integration of multiple travel modes. Landscaped medians with turn lanes should be included in a standard divided roadway design unless access management and limited development allow smooth traffic flow on a more narrow travel way.

- Gateway Roads are state arterials that form the perimeter of the campus. They provide primary regional access to the university while also accommodating regional through-traffic on the state highway system. As these major throughways pass by the university, their design and intent must create a pleasing and safe environment that enhances the campus experience and accommodates safe movement of pedestrians and bicyclists. These roadways should not form barriers between the university campus and the community of apartments, neighborhoods, shops and restaurants that serve the campus population.

Roadway Hierarchy



VII. Future Land Use Trends

Since the 1995-2005 Campus Master Plan, the university has tracked land use designations on its main campus. The 2000-2010 Campus Master Plan, and a subsequent amendment in 2004 brought additional Alachua County properties under the auspices of the campus master plan. In order to gauge changes on campus and evaluate the impact of proposed plan amendments, the university tracks the amount of acreage included in each land use category.

Significant improvements in campus mapping and analysis capabilities occurred during the period from 2002-2005 enabling more accurate measurements to be made. These improvements have been fully employed for the 2005-2015 campus master plan, and may account for some fluctuation in the land use category acreages described. Prior to these data management improvements, the 1995-2005 Campus Master Plan inconsistently measured water bodies such that approximately 20 acres were double-counted and included in the Conservation land use coverage. None of the acreages from the 1995-2005 and 2000-2010 campus master plans include the approximately 46 acres occupied by campus roadways or an additional 184 acres +/- covered by water bodies. Beginning with the 2005-2015 campus master plan, all water bodies are included in the Conservation land use coverage and are calculated as such. Despite these data discrepancies, the range of acreages is still reasonably consistent and a view of the map chronology provides insight into the minimal changes that have been made through amendments to future land use designations.

A. 1995-2005 Adopted Future Land Use

The Future Land Use designations are an expression of the preferred use for campus lands. These uses may be different than the current use of the land. Also, the future recommended uses may change based on new information or changing external or internal needs. When the recommended Future Land Use is changed, it must be formalized through an amendment to the campus master plan. The 1995-2005 Future Land Use designations are those recommended at the time the campus master plan for 1995 to 2005 was adopted. The 2000-2010 Future Land Use designations are those recommended when the 2000-2010 campus master plan was adopted, and following a series of amendments through 2004. Data are tracked separately for the main campus and the satellite properties.

Adopted Future Land Use, 1995-2005 Campus Master Plan and 2000-2010 Campus Master Plan

	Academic	Support	Housing	Utility	Cultural	Passive Rec	Active Rec	Conser-vation *	Parking
MP1995-2005 Acres	585	135	129	21	15	180	268	342	158
MP 1995-2005 Acres (as amended through 1999)	581	125	106	21	13	202	270	345	165
MP2000-2010 Acres	574.0	120.7	131.0	21.8	10.6	217.0	273.0	327.1	134.1
Change in Acres	0.0	0.6	0.0	0.0	0.0	-1.2	0.0	0.0	0.6
MP2000-2010 Acres (as amended 12/02)	574.0	121.3	131.0	21.8	10.6	215.8	273.0	327.1	134.7
Change in Acres	-0.7	0.1	0.0	-1.5	0.0	-0.7	-1.9	1.3	3.4
MP2000-2010 Acres (as amended 8/03)	573.3	121.4	131.0	20.3	10.6	215.1	271.1	328.4	138.1
Change in Acres	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP2000-2010 Acres (as amended 3/04)	573.3	121.6	131.0	20.3	10.6	215.1	271.1	328.4	138.1

* Note that the 1995-2005 Campus Master Plan calculations inconsistently measured water bodies, causing approximately 20 acres of water bodies to be incorrectly included in the Conservation land use coverage.

Adopted Future Land Use,
2000-2010 Campus Master Plan, Alachua County Satellite Properties

Alachua County Satellite Property	Academic	Support	Housing	Utility	Cultural	Passive Rec	Active Rec	Conser-vation	Parking/ Roads
Austin Cary Memorial Forest	1976.7							110.3	
Beef Research Unit	1147.6							120.4	
Dairy Research Unit	1022.2							140.7	
Eastside Campus	3.4	1.9		0.3		2.9			3.8
Lake Wauburg							93.2		
Millhopper Horticulture Unit	441.7							90.6	
Newnans Lake						92.6			
Santa Fe River Ranch Beef Unit	950.6							749.6	
TREEO Center	5.0								
UF Libraries Remote Services		4.6				6.5			
Wall Farm / HTU	68.6								
WRUF Tower		57.2							
WUFT Tower		2.4							

NOTE: The Eastside Campus and UF Libraries Remote Services were added to the campus master plan by an amendment in March 2004. A subsequent amendment in January 2005 slightly modified the Eastside Campus Future Land Use allocations as represented above.

B. 2004 Existing Land Use

A map was prepared of the existing use of land on the main campus. From this map, the acreage was calculated for each land use classification. Differences between the existing land use and future land use indicate areas that are targeted to change from their existing use over time, or areas that were reallocated based on updated mapping. For example, the 2005-2015 Future Land Use allocations included small parking lots or landscaped areas associated with individual buildings in the land use of the building (i.e. Academic/Research, Support, Housing, etc.) rather than identify them as Parking or Passive Recreation as was often the approach of previous mapping efforts. In addition to the acreages shown in the table below, there are approximately 73 acres devoted to roads and sidewalks, and another 69 acres in water. A map of the existing campus land use appears at the end of this report.

Existing Main Campus Land Use, 2004

Academic	Support	Housing	Utility	Cultural	Passive Rec	Active Rec	Conservation	Parking
570	106	107	19	8	247	250	324	176

C. 2005-2015 Future Land Use Recommendations

The Future Land Use designations for 2005-2015 represent a comprehensive review and update to previous designations. The Future Land Use classifications were significantly redefined and four new land use classifications were created. An Academic/Research-Outdoor classification was created to recognize those areas used for outdoor teaching and research such as pastures, row

crops, greenhouses, arboretums, orchards, irrigation farms and other such outdoor laboratories typically associated with the Institute for Food and Agricultural Sciences or the College of Veterinary Medicine. Similarly, an Active Recreation-Outdoor land use classification was created to recognize the open space quality of recreation fields as compared to recreation centers, gymnasiums, stadiums and other enclosed or semi-enclosed recreation resources. The Passive Recreation land use was deleted and replaced with two different land use classifications – Urban Park and Green Space Buffer – to recognize the functional value of these different types of open space. As mentioned previously, the application of land uses was somewhat generalized and the definitions rewritten so that auxiliary uses of a building, such as service drives and courtyards, are included within the primary use of the building to which the auxiliary uses are associated.

The following tables present Future Land Use designations proposed for the period 2005-2015 as compared to those of previous campus master plans. Although roads are not a land use classification, their acreage is included in the table so as to account for the entire campus acreage. A map at the end of this report displays the areas of campus where Future Land Use designations are changed from the campus master plan for 2000-2010 to the campus master plan for 2005-2015.

Comparison of Future Land Use - Main Campus, 2005-2015

Land Use Classification	Future Land Use 2005-2015 (Proposed)	Future Land Use 2000-2010 (as Amended 2004)	Future Land Use 2000-2010 (as Originally Adopted)
Academic	275	573	574
Academic - Outdoor	325	na	na
Active Recreation	72	271	273
Active Recreation - Outdoor	198	na	na
Green Space Buffer	23	na	na
Conservation	447	328	327
Cultural	20	11	11
Housing	159	131	131
Parking	93	138	134
Passive Recreation	na	215	217
Support / Clinical	167	122	121
Urban Park	68	na	na
Utility	24	20	22
Roads	84	46	46
TOTAL	1955	1855	1855

NOTE: The additional 100 acres reported in the Campus Master Plan for 2005-2015 is the result of correcting previous mapping errors in the campus boundary and in accounting for roads and water.

Future Land Use Change - Main Campus, 2004 to 2015

Land Use Classification	Change from 2004 Amended CMP to 2015 Proposed CMP
Academic and Academic-Outdoor	32
Active Recreation and Active Recreation-Outdoor	-1
Buffer and Urban Park (formerly Passive Recreation)	-124
Conservation	115
Cultural	9
Housing	28
Parking	-45
Support / Clinical	45
Utility	4
Roads	38
Total *	100

* The increase in total acreage is due to mapping errors in the original 2000 base year data primarily accounting for water and roads. The net gain in Conservation acreage includes the addition of open water bodies, without which, the net gain in Conservation is 56 acres. Water acreage adds a total of 68 +/- acres to the total campus acreage that was not previously counted in a land use classification.

VIII. Future Building Sites and Urban Design Recommendations

The Future Land Use designations and the identified future building sites (as discussed in the Capital Improvements Element) present a concept for the long-term continued growth of the University of Florida. New buildings are located within land uses that reflect the future needs of the university. The spatial organization of these sites reflects a desire to provide infill development in the already-built parts of campus including sensitive infill in the Historic Impact Area, and more intense infill development south of Museum Road, along Center Drive and particularly focused in the Health Science Area along Archer Road. Other development is anticipated to occur in clusters around existing buildings including the Orthopaedic and Sports Medicine Institute, the Cultural Plaza, Fifield Hall and the Cancer/Genetics Center. These areas should seek to develop as walkable activity centers with a critical mass of buildings and occupants that are connected as transit hubs. Additional land is designated to accommodate future housing and recreation field expansion, particularly in the western portion of campus near SW 34th Street, Hull Road and Radio Road. In this way, this area can begin to function as a neighborhood of campus housing, recreation and student services, particularly focused on the needs of graduate students and their families.

Long-term change is suggested in this campus master plan by providing Future Land Use designations in the locations of Diamond Village and the SW 6th Street Civil and Coastal Engineering sites to indicate that the current uses may not be the highest and best use of the land in the future. However, these changes are not anticipated to occur during the ten-year horizon of the Campus Master Plan, 2005-2015. Similarly, some change of land use is indicated in the area occupied by a portion of the Physical Plant complex on Radio Road. While some change in this

area may realized in the next ten years, significant displacement of existing facilities in that location are not anticipated during this plan horizon.

IX. Legal Description

The University of Florida consists geographically of many individual parcels of land located in 26 different counties throughout the state of Florida. For both functional and administrative purposes, the University has grouped many of the parcels together, in most cases by county, to form 39 separate sites identified on the following table that was first published in the inventory documents for the 1995-2005 campus master plan. The individual parcels comprising each of these sites range in size from less than one acre to over 1,850 acres. Collectively, the sites total 20,602+/- acres. The main campus located in Gainesville contains approximately 1,955 acres and represents the largest single land holding in the state.

These properties consist of educational, recreational, agricultural and physical plant support facilities, and include the land holdings of the University htaht have been lesed from the Board of Trustees of the State Internal Improvement Trust Fund (IITF). Properties leased by the University form other sources are not included in this inventory.

The University of Florida does not maintain an "official" consolidated set of property deed records; however, the majority of deed records are maintained on the main campus at the Physical Plant Division. Additional records are available through the Department of Environmental Protection for IITF-owned properties, the IFAS Facilities Management Division and the University of Florida Foundation.

Since the 1995 inventory, two Alachua County Satellite Properties located within the City of Gainesville were added to the campus master plan jurisdiction and two significant properties were added to the university main campus. The two properties added to the main campus included parcel #16252-000-000 on the north rim of Bivens Arm Lake, and parcel #06698-000-000 located west of SW 34th Street. These properties are contiguous to the remainder of the university main campus. Additional information about these main campus properties follows:

Bivens Arm Lake:	**West of 34th St.:**
Parcel #: 16252-000-000	Parcel #: 06698-000-000
Grantor: Dennis R. O'Neil	Grantor: Dennis R. O'Neil
Section/Township/Range: 18-10-20	Section/Township/Range: 11-10-19
Deed Date: 12/19/86	Deed Date: 12/19/86
Deed book/Page: OR 1647/139	Deed book/Page: OR 1647/139
IITF lease #: Unknown	IITF lease #: Unknown
Lease Status Date: Unknown	Lease Status Date: Unknown
Period of lease: 40 years	Period of lease: 40 years
Acres: 20.55	Acres: 13.42

The satellite properties added within the City of Gainesville include the Eastside Campus and the Libraries Remote Storage Facility that were amended into the campus master plan jurisdiction in 2004. Legal descriptions of these satellite properties follow:

UF Libraries Remote Services: 2715 NE 39th Avenue

Commence at the Northwest corner of Section 26, Township 9 South, Range 20 East, and run South 1°33'59" East 1225.74 feet; thence South 29°33'01" West 50 feet to the South Right of Way line of State Road Number S-232, the Point of Beginning:

Thence run South 60°27'59" East, along said Right of Way line, 800 feet to the West Right of Way line of a 60 foot graded road; thence Southwesterly along said West Right of Way line approximately 600 feet; thence North 60°27'59" West approximately 800 feet to the Easterly Right of Way line of the Seaboard Coast Line Railroad; thence North 29°33'01" East 600 feet to the Point of Beginning.

UF Eastside Campus: 2006 NE Waldo Road

Commence at intersection of Glen Springs Road (NE 23 Avenue) & State Road 24, run 2 28 2/3 degrees west 672.32 feet to point of beginning northwest perpendicular to highway; 1045 feet southwest parallel to highway; 617 feet southeast perpendicular to highway; 1045 ft northeast along highway; 622 feet to beginning.

University of Florida Main Campus Property Deeds

Parcel No.	Grantor	Section Township Range	Deed Date	Deed Book No.	Page No.	IITF Lease No.	Lease Status Date	Period of Lease	Acres
1-A	The Gainesville Co.	6-T10S-R20E	7-4-05	166	112	2734	2-18-74	99 yrs	320.0
	C-110, 114 & 115 for partial sales								
	W.R. Thomas & Wife	6-T10S-R20E	5-21-16	80	195				
	W.E. Arnow ETAL	6-T10S-R20E	4-4-56	353	23				
1-B	W.R Thomas & Wife	7-T1-S-R20E	7-20-05	77	585	2734	2-18-74	99 yrs	192.0
1-C	W.R. Thomas & ETAL	7-T10S-R20E	11-14-11	85	440	2734	2-18-74	99 yrs	78.3
	E.E. Cannon & Wife	7-T0S-R20E	6-6-13	90	454				
1-D	Golf View Realty Co.	12-T10S-R19E	7-1-25	130	227	2734	2-18-74	99 yrs	320.0
1-E	St. Plant Board of Fl.	7-T10S-R20E	5-17-26	145	294	2734	2-18-74	99 yrs	10.0
1-F	Fred D. Bryant	11-T10S-R19E	12-12-28	157	196	2734	2-18-74	99 yrs	65.0
	See C-10 partial sale								
1-G	Louis Days ED AL	11-T10S-19E	9-25-61	172	541	2734	2-18-74	99 yrs	0.5
1-H	A.C. Nichols & Wife	7-T10S-R20E	12-14-29	158	446	2734	2-18-74	99 yrs	194.0
	C-107 for partial sale								
1-J	A.C. Nichols & Wife	7-T10S-R20E	12-14-29	158	445	2734	2-18-74	99 yrs	14.0
	C-107 for partial sale	18-T10S-R20E							
1-K	Gainesville Dev. Co.	5-T10S-R20E	5-23-31	166	338	2734	2-18-74	99 yrs	3.8
1-L	City of Gainesville	5-T10S-R20E	8-26-82	1455	207	3294	10-21-83	50 yrs	6.3
1-M	Gainesville Dev. Co.	5-T10S-R20E	12-31-32	167	83	2734	2-18-74	99 yrs	2.9
	J.G. Hughes & Wife	5-T10S-R20E	5-23-32	166	540				
1-N	A.C. Nichols & Wife	Napier Grant 18-T10S-R20E 7-T10S-R20E	5-13-36	175	283	2734	2-18-74	99 yrs	173.0
	BD. Comm Alachua County	12-T10S-R19E 13-T10S-R19E	5-18-71	714	342	2734	2-18-74	99 yrs	0
1-O	A.C. Nichols & Wife	13-T10S-R20E	6-22-36	175	404	2734	2-18-74	99 yrs	91.0
1-P	D.J. Richbourg	12-T10S-R19E	5-23-39	184	386	2734	2-18-74	99 yrs	40.0
1-Q	City of Gainesville	7-T10S-R20E	4-24-40	183	594	2734	2-18-74	99 yrs	5.7
	L. Graham ETAL	7-T10S-R20E	8-28-51	292	129				
1-R	C.C. Richbourg/Wife	12-T10S-R19E	2-21-44	180	300	2734	2-18-74	99 yrs	192.0
	C-105, 109 partial sale								
1-S	C.C. Richbourg/Wife	12-T10S-R19E	7-1-44	202	272	2734	2-18-74	99 yrs	7.0
1-T	Charles Pinkoson	1-T10S-R19E	1-31-47	238	44	2734	2-18-74	99 yrs	89.0
1-U	M.Baumstein & Wife	1-T10S-R19E	5-18-61	141	487	2734	2-18-74	99 yrs	0.3
1-V	City of Gainesville	8-T10S-R20E	9-10-49	267	161	2734	2-18-74	99 yrs	10.0
1-Y	W.A. Shands & Wife	1-T10S-R19E	11-3-50	281	203	2734	2-18-74	99 yrs	2.1

University of Florida Main Campus Property Deeds, cont.

Parcel No.	Grantor	Section Township Range	Deed Date	Deed Book No.	Page No.	IITF Lease No.	Lease Status Date	Period of Lease	Acres
1-Z	Lessie Hall Lang	7-T10S-R20E	6-9-51	287	500	2734	2-18-74	99 yrs	
	Lessie Hall Lang	7-T10S-R20E	6-9-51	288	1	2734	2-18-74	99 yrs	
	Releases 1-C,E & Q								
1AA	Ethlyn C. Perry	1-T10S-R19E	6-22-51	288	72	2734	2-18-74	99 yrs	0.3
1AB	Ruth L. Bynum & Husband	8-T10S-R20E	3-21-53	306	410	2734	2-18-74	99 yrs	0.2
1AD	Fred M. Cone & Wife	8-T0S-R20E	3-26-53	307	251	2734	2-18-74	99 yrs	0.2
1AE	Archibald S. Hampton & W	8-T10S-R20E	3-25-53	307	251	2734	2-18-74	99 yrs	0.2
1AF	A.A. Annis & Wife	8-T10S-R20E	3-26-53	307	402	2734	2-18-74	99 yrs	2.6
1AG	Dorthy L. Simpson and Husband	8-T10S-R20E	2-27-53	307	253	2734	2-18-74	99 yrs	0.3
1AH	S.L. Scruggs & Wife	8-T10S-R20E	3-30-53	308	48-	2734	2-18-74	99 yrs	8.7
1AJ	First Bond & Mortg.	8-T10S-R20E	6-22-53	311	101	2734	2-18-74	99 yrs	0.3
	Co. of Gainesville	8-T10S-R20E	11-5-63	104	317				
	City of Gainesville								
1AK	First Bond & Mortg.	8-T10S-R20E	6-22-53	311	103	2734	2-18-74	99 yrs	0.9
	Co. of Gainesville	8-T10S-R20E	6-6-6-	104	317				
	City of Gainesville								
1AL	Byron M. Winn & Wife	8-T10S-R20E	1-12-54	315	364	2734	2-18-74	99 yrs	18.5
1AM	Maurine G. Graham and Husband	6-T10S-R20E	4-24-54	320	121	2734	2-18-74	99 yrs	0.5
1AN	Thomas M. Simpson and Wife	5-T10S-R20E	4-20-54	320	39	2734	2-18-74	99 yrs	0.9
	See C-108								
1AO	G.G. Harn and Husband	6-T10S-R20E	4-26-54	320	119	2734	2-18-74	99 yrs	0.5
1AP	W.H. Palmer & Wife	7-T10S-R20E	1-1-56	342	487	2734	2-18-74	99 yrs	3.9
1AQ	S.L. Scruggs & Wife	8-T10S-R20E	4-10-56	350	33	2734	2-18-74	99 yrs	9.5
	City of Gainesville	8-T10S-R20E	1-19-70	619	95				0
1AR	B.R. Colson & Wife	12-T10S-R19E	7-23-57	368	255	2734	2-18-74	99 yrs	68.0
		12-T10S-R19E							
	L.L. Goode & Wife	12-T10S-R19E	3-10-58	7	148				
	See "N" BD. Comm.								
1AS	Theta Chi Realty Co.	6-T10S-R20E	10-2-50	280	407	2734	2-18-74	99 yrs	0.3

University of Florida Main Campus Property Deeds, cont.

Parcel No.	Grantor	Section Township Range	Deed Date	Deed Book No.	Page No.	IITF Lease No.	Lease Status Date	Period of Lease	Acres
1AT	Joseph R. Fulk (trust)	6-T10S-R19E	7-14-44	202	275	Trust	Subject to Use		0.8
	Joseph R. Fulk (trust)	6-T10S-R20E	6-40	188	423		as CLO Housing		
	Joseph R. Fulk (trust)	6-T10S-R20E	1-14-47	239	488				
	Joseph R. Fulk (trust)	6-T10S-R20E	4-19-40	183	507				
	Title in Name of BOE in Trust for Co-OP Living Organization								
1AU	David B. Murphree and Wife	11-T10S-R19E	6-12-64	299	492	2734	2-18-74	99 yrs	3.5
1AW	Vego Hair Mfg. Co.	8-T10S-R20E	10-7-66	407	57	2734	2-18-74	99 yrs	3.1
1AX	G.G. Kirk Patrick and J.E. Pierson	8-T10S-R20E	10-7-66	407	173	2734	2-18-74	99 yrs	3.0
1BB	Alachua County	11-T10S	5-17-72	816	211	2734	2-18-74	99 yrs	3.37
1BD	Alumni Control BD Delta Sigma PHI	6-T10S-R20E	6-8-73	838	119	3117	9-21-79	99 yrs	0.6
1BF	C.B. Nichols & Wife	7-T10S-R20E	4-12-78	160	429	NO#			2.8
	A.N. Davis	7-T10S-R20E	6-6-78	160	431				
	M.E. Nichols	7-T10S-R20E	4-3-78	160	433				
	C.B. Nichols	7-T10S-R20E	4-2-78	160	435				
1BG	City of Gainesville	8-T10S-R20E	3-24-76	997	223	2892	2-18-74	99 yrs	0.22
1BH	City of Gainesville	8-T10S-R20E		1036	563	2927	1-21-77	99 yrs	0.2157
						TOTAL ACREAGE			1965.71

Source: University of Florida State Lands Management Plan, 1989, Architecture/Engineering Department, Physical Plant Division, University of Florida

X. 2000-2010 Campus Master Plan Evaluation and Appraisal

The evaluation of any policy document is based in the level of commitment to implementation and the results achieved as a result of implementation. Rather than reciting policies with simplistic "yes" or "no" achievement evaluations, this Evaluation and Appraisal summary seeks to identify the specific actions employed by the university to implement master plan policies, and the specific outcomes of these actions where milestones can be identified.

A. Policies Related to Urban Design and Enhancement Projects

Policies of the Urban Design Element seek to improve certain areas of campus and focus design enhancements on campus perimeters and gateways, specifically those policies under Goal 2, Objectives 2.0 and 3.0. In response to these policies, the University implanted several landscaping, sidewalk and plaza improvements including completion of seat walls with landscaping along the W. University Avenue boundary. As called for in Policy 2.5, a first phase of site improvements was implemented at the Cultural Plaza and additional improvements have been conceived. Similarly, gateways signage, lighting and landscaping enhancements were completed at several main entry points along W. University Avenue, SW 13th Street and SW 34th Street to improve the visual appearance of the campus perimeter. In keeping with policies under Goal 1, several academic infill projects were completed or underway in existing academic areas. Particularly successful projects on the campus perimeter included Gerson Hall and an expansion of Library West. Each of these projects contributed to the campus perimeter appearance through architectural and landscape treatments that were aesthetically pleasing and respected their historic

district location. In the area of the historic residence halls, a significant exterior enhancement was accomplished through the Yardley Courtyard project. This project was the first phase of a larger site design that includes landscaping, sidewalks, plazas, street furniture, lighting and an interactive fountain.

Policies related to the development of a greenway system, including Goal 3, policies 1.3 and 2.3 were not accomplished due to a lack of funding for these projects. Another policy that was not accomplished was under Goal 1, policy 2.4 that seeks to expand the auto-free zone. Although the physical area was not expanded, some parking was removed (i.e. at the Women's Gym, Criser parking lot and Library West) while some streetscape and landscaping improvements were accomplished.

B. Policies Related to Project Design and Review Processes

Several policies in the Urban Design Element and Future Land Use Element describe the capital project review process and design considerations such as underground powerlines, screened service drives, utility coordination, soil/geotechnical analysis, building orientations, and building heights. The University maintained a project review process that includes the Transportation and Parking Committee, the Preservation of Historic Buildings and Sites Committee, the Lakes, Vegetation and Landscaping Committee and the Land Use and Facilities Planning Committee. These committees engage in a three-step process to review capital projects at the programming, schematic design and design development phase including detailed reviews of landscaping plans. In addition to the committee reviews, the University provides for input through a design charrette process for major construction and departmental reviews including the University Police Department, Environmental Health and Safety Office and the Physical Plant Division. Through these processes, the University achieves thorough site plan review and consideration of the policies contained in this element.

Another step toward implementing these design-related policies was accomplished with a rewrite of the University of Florida Design and Construction Standards in 2003-2004 to incorporate the revised Florida Building Code and Campus Master Plan policies. These standards include requirements for indoor air quality, erosion control and tree protection, among other standards. Compliance with relevant state, federal and university requirements for facility construction and management is provided by the building permit and hazardous materials monitoring programs administered by the University's Office of Environmental Health and Safety.

C. Policies Related to Future Land Use Consistency and Master Plan Amendments

Several policies in the Urban Design Element (Goal 4) and Future Land Use Element (Goal 1, Objective 4 and Goal 2, Objective 2) describe the desire to avoid major deviations from the campus master plan's future land use designations, and to provide for an open amendment process to modify the land use coverages or add property to the campus master plan jurisdiction.

As documented elsewhere in this report, the campus master plan's Future Land Use acreages have not been drastically modified during the plan's implementation from 2000 to 2004. During that period, there were three amendments that changes land use designations on the main campus. These changes were minor, and cumulatively resulted in the addition of one acre to Support, one acre to Conservation, four acres to Parking and the loss of one acre in Academic, one acre in Utility, two acres in Active Recreation, and two acres in Passive Recreation. These main campus changes included the addition of a contiguous parcel consisting of 0.2 acres of land that had been used by the University for many years. At the same time this property was brought into the campus master plan jurisdiction, two additional satellite properties (Eastside Campus and UF

Libraries Remote Services) were brought into the campus master plan following the State's reassignment of the lease from the Florida Department of Transportation (FDOT) to the University of Florida. Campus Master Plan policies were followed for these land additions and the university closely coordinated with the City of Gainesville, including conducting a public workshop and adding related campus master plan policies at the request of the City.

D. Policies Related to Conservation Area Management

Goal 1, Objective 5.0 of the Future Land Use Element reiterates several policies of the Conservation Element targeting protection and management of natural areas. To implement these policies, the University has completed final drafts of a campuswide Conservation Area Land Management (CALM) Plan that will be finalized during the 2005-2006 academic year concurrent with adoption of the 2005-2015 Campus Master Plan. This CALM Plan provides site conditions inventory data, best management practices and recommended actions for each individual conservation area on the main campus. These recommended actions include a variety of strategies such as access control, interpretive signage, habitat restoration, bird boxes, invasive non-native plant removal, erosion control, no-mow zones, etc. The CALM Plan was developed with the involvement of many university and community stakeholders including faculty with expertise in a variety of ecological disciplines. Together with the 2005-2015 Campus Master Plan development, the definition and identification of campus Conservation Areas was thoroughly reviewed and revised.

Implementation of some CALM Plan recommendations occurred simultaneous with plan development as the university sought to solve immediate problems with currently available resources. The 2005-2006 release of Capital Improvement Trust Fund monies will be used to finance an additional $500,000 of enhancements and restoration in campus Conservation Areas. A Florida Department of Environmental Protection grant was obtained through a joint-application with the City of Gainesville to implement removal of invasive non-native plants in two campus Conservation Areas. Additional funding is sought through routine operating capital to address issues related to stormwater, erosion control and landscaping. Future construction projects and private benefactors are other possible sources of implementation funds.

E. Policies Related to Preservation of Historical and Archaeological Resources

Goal 1, Objective 6.0 sets policies for the University in regard to historical and archaeological resources. The University has complied with the provisions of its Memorandum of Agreement with the State of Florida Division of Historical Resources (DHR). Consistent with this agreement, several building restorations, upgrades and infill projects were initiated in the Historic District with review from the DHR. These projects included the new Gerson Hall, Library West addition, Women's Gym/Ustler Hall rehabilitation and Murphree Hall window replacement with new air conditioning. In addition, the university's Facilities Planning and Construction Division and the Physical Plant Division collaborated with faculty in the College of Design Construction and Planning to successfully pursue two campus historic preservation grants. During 2003-2004, a grant from the DHR allowed the University to document the history of campus development, recreate an historic campus walking tour map, and inventory historically significant buildings that are turning fifty-years of age and becoming eligible for nomination to the National Register of Historic Places. A subsequent grant from the Getty Foundation continues through 2007 for the purpose of further identifying character-defining features of campus historic resources and developing design guidelines, cyclical maintenance protocols and training modules to address the management of historic structures.

F. Policies Related to Intergovernmental Coordination

Goal 2, Objectives 1.0 and 3.0 of the Future Land Use Element discuss various intergovernmental coordination policies. In keeping with the policies, the University has remained an active member of the Metropolitan Transportation Planning Organization, and has appointed the City and County planning directors to the University Future Land Use and Facilities Planning Committee. The University has also engaged in meetings, field trips and other activities of the City of Gainesville's Economic Development University and Community College Committee, as well as other town-gown committees and task forces. The University's redevelopment and occupation of the former FDOT properties in east Gainesville also represent a step toward supporting local government economic goals.

Other informal collaborations also produce significant results such as the coordination during 2004 that improved the University Arboretum located on W. University Avenue and W. 22nd Street. This improvement project was initiated by the NW 22nd Street Neighborhood Association to provide fencing, landscaping, and stormwater improvements. Several university units collaborated to provide physical improvements and clean-up at the site, including the Facilities Planning and Construction Division, Physical Plant Division, Office of the Dean of Students and the University of Florida Foundation. The City's Public Works Department and Gainesville Regional Utilities contributed to the overall improvements with stormwater modifications, road resurfacing and utility pole relocation adjacent to the university project. Members of the neighborhood association provided financial contributions and volunteer labor. The University Arboretum effort is one example of university and community collaborations that work toward implementing master plan policies.

3.
ACADEMIC FACILITIES
DATA & ANALYSIS

I. Space Inventory

A. *Relationship to Campus Master Plan Future Land Uses*

In the University of Florida Space Files and Educational Plant Survey, the analysis of indoor academic space is based on a calculation of net assignable square feet (NASF) of facilities that provide academic functions. In the Space Files and analysis formula, ten space categories are recognized plus a category of "other". The ten categories include:

Instructional	Academic Support	Institutional Support
Classroom Facilities	Study Facilities	Student Academic Support
Teaching Laboratory Facilities	Instructional Media Facilities	Office/Computer Facilities
Research Laboratory Facilities	Auditorium/Exhibition Facilities	Campus Support Facilities
	Teaching Gymnasium Facilities	

The Educational Plant Survey for June 2004 through June 2009 identified an unmet need of 319,344 NASF of instructional space and another 502,491 NASF of unmet need in the categories of study facilities and instructional media (i.e. these classifications largely represent library space and similar functions).

In terms of the campus master plan future land use classifications, a facility within the Academic/Research land use category will have a preponderance of Instructional space; however, Academic Support and Institutional Support space will typically be in the same building. Within the Space Files, libraries include study facilities and instructional media that are classified within the Academic Support space type but are identified in the Academic/Research land use classification of the campus master plan. Auditorium/Exhibition spaces may be found within academic buildings in the Academic/Research land use classification or within museums and performance centers placed in the Cultural land use. Teaching Gymnasiums are typically included in buildings that fall within the Academic/Research land use classification; however, some such facilities also serve student recreation and may be present in the Active Recreation land use.

B. *Academic Space Definitions*

The State University System of Florida Space Needs Formula provides definitions for each university space type to be used in the analysis of space need and capital project justification. As described above, these space definitions do not directly translate to campus master plan land use classifications. These definitions are at the level of individual facilities, floor plans and room assignments. However, understanding these definitions and the formula assessment of need is important to understanding the ten-year capital projects list of the campus master plan.

Classroom Facilities. A classroom is defined as a room used for classes and not tied to a specific subject or discipline by equipment in the room or the configuration of the room. Included in this category are rooms generally used for scheduled instruction that require no special, restrictive equipment or configuration. These include lecture rooms, lecture-demonstration rooms, seminar

rooms, and general purpose classrooms. Related service areas such as projection rooms, telecommunications control booths, preparation rooms, closets, storage areas, etc. are included in this category if they serve classrooms. The net assignable square feet (NASF) needed for classrooms is based upon 22 NASF per student station, 40 periods of room use per week, and 60% station occupancy. These standards result in a space factor of 0.92 NASF per FTE enrollment. Using this space factor, NASF requirements are determined by multiplying the FTE enrollment for each discipline by level times the number of weekly student hours per FTE that are scheduled in classrooms.

The effect of applying the formula to all universities by level and by discipline provides an average of 12 NASF per FTE for main campuses. An example for an upper level FTE student in Engineering is:

.92 (Space Factor) X 15.0 (Weekly Student Hours Per FTE) = 13.8 NASF Per FTE

where Space Factor = $\frac{\text{Station Size}}{\text{Hours Per Week X Occupancy Rate}}$ or $\frac{22}{40 \text{ X } .60}$ = .92 NASF

Teaching Laboratory Facilities. A teaching laboratory is defined as a room used primarily for scheduled classes that require special purpose equipment or a specific room configuration for student participation, experimentation, observation, or practice in an academic discipline. Included in this category are rooms generally called teaching laboratories, instructional shops, computer laboratories, drafting rooms, band rooms, choral rooms, music practice rooms, language laboratories, studios, theater stage areas used primarily for instruction, instructional health laboratories, and similar specially designed or equipped room if they are used primarily or group instruction in formally or regularly scheduled classes. Related service areas are also included in this category.

The NASF need for teaching laboratories is computed by discipline by level and is based on established station sizes, weekly student hours per FTE, and utilization levels for room use and station occupancy. The room use standard is 24 hours for lower level and 20 hours for upper level. The station occupancy rate is 80% for both levels.

The effect of applying the formula to all universities by level and by discipline provides an average of 15 NASF per FTE for main campuses. An example for an upper level student in Engineering is:

7.81 (Space Factor) X 5.0 (Weekly Student Hours Per FTE) = 39.05 NASF Per FTE

where Space Factor = $\frac{\text{Station Size}}{\text{Hours Per Week X Occupancy Rate}}$ or $\frac{125}{20 \text{ X } .80}$ = 7.81 NASF

Although most universities in the System currently generate more than 50,000 NASF, a minimum facility need of 50,000 NASF is provided for the development of future campuses.

Research Laboratory Facilities. A research laboratory is defined as a room used primarily for laboratory experimentation, research or training in research methods, professional research and observation, or structured creative activity within a specific program. Included in this category are labs used for experiments, testing or "dry runs" in support of instructional, research or public service activities. Non class public service laboratories which promote new knowledge in

academic fields are included in this category (e.g., animal diagnostic laboratories and cooperative extension laboratories). Related service areas that directly serve these laboratories are included in this category.

The NASF need for research laboratories is based on an allotment of space by discipline for each research faculty FTE and graduate student FTE. Space needs are generated separately for research faculty and graduate students.

Research Faculty Space needs are generated by discipline for Educational and General (E&G) and Contract and Grant (C&G) faculty. The number of E&G research faculty is based upon the E&G FTE faculty to FTE student ratio and the percentage of E&G research faculty FTE for the actual or base year. The number of C&G research faculty FTE is based on a three-year average growth rate for C&G faculty applied to the actual or base year. The allotment of space for each research faculty FTE varies from 75 to 450 NASF depending on discipline.

Graduate Students Space needs are generated by discipline for beginning and advanced graduate student FTE. Graduate student FTE enrollment is divided between beginning and advanced levels based upon the number of graduate credit hours completed by the student (advanced graduates are those with 36 or more graduate credit hours).

Research laboratory space is generated for selected University Support Personnel System positions having research responsibilities that require laboratory facilities. The Beginning Graduate space factor is used for these positions.

Space allotments for advanced graduates are the same as those applied to research faculty (from 75 to 450 NASF). The allotment of space for a beginning graduate FTE considers sharing of research space and varies from 3 to 90 NASF. For example, the space allotment for an advanced graduate student in Engineering is 450 NASF.

Study Facilities. Study facilities include study rooms, stack areas, processing rooms, and study service areas. The NASF needed for study facilities is based on separately determined NASF needs for study rooms, carrel space, stack areas, and study service areas.

Study Rooms (Other than Computer Study Rooms): The NASF need for study rooms is based on 25 NASF per station for 25% of the undergraduate FTE.

Computer Study Rooms: The NASF need for computer study rooms is one station for every 15 FTE, with a station size of 30 NASF.

Carrels: The NASF need for carrels is based on 30 NASF per station for 25% of the beginning graduate FTE, for 50% of the law FTE, for 25% of the advanced graduate science FTE, and for 50% of the advanced graduate non-science FTE, plus 20 NASF per station for 5% of the science FTE faculty and for 25% of the non-science FTE faculty.

Stack Areas: The NASF need for stack areas is based on an amount of space per library volume with all library materials converted to volume equivalents (includes all holdings such as bound volumes, video and audio tapes, cassettes, microfilms, etc.). The projected volume counts are based on current inventories plus a continuation of the previous year's acquisitions.

Non-Law Stacks:	Law Stacks
0.10 NASF/volume for the first 150,000 volumes	0.14 NASF/volume for the first 150,000 volumes
0.09 NASF/volume for the second 150,000 volumes	0.12 NASF/volume for the second 150,000 volumes
0.08 NASF/volume for the next 300,000 volumes	0.10 NASF/volume for the next 300,000 volumes
0.07 NASF/volume for all volumes above 600,000	0.09 NASF/volume for all volumes above 600,000

Study Facilities Service Areas: The NASF need for study service areas is based on 5% of the total NASF needed for study rooms, carrels, and stack areas.

Instructional Media Facilities. Instructional Media rooms are used for the production or distribution of multimedia materials or signals. Included in this category are rooms generally called TV studios, radio studios, sound studios, photo studios, video or audio cassette and software production or distribution rooms, and media centers. Service areas such as film, tape, or cassette libraries or storage areas, media equipment storage rooms, recording rooms, engineering maintenance rooms, darkrooms, and studio control booths are also included in this category.

A minimum facility of 10,000 NASF and 0.5 NASF per FTE over 4,000 is provided for instructional media space on main campuses and 0.5 NASF per FTE for branch campuses with no minimum facility allowance.

Auditorium/Exhibition Facilities. Auditorium/exhibition facilities are defined as rooms designed and equipped for the assembly of many persons for such events as dramatic, musical, devotional, livestock judging, or commencement activities or rooms or areas used for exhibition of materials, works of art, artifacts, etc. and intended for general use by faculty, students, staff, and the public.

Service areas such as check rooms, ticket booths, dressing rooms, projection booths, property storage, make-up rooms, costume and scenery shops and storage, green rooms, multimedia and telecommunications control rooms, workrooms, and vaults are also included in this category.

The NASF need for auditorium/exhibition facilities is based on a space allotment of 3 NASF per FTE with a 25,000 NASF minimum facility allowance for main campuses.

Teaching Gymnasium Facilities. A teaching gymnasium is defined as a room or area used by students, staff, or the public for athletic or physical education activities. Included in this category are rooms generally referred to as gymnasiums, basketball courts, handball courts, squash courts, wrestling rooms, weight or exercise rooms, racquetball courts, indoor swimming pools, indoor putting areas, indoor ice rinks, indoor tracks, indoor stadium fields, and field houses. Service areas such as locker rooms, shower rooms, ticket booths, rooms for dressing, equipment, supply, storage, first-aid, towels, etc. are also included in this category.

The NASF need for teaching gymnasiums is based on a minimum facility for each main campus of 50,000 NASF for the first 5,000 FTE enrollment, plus an additional 3 NASF per FTE for enrollment over 5,000 FTE.

C. Academic Space Needs in the Educational Plant Survey

Based upon space definitions and formulas in the Educational Plant Survey, additional space is needed in facilities that are included in the Academic/Research and Academic/Research-Outdoor land use categories during a five-year period to 2009. These spaces serve various classroom, laboratory, study, instructional media and exhibition/auditorium space. Specifically, the Educational Plant Survey identified an unmet space need for 319,344 NASF of Classrooms and Laboratories, 502,491 NASF of Study and Instructional Media, 23,998 NASF of Auditorium/Exhibition, and 61,638 of Teaching Gymnasium facilities. These space needs are only through the year 2009, and do not include teaching and research areas that are unique to the University of Florida when compared to other State University System schools such as agricultural sciences, veterinary medicine, engineering and medicine. These, and other academic pursuits at the University of Florida, have unique space and equipment needs that do not necessarily fit within the statewide formulas. Much of the academic support need identified in the Educational Plant Survey falls under the category of "study" and identifies shortages in library resources that will be addressed in the Academic/Research Element. The space need identified in the following table accounts for funded projects under construction in 2004 including the Orthopaedic Surgery and Sports Medicine Institute, Genetics and Cancer Research Center, Library West Addition and Renovation, Constans Theater Addition, Welcome Center/Bookstore, Pharmacy Remodeling, Holland Legal Information Center and Gerson Hall/Accounting Classroom. The space need reported in the table below is in addition to the space that is provided by these funded projects.

Comparison of Existing Satisfactory Space with Generated NASF Needs by Category, 2004-2009

Space Category	Generated Need	Existing Space	Unmet Need
Instructional			
Classroom	410,915	381,286	29,629
Teaching Laboratory	563,398	475,888	87,510
Research Laboratory	1,763,570	1,561,365	202,205
Academic Support			
Study	944,962	451,129	493,883
Instructional Media	27,561	18,953	8,608
Auditorium/Exhibition	107,382	83,384	23,998
Teaching Gymnasium	133,154	71,516	61,638
Institutional Support			
Student Academic Support	21,476	2,221	19,255
Office/Computer	2,156,589	1,993,660	162,929
Campus Support Services	306,450	196,238	110,212

II. Campus Master Plan

The Campus Master Plan defines the Academic/Research Land Use in two different classifications. These are intended to segregate those areas targeted for development of typical classroom and laboratory buildings from those academic and research pursuits that utilize pastures, arboretums, orchards, row crops, greenhouses and other such outdoor facilities. The Future Land Use Element identifies these land use classifications as follows:

- ***Academic/Research:*** *The Academic/Research land use classification identifies those areas on the campus that are appropriate for academic and research building development. Adjacent land use and proximity to other Academic/Research uses are primary location criteria for Academic/Research in order to consolidate these functions into convenient, walkable clusters of development. Extension functions are included in the Academic/Research land use classification and are encouraged to be located on the campus perimeter or satellite properties if they require frequent visitor access. Ancillary uses associated with an academic/research facility, such as utilities, service drives, user and disabled parking, and functional open space are allowed within the Academic/Research land use classification. Development densities, heights and patterns in the Academic/Research land use shall respect pedestrian connections, historic context (where applicable), adjacencies to other land uses and creation of functional open space while maximizing the efficient use of building footprints to the extent feasible within construction budgets and program requirements.*
- ***Academic/Research Outdoor:*** *The Academic/Research Outdoor land use classification identifies those areas on the campus that are appropriate for agriculture and livestock activities providing teaching, research and extension that require close proximity to other main campus resources or are located on satellite properties away from the main campus. Allowable structure development shall typically include greenhouses, pole barns, equipment storage sheds, and other support buildings associated with an agricultural or livestock use. Office and laboratory structures shall be allowable on conditions that their size, scope and function are related to and compatible with agriculture and livestock activities. Ancillary uses associated with an academic/research outdoor activity, such as utilities, service drives, user and disabled parking, and functional open space are allowed within the Academic/Research Outdoor land use classification.*

The Future Land Use map for 2005-2015 identifies 275 acres in the Academic/Research Land Use classification, and 331 acres in the Academic/Research-Outdoor Land Use classification. This is an increase of 33 acres from that identified in the previous campus master plan.

Based on the Campus Master Plan Future Land Use map, the university contained 7,757,144 gross square feet of building space in the Academic/Research Land Use classification as of December 2004. The 10-year Capital Projects list includes 2,089,856 gross square feet of net new space to be constructed within the Academic/Research and Academic/Research-Outdoor Land Use during in the 10-year plan horizon. Only a very small amount of this space, including greenhouses and a livestock pavilion are anticipated in the Academic/Research-Outdoor areas.

III. Evening Class Offerings

Extending the hours of class offerings is one strategy to increase efficiency of classroom utilization, and spread the impacts of parking and transportation beyond the typical operating peak hours. The University of Florida Campus Master Plan, 2000-2010, included a recommendation in Goal 2, Policy 1.1 for increasing night class offerings as a means of dispersing traffic impacts. The University has increased class offerings after 5:00 PM by forty-nine class meetings from 593 class meetings in 1999 to 642 class meetings in 2005. This analysis was based on software that counted multiple-period classes as one meeting. Based on this analysis, 274 more students were served by evening classes in 2005 than in 1999.

IV. 2000-2001 Campus Master Plan Evaluation and Appraisal

During the period from 2000 through 2004, the University constructed 351,559 net new gross square feet of space in the Academic/Research Land Use classification. Funded projects that were in design or construction by December 2004 add another 715,237 gross square feet of building space in the Academic/Research Land Use. The amount of academic/research space constructed and under construction during this time period was consistent with that approved in the Campus Development Agreement, 2000-2010.

The goals, objectives and policies of the Academic Facilities Element address the intent to construct and manage academic spaces consistent with need generated by enrollment growth. Additionally, these policies address the requirement to maintain inventories, prioritize need and amend the campus master plan's Capital Improvement Element as required to reflect changing need. By constructing the necessary new building space, maintaining the Physical Space Files inventory and appropriately amending the campus master plan, the university has met these goals, objectives and policies related to Academic Facilities.

The Facilities Planning and Construction Division has also implemented advanced space tracking tools in collaboration with the Office of Contracts and Grants and the Registrar's Office that enable detailed evaluation of space utilization. These data tracking and analysis tools implement Academic Facilities Element policies related to evaluation of space efficiency. The identification of a new land use classification to recognize academic/research activities in outdoor teaching and laboratory spaces implements a policy in the Academic Facilities Element to retain sufficient space for such uses. The Element also included policies about relocating programs to areas off of the main campus or locations not included in the campus master plan. Since 2000, the Eastside Campus was added to the campus master plan and additional academic programs were moved to that site along with institutional support functions. These actions and the campus master plan amendment process used to implement them were consistent with policies of the Academic Facilities Element.

Between 2000 and 2004, the university was able to construct or initiate construction of a significant amount of academic space including a library expansion. However, funding levels for new building space were not sufficient to completely close the gap in unmet space need for classrooms, laboratories and libraries. This finding is demonstrated in the Educational Plant Survey, and is a critical area where Academic Facilities Element policies related to space sufficiency were not adequately met.

4.
SUPPORT / CLINICAL FACILITIES
DATA & ANALYSIS

I. Space Inventory

A. Relationship to Campus Master Plan Future Land Uses

In the University of Florida Space Files and Educational Plant Survey, the analysis of indoor support space is based on a calculation of net assignable square feet (NASF) of facilities that support academic functions. In the Space Files and analysis formula, ten space categories are recognized plus a category of "other". The ten categories include:

Instructional	Academic Support	Institutional Support
Classroom Facilities	Study Facilities	Student Academic Support
Teaching Laboratory Facilities	Instructional Media Facilities	Office/Computer Facilities
Research Laboratory Facilities	Auditorium/Exhibition Facilities	Campus Support Facilities
	Teaching Gymnasium Facilities	

In relation to the Campus Master Plan future land use categories, these indoor support space types are somewhat problematic because the space types are typically present in buildings along with other use types. A facility within the Academic/Research land use category will have a preponderance of Instructional space; however, Academic Support and Institutional Support space will typically be in the same building. Similarly, the auditorium/exhibition space type is typically identified within the Cultural land use classification and also within buildings in the Academic/Research land use classification. In prior campus planning efforts, recreation facilities have also been considered within the Support Element because Teaching Gymnasiums fall within the Space Files definition of support. However, those facilities are now exclusively addressed in the Recreation and Open Space Element of the Campus Master Plan for 2005-2015 because teaching gymnasiums on the University of Florida campus are also made available for casual student recreation. Within the Space Files, libraries are included as study facilities and instructional media that are classified within the Academic Support space type. However, the campus master plan allocates libraries within the Academic/Research Land Use classification due to their direct role in teaching and investigation.

Specifically, support space includes a variety of campus facilities such as computer laboratories, physical plant operations and maintenance facilities, mail and documents services, administrative offices, storage facilities, dining halls, child day care facilities, academic advising, student services and student health centers. In terms of the campus master plan land use classifications, facilities with a preponderance of Academic Support, Institutional Support, or "other" space are placed in the Support/Clinical land use classification. Additionally, support spaces such as research animal care facilities, medical clinics and the P.K. Yonge Developmental Research School are also placed in the Support/Clinical land use classification because they support teaching and investigation, but are not purely academic or research. Most facilities placed in the Support/Clinical land use classification are typified by a service-oriented purpose providing a service to students, faculty, staff or the general public. These are just a sampling of the array of university activities that support academic functions and are consistent with the support space type and land use classification. They are critical to the university's mission and cover a broad

spectrum of functions, and therefore, include a significant amount of the campus' physical facilities.

B. Support Space Definitions

The State University System of Florida Space Needs Formula provides definitions for each university space type to be used in the analysis of space need and capital project justification. As described above, these space definitions do not directly translate to campus master plan land use classifications. These definitions are at the level of individual facilities, floor plans and room assignments. However, understanding these definitions and the formula assessment of need is important to understanding the ten-year capital projects list of the campus master plan.

Study Facilities. Study facilities include study rooms, stack areas, processing rooms, and study service areas. The NASF needed for study facilities is based on separately determined NASF needs for study rooms, carrel space, stack areas, and study service areas.

Study Rooms (Other than Computer Study Rooms): The NASF need for study rooms is based on 25 NASF per station for 25% of the undergraduate FTE.

Computer Study Rooms: The NASF need for computer study rooms is one station for every 15 FTE, with a station size of 30 NASF.

Carrels: The NASF need for carrels is based on 30 NASF per station for 25% of the beginning graduate FTE, for 50% of the law FTE, for 25% of the advanced graduate science FTE, and for 50% of the advanced graduate non-science FTE, plus 20 NASF per station for 5% of the science FTE faculty and for 25% of the non-science FTE faculty.

Stack Areas: The NASF need for stack areas is based on an amount of space per library volume with all library materials converted to volume equivalents (includes all holdings such as bound volumes, video and audio tapes, cassettes, microfilms, etc.). The projected volume counts are based on current inventories plus a continuation of the previous year's acquisitions.

Non-Law Stacks:	Law Stacks
0.10 NASF/volume for the first 150,000 volumes	0.14 NASF/volume for the first 150,000 volumes
0.09 NASF/volume for the second 150,000 volumes	0.12 NASF/volume for the second 150,000 volumes
0.08 NASF/volume for the next 300,000 volumes	0.10 NASF/volume for the next 300,000 volumes
0.07 NASF/volume for all volumes above 600,000	0.09 NASF/volume for all volumes above 600,000

Study Facilities Service Areas: The NASF need for study service areas is based on 5% of the total NASF needed for study rooms, carrels, and stack areas.

Instructional Media Facilities. Instructional Media rooms are used for the production or distribution of multimedia materials or signals. Included in this category are rooms generally

called TV studios, radio studios, sound studios, photo studios, video or audio cassette and software production or distribution rooms, and media centers. Service areas such as film, tape, or cassette libraries or storage areas, media equipment storage rooms, recording rooms, engineering maintenance rooms, darkrooms, and studio control booths are also included in this category.

A minimum facility of 10,000 NASF and 0.5 NASF per FTE over 4,000 is provided for instructional media space on main campuses and 0.5 NASF per FTE for branch campuses with no minimum facility allowance.

Auditorium/Exhibition Facilities. Auditorium/exhibition facilities are defined as rooms designed and equipped for the assembly of many persons for such events as dramatic, musical, devotional, livestock judging, or commencement activities or rooms or areas used for exhibition of materials, works of art, artifacts, etc. and intended for general use by faculty, students, staff, and the public.

Service areas such as check rooms, ticket booths, dressing rooms, projection booths, property storage, make-up rooms, costume and scenery shops and storage, green rooms, multimedia and telecommunications control rooms, workrooms, and vaults are also included in this category.

The NASF need for auditorium/exhibition facilities is based on a space allotment of 3 NASF per FTE with a 25,000 NASF minimum facility allowance for main campuses.

Student Academic Support Facilities. A student academic support room is defined as a room in an academic building where students hold meetings or group discussions of an academic nature. Rooms that directly serve academic meeting rooms are also included in this category.

Student academic meeting room need is based on 0.6 NASF per FTE enrollment.

Office/Computer Facilities. An office is defined as a room housing faculty, staff, or students working at one or more desks, tables or workstations. A computer facility in this category is defined as a room used as a computer-based data processing or telecommunications center with applications that are broad enough to serve the overall administrative or academic equipment needs of a central group of users, department, college, school, or entire institution. Rooms that directly serve these areas are also included in this category, as well as faculty and staff lounges.

The NASF need for offices/computer facilities is based on a space allotment of 145 NASF per FTE position requiring office space. Examples of positions not requiring space include maintenance mechanics, scientific photographers, and dental technicians. FTE positions are projected based upon the current ratio of FTE positions requiring space to annual FTE students. The number of C&G positions is based on a three-year average growth rate for C&G positions applied to the actual or base year. The need for faculty and staff lounges is based on 3 NASF per position.

Campus Support Facilities. Campus support facilities are defined as those areas used for institution-wide services. This includes maintenance shops, central storage areas, central service areas, vehicle storage facilities, hazardous materials facilities, plus related service areas such as supply storage areas, closets, and equipment rooms.

The NASF need for campus support facilities is based on 5% of the total NASF generated by the formula plus other areas maintained by physical plant staff such as continuing education buildings and clinic space.

C. Support Space Needs in the Educational Plant Survey

Based upon space definitions and formulas in the Educational Plant Survey, additional space is needed in a variety of Support/Clinical and Cultural land use categories during a five-year period to 2009. These spaces serve various administrative, academic support and exhibition space. Specifically, the Educational Plant Survey identified an unmet space need for 292,396 NASF of Institutional Support, 23,998 NASF of Auditorium/Exhibition, 61,638 NASF of Teaching Gymnasium, and 502,491 NASF of Study and Instructional Media facilities. These space needs are only through the year 2009, and do not include functions that are unique to the University of Florida when compared to other State University System schools such as medical clinics, state museums and a developmental research K-12 school. Much of the academic support need identified in the Educational Plant Survey falls under the category of "study" and identifies shortages in library resources that will be addressed in the Academic/Research Element. The space need identified in the following table accounts for funded projects under construction in 2004 including the Orthopaedic Surgery and Sports Medicine Institute, Genetics and Cancer Research Center, Library West Addition and Renovation, Constans Theater Addition, Welcome Center/Bookstore, Pharmacy Remodeling, Holland Legal Information Center and Gerson Hall/Accounting Classroom. The space need reported in the table below is in addition to the space that is provided by these funded projects. However, the identified space need does not accurately account for support functions unique to the University of Florida such as medical clinics, teaching hospital, state museums, P. K. Yonge School and extension activities. These unique functions require additional support space to serve specific functions not necessarily related to the Full Time Equivalency enrollment factors in the space needs formula.

Comparison of Existing Satisfactory Space with Generated NASF Needs by Category, 2004-2009

Space Category	Generated Need	Existing Space	Unmet Need
Instructional			
Classroom	410,915	381,286	29,629
Teaching Laboratory	563,398	475,888	87,510
Research Laboratory	1,763,570	1,561,365	202,205
Academic Support			
Study	944,962	451,129	493,883
Instructional Media	27,561	18,953	8,608
Auditorium/Exhibition	107,382	83,384	23,998
Teaching Gymnasium	133,154	71,516	61,638
Institutional Support			
Student Academic Support	21,476	2,221	19,255
Office/Computer	2,156,589	1,993,660	162,929
Campus Support Services	306,450	196,238	110,212

II. P. K. Yonge Developmental Research School

The P. K. Yonge Developmental Research School (PKY), a unit in the College of Education, was established in 1934 to be a center of educational innovation for students, K-12. The primary role of the school is to develop, evaluate and disseminate exemplary programs of education. As described in the Sidney Martin Developmental Research School Act, the mission of the school is to serve as a vehicle for research, demonstration and evaluation regarding teaching and learning while utilizing the resources available on a state university campus. The PKY school's primary research goal is to enhance instruction in mathematics, science, computer science and foreign languages in a program that utilizes state of the art educational technology. As a K-12 public school, PKY is recognized by the State of Florida as its own school district and is eligible for Public Education Capital Outlay (PECO) monies beyond those available to the University of Florida. The school also is required to maintain an Educational Plant Survey consistent with the requirements of Chapter 1013.31, Florida Statutes. The school has recently engaged in an update of its Educational Plant Survey. The space on this K-12 campus is not evaluated in the University's Educational Plant Survey; however, it is considered a Support/Clinical Land Use in the campus master plan. Because PKY is designated as a Florida public K-12 school, it is subject to the class size constitutional amendment to reduce teacher-to-student ratios. This requirement will create additional space needs at the PKY campus in addition to need created by modest increases in enrollment that have occurred. The following table presents enrollment trends at PKY depicting an increase of 208 students (21.6%) between 1997 and 2005. This increase is partly due to retention of students who are moving through the middle and high school grades, while the elementary grade enrollment has remained virtually unchanged. The growth also resulted from an intentional increase in the middle school grades to reach full teaching loads that support the academic teaching team and accurately reflect typical middle school enrollment (i.e. 110 students per grade rather than 60 students per grade). The school also slightly increased ninth and tenth grade enrollment to offset the number of upper level high school students who transfer to dual enrollment program.

P. K. Yonge Development Research School Enrollment Trends, 1997-2005

Academic Year (Fall Semester)	School Total	Elementary (K-5) Total	Middle School (6-8) Total	High School (9-12) Total
2005-06	1170	340	344	486
2004-05	1156	348	341	467
2003-04	1172	361	350	461
2002-03	1174	360	356	458
2001-02	1197	357	359	481
2000-01	1036	354	271	411
1999-00	1034	354	255	425
1999-00	1047	359	245	443
1998-99	1025	356	220	449
1998-99	1026	354	219	453
1997-98	967	350	191	426
1997-98	962	349	188	425

III. Campus Master Plan

The Campus Master Plan defines the Support/Clinical Land Use classification as follows:

> *The Support/Clinical land use classification identifies those areas on campus that are appropriate for support building development. Accessibility of the site to its customers (general public, students, etc.) is a primary location criterion for Support/Clinical land use. Allowable uses in Support/Clinical areas include administrative, student services, research support, medical clinics, office and similar non-instructional activities. Clinical, research support and office functions that require frequent visitor access are encouraged to locate on the campus perimeter or satellite properties. Ancillary uses associated with a support facility, such as utilities, service drives, user and disabled parking, and functional open space are allowed within the Support/Clinical land use classification. Development densities, heights and patterns in the Support/Clinical land use shall respect pedestrian connections, historic context (where applicable), adjacencies to other land uses and creation of functional open space while maximizing the efficient use of building footprints to the extent feasible within construction budgets and program requirements.*

The Future Land Use map for 2005-2015 identifies 168 acres in the Support/Clinical land use classification. This is an increase of 46 acres from that identified in the previous campus master plan.

Based on the Campus Master Plan Future Land Use map, the university contained 3,210,143 gross square feet of building space in the Support/Clinical Land Use classification as of December 2004. At this time, there was also 219,327 gross square feet of space in the Cultural Land Use classification. The 10-year Capital Projects list includes 712,262 gross square feet of net new space to be constructed within the Support/Clinical Land Use during in the 10-year plan horizon. Additionally, it projects another 290,456 gross square feet of net new space with the Cultural Land Use classification.

IV. 2000-2010 Campus Master Plan Evaluation and Appraisal

During the period from 2000 through 2004, the University constructed 497,998 gross square feet of space in the Support land use classification. The amount of support space constructed during this time period was consistent with that approved in the Campus Development Agreement, 2000-2010.

The goals, objectives and policies of the Support Facilities Element address the intent to construct support spaces consistent with need in order to adequately provide the services of administrative, physical plant, auxiliary and athletics/recreation entities. Additionally, these policies address the need to maintain inventories, prioritize need and amend the campus master plan's Capital Improvement Element as required to reflect changing need. By constructing the necessary new building space, maintaining the Physical Space Files inventory and appropriately amending the campus master plan, the university has met the goals, objectives and policies related to Support Facilities.

The only policy statement that was not met during this time period was Policy 1.1 that called for a study of the relocation/consolidation of the physical plant area north of Radio Road to facilitate the future conversion of this area to a different land use. While this comprehensive study did not occur, the Campus Master Plan for 2005-2015 indicates that the majority of the area will remain in physical plant facilities for the next ten-year period. The western-most portion of the area is anticipated to begin a transformation to a student housing and services center during the ten-year period, but few if any existing buildings will be impacted in the near term. Depending upon housing demand and enrollment trends, this area will be re-examined in the next five-year master plan update cycle for consideration of further change in use. Meanwhile, the physical plant administration should explore opportunities to increase efficiency within the existing compound area and decentralize some functions into service hubs elsewhere on campus.

5.
HOUSING
DATA & ANALYSIS

I. Overview

The Department of Housing and Residence Education (also referred to herein as "the Department") has prepared a Housing Master Plan for the years 2005-2012, updating a previous plan that included a timeframe through 2010. The Housing Element and Data & Analysis Report for the Campus Master Plan borrow heavily from this document. The Housing Master Plan was developed by Department staff and utilizes several guiding principles to give a framework for decision-making.

The Department's mission is to provide well-maintained, community-oriented facilities where residents and staff are empowered to learn, innovate, and succeed. The Department of Housing and Residence Education is a self-supporting auxiliary operation that generates income from student rents and receives no state funding. Therefore, the Department must minimize the time periods that buildings are taken off-line for renovations, and must manage its supply and demand to avoid vacant units. The Department also relies on its unique advantages of amenities, convenience, staffing, security, educational programming and affordability to successfully compete with the private market housing.

On-campus housing has been a part of the University of Florida since the establishment of the Gainesville campus. Currently, on-campus housing is available for approximately 22% of the student population. On-campus housing includes all housing under the University Department of Housing and Residence Education, as well as those fraternity and sorority houses located on University property and/or subject to university rules and regulations through property deed restrictions. Undergraduate student housing is predominantly provided by single student residence halls, fraternities and sororities. Village Communities serve graduate students and family housing for students with dependents.

The Future Land Use Element defines the housing land use classification as follows:

> ***Housing:*** *The Housing land use classification identifies those areas on campus that are appropriate for housing development. Proximity to academic, student services and student recreation facilities are primary location criteria for Housing land use. Allowable uses in Housing areas include residence halls, graduate/family village communities and medical resident complexes. Academic support, student service and student recreation facilities shall be allowed and encouraged within the Housing land use classification on conditions that their size, scope and function are related to and compatible with student housing. Development densities, heights and patterns in the Housing land use shall respect pedestrian connections, historic context (where applicable), adjacencies to other land uses and creation of functional open space while maximizing the efficient use of building footprints to the extent feasible within construction budgets and program requirements. Ancillary uses associated with a housing facility, such as utilities, service drives, user and disabled parking, and functional open space are allowed within the Housing land use classification.*

II. Guiding Principles

A. Environment for Success

Providing an engaging living environment is important to enable residents to succeed in the classroom and to grow and develop as individuals. Building a sense of community within the housing facilities assists with establishing peer support groups among residents. The combination of peer support groups on campus and support from family and friends significantly increases resident adjustment and success rates at college. Staff and student leaders build community by providing opportunities for residents to meet and interact with others. Types of activities include recreational activities such as intramural sports, social activities, cultural activities, and educational activities such as programs on health, wellness, safety and security. The Department promotes an environment for success through these efforts along with roommate matching, enforcement of rules and regulations and responsive facilities maintenance programs. When residents demonstrate pride in their communities, there is less damage to facilities, and residents have the greatest opportunity to reach their personal and educational goals.

B. Residentially-Based Academic Communities

The Department of Housing and Residence Education is committed to integrating the academic community into the residential experience. Residentially-based academic communities include the Honors Residential College at Hume Hall, an academically rigorous program; the Weaver International House, a living/learning center for cultural exchange; the Career Exploration Community at Graham Hall; East Hall Engineering (opening Fall 2005); and the Fine Arts Living Learning Community at Reid Hall (opening Fall 2005). Future residentially-based academic communities will be added through 2012. These communities may include high-technology classrooms, faculty offices, faculty living space, kitchens, multipurpose rooms, academic advising space and support, tutorial programs, small group study programs, or club and organization space. The Department of Housing and Residence Education determines future residentially-based academic communities through assessment of current programs, resident satisfaction, national and international trends and best practices shared through the Association of College and University Housing Officers-International (ACUHO-I).

C. Technologies That Enhance Learning

The Department of Housing and Residence Education has spent $7.2 million over the past several years to provide high-speed Ethernet connection to each resident. Department of Housing and Residence Education staff is currently developing a technological concept plan to upgrade the connection to gig-Ethernet. Throughout the Department of Housing and Residence Education, staff is migrating services to higher technologies to provide students enhanced services in support of learning. Enhanced services include the electronic card access system, online housing application and credit card payment capabilities, online room transfer process, online room sign-up (2006), real-time web page updates, personalized administrative e-mails, optical scanning of records for storage, and computer kiosks with local Internet access in area office lobbies.

D. A Diverse Environment

Society is strengthened from the diversity of people and ideas. It is increasingly important that students are exposed to national and global experiences and perspectives. The Department of Housing and Residence Education is committed to strengthening the relationships among diverse people. Staff is committed to maintaining the diversity of the campus community as a reflection of the UF community and the State of Florida. This is accomplished in part through supporting a diverse and representative population of residents. Village Communities are represented by international students from over 75 different countries who make up 87% of the Village Communities population. Ninety-one percent of these Village Communities residents are graduate students. Of the over 7,500 single students in residence halls, 67% are White, 15% are African American, 10% are Hispanic/Latino, and 6% are Asian American.

E. Educational and Social Programming

The Department of Housing and Residence Education supports the educational mission of the University of Florida. Staff is committed to providing out-of-classroom and classroom-enhancing learning opportunities, leadership training, community-building experiences, and developmental transition assistance. Throughout the year, residents and staff actively develop, facilitate, and coordinate a wide variety of programs in the Village Communities and residence halls. During the academic year 2004-05, staff scheduled over 265 program events for residents and families in the Villages Communities and over 2,900 programs for residence hall occupants. Residence hall educational programs include a variety of topics on health, safety, diversity and personal responsibility including information about recycling, drug/alcohol abuse prevention, and off-campus housing responsibility for students who may be considering a transition out of campus housing. In the Village Communities, offerings include coffee houses, art exhibits and children's programs.

F. Demand for Residence Hall and Village Communities Space

The following policies serve to guide the offer of campus housing to eligible students and the philosophical future direction of the campus housing program:

1. Currently, campus housing is available for approximately 22% of the enrolled Gainesville campus student population. Campus housing includes all residence facilities under the direction of the University of Florida Department of Housing and Residence Education as well as those fraternity and sorority houses administered by the University of Florida Division of Student Affairs. Only full-time students are eligible for campus housing.
2. For four of the last five years, despite ever-changing enrollment figures, the Department of Housing and Residence Education has been able to offer summer and fall housing agreements to all first-year students who requested to live on campus.
3. The demand for campus space in Village Communities (graduate and family housing) fluctuates throughout the year for our 980 apartments. Because of this, we have implemented an on-line and walk-in application process. To be eligible to live in Village Communities, a student must meet specific qualifications.

G. Assessment, Evaluation and Benchmarking

The Department of Housing and Residence Education staff is committed to the continued growth and development of staff and the housing program. Ongoing assessment, evaluation, and benchmarking instruments are administered to staff and residents to determine progress toward intentional goals. Department of Housing and Residence Education staff utilizes data from satisfaction and performance-based research to create or revise programs that provide enhanced service to residents. The Coordinator of Research Programs and Services relays results of assessment, evaluation, and benchmarking instruments to internal and external audiences.

H. Supportive and Friendly Service

The Department of Housing and Residence Education has a strong commitment to providing quality customer service. To meet this commitment, every full time employee has attended customer service training. As new employees are hired, they attend customer service training within 90 days of employment. Customer service training includes information about and expectations related to the mission statement, professional demeanor, and dealing with difficult customers as well as provides information on resident demographics. A variety of ongoing staff programs are coordinated and planned through the Department of Housing and Residence Education Learning and Development Office.

I. Value-Added Facilities to Support Varying Budgets and Lifestyles

The Department of Housing and Residence Education is committed to providing a wide range of facility types and programs to meet the varying needs of residents. In single student housing, these types of rooms are available: singles, doubles, triples, apartments, and suites for 1-5 persons. Special interest housing is available to address the following areas: contractual visitation; co-ed or single gender floors; quiet floors; Honors housing, leadership/ scholarship; wellness; and community service. In Village Communities, these types of apartments are available: efficiencies; furnished and unfurnished apartments; one bedroom apartments; two bedroom apartments; and townhouse apartments. Rooms and apartments are in facilities that range in age from the historic Murphree Area residences (Buckman/Thomas Halls, 1905) through the facilities constructed in the 1950s and 1960s as well as four new facilities constructed in 1991 (Keys Residential Complex), 1995 (Springs Residential Complex), 2000 (Lakeside Residential Complex) and 2002 (Honors Residential College). Rental rates vary in residence halls from the lowest rates in non-air conditioned rooms to standard rooms in air conditioned residence halls to air conditioned apartments or suites in the newest facilities. Rental rates in Village Communities range from efficiencies to townhouse apartments.

J. Leadership Opportunities

Department of Housing and Residence Education staff support and provide numerous opportunities for student leadership development. Through voluntary and paid opportunities, students are better able to develop skills in communication, problem solving, decision making, teamwork, time management, and confrontation. Recent published research has indicated how living on campus is an increased benefit to the student experience through involvement in leadership development.

Volunteer opportunities within the Department of Housing and Residence Education include membership in several organizations such as the Inter-Residence Hall Association, National Residence Hall Honorary, Mayor's Council, National Association for College and University Residence Halls, International Honorary of Leaders in University Apartment Communities, and

area governments and councils. Leadership opportunities within these groups include election or selection as executive board members, hall presidents and Mayor's Council members.

The Department of Housing and Residence Education provides paid leadership opportunities to approximately 400 students. These positions include Graduate Hall Directors, Crisis Intervention Consultants, Resident Assistants, Residential College Advisers, Resident Managers, Desk Assistants, Desk Managers, DHNet Help Assistants, Lifeguards, Furniture Movers, Student Office Assistants, and Security Assistants.

III. Sorority and Fraternity Facilities Management

The Department of Housing and Residence Education has provided facility management consultation to the Greek community for the past few years. In 2004, conversations between Student Affairs, the Dean of Students Office, and the Department of Housing and Residence Education resulted in more involved participation. The Department of Housing and Residence Education entered into an agreement to coordinate the sprinkler installation and renovation of a fraternity. This successful pilot project resulted in savings of thousands of dollars for the fraternity by using Department of Housing and Residence Education staff to coordinate the project.

Summer 2005, the Department of Housing and Residence Education coordinated the sprinkler installation in three sororities. This package approach to sprinkler installation again resulted in tremendous savings for the sororities. These sororities also used the opportunity to have Department of Housing and Residence Education staff coordinate additional extensive renovation of houses beyond the sprinkler installation. Department of Housing and Residence Education staff continues to accommodate these needs into the overall plans for each facility.

In 2005, the University of Florida Foundation, working with the Division of Student Affairs, voted to provide $1.2 million in loans to each of the remaining 14 Greek houses in order to facilitate the installation of sprinklers in the facilities by the end of Summer 2006. The Department of Housing and Residence Education has hired a Building Construction Inspector to coordinate the installation of all the sprinkler projects and associated renovations in Greek houses. This partnership brings immediate resolution to a difficult situation — installing fire sprinklers in Greek houses — while saving thousands of student dollars.

Discussions will continue as to how the Department of Housing and Residence Education can be involved in the facility management of Greek facilities beyond the Summer 2006 completion of sprinkler installations.

IV. Partnerships

The Department of Housing and Residence Education has developed several key partnerships during the past few years and will continue to foster partnerships with other University of Florida academic and support operations. These partnerships maximize the resources of involved units while providing coordinated services or programs to students. The Department of Housing and Residence Education continues to develop partnerships to advance services and programs to students.

A. Accommodated Testing Center in Reid Hall

To support the Dean of Students Office, the Department of Housing and Residence Education leases square footage in Reid Hall and managed the Summer/Fall 2005 renovation of that space to provide for a University of Florida Accommodated Testing Center. This space allows for all University students who need assistance or accommodations for testing to go to a central location in Reid Hall. Currently, these services have no consistent testing facility designed for the accommodated needs of students. The Center provides enough space for all Students with Disabilities staff to be located in the Center.

B. Office of Academic Technology

To support the Office of Academic Technology (AT), the Department of Housing and Residence Education leases space in Broward Hall. In 2005, the former Broward cafeteria was renovated into tutoring, office, and studio space for AT's expansion of services. Additionally, the Department of Housing and Residence Education provides to AT a dedicated television channel on a closed cable TV system. Students watch live, online tutoring, video class replays, and other academic support programming throughout the week.

C. Student Health Care Center Corry Clinic

To support additional health care services for women and children, the Department of Housing and Residence Education provides renovated space in Corry Village for a health care clinic. Students and their children can arrange appointments or walk-in to see health care providers for their needs without traveling across campus to the main Student Health Care Center.

D. University of Florida Police Department

To support the space needs of the University of Florida Police Department (UFPD), the Department of Housing and Residence Education leases renovated space in the Jennings Annex to UFPD. This space supports the records division, the community service division, and victim advocates and includes a large classroom for instructing students and staff on topics related to personal, property, or public safety.

E. Wellness Programs

To support the concept of living well, the Department of Housing and Residence Education provides renovated space in Springs Residential Complex and in Jennings Hall for the Living Well programs. Students may utilize the services provided for stress reduction, time management, and other consulting services. The staff are provided by the Student Health Care Center as part of the campus-wide GatorWell program.

V. Off-Campus Housing Markets

The Department of Housing and Residence Education possesses a very intentional occupancy management plan. Residence hall facilities and Village Communities must be at 100% occupancy to fully realize the budget and to maximize space utilization. As enrollment of graduate students increases, Department of Housing and Residence Education staff must analyze the long term impact and plan for new construction. Residence Halls and Village Communities are constructed to be viable facilities for many years versus solutions to short-term enrollment spikes.

Over the past 14 years, the Department of Housing and Residence Education has razed 700 beds while constructing four additional residential complexes that added a net increase of 2,031 beds to the system. Fall opening occupancy has continued to average 102–103%.

In 2000, 4,200 beds were under construction or planned for the private off-campus Gainesville market. During the preceding seven years, approximately 7,000 beds were added to the off-campus Gainesville market. In recent years, a few hundred condominiums have been constructed in the Gainesville urbanized area targeting the student market. Within the University of Florida Context Area alone, 705 multi-family residential units were permitted by the City of Gainesville during the City's fiscal years 2003 and 2004. The location of these developments is depicted on a map at the end of this report.

Multi-family Residential Permits in the UF Context Area, City of Gainesville FY2003 & 2004

Project Name	Location	Number of Units	Type of Units
10th Street Historic Apartments	608 SW 10th St	12	Apartment
Archer Lane Apartments	3047 SW Archer Rd	8	Apartment
Archer Road Condominiums	2373 SW Archer Rd	40	Condominiums
Arlington Square Apartments	212 NW 1st St	28	Apartment
Bivens Forest condominiums	1400 SW 25th Pl	12	Condominiums
Campus View II Apartments	975 SW 13th St	25	Apartment
Charleston Place Condominiums	1600 Block NW 23rd Ave	36	Condominiums
Eagles Landing Apartments	1400 Block SW 25th Pl	8	Apartment
Estates at Sorority Row	811 SW 11th St	24	Apartment
Garland Condominiums	1000 Block NW 21st Ave	37	Condominiums
Lofts Oasis	2595 SW 35th Pl	39	Apartment
Mallorca Apartments	528 NW 39th Rd	26	Apartment
Mallorca II Apartments	514 NW 39th Rd	12	Apartment
Oaks Apartments	6519 W Newberry Rd	48	Apartment
Oxford Terrace I Apartments	835 SW 9th St	36	Apartment
Oxford Terrace II Apartments	921 SW Depot Ave	48	Apartment
Palm Villas Apartments	4203 SW 31st Dr	6	Apartment
Southwood Apartments	3900 Block SW 26th Ter	16	Apartment
St Charles Apartments	1418 NW 3rd Ave	16	Apartment
Taylor Square Apartments	621 SW 10th St	23	Apartment
Visions Apartments	1018 SW 8th Ave	7	Apartment
Arnold Apts	1125 SW 5th Ave	6	Muti-Family
Hampton Oaks	122 to 140 SW 62nd St	162	Muti-Family
Heritage Oaks	117-223 NW 12th Ter	16	Muti-Family
Phoenix Phase II	3214 SW 24th Way	6	Muti-Family
Serenola Manor #2	3702 SW 28th Ter	4	Muti-Family
Serenola Manor #2	3512 SW 28th Ter	4	Muti-Family
Total		**705**	

The off-campus Gainesville high-density student market is now overbuilt, with most complexes running at 75–80% occupancy. In recent years, even complexes that historically have been at 100% occupancy are running in the 90% range. The off-campus market builds in response to UF

enrollment spikes and provides many challenges including rent "wars" and increased offerings of amenities. Off-campus rental rates have plunged; no security deposit programs have been introduced; and free amenities such as televisions, microwaves, and free rent have been initiated as enticements to attract students.

Department of Housing and Residence Education staff has responded by aggressively marketing campus housing, particularly in the summer when there are fewer students in the Gainesville market. The Department of Housing and Residence Education continues to provide many amenities that the off-campus market is not able or willing to provide. Campus housing benefits and amenities continue to attract students seeking the collegiate experience when they arrive at the University of Florida.

VI. Facility Needs Analysis

A. Occupancy Management

Nearly 70% of fall residence hall spaces are reserved for first-time enrolled UF students, typically freshmen who begin classes during Summer B Term or Fall Semester. The housing "lottery" system, which has been in existence since 1976, consistently assures that only 30% of fall semester residents are continuing students. Continuing students are residents who lived on campus the spring semester prior to the beginning of a new academic year and typically represent students who are sophomore, junior, senior and graduate students.

Although the demand for campus housing from continuing students exceeded the designated allotment of spaces during the lottery's early years, the demand has only slightly exceeded the allotment for the past several years. Based in part on enrollment trends and the likelihood of a continued glut of available off-campus housing options, Department of Housing and Residence Education staff expects the demand for campus housing from continuing students to remain relatively stable for the next several years. Within the next few years, new technologies will make the process of securing campus housing seamless.

With these occupancy management strategies in place, the University has been able increase the percentage of all freshmen housed on campus and to accommodate all of the housing demand for first-time enrolled freshmen in recent years. As a percent of all on-campus housing residents, freshmen represented 72.9% of all residents in Fall 2004 compared to 63.4% of all residents in Fall 2000. In the fall of 2002, 90% of first-time enrolled freshmen were housed on campus. In the fall of 2003, 80% of first-time enrolled freshmen desired to live in on-campus housing, and for the second year in a row all of these requests were accommodated. This phenomenon continued in the fall of 2004 when, again, all first-time enrolled freshmen that requested on-campus housing were accommodated.

The following table displays the classification of students living in housing for single students (i.e. Residence Halls) and family/graduate students (i.e. Village Communities). Over the past four years, the occupancy management strategies have resulted in notable increases in lower division students living in single student housing and in graduate students living in graduate housing.

On-Campus Housing Residents by Student Classification, 2000-2004

Student Classification	2000	2001	2002	2003	2004
Students in Single Student Housing					
Freshmen	63.4%	66.4%	71.0%	71.5%	72.9%
Sophomore	19.7%	18.1%	15.1%	16.6%	16.0%
Junior	9.8%	9.1%	8.5%	7.3%	7.1%
Senior	6.5%	6.1%	5.0%	4.3%	3.8%
Graduate	6.0%	3.0%	4.0%	2.0%	1.0%
Students in Family and Graduate Student Housing					
Undergraduate	11.9%	9.7%	8.3%	6.6%	7.4%
Graduate	87.6%	89.7%	90.9%	92.2%	91.2%
Post Baccalaureate	2.0%	3.0%	2.2%	4.4%	1.0%

Fall Semester. The challenge for future fall semesters is to optimize the allotment of fall campus housing spaces in residence halls reserved for first-time enrolled UF students. In order to reach this optimization, the Department of Housing and Residence Education is only part the enrollment management equation wherein admission and housing yields are inexorably co-dependent.

Only with direct and frequent conversations with other agencies involved in enrollment management will the Department of Housing and Residence Education staff be able to optimize future new student bed space. With the previous rolling admission system, comparability to previous fall semesters was a necessary and reliable tool. Until a few years ago, Department of Housing and Residence Education staff and Admissions Office staff were able to leverage the enrollment/housing patterns by relatively undisturbed longitudinal data. The Department of Housing and Residence Education is no longer in that position. Admissions policies and procedures continue to be revised and modified. Housing staff continue to enhance collaborative efforts with staff from Admissions, the Honors Program, and Dean of Students Office as well as AIM Committee members and University Athletic Association Staff.

Spring Semester. The occupancy/enrollment management challenges for spring semester are different than for fall semester. For spring semester, staff continues to give first priority for available spaces to freshmen and transfer students. Offers of housing are made to virtually all applicants for spring who apply to and are admitted to UF in a timely manner.

On average, 200–400 beds are turned over between fall and spring semesters. The spring waiting list is necessary to allow enough time for final admission decisions for new admit students; to process spring cancellations for eligible continuing residents; and to offer priority assignments for continuing residents returning to campus housing from internships or other similar academic experiences.

Summer Terms. In the summer, typically one-third of the residence hall facilities are available for student housing, one-third are available for conference housing, and one-third are closed for major renovations or because they are not air conditioned. Historically, between 600 and 700 students are housed on campus during Summer A. Most Summer A residents are continuing students; less than 20 percent represent new admit freshmen or transfer students. Adequate spaces exist during Summer A to meet the student and conference housing demand.

Through Summer B 2005, the Department of Housing and Residence Education was able to accommodate all requests for Summer B housing. Typically, between 2,500 and 3,000 students are housed in residence halls during Summer B.

Village Communities. Ongoing waiting lists for Village Communities apartments have existed for over two decades. The fall semester waiting list is usually longer than the spring or summer waiting lists. The single graduate student waiting list is typically longer than the family waiting list.

Prior to 1997, Schucht Village was designated solely for single graduate students. Schucht Village was closed to students and the property was transferred to Shands. The loss of Schucht Village and a decline in the number of families applying for Village Communities drove the decision to make single graduate students eligible for one bedroom and efficiency apartments in all villages instead of limiting assignment to Schucht Village. Since this assignment policy change, the single graduate student demand has steadily increased.

Graduate enrollment is expected to continue to increase for the next few years. Much of the additional housing demand for graduate students may be satisfied by the off-campus market which is overbuilt at this time with more new construction planned. Additionally, the projected decline in non-degree seeking students and post-baccalaureate students should in part compensate for the growth in graduate enrollment when percentage comparisons are made between UF total enrollment and the number of campus residents. In response to these factors, the Department of Housing and Residence Education has initiated a facility assessment of Corry Village in order to decide the best approach to add additional apartment units.

B. Existing Facility Inventory

Supply and Demand. The housing supply on campus increased by 337 units from 1994 to 1999, and another 483 units between 1999 and 2004 for a total of 820 new units in ten years. These increases were the result of new construction and renovations that increased space efficiency. During this period, increases in on-campus headcount enrollment resulted in a decrease in the percent of students housed on campus. While the on-campus housing supply grew by 9% between 1994 and 2004, the on-campus headcount enrollment grew by 29%. However, the appropriate housing supply for university students is dependent upon other trends within the enrollment demographics. Graduate and professional students are generally less likely to seek on-campus housing. Among these students, international and other cost-conscious students find on-campus housing to be a critical affordable housing alternative. Other graduate and professional students prefer off-campus housing due to considerations of spouse, children or other preferences. Unclassified students, primarily consisting of non-degree students such as employees and post-baccalaureate students are not typically candidates for on-campus housing. In 2004, there were 1,465 unclassified students who fit this profile. In the undergraduate student ranks, first-time enrolled freshmen receive highest priority for housing and have been accommodated in recent years without waiting lists. As students matriculate to upper division classes, they are also less likely to seek on-campus housing. The Department of Housing and Residence Education generally assumes that 10.5% of the total university enrollment includes students who are not targets for on-campus housing. The plentiful supply of off-campus student housing in the Gainesville area is a significant influence in the demand for on-campus housing that must be considered so that the university does not overbuild for its own demand.

Housing Capacity and Main Campus Headcount Enrollment, 1994-2004

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Capacity of UF Housing	9,208	9,616	9,677	9,562	9,560	9,545	9,405	9,386	10,023	10,030	10,028
Headcount Enrollment -- Main Campus	34,927	35,756	36,134	37,637	38,882	39,742	43,511	44,079	44,894	45,210	45,126
Percent of Main Campus Students Housed at Full Capacity	26%	27%	27%	25%	25%	24%	22%	21%	22%	22%	22%

NOTE: In 2004, part of Murphree Hall was closed for renovations, but that is not reflected in this inventory since it was a temporary condition.

Occupancy and Capacity of Campus Housing, Fall Semesters, 1994-2004

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Occupancy of Conventional Residence Halls											
Women	3,564	3,725	3,798	3,982	3,988	3,928	3,882	3,708	4,202	4,310	4,055
Men	2,978	3,104	2,995	2,914	2,924	2,977	2,971	3,028	3,224	3,140	3,192
Subtotal	**6,542**	**6,829**	**6,793**	**6,896**	**6,912**	**6,905**	**6,853**	**6,736**	**7,426**	**7,450**	**7,247**
Expanded Capacity of Conventional Residence Halls (equals standard capacity plus temporary triples)											
	6,635	**7,006**	**6,973**	**6,962**	**6,960**	**6,945**	**6,805**	**6,864**	**7,551**	**7,558**	**7,346**
Occupancy of Graduate and Family Housing											
Students	1,167	1,227	1,227	1,227	1,227	1,071	1,094	1,041	905	909	955
Spouses/ Children	1,346	1,346	1,346	1,346	1,346	1,184	1,000	739	852	856	855
Subtotal	**2,513**	**2,573**	**2,573**	**2,573**	**2,573**	**2,255**	**2,094**	**1,780**	**1,757**	**1,765**	**1,810**
Graduate and Family Housing Units											
	1,052	**1,084**	**1,084**	**980**	**980**	**980**	**980**	**980**	**980**	**980**	**980**
Capacity of Non-Greek UF Housing (equals expanded capacity of residence halls plus grad/family housing units)											
	7,687	**8,090**	**8,057**	**7,942**	**7,940**	**7,925**	**7,785**	**7,844**	**8,531**	**8,538**	**8,326**
Greek UF Housing											
Sorority Capacity	733	733	740	740	740	740	740	692	692	692	720
Fraternity Capacity	788	793	880	880	880	880	880	850	800	800	770
Capacity of Greek UF Housing											
	1,521	**1,526**	**1,620**	**1,620**	**1,620**	**1,620**	**1,620**	**1,542**	**1,492**	**1,492**	**1,490**

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Capacity of UF Housing											
	9,208	**9,616**	**9,677**	**9,562**	**9,560**	**9,545**	**9,405**	**9,386**	**10,023**	**10,030**	**9,816**
Total Headcount Enrollment											
	39,024	**39,951**	**40,373**	**42,053**	**43,444**	**44,405**	**46,107**	**46,798**	**48,184**	**48,763**	**48,765**
Headcount Enrollment on Main Campus											
	34,927	**35,756**	**36,134**	**37,637**	**38,882**	**39,742**	**43,511**	**44,079**	**44,894**	**45,210**	**45,126**
Percent of Main Campus Students Housed at Full Capacity											
	26%	**27%**	**27%**	**25%**	**25%**	**24%**	**22%**	**21%**	**22%**	**22%**	**22%**

NOTE: In 1995, the Springs Residential Complex came on line. By 1997, most of Schucht Village was razed with one building reassigned to Shands. In 2000, part of old Hume was open as Lakeside Residential Complex came on line. Then old Hume was razed late fall. In 2002, the Honors Residential College at Hume Hall came on line. In 2004, part of Murphree Hall was closed for renovations.

Occupancy and Capacity of Campus Housing, Fall Semesters, 1994-2004

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Undergraduate Enrollment	27,305	28,457	28,887	30,318	30,839	31,124	32,260	32,644	33,348	33,742	33,418
Expanded Capacity of Conventional Residence Halls	6,635	7,006	6,973	6,962	6,960	6,945	6,805	6,864	7,551	7,558	7,558
Greek UF Housing	1,521	1,526	1,620	1,620	1,620	1,620	1,620	1,542	1,492	1,492	1,490
Capacity of Undergraduate Housing	8,156	8,532	8,593	8,582	8,580	8,565	8,425	8,406	9,043	9,050	9,048
Percent of Undergraduate Students Housed at Full Capacity	30%	30%	30%	28%	28%	28%	26%	26%	27%	27%	27%
Graduate Enrollment	9,303	9,113	9,251	9,614	10,410	11,216	11,953	12,348	12,902	13,482	13,882
Student Occupancy of Graduate and Family Housing	1,167	1,227	1,227	1,227	1,227	1,071	1,094	1,041	905	909	955
Percent of Graduate Students Housed	13%	13%	13%	13%	12%	10%	9%	8%	7%	7%	7%

Peer Institutions. Data was collected on the percentage of main campus enrollment housed on-campus at several peer institutions, including those that have ranked higher than the University of Florida in the list of top seventeen public universities. Several universities were also chosen for comparison because of their similarly large enrollment. In this analysis, the University of Florida was found to be firmly in the middle of the listing in terms of the percentage of students housed on

campus. Several of the universities with higher on-campus housing percentages had significantly lower total enrollment than UF. Parameters for campus housing vary widely from one institution to another including variations in the inclusion/exclusion of Greek housing or the presence of graduate and family housing in the campus housing inventory. Each university is also uniquely positioned in relation to the local off-campus housing market in terms of housing supply and cost. These factors greatly influence the quantity and type of on-campus housing stock appropriate to each university.

Percentage of Students Housed On-Campus at Peer Institutions

Institution Name	Main Campus Headcount Enrollment	Number of Students Housed On Campus	Percent of Students Housed On Campus
Michigan State University	44,836	17,300	39%
University of California at Irvine	24,919	9,500	38%
Georgia Institute of Technology	17,115	6,500	38%
University of California at San Diego	24,455	8,598	35%
University of Virginia	19,529	6,633	34%
Penn State University	41,289	13,959	34%
University of California at Santa Barbara	19,799	6,300	32%
University of Michigan at Ann Arbor	39,533	12,562	32%
University of Illinois at Urbana-Champaign	40,360	12,765	32%
University of North Carolina at Chapel Hill	26,800	7,700	29%
University of Georgia	33,405	7,501	22%
University of Florida	**45,126**	**10,028**	**22%**
University of Wisconsin at Madison	41,169	8,950	22%
University of California at Davis	30,065	6,107	20%
University of Arizona	36,932	6,123	17%
Florida State University	38,000	5,900	16%
University of Texas at Austin*	47,444	7,177	15%
University of Washington	39,199	5,553	14%

NOTE: University of Texas at Austin reported 6,500 undergraduate students housed on campus and 677 graduate student apartment units available. The actual number of students housed on campus may be higher than reported due to married students sharing one graduate student unit. Caution should be used when comparing any of these figures since enrollment and housing data are uniquely reported by each institution. Every attempt was made to ensure comparable data reporting, but that cannot be guaranteed.

Campus Housing Density. An analysis was conducted on the density of housing units for on-campus residential complexes. The site acreage was estimated based on the building footprints and associated service areas, immediate parking and landscaped areas. The analysis measured both dwelling units per acre and occupants per acre.

Clearly, residence halls provide the most housing capacity per site or building footprint because the complexes tend to be more compact and the dwelling units tend to be smaller with two or three occupants per unit. The residence halls average over 88 dwelling units per acre while the Village Communities average 18 dwelling units per acre. Occupancy in residence halls is typically two persons per dwelling unit. Newer residence halls, such as Lakeside and Keys, are constructed at a much lower density than residence halls built through the 1960's.
Occupancy in Village Communities fluctuates with variations in the number of dependents living in family housing; however, the Village Communities average 1.7 persons per dwelling unit and 580 gross square feet per person including common areas and ingress/egress. These communities are built at lower densities than residence halls and average 18 dwelling units per acre. This is due, in part, to the additional on-site amenities such as proximate parking and playgrounds that are typical in family housing. Graduate and family housing also require a very different floor plan than undergraduate housing, and are similar to typical off-campus apartments. The university has not built any new Village Communities since the early 1970's, but there are opportunities to increase the density of these complexes through future reconstruction and new development projects.

Density of Development for On-Campus Housing, 2004

Residence Hall	Year Built	Site Acreage	Dwelling Units per Acre	Occupants per Acre
Beaty Towers	1967	1.32	151.52	596.21
Broward	1954	2.03	160.10	339.90
Buckman, Fletcher, Sledd, Thomas	1905-1939	3.51	107.69	184.90
East, North, Riker/South, Tolbert, Weaver	1950-1961	5.4	96.30	184.44
Graham	1961	1.46	71.92	149.32
Hume	2002	4.25	42.12	143.06
Jennings	1961	3.31	74.92	157.10
Keys	1991	5.7	18.77	73.51
Lakeside	2000	7.32	18.44	72.13
Mallory, Reid, Yulee	1950	2.68	101.49	194.03
Murphree	1939	1.69	101.18	209.47
Rawlings	1958	1.27	138.58	286.61
Simpson, Trusler	1961	1.88	113.30	230.32
Springs	1995	4.14	35.99	114.98
Average - Residence Halls		**3.28**	**88.02**	**209.71**

Residence Hall	Year Built	Site Acreage	Dwelling Units per Acre	Occupants per Acre
Village Communities				
Corry	1958	11.21	19.27	33.33
Diamond	1965	10.71	19.42	33.60
Maguire	1971	16.18	13.60	23.52
University	1972	6.27	20.41	35.32
Tanglewood	1973	13.04	15.95	27.60
Average – Village Communities		**11.482**	**17.73**	**30.67**

NOTE: Some complexes were combined for this analysis. For example, Mallory, Reid and Yulee halls were analyzed and mapped as one complex.

C. Facility Needs Inventory

New Capacity. Looking ahead to the year 2015, the university anticipates an on-campus headcount enrollment of 49,500 students. The university would need to construct 835 new housing units in the next ten years to maintain the current 22% of on-campus headcount enrollment in campus housing. To raise the percentage of students housed on campus would require significantly more housing construction than anticipated or than will likely be supported by demand. As a function of percentages, an increase of 1% would require nearly doubling of the level of construction in the ten-year period. An increase of 2% in students housed on campus would require nearly three times the anticipated construction effort necessary to maintain existing housing occupancy.

Projected Housing Need at Variable Percentage of Headcount Enrollment, 2005-2015

	Actual		Anticipated Construction at 22%		10-YR New Units*	Projected Need at 23%		10-Yr New Units*	Projected Need at 25%		10-YR New Units*
	2000	2004	2008	2015	2005-2015	2008	2015	2005-2015	2008	2015	2005-2015
Capacity of UF Housing	9,405	10,028	10,263	10,863		10,741	11,385		11,675	12,375	
New Units		623	235	600	835	713	644	1,357	1,647	700	2,347
Headcount Enrollment - Main Campus	43,511	45,126	46,700	49,500		46,700	49,500		46,700	49,500	
Percent of Students Housed at Full Capacity	22%	22%	22%	22%		23%	23%		25%	25%	

Note: Housing units as used herein identify the capacity of student housing. For graduate and family housing this may be one or two students per unit. For undergraduate housing, this would be two beds per unit plus temporary triples.

Increased housing capacity between 2005 and 2008 is anticipated to result from modifications at Corry Village, a reconstruction of the Delta Delta Delta Sorority House and modifications to

other Greek houses on campus. Corry Village is slated to undergo an evaluation to determine the best approach for adding 200 new units, either through renovations and additions or a complete raze and reconstruct scenario. From 2008 to 2015, housing capacity increases will result from construction of graduate family housing on Radio Road and other changes to Greek housing. The 2005-2015 Future Land Use and Future Building Sites maps identify locations for a new Greek house, additional graduate and family housing villages, and new undergraduate residence halls that can be constructed as justified by demand. The maps also suggest a future change of land use at the site of the existing Diamond Village, which is anticipated to be displaced by future academic/research facilities and relocated to the west side of campus. The relocation of Diamond Village is not anticipated in the next ten years, but the campus master plan recognizes the need to begin planning for this change. These identified future housing sites will give the Department of Housing and Residence Education flexibility to respond to changing enrollment, student demographics, and off-campus housing supply. In general, campus housing projects will strive to improve the efficiency of land use by increasing the density of housing units in new construction and through projects such as modifications to Corry Village and relocation/reconstruction of Diamond Village.

Locations for future housing are identified on the map depicting Future Building Sites by Future Land Use, Figure 2-2 of the Future Land Use Element. These locations identify infill opportunities for undergraduate housing adjacent to existing residence halls, and envision higher density developments comparable to that of the 1950's and early 1960's residential construction. Locations for future graduate and family housing projects identify opportunities for new Village Communities in proximity to existing Village Communities, student recreation, and future student support services along Radio Road that begin to define a significant neighborhood of graduate family living.

Upgrades and Renovations. The Department of Housing and Residence Education maintains 43 residence halls with 1,829,459 square feet of space housing 7,552 single students; 25 administrative buildings with 158,430 square feet; and 87 buildings in Village Communities with 980 apartments and 842,120 square feet of space housing 1,810 residents. The oldest residential facilities are Buckman and Thomas Halls built in 1905; the newest facility is the Honors Residential College at Hume Hall built in 2002. The average age of facilities is 48.6 years. It is an ongoing challenge to plan the routine and deferred maintenance for these facilities, including planning for capital projects. Capital projects are major renovation projects beyond the scope of routine or deferred maintenance projects.

Department of Housing and Residence Education staff has identified high priority capital projects that provide increased safety for residents and appropriate facilities for students today and in the future. These projects include fire sprinkler installations, increased shower drains, bathroom renovations, basic upgrades, code compliance changes, and other enhancements related to amenities to remain competitive with the off-campus market. While these are the high priority capital projects for housing facilities, this is not a comprehensive list of all maintenance and deferred maintenance needs for all the buildings within the Department of Housing and Residence Education purview.

- **Fire Sprinkler and Alarm Systems.** These projects address the need to provide fire sprinklers in single student residence halls. In conjunction with sprinkler installations, fire alarm system upgrades are planned to support the sprinkler controls as well as to provide for the replacement of aging components.

- **Electrical Support for Sprinkler Installations.** Some electrical services and

distribution systems will require improvement in order to support the installation of fire sprinkler pumps and rooftop air handling units. These projects also are incorporated into other projects due to engineering standards reflecting "life expectancy" analysis.

- **Flooring Removal and Replacement.** These projects represent opportunities to address facility upgrades in coordination with other capital projects. These projects are high visibility to residents.

- **Bathroom Renovations.** Bathroom renovation projects include the complete demolition of walls, floors, ceilings, piping and ventilation equipment. The plumbing consists of increasing shower drains, replacing domestic water lines, replacing sanitary waste lines as well as all plumbing fixtures, doors and partitions. These projects are of high visibility to residents.

- **Domestic Water Line Replacement.** Over the years, existing domestic water mains currently feeding the buildings have become filled with mineral deposits to the extent that the water supplies are becoming insufficient for needs. Water pressure and flow is decreased. Decreased water pressure and flow from mineral deposits plus, the continued construction of new buildings tapping existing water mains, have reduced the overall water pressure to the extent that in some instances, flush valves will not function. These projects replace water mains.

- **Window Removal and Replacement.** Currently the windows in residence facilities are casement style with single pane glass and little or no weather stripping. This replacement project will provide new, single hung, aluminum frame windows with energy efficient insulated glass. The windows are designed to provide secondary means of egress in compliance with NFPA Life Safety Codes.

VII. 2000-2010 Campus Master Plan Evaluation and Appraisal

Most policies of the Housing Element for the Campus Master Plan, 2000-2010, relate to the University's ongoing monitoring, maintenance and expansion of campus housing. During the period 2000-2004, the University increased on-campus housing by 623 units. However, the housing expansion was not able to meet the intent of Policy 1.1 to increase the percentage of students housed on campus from 22% to 25%. The University was able to maintain this percentage at 22% while main campus headcount enrollment grew by almost 4%. In recent years, the University has found that this 22% target seems to be the point at which supply and demand are at equilibrium and the university experiences neither long waiting lists nor high vacancies.

The location of new housing during this period was consistent with Policy 2.1, which recommends proximity to academic areas. In fact, the Department of Housing and Residence Education has successfully initiated a number of programs that bring academic activities into the housing complexes. This Department has also been diligent in conducting annual occupancy reviews, maintenance management and ongoing expansion of student programs within campus housing. The Department has prepared an updated its own Housing Master Plan that includes occupancy management, funding and business plan components.

Policies included under Objective 3.0 addressed housing occupancy management, which has been successful as demonstrated by the increase of first-time enrolled students in Residence Halls and the increase of family and graduate students in the Village Complexes.

All housing construction projects are reviewed by the Facilities Planning and Land Use Committee, Preservation of Historic Buildings and Sites Committee, Transportation and Parking Committee, and Lakes, Vegetation and Landscaping Committee as well as the Physical Plant Division and the Environmental Health and Safety Office. In this way, polices related to facility design, ADA-accessibility and historic preservation are ensured. At least one significant upgrade of a historic residence hall was accomplished during this period in collaboration with the State Division of Historical Resources.

Goal 2 of the Housing Element, addressed the need for collaboration between the University, City of Gainesville, Alachua County and single-family residential areas near campus. During 2002, the University formed a Town-Gown Task Force with diverse representation to examine measures that could be taken to preserve the single-family residential neighborhoods in the University Context Area. A number of initiatives have been implemented from these recommendations, and implementation and monitoring are ongoing. Additionally, the University has participated in discussions of the Community Redevelopment Agency's College Park/University Heights Advisory Board and the City's Economic Development and University/College Committee related to housing and development near the University.

6.
RECREATION AND OPEN SPACE
DATA & ANALYSIS

I. Overview

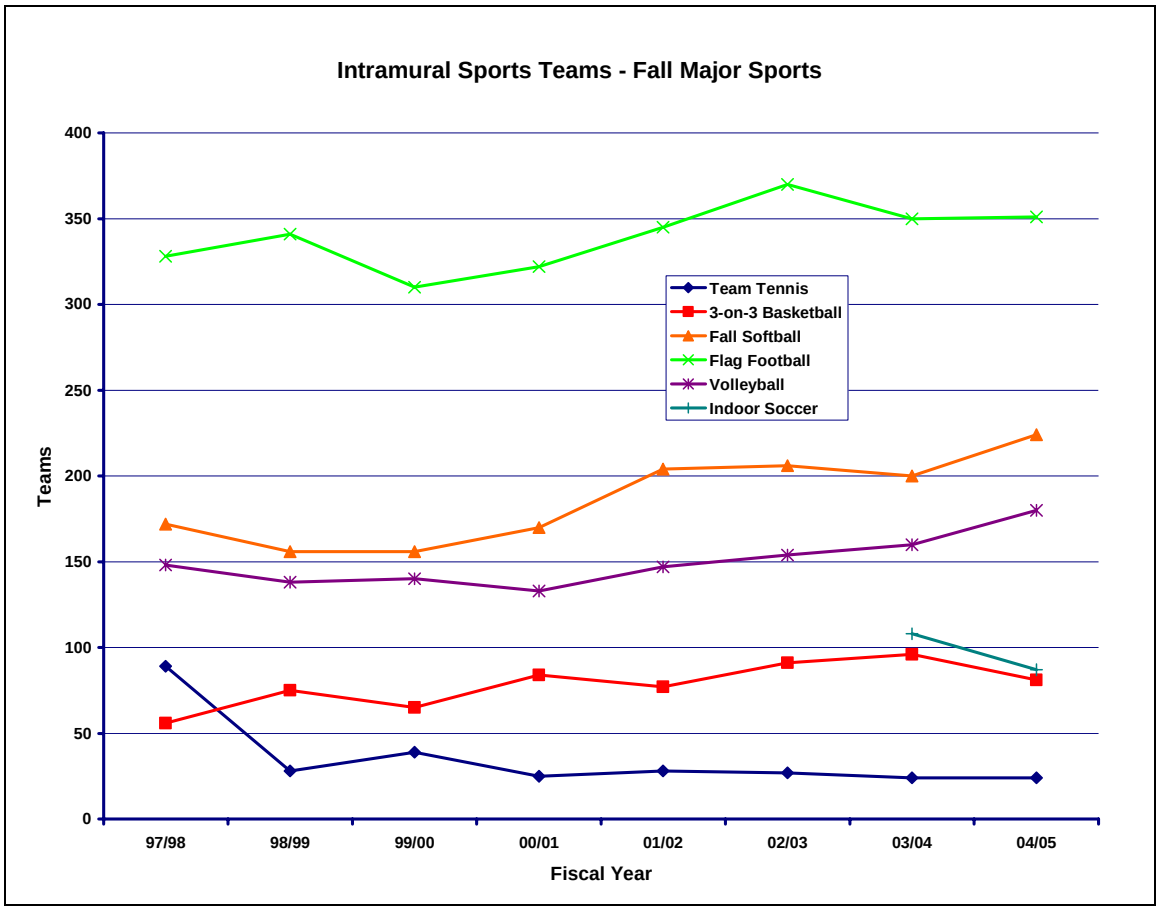
A. Department of Recreational Sports

The Department of Recreational Sports is a department of the Division of Student Affairs. Their mission is to provide an extensive array of leisure and recreational opportunities for students, faculty and staff. Emphasis is placed on providing a safe environment while enhancing quality of life through activities that promote sportsmanship, leadership opportunities and the development of a life-long pattern of recreational activity. By providing opportunities through structured activities for leadership, socialization, self-actualization and enjoyment, the Department contributes to the educational mission of the University and strives to enhance the quality of life for each student. In this contribution, the department also coordinates closely with the College of Health and Human Performance to provide use of facilities for teaching purposes and to provide employment, internships and other work experience to students seeking careers in sports and leisure activities. The Department of Recreational Sports is overseen by a Board of Directors consisting of students, faculty and staff.

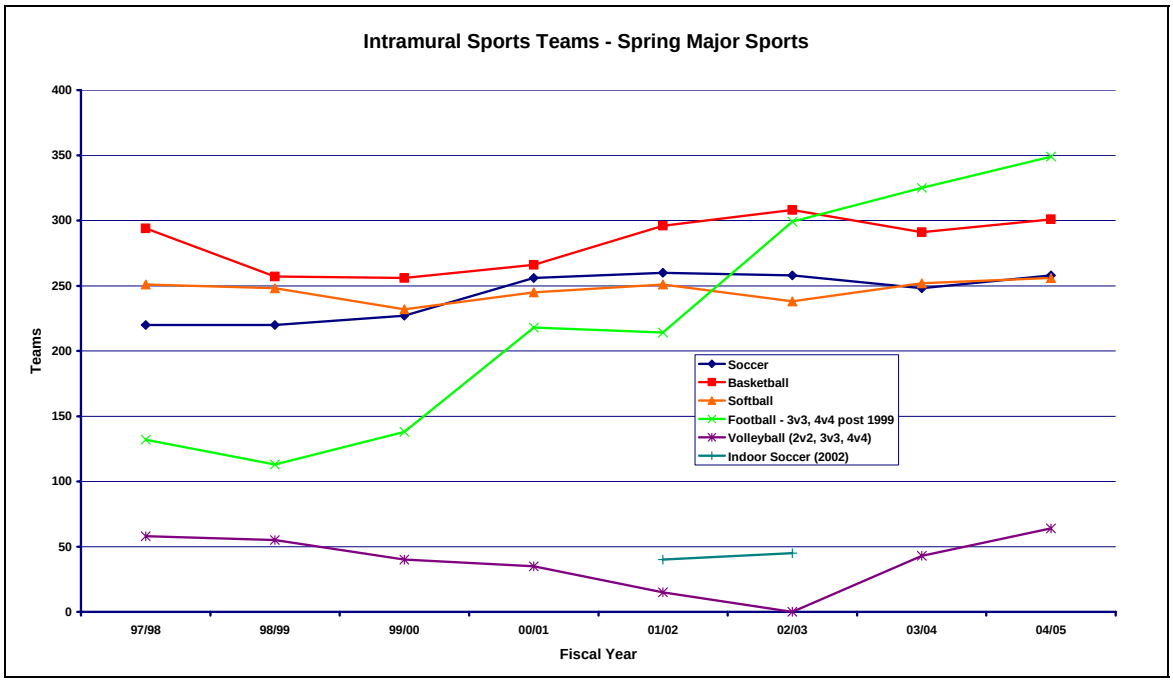
The Department of Recreational Sports operates approximately 143,000 gross square feet of indoor recreation facilities including seven basketball courts, one indoor soccer court, and fourteen racquetball courts plus eight athletic fields, seven outdoor lighted basketball courts, eleven volleyball courts, thirty-two lighted tennis courts, a softball complex with four fields, four outdoor racquetball courts, one roller hockey court, an archery range, a skateboard park, ropes course, climbing wall, and two waterfront parks. These facilities are available for casual use and also to the hundreds of intramural and club sports that the Department manages. In addition, two swimming pools (one outdoor and one indoor) are jointly managed for shared use among the Department of Recreational Sports, O'Connell Center and College of Health and Human Performance. The Florida Gym, Florida Pool and O'Connell Center swimming pool and weight rooms are used for both recreation and teaching. Funding for construction of recreation facilities comes from tuition fees that are released through the Capital Improvement Trust Fund. Recreation programs and facility operation and maintenance are funded through a variety of sources including student Activity and Services fees as well as other user fees. Management responsibilities for various recreational resources are depicted in a map at the end of this report.

Program participation and facility use continues to grow on the university campus as new facilities are provided and enrollment increases. The following tables depict the magnitude and continued growth of offerings from the Department of Recreational Sports. (Data Source: Department of Recreational Sports)

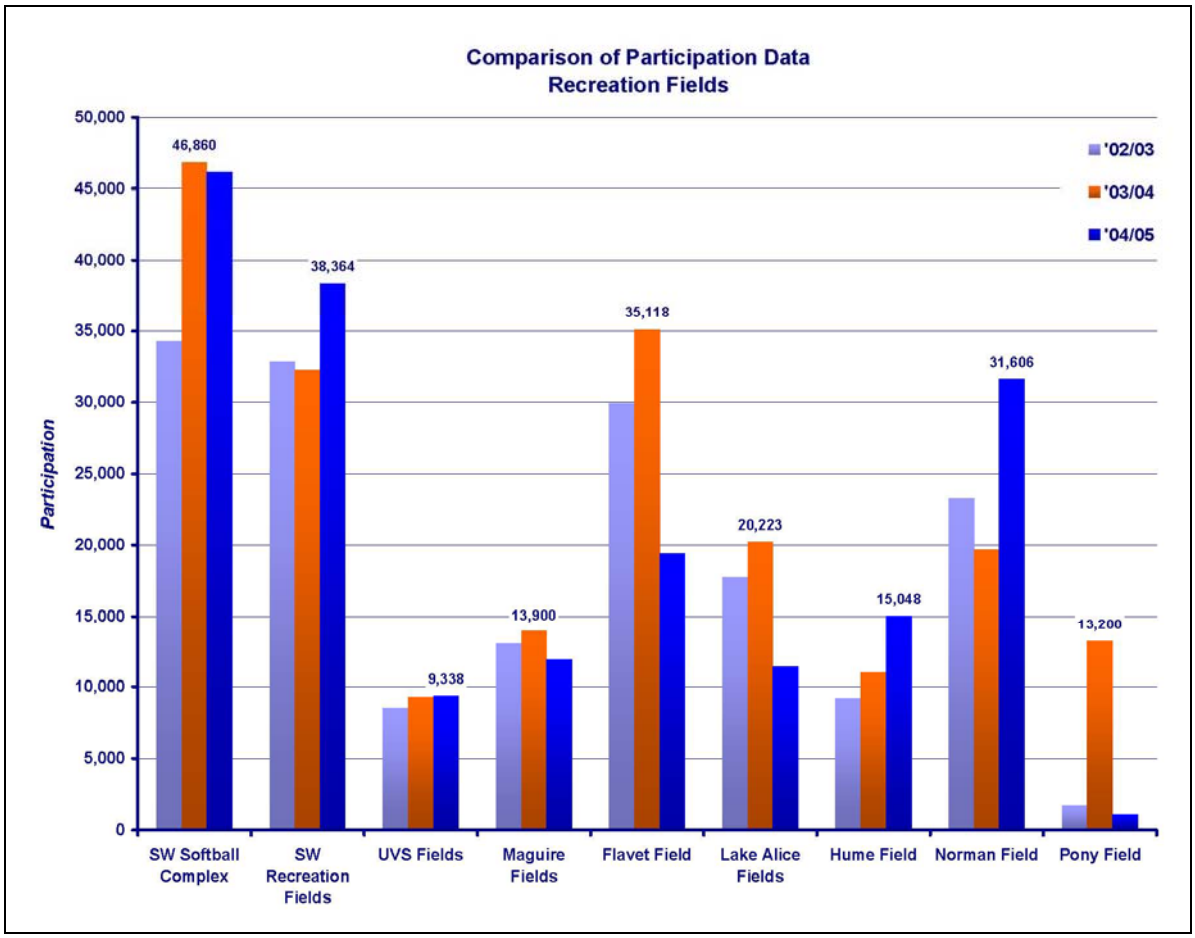
Number of Intramural Fall Sports Teams at UF, 1997-2004



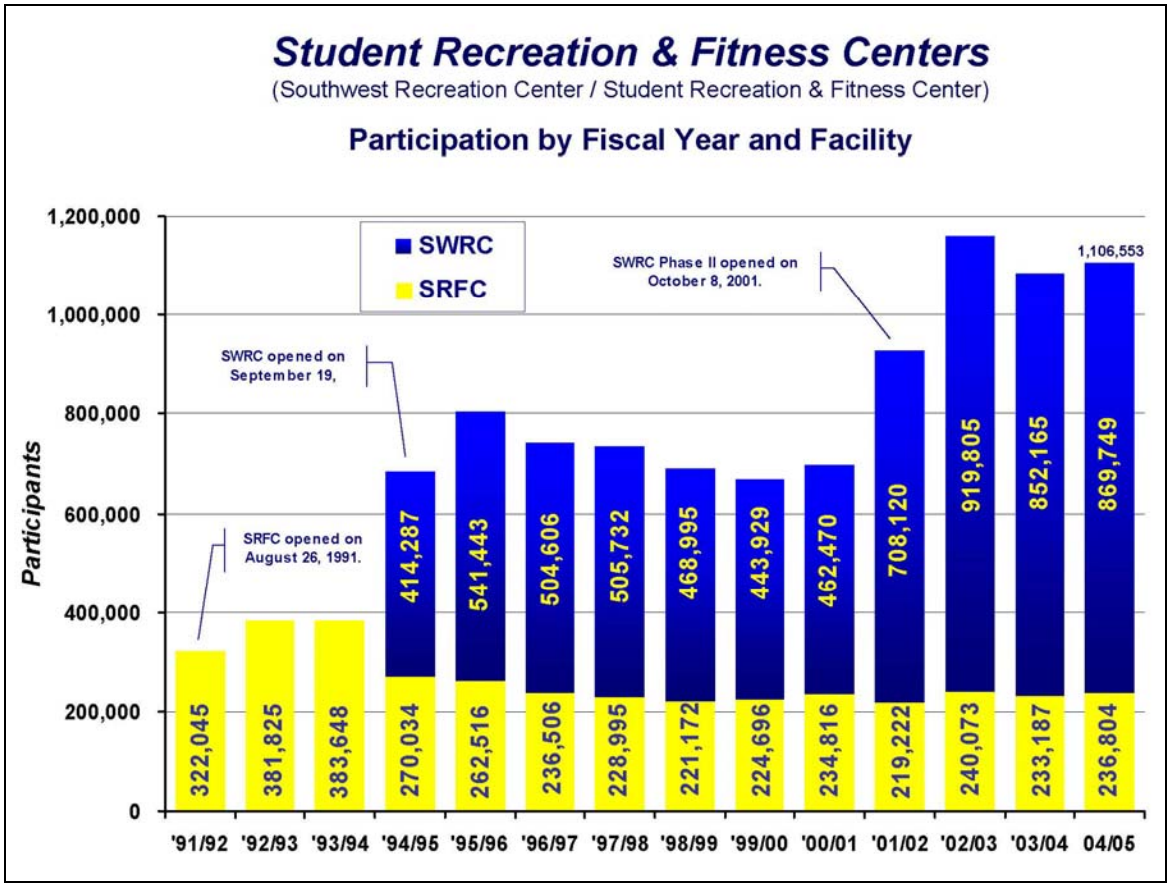
Number of Intramural Spring Sports Teams at UF, 1998-2005



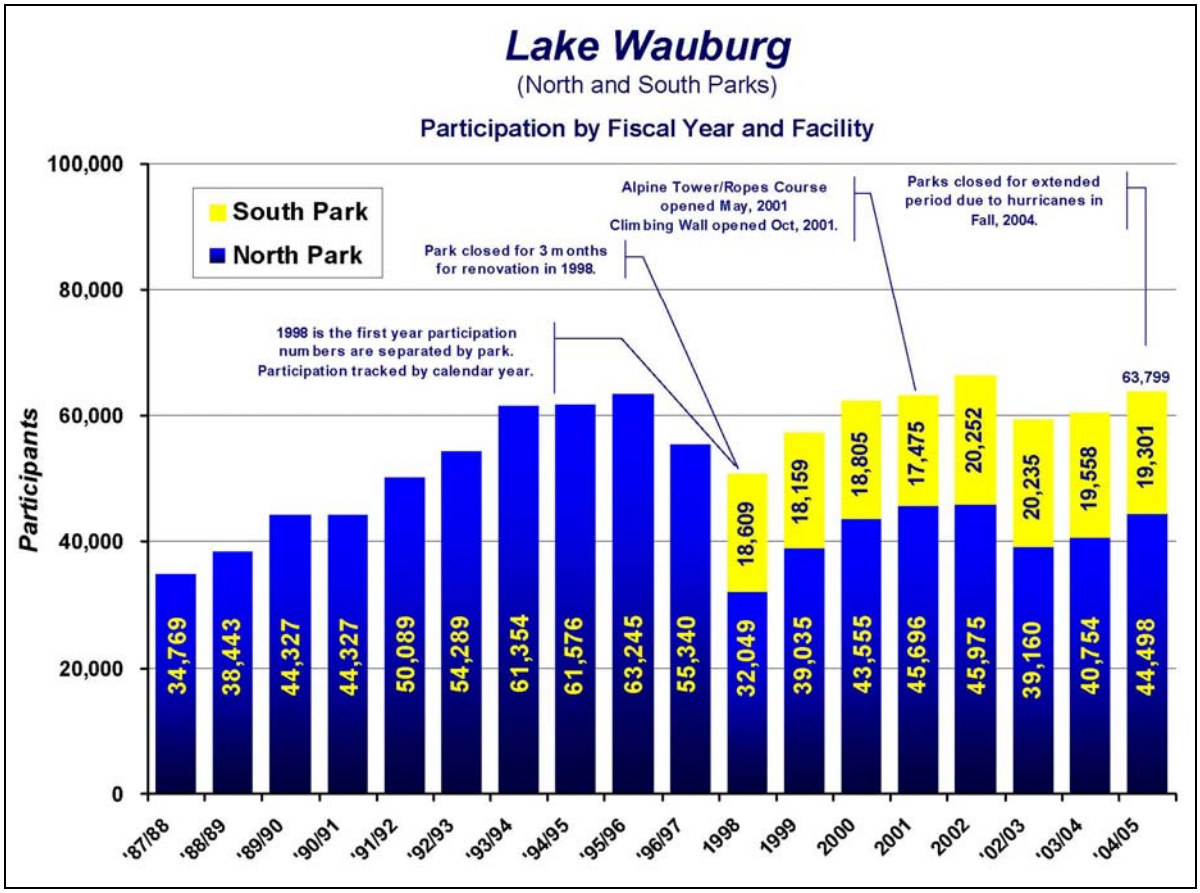
Number of Participants Utilizing Recreation Fields at UF, 2002/2003 – 2004/2005



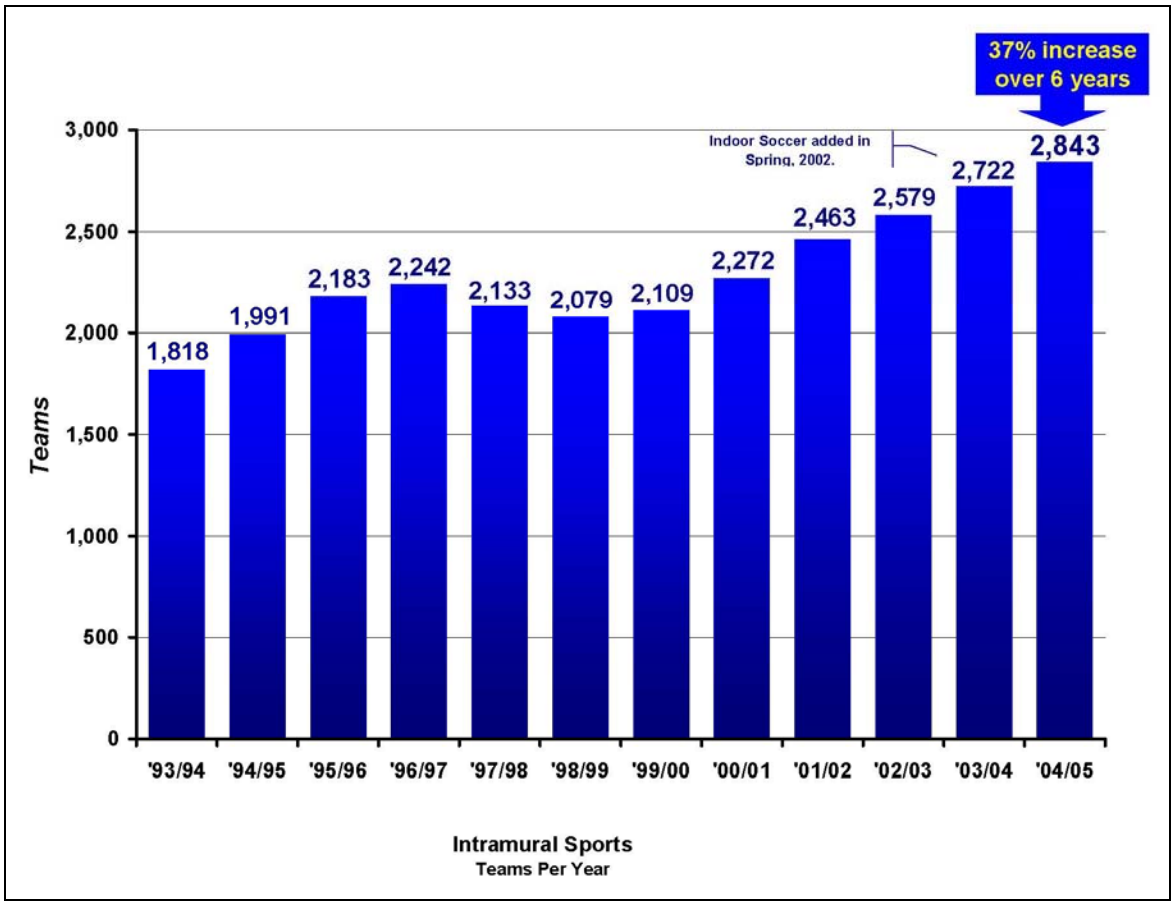
Number of Students Participating in Recreation Activities at the Southwest Recreation Center and Student Recreation & Fitness Center, 1991/1992 – 2004/2005



Number of Students Participating in Recreation Activities at Lake Wauburg (North and South), 1987/1988 – 2004/2005



Number of Intramural Sports Teams Organized Annually, 1993/1994 – 2004/2005



B. University Athletic Association, Inc.

The University Athletic Association, Inc. (UAA) also provides and operates facilities on campus that are associated with sports and recreation. The UAA exists to advance the University of Florida's teaching, research and service missions, and is responsible for the intercollegiate athletics program at the University of Florida. The Athletics Director, Jeremy Foley, reports directly to the President of the University, Dr. Bernie Machen, and retains overall responsibility for the health and stability of the program. In addition, the UAA is governed by a Board of Directors that provides guidance and direction through approval of policies, procedures and the budget. The UAA has developed a mission statement that was adopted by the Board of Directors to provide goals and objectives in the development and delivery of the athletics program at the University of Florida. This "vision" provides the road map for the University's commitment to be second to none in the area of intercollegiate athletics.

The University Athletic Association, Inc. exists to advance the University of Florida's teaching, research and service missions. Through the education and the promotion of the health and welfare of students, the University Athletic Association seeks to link experiences of all backgrounds, races, origins, genders, and cultures to prepare generations of students and staff, including women and minorities, to be productive members of society. The character of the athletics programs at

the University Athletic Association reflects the character of the University of Florida as a major, public, comprehensive institution of higher learning.

The University Athletic Association is dedicated to the intellectual, physical and personal development of student-athletes, as well as staff, including women and minorities. Demonstrating leadership in all decisions affecting college athletics, the University Athletic Association will act in an ethical and honest manner, will promote an environment fostering the professional and personal achievement of coaches, administrators and staff, will attain excellence in athletic performance, sportsmanship, financial strength, and superior fan satisfaction. This vision in athletics is at the core of our responsibility to the University, to our students, and to the public at large.

Gator Gold. Few schools in the country can match the rich Olympic tradition the University of Florida boasts. Since 1968, 117 Gator student-athletes have represented 27 countries in ten Olympiads and laid claim to 76 medals, including 39 golds. Twenty-six Gators represented 16 countries in Athens at the 2004 Olympics and took home seven medals including four gold.

Giving Back. In an era when the NCAA estimates 70 percent of Division I schools are losing money on intercollegiate athletics, the Gator athletic program continued to have an impact in regard to University academic programs. Since 1990, the University Athletic Association has contributed more than $32.2 million to the University to fund academic endeavors.

The Office of Student Life. Recognizing that student-athletes face unique pressures, the University of Florida Athletic Department instituted the Office of Student Life in 1979. The award-winning program of personalized, professional guidance in numerous areas on a day-to-day basis has become a leader in student-athlete services, while also demonstrating UF's commitment to the "total development" philosophy for UF student-athletes. OSL staff responsibilities include: orientation to college life, academic advisement, tutorial services, personal counseling and referral, study skills, career exploration and development, personal development, life management skills, community service and leadership training.
The University of Florida Athletic Association has a comprehensive substance abuse program and gambling awareness education program for all student athletes.
In October 1998, the Office of Student Life was one of eight Division I programs to win the Program of Excellence for Life Skills Award, honoring excellence in academics and life skills program.

Academics. Since 1992, UF has honored 59 Academic All-Americans to rank fourth among all Division I colleges and overall UF has 78 Academic All-Americans. Three Gators have been selected to the Cosida Academic All-American Hall of Fame, the second best total in the nation, while 18 Gator student-athletes have earned NCAA post-graduate scholarships. Five UF Student-athletes earned selection to Cosida Academic All-American teams in 2004-05. Florida had a league record 236 athletes earn Southeastern Conference Academic Honor Roll accolades during 2004-05, marking the eighth consecutive year that UF has placed 100-plus student-athletes on the Southeastern Conference Academic Honor Roll. Florida leads all league schools with 2,022 Academic Honor Roll recipients since 1980, which includes an SEC-best 1,377 recipients in the last ten seasons. The Gator men lead the SEC with 936 Academic Honor Roll recipients, and the women rank first among league schools in the same span with 1,023 honorees.

Goodwill Gators. University of Florida student-athletes, coaches and administrators continue to be a fixture in the Gainesville community and beyond, donating their time and effort to a number

of community-related endeavors. The "Goodwill Gators" program was recognized by the National Consortium of Academics and Sports and received the 2000-2001 and 1997-1998 Outreach and Service Award. In recent years, UF student-athletes have participated in more than 330 events and reached out to more than 20,000 people of all ages.

NCAA Certification and NCAA Compliance. The University of Florida is a national leader in the area of athletic compliance and institutional control by developing one of the most comprehensive compliance programs involving coaches, student-athletes, athletic administration, university administration, alumni, boosters and fans. The University of Florida has completed a campus-wide effort to study its athletics program as part of the NCAA Division I athletics certification program. The program, the first to focus solely on certification of athletics programs, addressed academic integrity, rules compliance, as well as a commitment to equity.

Facilities. Florida facilities are among the best in the nation. Since 1986 there have been more than $139 million in capital improvements, including two major expansions of the football stadium, a multipurpose athletic field house, new facilities for tennis, track & field, soccer, baseball, golf, softball and swimming. The University Athletic Association played a role in the $4.1 million academic advising center on the University of Florida campus, which serves UF students and Gator student-athletes and assisted in funding the $8.1 million renovation of the Stephen C. O'Connell Center. A $10 million practice facility for the men's and women's basketball teams opened in the Fall 2001. The $50 million renovation project of the football stadium press box with additional sky box seating began in May 2001 and was completed for the 2003 football season. A $4 million renovation project of the golf course was completed in December 2001.

Gender Equity. The University of Florida women's athletics program, which was named the nation's No. 2 women's program in an August 1999 and 2000 issue of Sports Illustrated for Women, has long been a great source of pride for Gator fans. Since 1995, UF has added two women's programs, soccer and softball, increasing the number of women's sports offered to 10. Florida funds the maximum number of scholarships allowed by the NCAA for each of its 10 women's sports, totaling 103 scholarships for the 2005-06 season. Florida has claimed a total of nine NCAA women's team titles and leads the league with 91 Southeastern Conference crowns.

Gator Boosters, Inc. More than 13,000 boosters raise more than $25 million annually to support athletic scholarships and capital improvements. There are more than 675 Bull Gators, individuals who give $12,000 or more annually. Gator Boosters Inc. is chaired by the University of Florida President and served by a 70-member volunteer Board of Directors.

Athletics and Tourism. The athletic events that occur on the University of Florida campus draw visitors to Gainesville from across the State of Florida and beyond. This tourism provides income to the community in terms of bed tax and sales tax revenues in addition to an overall influx of visitor dollars spent in the community. The University recognizes that these benefits also come with some impacts to local facilities and services as a result of major special events. The UAA reimburses the City of Gainesville for these additional services through interlocal agreements.

C. Recreation Facilities and Programs for Employees

University employees are permitted to use the casual outdoor recreation facilities, such as tennis courts and basketball courts on a space available basis when the facility is not reserved for organized teams or events. For a minimal fee, employees can join the Living Well program operated through the College of Health and Human performance. Living Well members may use the recreation and exercise facilities of Florida Gym and Florida Pool. Employee's spouses and retired employees are also eligible to join Living Well. The facilities of Lake Wauburg and Lake Wauburg South are available to employees and their guests free of charge. The indoor swimming pool, track and weight rooms at the O'Connell Center are available to employees and their families during designated open recreation hours. The University Golf Course is also available to all students, faculty, staff, alumni and their guests with fees typical of other public or private courses.

D. Recreation Facilities for On-Campus Residents

The Department of Housing and Residence Education provides recreation facilities for housing occupants, including students and their families. Swimming pools are located at Broward Residence Hall, Maguire Village Complex, and two pools are located at Tanglewood. There are a total of twenty-one playgrounds for the children of students dispersed at Corry Village, Diamond Village, Tanglewood, University Village South and Maguire Village. In addition to these recreation facilities, residence halls and village communities provide a variety of basketball courts, sand volleyball courts and other active recreation resources along with passive recreation areas including barbeque grills for picnicking.

II. Facilities and Programs Inventory

A. National Benchmarking

When compared to other universities with comparable student headcount enrollments, the amount of recreational facility space at the University of Florida is below average in many categories. Most interesting are comparisons of intramural teams and fitness class offerings compared to the available space. Compared to other universities, the University of Florida provides as much or more recreation programming such as fitness classes and organized teams; however, the space available in which to conduct those programs is less than at these other universities. Clearly, the University of Florida is managing its facilities for maximum utilization and efficiency, but the demand for additional recreational programs is outstripping even the most efficient utilization plans. This understanding of supply and demand highlights the difficulties often encountered when attempting to share student recreational facilities with other programs or user groups. The following tables present comparison data for the University of Florida and twelve peer institutions as gathered by the Department of Recreational Sports.

Comparison of Intramural Teams, Classes and Clubs at Peer Institutions, 2005

	Students			Total Intramural Teams/year								
University	Total Pop.	Under-grad	Grad	Bskt-ball	Flag Foot -ball	Soccer	Indoor Soccer	Soft-ball	Indoor Volley-ball	Ultimate	# of Fitness Classes /Week *	# of Active Sport Clubs
Arizona	36,932	28,369	8,564	202	148	103	9	180	78	9	55	40
Georgia	33,405	23,814	8,386	215	265	115	110	258	53	8	65	43
Florida State	36,750	28,262	8,488	220	320	216	0	266	128	0	80	48
Illinois	40,000	30,000	10,000	225	215	185	0	125	150	0	65	43
Indiana	36,743	28,045	7,460	519	358	186	227	186	186	61	80	48
Iowa State	26,380	21,534	5,026	343	265	125	140	258	290	63	55	50
Kansas	26,980	20,887	6,093	387	126	126	0	116	188	21	30	28
Minnesota	50,954	28,740	13,841	250	200	100	100	250	150	50	60	27
Ohio State	48,000	32,000	16,000	370	315	210	110	315	96	25	50	65
Texas	50,377	37,337	13,040	507	437	159	137	286	190	9	116	42
Texas A&M	44,435	35,732	8,703	362	395	174	178	254	204	0	90	30
Virginia	19,643	12,907	6,736	367	234	168	147	207	233	79	90	65
Average	37,550	27,302	9,361	331	273	156	97	225	162	27	70	44.08
Florida	47,993	33,694	14,299	548	684	246	172	620	180	50	120	38

- Fitness Classes / Week including instructional

Comparison of Indoor Recreational Facilities at Peer Institutions, 2005

	Indoor Facilities											
University	GSF Main Facility	GSF Satellite	Total # of Satel-ites	GSF Strgth Trng	# of Multi-Purp Rms	GSF Multi-Purp Rms	# of Courts	# of Soccer Courts	# of Rqtball Courts	# of Pools	Ropes Course	Climb -ing Wall
Arizona	125,000	85,000	4	12,000	4	9,200	8	0	8	1	no	no
Georgia	430,000	0	0	13,000	3	9,000	8	2	10	3	yes	yes
Florida State	133,000	24,000	1	20,000	3	8,000	7	0	7	1	no	no
Illinois	235,000	146,000	3	20,000	2	7,000	13	1	18	4	no	no
Indiana	306,970	0	0	13,717	9	30,700	21	1	22	3	no	no
Iowa State	310,500	299,971	4				31		13	3	no	yes
Kansas	98,477	65,000	2	15,000	2	4,100	10	0	8	2	no	yes
Minnesota	223,868	234,774	4	12,860	4	10,778	9	0	23	5	no	Yes
Ohio State	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na
Texas	250,000	250,000	4	29,000	10	14,526	13	2	23	2	no	yes
Texas A&M	286,000	200,000	1	14,000	5		8		14	3	no	yes
Virginia	150,000	125,000	3	21,000	9	16,000	11	1	14	2	no	no
Average	231,710	129,977	2	17,058	5	12,145	13	1	15	3		
Florida	100,000	43,100	1	24,600	3	9,000	7	1	14	1	no	no

Comparison of Outdoor Recreational Field Facilities at Peer Institutions, 2005

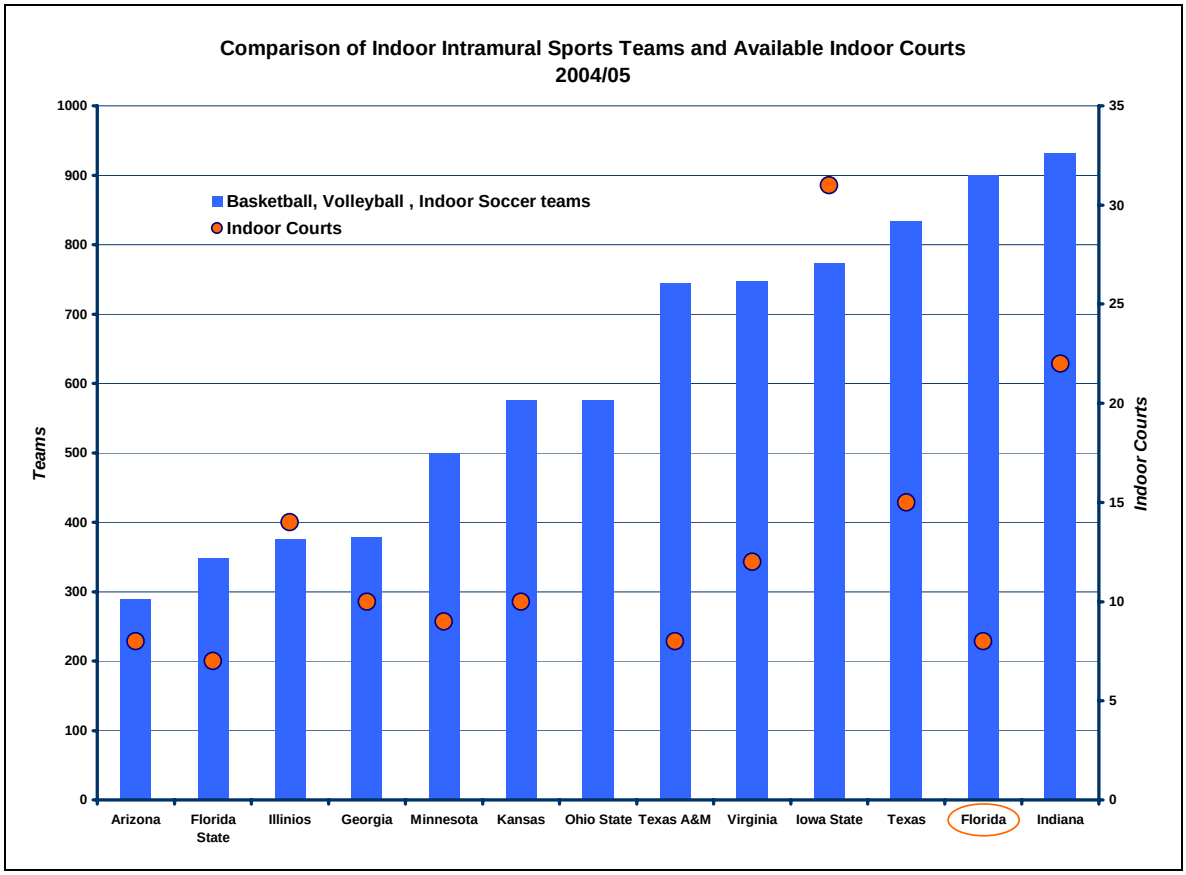
	Outdoor Facilities							
University	Total Acres	Acres Lighted	Acres No Lights	# of Dedicated Club Fields	# of Multi-Purp IM Fields	# Exclusive IM Softball	# Exclusive IM Softball - Lighted	# Exclusive IM Softball - No Lights
Arizona	6.3	6.3	0	0	2	0	0	0
Georgia	35	25	10	1	10	0	0	0
Florida State	116	58	58	4	12	5	5	0
Illinois	42	20	22	5	10	4	4	0
Indiana	22.5	14.5	8	2	6	0	0	0
Iowa State	71	0	71	8	34	13	0	13
Kansas	22.5	0	16	3	22.5	0	0	0
Minnesota	18	10.8	7.2	5	9	6	6	0
Ohio State	Na	Na	Na	Na	Na	Na	Na	Na
Texas	37	37	0	0	20	0	0	0
Texas A&M	184	30	154	3	4	4	0	4
Virginia	30	26	4	2	5	2	2	0
Average	53	21	32	3	12	3	2	2
Florida	28	26	2	3	12	4	4	0

NOTE: IM = Intramural

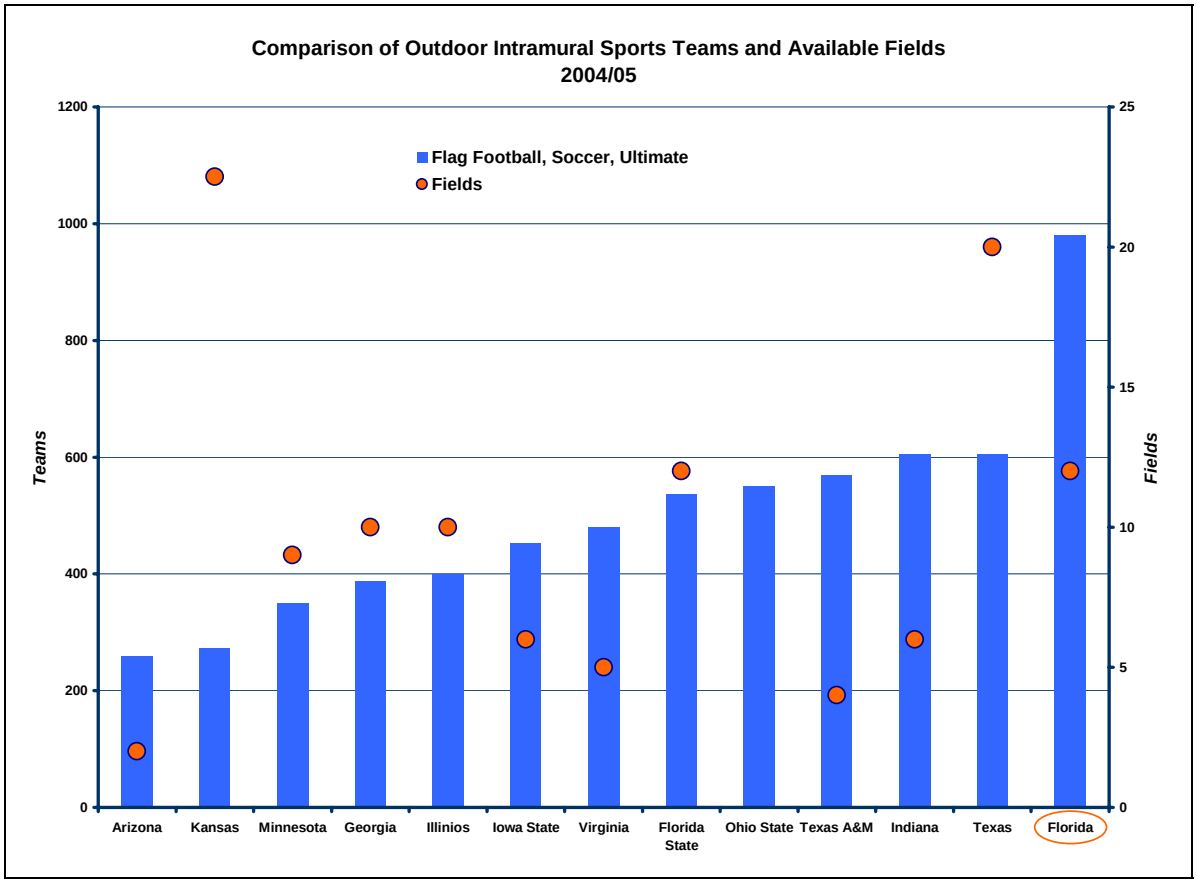
Comparison of Outdoor Recreational Court Facilities at Peer Institutions, 2005

	Outdoor Facilities								
University	# of Bsktball Lighted	# of Bsktball No Lights	# of Tennis Lighted	# of Tennis No Lights	# of Inline Hockey Courts	# of Pools	Ropes Course	Climbing Wall	Do you rent Rec Sports Facilities?
Arizona	0	1	6	11	0	1	yes	no	yes
Georgia	0	0	9	13	0	3	yes	yes	yes
Florida State	2	0	12	1	1	1	yes	yes	no
Illinois	3	0	15	0	1	4	yes	no	yes
Indiana	0	0	18	0	0	3	no	no	no
Iowa State	0	3	8	0	1	3	no	no	yes
Kansas	2	0	8	0	0	2	no	no	yes
Minnesota	0	0	0	4	0	5	no	no	yes
Ohio State	Na	Na	Na	Na	Na	Na	no	Na	Na
Texas	4	0	52	0	0	2	no	no	yes
Texas A&M	3	0	12	6	0	3	no	no	yes
Virginia	3	1	13	4	0	2	yes	no	yes
Average	2		14	4		3			
Florida	7	0	32	0	1	1	yes	yes	yes

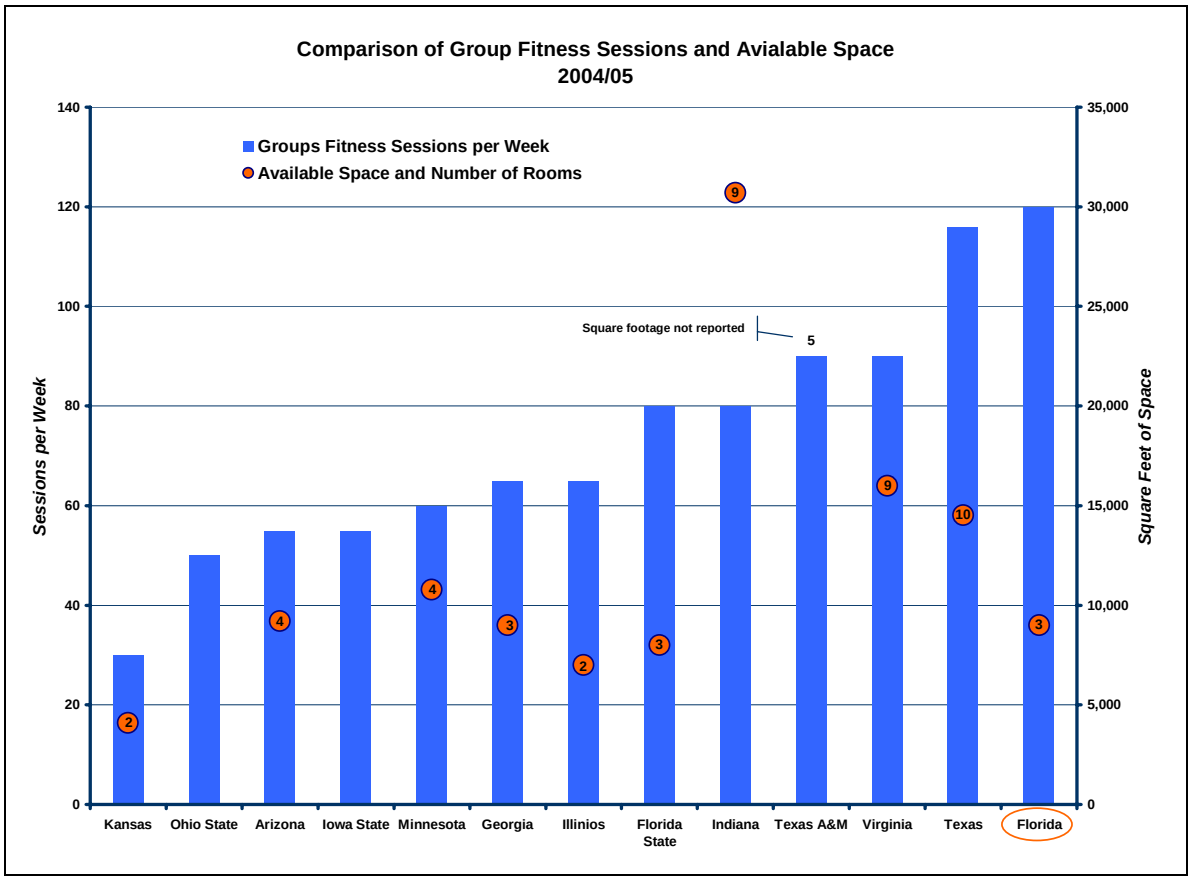
Comparison of Indoor Intramural Sports Teams and Available Indoor Courts at UF and Peer Institutions



Comparison of Outdoor Intramural Sports Teams and Available Fields at UF and Peer Institutions



Comparison of Group Fitness Sessions and Available Space at UF and Peer Institutions



B. Educational Plant Survey

The State University System of Florida Space Needs Formula provides definitions for each university space type to be used in the analysis of space need and capital project justification. The formula does not provide standards for recreation facilities; however, it does produce a space evaluation for teaching gymnasiums. A teaching gymnasium is defined as a room or area used by students, staff, or the public for athletic or physical education activities. Included in this category are rooms generally referred to as gymnasiums, basketball courts, handball courts, squash courts, wrestling rooms, weight or exercise rooms, racquetball courts, indoor swimming pools, indoor putting areas, indoor ice rinks, indoor tracks, indoor stadium fields, and field houses. Service areas such as locker rooms, shower rooms, ticket booths, rooms for dressing, equipment, supply, storage, first-aid, towels, etc. are also included in this category.

The net assignable square feet (NASF) need for teaching gymnasiums is based on a minimum facility for each main campus of 50,000 NASF for the first 5,000 FTE enrollment, plus an additional 3 NASF per FTE for enrollment over 5,000 FTE.

Based on application of the State Space Needs Formula for the period 2004 to 2009, the University of Florida has a generated need for 133,154 NASF of teaching gymnasium space. In 2004, the University had an inventory of 71,516 NASF of teaching gymnasium space leaving an unmet need for 61,638 NASF of new space through the year 2009.

Comparison of Existing Satisfactory Teaching Gymnasium Space with Generated NASF Need by Category, 2004-2009

Space Category	Generated Need	Existing Space	Unmet Need
Academic Support			
Teaching Gymnasium	133,154	71,516	61,638

C. Level of Service Standards

The University of Florida does not have adopted levels of service standards for various recreation facilities, because the programs and facilities are managed to respond to changing user needs and preferences. However, some generalizations are made at the national level to provide rule-of-thumb level of service standards that assist in the planning of recreational space needs. The following table displays the results of applying those standards for seven categories of active recreation space to the existing and projected main campus enrollment at the University of Florida.

University/College Level of Service* Analysis for Selected Recreational Facilities, 2004 and 2015

	2004 Main Campus Headcount Enrollment			2015 Main Campus Headcount Enrollment	
	Need	Inventory	Deficit	Need	Deficit w/out New Capital Projects
Indoor Basketball Courts	13	7	6	14	7
Cardio / Weights (GSF)	45,126	24,600	20,526	49,500	24,900
Multi-Purpose Exercise Rooms	13	3	10	14	11
Racquetball Courts (Indoor)	15	14	1	17	3
Lap Swimming (Lanes)	18	8	10	20	12
Indoor Soccer Courts	5	1	4	5	4
Outdoor Tennis	8	32	(24)	8	(24)

* Recreation Level of Service Standards were provided by RDG Planning and Design, Inc. as typical university/college standards used nationally. The following standards were used in this analysis: Indoor Basketball Courts = 1 court/3,500 students; Cardio/Weight = 1 GSF/student; MP Rooms = 1 room/3,500 students; Racquetball Courts = 1 court/3,000 students; Lap Swimming = 1 lane/2,500 students; Indoor Soccer = 1 court/10,000 students; and Outdoor Tennis = 1 court/6,000 students. Calculations are based on main campus headcount enrollment of 45,126 students in 2004 and projected 49,500 students in 2015.

The application of these standards to University of Florida enrollment provides one measure of the adequacy of recreation facilities. The facility utilization data, peer institutional data and Educational Plant Survey are additional measures of adequacy. The Department of Recreational Sports continually conducts user surveys and consults its Board of Directors to determine the appropriate mix of recreational facilities and programs to be provided at the University of Florida. Based on this user feedback, the facilities and services at the University of Florida may differ from national standards providing more of one activity and less of another depending upon demand. However, all of these various measurements of adequacy indicate an overall deficit in active recreational facilities, which the University plans to address provided that sufficient funding can be obtained from all available sources.

Host Local Governments Recreation Level of Service Standards. The City of Gainesville's comprehensive plan establishes the following level of service standards for development within the City.

City of Gainesville Level of Service Standards

Facility	1997 LOS Standard
Swimming pool (50 m)	1 per 85,000 population
Swimming pool (25 y)	1 per 75,000 population
Softball field	1 per 14,000 population
Soccer field	1 per 11,000 population
Trail/linear corridor/greenway	1 mile per 4,500 population
Basketball court	1 per 4,500 population
Tennis court	1 per 6,000 population
Racquetball court	1 per 12,000 population
Equipped play area	1 per 10,000 population
Local nature/conservation park	6.0 acres per 1,000 population
Sports complex	0.5 acres per 1,000 population
Community park	2.0 acres per 1,000 population
Neighborhood park	0.8 acres per 1,000 population

When compared to the level of service standards of the host local governments, the University of Florida meets or exceeds the City's requirements based on main campus headcount enrollment of 45,126 students in 2004 and projected 49,500 students in 2015.

University of Florida Student Recreation Sports and Open Space Facilities Need Based on City of Gainesville Level of Service Standards, 2004 and 2015

CITY LOS	2004 UF Need	2015 UF Need	2004 Inventory
Swimming pool (50 m)	0.53	0.58	2
Swimming pool (25 y)	0.60	0.66	4
Softball field	3.22	3.54	4
Soccer field	4.10	4.50	8
Trail/linear corridor/greenway (miles) *	10.03	11.00	17
Basketball court	10.03	11.00	14
Tennis court	7.52	8.25	32
Racquetball court	3.76	4.13	18
Equipped play area (based on occupancy & playgrounds in Graduate/Family Housing)	0.18	0.18	21
Local nature/conservation park (acres) - UF Conservation Future Land Use	270.76	297.00	447
Sports complex (acres) - UF Active Recreation FLU	22.56	24.75	72
Community park (acres) - UF Actitve Recreation Outdoor Future Land Use	90.25	99.00	198
Neighborhood park (acres) - UF Urban Park FLU	36.10	39.60	68

NOTE: This inventory does not include facilities of the University Athletic Association, except in the land use acreage calculations. However, some UAA facilities are available for student use as described herein. This inventory includes swimming pools and playground facilities provided by the

Department of Housing and Residence Education, although other recreation facilities available at housing complexes are not included. This inventory also does not include 59 acres of Active Recreation and Conservation land use available to students at Lake Wauburg North and South.

The calculation for "Trail/linear corridor/greenway" includes existing shared-use paths, bicycle boulevards and bicycle lanes. Without including bicycle lanes, the total is 5 miles of bicycle facilities on exclusive rights-of-way. However, many wide sidewalk facilities exist on the university campus that provide bicycle access, but are not included in this calculation. These facilities are mapped in the Transportation Element.

Alachua County has adopted, at a minimum, the following level of service standards for recreation: (1) 0.5 acres of improved activity-based recreation sites per 1000 persons in the unincorporated area of Alachua County; (2) 5.0 acres of improved resource-based recreation sites per 1000 persons in the unincorporated area of Alachua County. When compared to the level of service standards of Alachua County, the University of Florida exceeds requirements based on main campus headcount enrollment of 45,126 students in 2004 and projected 49,500 students in 2015.

University of Florida Recreation and Open Space Facilities Need Based on Alachua County Level of Service Standards, 2004 and 2015

Alachua County LOS	2004 UF Need	2015 UF Need	2004 Inventory
Activity Based Recreation (acres) - UF Active Recreation & Active Recreation Outdoor Future Land Use	22.56	24.75	270
Resource Based Recreation (acres) – UF Conservation and Urban Park Future Land Use	225.63	247.5	515

NOTE: This inventory does not include 59 acres of Active Recreation and Conservation land use available to students at Lake Wauburg North and South in unincorporated Alachua County.

D. Passive Recreation

Not all recreational pursuits require courts, gymnasiums and fields for active exercise and team sports. Equally important are the passive recreation pursuits such as hiking, recreational bicycle riding, walking, reading, bird-watching and informal games of Frisbee or catch. To ensure that adequate space is reserved for this purpose, the Campus Master Plan's Future Land Use designation provides for an Urban Park Land Use and a Conservation Land Use. The Urban Park areas are intended to provide passive recreation opportunities within the built areas of campus in the form of courtyards, lawns, gardens and shaded walks. The Conservation areas will provide varying degrees of public accessibility, but many are intended to provide walking trails, picnic areas, shared-use bicycle/pedestrian paths, and scenic overlooks into natural habitats. The Campus Master Plan for 2005-2015 reserves 442 acres in the Conservation Land Use and 68 acres in Urban Park Land Use.

In addition to the main campus recreation resources, the University of Florida has 15 acres at Lake Wauburg North (21 acres including water resources) and 44 acres at Lake Wauburg South (71 acres including water resources) located on US441 approximately eight miles from campus. These areas are placed in the Campus Master Plan's Active Recreation Land Use due to the variety of active recreation facilities available including boating, swimming, sand volleyball, bicycle trails, climbing wall and ropes course. However, large expanses of these properties are

also used exclusively for hiking, picnicking and other passive recreational pursuits. All of the activities on the Lake Wauburg properties are sensitive to the environmental resources on the site, which enhance the recreational experience and make them attractive places to recreate. In recognition of certain environmental sensitivities at Lake Wauburg South, a portion of this property has also been placed in the Conservation Land Use.

III. Recreation Facility Recommendations

To address the existing and projected deficit in recreation facilities, the University is proposing several recreation projects for the main campus and Lake Wauburg South sites.

On the main campus, an expansion of the Southwest Recreation Center is anticipated to provide 75,000 GSF of new space and 27,000 GSF of renovated space to address deficiencies in cardio/weight training facilities, indoor courts and multi-purpose rooms. An outdoor swimming pool is also planned as part of the facility expansion. New recreation fields are planned south of this recreation center on Hull Road to provide two full size soccer fields, which can be used as five intramural fields. This new field space will include associated maintenance and storage buildings, fencing, lighting, and up to 100 new parking spaces. A new Northeast Recreation Center is identified for a site north of the existing Broward Courts Outdoor Recreation Complex. This facility is intended to serve students living in residence halls near SW 13th Street and in off-campus to the east. This facility would is planned for approximately 189,000 GSF of new gymnasium, multi-purpose room, courts, cardio/weight training space and potentially an indoor rock climbing wall with associated support areas. New outdoor recreation courts are envisioned on the site of an existing surface parking lot on Bledsoe Drive to be constructed once replacement parking is available. Other recreation facilities are anticipated to be constructed in conjunction with future expansions of on-campus student housing.

At Lake Wauburg South, additional facilities are planned to enhance the passive recreational use of the site. In the future, the site would be anchored by a lodge similar to that available at the Lake Wauburg North site. Additional facilities will consist of picnic pavilions, an expanded ropes course, new check-in booth, dock and support facilities including a maintenance building, caretaker's residence and septic system upgrades. A reconfiguration of the entrance road is planned along with the creation of formalized parking for approximately 150 vehicles. Informal parking currently exists on the site; however, this proposal would expand parking and include a mix of parking designated on asphalt, gravel and overflow grass areas.

For UAA Facilities, capital projects for the period 2005-2015 include renovations and minor expansions of the existing baseball locker room, Lemerand Center, Percy Beard Stadium and Track and Field building. The UAA anticipates the need to add one NCAA women's sport before 2015 to meet federal requirements. After exploration of various potential sports, the UAA expects the new sport will be a field sport and will require the construction of new facilities. To this end, the Active Recreation Land Use is identified west of SW 34th Street that could be made available for this new field sport.

IV. 2000-2010 Campus Master Plan Evaluation and Appraisal

During the period from 2000 through 2004, the University constructed 250,313 net new gross square feet of space in the Active Recreation Land Use classification. Funded projects that were in design or construction by December 2004 add another 21,760 gross square feet of building

space in the Active Recreation Land Use. Of these capital projects constructed between 2000 and 2004, only 10,000 gross square feet were for student recreational facilities provided in the Broward Courts Outdoor Complex, Phase I. The balance of the new active recreation building space was constructed for the UAA including expansion of the Ben Hill Griffin Stadium and Skyboxes and the basketball practice facility. The amount of active recreation space constructed and under construction during this time period was consistent with that approved in the Campus Development Agreement, 2000-2010.

The goals, objectives and policies of the Active Recreation Element address the intent to construct and manage recreation spaces consistent with need generated by enrollment growth. Additionally, these policies address the requirement to maintain inventories, prioritize need and amend the campus master plan's Capital Improvement Element as required to reflect changing need. By constructing the necessary new building space, maintaining the facilities inventory and appropriately amending the campus master plan, the university has met these goals, objectives and policies related to Academic Facilities.

The policies 4.1 and 4.2 also require that the University Land Use and Facilities Planning Committee (ULUFPC) and Recreation Committee be consulted in the planning and design of new facilities. The University has brought all of the active recreation projects to the ULUFPC, and has continued to work with its Board of Directors (i.e. Recreation Committee) and user groups to determine need and review project proposals.

Several policies (1.0, 1.1, 3.5) also address the desire to construct bicycle and pedestrian facilities that provide travel corridors to and through campus that are adequately lit and provide access to recreation facilities. The Campus Development Agreement provided significant funds to the City of Gainesville for bicycle and pedestrian facilities. As a result, several new sidewalk connections have been constructed along with an extension of the Kermit Sigmon Bicycle Trail along Archer Road near campus. Pedestrian lighting improvements were also provided through the CDA for W. University Avenue and NW 17th Street. On-campus, completed pedestrian lighting improvements included areas around the Florida Gym and O'Connell Center. Sidewalk and bicycle lane projects have been constructed on campus as identified in the Transportation Data & Analysis Report. Clearly, additional lighting enhancements, bicycle and pedestrian facilities are needed as identified in the Transportation documents; however, funding levels for transportation projects will remain a deterrent to fully achieving those goals.

Intergovernmental coordination is addressed in policies 4.3, 4.4 and 4.5. As required by policy 4.3, the University has maintained an inventory of off-campus recreation facilities in the Context Area, and has presented this along with every campus master plan amendment. The university has coordinated with local governments on recreation needs as needed; however, there are no intergovernmental coordination boards that provide a venue for this interaction similar to the role of the Metropolitan Transportation Planning Organization for transportation issues. When requested, the University has cooperated with the host local governments and was consulted in the preparation of the Alachua County Recreation Plan. As mentioned here, the University also provides leisure studies courses, special recreational events (e.g. Fun Runs and spectator events) and sports camps that are made available to the general public. However, the University's primary focus is on providing recreation facilities and services to meet the needs of its population who are paying fees to support those facilities and services.

7.
CONSERVATION
DATA & ANALYSIS

I. Introduction

The following information is based on the best available data, which was used to analyze existing conditions and make recommendations for changes in the Conservation Element in this update to the University's Comprehensive Master Plan.

A. Conservation Area Boundaries and Management

The 2000-2010 Master Plan contained some inconsistencies between what was considered a conservation land use and what was considered a preservation area. For example, some areas like the creeks adjacent to Sorority Row, P.K. Yonge and Diamond Village were considered Conservation Areas, but not preservation areas. In other cases, areas considered preservation were placed in the passive recreation land use category (examples Wilmot Gardens, DASH course). Similarly, some wetlands and water bodies were not designated as a conservation land use. The 2005-2010 Comprehensive Master Plan strives to eliminate these inconsistencies and identify management strategies for those places designated as conservation. Simultaneously, the university is engaged in a Conservation Area Land Management Process. The resulting Conservation Land Management Plan (CALM) will be incorporated into the Comprehensive Master Plan by reference.

Beginning in the fall of 2003 an ad-hoc working group of University staff, faculty, students and interested community members conducted tours of 25 campus Conservation Areas and 5 passive recreation areas in order to determine their current state and recommend improvements for each area. From these 30 areas that were visited 22 specific area plans have been developed (passive recreation areas were not included and some Conservation Area were grouped together) that outline issues and strategies for each Conservation Area. The core members of this group included: Paula Fussell, Linda Dixon, Alex Holecek, Chuck Hogan, Marty Werts, Erick Smith, Mark Clark, Tom Walker, Meghan Pressley, Fritzi Olsen, Bruce Delaney, Glenn Ketchum, Mark Brown, Gerald Kidder, Nick Vellis, Clay Montague, and Ann Stolda, although other were involved in individual site visits. The recommendations from this working group formed the foundation of the CALM plan and specific area plans.

The conservation land use designation of the Campus Master Plan's future land use map formed the starting point for remapping all land use categories by identifying and protecting those lands that should not be developed. Remapping efforts were based on up-to-date spatial data that illustrated the inaccuracy of many conservation boundaries that were on the adopted future land use map (areas where land use designations conflict with the underlying use of the land or natural features). This new and more accurate data included wetland boundaries, floodplain boundaries, tree canopy coverage, steep slopes, archeological sites and other natural and anthropogenic features that represent logical separation lines between uses. Thus, using this new data the ad-hoc working group, along with staff, began the remapping efforts with the adopted 2000-2010 boundaries serving as the starting point. Through the work of the Conservation Study Committee (Mark Brown, Sheri Bryan, Peggy Carr; Mark Clark,; Eva Czarnecka, Joyce Dewsbury, Linda Dixon, Paula Fussell, Chuck Hogan, Mark Hostetler, Gerald Kidder, Erik Lewis, Nancy Menzel, Clay Montague, Mackenzie Moritz, Meghan Pressley, Jack Putz, Erick Smith, Nick Vellis, Tom Walker, Marty Werts) these boundaries were revised, with some areas being added and others being eliminated.

Site visits by the working group lead to the observation, in most cases, that Conservation Areas on campus have not been actively managed. Thus, management issues identified by the group included basic problems of erosion, sedimentation, trash, unauthorized parking, invasive non-native plants and lack of amenities for visitors. In order to address these concerns, the working group came up with a number of management activities that have been included within the specific area plans contained in the CALM plan. Typical activities that were identified include fencing, educational/interpretive signage, invasive non-native plants management, trail marking, and habitat enhancements (plantings and shelters). Additionally, the working group recognized the importance of several Conservation Areas to support environmental research / teaching and identified measures that should be taken to enhance these uses and foster multidisciplinary projects where feasible.

Successful performance will be measured by implementation of management strategies, along with changes to baseline conditions. Therefore, the Data and Analysis report represents the baseline report for the University's Conservation Areas and will serve as the basis for measuring future improvements, habitat quality and flora and fauna abundance and diversity.

II. Conditions Inventory

A. *Water Resources*

The University of Florida's hydrology is unique from much of the State of Florida in that runoff from storm events, irrigation and surficial aquifer seepage all empty into depressions that ultimately recharge the Floridan aquifer. This is in contrast to the more typical view of Florida hydrology, which is generally characterized by surface water that runs into larger bodies of water that in turn flow to the ocean, or by areas of porous soils that allow water to recharge directly to an aquifer. The watersheds of the University are along the Cody Scarp. This scarp marks a geologic transition zone where the clays of the Northern Highlands physiographic province give way to karst prone limestones and sands of the Gulf Coastal Lowlands. Lands to the west of campus (transition area grading to Gulf Coastal Lowlands) are generally characterized as a mixture of sand and unconsolidated clays that allow for the easy downward movement of water to the Floridan aquifer, with few surface water drainage features. Meanwhile, lands to the north and east of campus consist of remnants of the Northern Highlands province, which are characterized as poorly drained, low recharge, with significant drainage where water instead of recharging the aquifer makes its way via a series of creeks and rivers into the St. Johns River and ultimately the Atlantic Ocean. The University is in the transition zone between these provinces in a zone called a stream to sink watershed. As the name implies, stream to sink watersheds are where surface water flows down gradient and ultimately ends up in a depression or sinkhole. In the University's case the majority of surface water ends up in one of three depressions or sinkholes – Bivens Arm (Alachua Sink), Surgarfoot Prairie (Haile Sink) or Lake Alice (drainage wells).

Lake Alice Watershed. The Lake Alice watershed (basin) covers about 80% of campus, with approximately 1,140 acres of the basin on campus and an additional 381 acres contributing from off campus. Stormwater, reclaimed irrigation water and surfical aquifer seepage from creeks are the major contributors to the lake, which is the ultimate surface destination of water within the watershed. Historical accounts of Lake Alice show a lively past within the internal campus discourse, were different views on how to manage the lake and watershed have held sway over the years. The first accounts of controversy appear around 1946 –1947 when wastewater was diverted from a sinkhole, Sweet Sink, adjacent to the sewage treatment plant, to Lake Alice. This sinkhole, according to historical accounts, was the outlet for high water in the basin. The basis for the diversion from the sinkhole was that effluent discharges entering the sink were showing up in the city's public supply water system. This diversion of water to the lake led to a major increase in the water entering the lake and to flooding of traditionally non-flood prone areas. The flooding was further compounded by increases in impervious surface, irrigation and cooling waters (historically, Lake Alice was also augmented by the University's water chilling system and by air-conditioning systems that both discharged large amounts of water into Lake Alice. Over the years these non-beneficial uses of water have been taken off line). Many solutions were contemplated, with a final decision reached to allow Lake Alice to hold more water, while also installing two drainage wells that drain when water levels reach a certain elevation within the lake.

During the years of direct wastewater discharges to the lake, concern was expressed by many campus professionals on the increased nutrient content. It was observed that these nutrients were leading to increased aquatic plant growth and accelerated eutrophication processes within the lake. To deal with the engulfing plant growth of water hyacinths, parrotfeather and coontail, university staff started a maintenance removal program of these plants that is ongoing to this day. Eventually, years later and after much discussion from campus personnel about the impacts that effluent discharges were having on the lake, direct wastewater discharges to the lake were removed.

The current stormwater permit with the St. Johns River Water Management District (SJRWMD) allows the University to increase impervious surfaces within the Lake Alice watershed by an additional 184 acres (as of 7/11/2000) without additional stormwater facilities being built. This permit does not cover added stormwater from offsite sources in the City of Gainesville, nor from roads maintained by the Department of Transportation.

Hogtown Creek Watershed. The Hogtown Creek Watershed covers the majority of incorporated City of Gainesville, however only 315 acres out of 13,440 acre watershed are present on the main campus. Hogtown Creek, the primary drainage conveyer in the watershed, drains into a depression named Sugarfoot Prairie and ultimately into Haile Sink. The two areas on campus that drain into Hogtown Creek are lands up gradient of Elizabeth Creek that runs though the University Arboretum, near the President's home, and the lands on the western side of campus that drain into the Hogtown Creek Woods area along SW 34th Street.

This watershed, as with much of Gainesville, was urbanized before the era of stormwater management and specifically on-site retention and detention. As a result, the creeks in this watershed suffer from high velocities during storm events, which cause in-stream erosion and lead to down-stream sedimentation that elevates the floodplain, potentially flooding structures. Unlike the Lake Alice watershed, new campus development within this watershed must be permitted individually with the SJRWMD, which will require the use of on-site retention or detention. Additionally, the University is looking for ways to cooperate with the City to incorporate new stormwater techniques to help ameliorate the downstream impacts of previous development by incorporation of Low Impact Development techniques where feasible.

Bivens Arm Watershed. Bivens Arm Lake is the receiving body of this 2,200 acre watershed, 456 acres of which are on campus. The main tributary to Bivens Arm Lake is Tumblin Creek, which runs though the University's laboratory school P.K. Yonge. This creek empties into a large bottomland hardwood forest near US 441 on the northeast rim of the lake. Before being channelized to accelerate upstream drainage, this creek emptied into a wetland forest that provided water quality treatment through vegetative uptake of nutrients and metals. Other more intermittent tributaries are present to the north of the lake adjacent to the College of Veterinary Medicine facilities and to the west by IFAS's facilities, crops and pastures. Bivens Arm, like Lake Alice suffers from eutrophication from primarily anthropomorphic sources upstream.

Tumblin Creek is another Gainesville creek that suffers from in-stream erosion and downstream sedimentation. Additionally, the creek is on the Florida Department of Environmental Protections 305 (b) list as not meeting water quality standards, with a water quality rating of poor. The City of Gainesville and the University are exploring cooperative solutions that will help enhance the creek and improve water quality entering Bivens Arm.

Depression Basins (Watersheds). In the University's Stormwater Management Master Plan a number of smaller watersheds or basins are defined as depressional basins. A depressional basin occurs when all surrounding land flows into a depression. In karst areas (sinkhole areas) these depressions often have an outlet in the form of a sinkhole that drains into an aquifer. However, when groundwater levels are high enough, sinkholes stop being drains and instead act like plugs or in some cases even as discharge points for the aquifer. When this happens the entire depression basin may fill up creating unexpected flooding. If enough water makes it into the system, water will eventually start flowing into an adjacent basin.

In reality, all of the University's watersheds are depression basins, since they all flow into depressions or sinkholes. The Bivens Arm / Tumblin Creek watershed is the only university basin that outlets to an area that can contribute to water that has the potential to make it to the ocean via the surface, but this only occurs during exceedingly heavy rainfall years, when the Floridan aquifer is also full and high.

Sinks, Ponds, Lakes and Creeks. While there are numerous small lakes and creeks on campus, only a few are named. The following list of named waterbodies are present on or adjacent to the main campus - Ocala Pond, Gator Pond, Dairy Pond, Green Pond, Lake Alice, Bivens Arm Lake, Sweet Pond / Sink, SEEP (Stormwater Enhancement Ecological Project), Presidents Pond, Hume Pond, Golf Course Pond, Deer Pond. The only named creeks on campus are Elizabeth, a tributary of Hogtown Creek, and Tumblin that runs through P.K. Yonge and into Bivens Arm. While many of the creeks on campus were natural drainage features before campus development, many have since been chanelized and in some cases re-directed in order to handle campus drainage. These creeks have had their base flows increased by irrigation and other water discharges. Additionally, the increase in impervious surfaces from campus development has resulted in increased storm flow and velocities.

All campus water bodies play a role in stormwater storage and conveyance. On campus, many ponds and sinks work as storage systems that accept stormwater runoff up to a predetermined elevation where an outlet structure has been placed. When water reaches the specified elevation it will begin to flow into one of these outlets that in turn flow into the University's stormwater system. Meanwhile, creeks act as surface stormwater systems in that they convey stormwater to base elevations within the basin. Additionally, many of the stormwater pipes are routed to drain into the creeks, in many cases contributing significant amounts of the creek's flow.

Santa Fe River Basin - Satellite Properties (Santa Fe River Ranch – Monetocha Creek – Alachua Slough, Burnett's Lake Darin, Rocky Creek) – While the Santa Fe Watershed covers much of the western portion of Alachua County only a small portion of the total watershed of 1,390 square miles is within the County. The basin covers parts of Alachua, Baker, Bradford, Clay, Columbia, Gilchrist, Union, and Suwannee counties. The Santa Fe River watershed is within the Northern Highlands and Gulf Coastal Lowlands physiographic regions. The River Valley Lowlands is an extension of the Gulf Coastal Lowlands. The divide between the Highlands and Lowlands is the Cody Scarp, described as the most persistent topographic break in Florida. It is along this transitional zone between the two physiographic regions that the river, as with virtually all other streams, goes underground.
The Santa Fe River is designated an Outstanding Florida Water by the State of Florida. Water quality data in the basin has shown increasing nitrate levels in some of the springs along the lower Santa Fe, including Hornsby Spring in Alachua County. University satellite properties in this watershed include the Santa Fe river Beef Ranch, Dairy Research Unit, and portions of the Beef Research Unit.

Orange Creek Basin - Satellite Properties (**Watersheds - Hatchett Creek, Paynes Prairie).** The 600-square-mile Orange Creek Basin lies within the lower Ocklawaha River watershed, primarily in Alachua County. This basin encompasses three large lakes totaling 29,000 acres (Newnans, Orange, and Lochloosa), numerous smaller lakes (Bivens Arm, Wauberg), and Paynes Prairie, all of which are connected by urban and rural tributaries. Downstream of Orange and Lochloosa lakes, Orange Creek drains into the lower Ocklawaha River. In 2002, the Florida Department of Environmental Protection (FDEP) verified that all of the 13 major water bodies in the Orange Creek Basin, including Newnans Lake, Lochloosa Lake, and Orange Lake, are impaired and do not meet state water quality standards. Development of pollutant load reduction goals for these areas is underway by the St. Johns River Water Management District, in coordination with Alachua County. University satellite properties in this watershed include the Austin Cary Memorial Forest, Millhopper Horticultural Unit and portions of the Beef Research Unit.

B. *Natural Communities*

The following descriptions of natural community types present on campus are largely taken from the Natural Communities of Florida (FNAI, 1990). While these communities are present on campus they may bare little resemblance to the descriptions that follow in that campus natural communities are generally disturbed by adjacent urbanization, heavy use from University personal and fire suppression.

Basin Marsh. Basin marsh is characterized as an herbaceous or shrubby wetland situated in a relatively large and irregular shaped basin. Basin marshes usually develop in large solution depressions that were formerly shallow lakes. The lake bottom has slowly filled with sediments from the surrounding uplands and with peat derived from plants. Thus, the soils are usually acidic peats. The hydroperiod is generally around 200 days per year. Open areas of relatively permanent water within the marsh, with or without floating aquatic vegetation. They may eventually succeed to Bog, if a muck fire does not reverse succession. Many of the plants and animals occurring in Basin Marshes also occur in Floodplain Marsh, Slough, Swale and Depression Marsh. Large examples of the Depression Marsh, in fact, may be very difficult to distinguish from small examples of Basin Marsh.

- Plant Species - Typical plants include common reed, panicum, cutgrass, southern watergrass, pennywort, Spanish needle, redroot, soft rush, American lotus, water primrose, arrowhead, coastal plain willow, saltbush, elderberry, spikerush, knotweed, buttonbush, and dog fennel.

- Animal Species - Typical animals include two-toed amphiuma, lesser siren, greater siren, cricket frog, green treefrog, bull frog, pig frog, leopard frog, alligator, eastern mud snake, green water snake, banded water snake, striped swamp snake, black swamp snake, great blue heron, great egret, snowy egret, little blue heron, tricolored heron, bald eagle, and northern harrier.

Bottomland Forest. Bottomland Forest is characterized as a low-lying, closed-canopy forest of tall, straight trees with either a dense shrubby understory and little ground cover, or an open understory and ground cover of ferns, herbs, and grasses. Bottomland Forest occurs on low-lying flatlands that usually border streams with distinct banks, such that water rarely overflows the stream channel to inundate the forest. They also occur in scattered low spots in basins and depressions that are rarely inundated, which allow typical upland species to survive. Soils are generally a mixture of clay and organic materials. The water table is high, but Bottomland Forests are inundated only during extreme floods or exceptionally heavy rains.

- Plant Species - Typical plants include water oak, live oak, red maple, sweetgum, loblolly pine, white cedar, cabbage palm, diamond-leaf oak, southern magnolia, loblolly bay, swamp tupelo, spruce pine, American beech, dahoon holly, wax myrtle, swamp dogwood, Florida elm, stiffcornel dogwood, and American hornbeam.

- Animal Species - Typical animals include marbled salamander, mole salamander, three-lined salamander, slimy salamander, five-lined skink, ringneck snake, gray rat snake, eastern king snake, cottonmouth, wood duck, red-tailed hawk, turkey, yellow-billed cuckoo, screech-owl, great-horned owl, ruby-throated hummingbird, acadian flycatcher, pileated woodpecker, hermit thrush, cedar waxwing, yellow-throated warbler, opossum, gray squirrel, flying squirrel, raccoon, mink, gray fox, bobcat, and white-tailed deer.

Depression Marsh. Depression Marsh is characterized as a shallow, usually rounded depression in sand substrate with herbaceous vegetation often in concentric bands. Depression Marshes are similar in vegetation and physical features to, but are generally smaller than, Basin Marshes. Depression Marshes are typical of karst regions where sand has slumped around or over a sinkhole and thereby created a conical depression subsequently filled by direct rain fall, runoff, or seepage from surrounding uplands. The substrate is usually acid sand with deepening peat toward the center.

- Plant Species - Typical plants include St. John's wort, spikerush, yellow-eyed grass, chain fern, willows, maidencane, wax myrtle, swamp primrose, bloodroot, buttonbush, fire flag, pickerelweed, arrowheads, and bladderwort. Larger and more permanent Depression Marshes may have many of the same plants and animals listed as typical of Basin Marshes. However, because of their isolation and small size, many Depression Marshes support a very different assemblage of species than that found in larger, more permanent wetlands.

- Animal Species - Depression marshes are considered extremely important in providing breeding or foraging habitat for such species as the flatwoods salamander, mole salamander, tiger salamander, dwarf salamander, striped newt, oak toad, cricket frog, pinewoods treefrog, barking treefrog, squirrel treefrog, little grass frog, southern chorus frog, ornate chorus frog, narrowmouth toad, eastern spadefoot toad, gopher frog, white ibis, wood stork and sandhill crane. Depression Marshes occurring as isolated wetlands within larger upland ecosystems are of critical importance to many additional wetland and upland animals.

Floodplain Marsh. Floodplain marshes are wetlands of herbaceous vegetation and low shrubs that occur in river floodplains, mainly in Central Florida and along the St. Johns, Kissimmee and Myakka rivers, on sandy alluvial soils with considerable peat accumulation. Emergent grasses, herbs, and shrubs that dominate Floodplain Marshes include sawgrass, maidencane, and buttonbush. Floodplain Marshes are maintained by regimes of fire and water. Fires apparently burn on a one- to five-year basis under natural conditions and maintain the open herbaceous community by restricting shrub invasion; however, severe fires during drought periods will often burn the mucky peat. Floodplain Marshes are flooded with flowing water for about 250 days annually.

- Plant Species - Other typical plants include sand cordgrass, dotted smartweed, arrowheads, pickerelweed, reimargrass, spikerush, bulrushes, bladderpod, common reed, coreopsis, glasswort, seashore dropseed, sea purslane, and water primrose.

- Animal Species - Typical animals include cricket frog, pig frog, leopard frog, American alligator, eastern mud snake, banded water snake, striped swamp snake, great blue heron, great egret, snowy egret, little blue heron, tricolored heron, black-crowned night-heron, yellow-crowned night-heron, northern harrier, sandhill crane, raccoon, and river otter.

Marsh Lakes. The distinctions between Marsh Lakes and Depression Marshes are quite subtle, because of their successional interrelationships. Depression Marsh is characterized as a shallow, generally round or elliptical depression vegetated with concentric bands of hydrophytic herbaceous plants. Depending upon the depth and slope of the depression, an open water zone with or without floating plants may occur at the center. The open water zone is considered to be a Marsh Lake if it is small in comparison to the surrounding marsh. Otherwise, the system is considered to be a Flatwoods Lake or a Prairie Lake, depending upon the surrounding community. In a Marsh Lake, fire maintains the surrounding open herbaceous community by restricting shrub invasion. The normal interval between fires is 1 to 10 years, with strictly herbaceous marshes burning about every 1 to 3 years, and those with substantial willow and buttonbush having gone 3 to 10 years without fire. Fires during drought periods will often burn the mucky peat and will convert the marsh into a Marsh Lake. The depressions in which Marsh lakes develop are typically formed by solution holes form in the underlying limestone, causing surface sands to slump into a circular depression. Soils in these depressions generally consist of acidic sands with some peat and occasionally a clay lens. Water is derived mostly from runoff from the immediately surrounding uplands. These marshes function as aquifer recharge areas by acting as reservoirs, which release groundwater when adjacent water tables drop during drought periods.

- Plant Species - Marsh Lakes are often surrounded by either a sparse, Wet Prairie-like zone or a dense ring of saw palmetto and other shrubs. Typical plants include spikerush, yellow-eyed grasses, St. John's wort, chain fern, coastal plain willow, maidencane, wax myrtle, water primrose, floating heart, buttonbush, fire flag,

pickerelweed, arrowhead, bladderworts, bottlebrush threeawn, toothache grass, star rush, bulrushes, sawgrass, and nut sedge.

- Animal Species - Many animals utilize marshes primarily for feeding and breeding areas but spend most of their time in other habitats. Other animals are more dependent on marshes, spending most of their time within them. Typical animals include amphiuma, lesser siren, greater siren, cricket frog, green treefrog, bullfrog, pig frog, leopard frog, alligator, eastern mud snake, banded water snake, green water snake, striped crayfish snake, black swamp snake, American bittern, least bittern, great blue heron, great egret, snowy egret, little blue heron, tricolored heron, green-backed heron, black-crowned night-heron, white ibis, glossy ibis, bald eagle, northern harrier, king rail, Virginia rail, sora, limpkin, long-billed marsh wren, yellowthroat, red-winged, blackbird, boat-tailed grackle, and Florida water rat.

Mesic Flatwoods. Mesic Flatwoods are more commonly referred to as pine flatwoods (upland pine) and are characterized by their open canopy of widely spaced pine trees with little or no understory, but a dense ground cover of herbs and shrubs. Several variations of Mesic Flatwoods are recognized, the most common associations being longleaf pine - wiregrass - runner oak and slash pine - gallberry - saw palmetto. Mesic Flatwoods occur on relatively flat, moderately to poorly drained terrain. The soils typically consist of 1-3 feet of acidic sands generally overlying an organic hardpan or clayey subsoil. The hardpan substantially reduces the percolation of water below and above its surface. During the rainy seasons, water frequently stands on the hardpan's surface and briefly inundates much of the flatwoods; while during the drier seasons, ground water is unobtainable for many plants whose roots fail to penetrate the hardpan. Thus, many plants are under the stress of water saturation during the wet seasons and under the stress of dehydration during the dry seasons. Another important physical factor in Mesic Flatwoods is fire, which probably occurred every 1 to 8 years during pre-Columbian times. Nearly all plants and animals inhabiting this community are adapted to periodic fires; several species depend on fire for their continued existence. Without relatively frequent fires, Mesic Flatwoods succeed into hardwood-dominated forests whose closed canopy can essentially eliminate the ground cover herbs and shrubs.

- Plant Species - Pant species typical of Mesic Flatwoods include longleaf pine, slash pine, wire grass, saw palmetto, gallbery, St. john-wort, dwarf huckleberry, fetterbush, dwarf wax myrtle, stagger bush, blueberry, gopher apple, tar flower, bog buttons, blackroot, false foxglove, white-topped aster, yellow-eyed grass, and cutthroat grass.

- Animal Species - Typical animals of Mesic Flatwoods include: oak toad, little grass frog, narrowmouth toad, black racer, red rat snake, southeastern kestrel, brown-headed nuthatch, pine warbler, Bachman's sparrow, cotton rat, cotton mouse, black bear, raccoon, gray fox, bobcat, and white-tailed deer.

Seepage Slope. Seepage Slopes are wetlands characterized as shrub thickets or boggy meadows on or at the base of a slope where moisture is maintained by downslope seepage such that the ground is usually saturated but rarely inundated. They generally occur where water percolating down through the sand hits an impermeable layer, such as clay or rock. Seepage Slope soils are acidic, loamy sands with low nutrient availability that are constantly saturated by seepage except during droughts. They are rarely inundated, although small pools and rivulets are common.

- Plant Species - Typical plants include pond pine, slash pine, longleaf pine, titi, fetterbush, myrtle-leaved holly, black titi, ale-berry, large gallberry, dahoon holly, gallberry, white cedar, tulip poplar, wax myrtle, odorless wax myrtle, blueberry, dog-hobble, racemed fetterbush, sweet pepperbush, possumhaw, Virginia willow, laurel greenbrier, wiregrass, pitcher plants, beakrush, cutthroatgrass, orchids, cinnamon fern, chain fern, bluestem, yellow-eyed grass, and an array of insectivorous plants. A large number of orchids, insectivorous plants, showy wildflowers and other plant species associated with this natural community are rare or endemic and considered endangered or threatened.

- Animal Species - Typical animals include the pine barrens treefrog, squirrel treefrog, ribbon snake, and cottonmouth.

Upland Mixed Forest / Mesic Hammock. Upland Mixed Forests are characterized as well-developed, closed-canopy forests of upland hardwoods on rolling hills. Upland Mixed Forests occur on rolling hills that often have limestone or phosphatic rock near the surface and occasionally as outcrops. Soils are generally sandy-clays or clayey sands with substantial organic and often calcareous components. The topography and clayey soils increase surface water runoff, although this is counterbalanced by the moisture retention properties of clays and by the often thick layer of leaf mulch which helps conserve soil moisture and create decidedly mesic conditions.

- Plant Species - Common species of this community type include southern magnolia, pignut hickory, sweetgum, Florida maple, devil's walking stick, American hornbeam, redbud, flowering dogwood, Carolina holly, American holly, eastern hophornbeam, spruce pine, loblolly pine, live oak, and swamp chestnut oak, among others. Other typical plants include gum bumelia, hackberry, persimmon, red cedar, red mulberry, wild olive, redbay, laurel cherry, black cherry, bluff oak, water oak, cabbage palm, basswood, winged elm, Florida elm, sparkleberry, Hercules' club, slippery elm, beautyberry, partridgeberry, sarsaparilla vine, greenbrier, trilliums, beech drops, passion flower, bedstraw, strawberry bush, silverbell, caric sedges, fringe tree, horse sugar, white oak, and blackgum.

- Animal Species - Typical animals species of the mesic system include slimy salamander, Cope's gray treefrog, bronze frog, box turtle, eastern glass lizard, green anole, broadhead skink, ground skink, red-bellied snake, gray rat snake, rough green snake, coral snake, woodcock, barred owl, pileated woodpecker, shrews, eastern mole, gray squirrel, wood rat, cotton mouse, gray fox, and white-tailed deer.

Wet Flatwoods. Wet Flatwoods are characterized as relatively open-canopy forests of scattered pine trees or cabbage palms with either thick shrubby understory and very sparse ground cover, or a sparse understory and a dense ground cover of hydrophytic herbs and shrubs. Several variations exist between these extremes. Wet Flatwoods occur on relatively flat, poorly drained terrain. The soils typically consist of 1 to 3 feet of acidic sands generally overlying an organic hardpan or clay layer. The hardpan substantially reduces the percolation of water below and above its surface. During the rainy season, water frequently stands on the surface, inundating the flatwoods for 1 or more months per year. During the drier seasons, ground water is less accessible for many plants whose roots fail to penetrate the hardpan. Thus, many plants are under the stress of water saturation during the wet seasons, and under the stress of dehydration during the dry seasons.

Another important physical factor in Wet Flatwoods is fire. Natural fires probably occurred every 3 to10 years during pre-Columbian times. Nearly all plants and animals inhabiting this community are adapted to periodic fires, and several species depend on fires for their continued existence. Without relatively frequent fires, Wet Flatwoods succeed into hardwood dominated forests whose closed canopy would essentially eliminate the ground cover herbs and shrubs. In fact, much of the variation in community structure is probably associated with fire frequency. Thus, the longer the period of time since the last fire, the more developed will be the understory shrubs. If the understory is allowed to grow for too long, the accumulation of needle drape and the height of flammable understory shrubs will increase the probability of a catastrophic canopy fire.

- Plant Species -Typical plants include pond pine, slash pine, sweetbay, spikerush, beakrush, sedges, dwarf wax myrtle, gallberry, titi, saw palmetto, creeping beggarweed, deer tongue, gay feather, greenbrier, bluestem, and pitcher plants.

- Animal Species - Typical animals include oak toad, cricket frog, chorus frog, black racer, yellow rat snake, diamondback rattlesnake, pygmy rattlesnake, red-shouldered hawk, bobwhite, opossum, cottontail rabbit, cotton rat, cotton mouse, raccoon, striped skunk, bobcat, and white-tailed deer.

Xeric Hammock. Xeric Hammock is characterized as either a scrubby, dense, low canopy forest with little understory other than palmetto, or a multi-storied forest of tall trees with an open or closed canopy. Several gradations between these extremes exist. Xeric Hammock is an advanced successional stage of Scrub or Sandhill. The variation in vegetation structure is predominantly due to the original community from which it developed. In all cases, however, the soils consist primarily of deep, excessively-drained sands that were derived from old dune systems. The scarcity of herbs and the relatively incombustible oak litter preclude most fires from invading Xeric Hammock. When fire does occur, it is nearly always catastrophic and may revert Xeric Hammock into another community type. Xeric Hammock only develops on sites that have been protected from fire for 30 or more years. Xeric Hammocks are often associated with and grade into Scrub, Sandhill, Upland Mixed Forest or Slope Forest.

- Plant Species - Typical plants found in Xeric Hammock forest include live oak, sand live oak, laurel oak, turkey oak, blackjack oak, red oak, sand post oak, staggerbush, saw palmetto, sparkleberry, pignut hickory, southern magnolia, redbay, American holly, wild olive, black cherry, fox grape, beautyberry, bluejack oak, Chapman's oak, persimmon, and yaupon.

- Animal Species - Animals typically found in this community type include barking treefrog, spadefoot toad, gopher tortoise, worm lizard, fence lizard, black racer, red rat snake, hognose snake, crowned snake, screech-owl, turkey, blue jay, eastern mole, gray squirrel, and eastern flying squirrel.

C. *Invasive Non-Native Plants (Invasive)*

Management of invasive plants began in Florida in 1899, when the 55th Congress authorized the U.S. Army Corps of Engineers (USACE) through the Rivers and Harbor Act to crush, divert, or remove water hyacinth from access areas of the St. Johns River. In May of 1899, the Florida Legislature prohibited the planting of water hyacinth in waters of the State of Florida. Thus, began Florida's long battle with invasive plants and the beginning of regulations to prevent their expansion. The definition of an invasive species, not necessarily plants, is exotic – a non-indigenous species, or one introduced to this state, either purposefully or accidentally; a naturalized exotic is defined as escaped into the wild where it reproduces on its own either sexually or asexually; while a native is a species already occurring in Florida at the time of European contact (1500).

The following four sources identify specific invasive non-native plants for the North Florida region: The IFAS Assessment of Non-Native Plants in Florida's Natural Areas, the Department of Agriculture's "Noxious Weed List", the Department of Environmental Protection's "Prohibited Plant List" and the Florida Exotic Pest Plant Council's "Florida's Most Invasive Species List".

Many consider invasive non-native plants a serious threat to native species, communities, and ecosystems. They can compete with and displace native plants, animals, and other organisms that depend on them, alter ecosystem functions and cycles significantly. However, it is also true that many species now considered natives were invaders at some point in the past and that in certain circumstances only these adaptable and hardy species survive. Most land management of Florida natural areas is based on returning ecosystems to a pre-European colonization (1500s) status. Determining what the status was at that time is generally based on

either historical documentation such as survey field notes, diagrams and journals or on soil properties that indicate previous land uses and seed sources.

All of the University's Conservation Areas have been documented to contain invasive exotic plants. In some areas like President's Park, these invasive plants have literally overrun the place, changing a forested park into an overgrown thicket of vines. Restoration of this and other areas will take active and continuous management. Currently, the University is working on a pilot project with the City of Gainesville to eradicate invasives in Hogtown Creek Woods and in the Natural Areas Teaching Lab. This project is the result of a successful grant application to the Withlacoochee Regional Planning Council. The grant was the number #1 ranked project submitted and was awarded $21,063.13 in 2004.

Treatment of Invasive Plants. In order to manage invasive non-native plants in Florida natural areas, land managers primarily use herbicides and / or mechanical harvesting to contain and in time eliminate these alien invaders. Other treatments techniques include biological controls, which uses predators of the plants from there native territory to try and contain their expansion and fire management, which can be effective on plants not adapted to fire dominated ecosystems. The following discussion from the Florida Exotic Pest Plant Council on invasive non-native plant control types provides an overview of each treatment technique.

- Herbicidal Control - Many woody plant species can be controlled with herbicides applied in a variety of ways. The most common application methods are foliar spray, stump treatment, basal soil treatment, and basal bark application. In foliar treatments the herbicides are pre-mixed with diluent and sprayed onto the foliage of the plant. Usually the leaves are "sprayed-to-wet" which means applying only enough solution to begin running off the leaf surface. Basal soil treatments can be used with either liquid or dry formulations. The material is broadcast onto the soil under the canopy of the tree. Rainfall carries the herbicide into the root zone of the plant where it is absorbed by the roots. The basal bark application consists of the herbicide solution being applied, most commonly by back-pack sprayer, in a wide band on the stems of the plants near the base. The material is absorbed into the plant and translocated throughout the plant. Another technique is to treat the stump with a herbicide solution immediately after cutting the tree at or near ground level. There are other application methods such as the "frill and girdle", and various direct injection techniques for the control of exotic species. However, these methods are not practical for controlling Brazilian pepper. Aerial application of herbicides can be used in areas that are remote or where there are large monotypic stands.

- Mechanical Control - Mechanical control is accomplished through the use of heavy equipment such as bulldozers, front end loaders, root rakes and other specialized equipment. The use of heavy equipment is sometimes not suitable in natural areas. Once undisturbed soils have been unsettled, they are susceptible to invasion by invasive exotic pest-plants. Mechanical control is accepted along ditch banks, utility rights-of-way and other disturbed areas. As follow-up, a herbicide application is highly recommended to prevent regrowth from the remaining stumps. Stumps that fail to be chemically treated will resprout and continue to infest natural areas and wetlands.

- Biological Control - involves moving host specific natural enemies from the native range of the weed to its introduced range. The goal is to reduce weed abundance to a level that can be tolerated.

Biological control does not eradicate weeds. It simply restores a natural balance between the weed and its enemies. Biological control can be self-regulating since the introduced natural enemies often become part of the ecosystem. Biological control is not a quick fix. The period of time between initiation of a weed bio-control program and when the first natural enemy is released is measured in years. Release must be approved by both state and federal agencies. Releases require propagation of large numbers and distribution in the field followed by monitoring to determine whether establishment has occurred and how effective the natural enemies are.

- Other - Plants can be stressed, or even killed, by the physical environment. Temperature and salinity variations, water level fluctuations, and the presence or absence of fire are examples of physical conditions that can dictate vegetation patterns. Land managers use many of these natural limiting factors to manipulate the environment for vegetation management. More often than not, however, nature controls these physical changes and the land manager is forced to take a side seat and observe the changes.

D. *Soils*

The following soils descriptions are based on information from the Soil Survey of Alachua County (1985) and are found on the University of Florida main campus.

Apopka Sand (0-5% slope, Main Campus & Satellite Properties). This nearly level to gently sloping, well-drained soil is in relatively small areas of the deep, sandy uplands. Slopes are nearly smooth or slightly convex. Typically, the surface layer is dark grayish brown sand about 5 inches thick. The subsurface layer is sand to a depth of 61 inches. In this Apopka soil, the available water capacity is very low to a depth of 61 inches and is medium below. Permeability is rapid in the sandy surface and subsurface layers and moderate in the loamy subsoil. Natural fertility of the soil is low. The organic matter content of the surface layer is usually low. Natural vegetation is turkey, bluejack, post and sand live oak and longleaf pine. The understory is mostly pineland threeawn, indiangrass, some bluestem, panicum and brackenfern.

Arredondo Fine Sand (5-8% slope, Main Campus & Satellite Properties). This sloping, well-drained soil is in small areas on sharp breaking slopes and in relatively large areas on long slopes of the uplands. Typically, the surface layer is dark grayish brown fine sand about 5 inches thick. The subsurface layer is yellowish brown fine sand to a depth of 65 inches. The available water capacity is low in the surface and subsurface layers and medium in the subsoil. Organic matter content is low. Natural vegetation of this soil includes slash and longleaf pine, live and water oaks, hickory and dogwood. The understory is shrubs and native grasses, lopsided indiangrass, creeping bluestem and several varieties of panicum are some of the most common of the native grasses.

Arredondo Urban Land Complex (0-5% slope, Main Campus). This complex consists of well drained nearly level to gently sloping Arredondo soils and Urban Land. About 50 to 85% of each delineation is open areas of Arredondo soils. These open areas are gardens, vacant lots, lawns or playgrounds. About 15 to 50% of each delineation is urban land. Urban land consists of areas covered with buildings, streets, parking lots, sidewalks and other structures. Typically, the surface layer of Arredondo soils is dark grayish brown fine sand about 6 inches thick. The subsurface layer is brownish yellow to yellowish brown fine sand to a depth of 47 inches. The available water capacity of Arredondo soil is low in the surface and subsurface layer and low to medium in the subsoil. Organic matter content and natural fertility are low. Natural vegetation is slash, loblolly, longleaf pine, live, laurel, water oak, hickory and dogwood. The understory consists of a cover of adapted low growing herbs and shrubs.

Bivans Sand (2-5% slope, Main Campus). This gently sloping, poorly drained soil is on relatively broad flats and at the base of the rolling uplands. The areas are irregular in shape and range from about 10 to 55 acres. Typically the surface layer is dark gray sand about 6 inches thick. The subsurface layer is gray sand 9 inches thick. This Bivans soil has a perched water table that is in the surface and subsurface layers and the upper part of soil for 1 to 4 months during most years. Surface runoff is moderate. The available water capacity is low to medium. Permeability is moderate to moderately rapid in the surface and subsurface layers. Natural fertility is low to medium. Organic matter content of the surface layer is moderately low to moderate. Natural vegetation is slash, longleaf, and loblolly pines; live, laurel, and water oaks; and sweetgum, hickory, holly and magnolia. The understory is chiefly waxmyrtle, blackberry, greenbrier, bluestem, low paspalum, pineland threeawn, and dwarf huckleberry

Bivans Sand (5-8% slope, Main Campus). This is a sloping, poorly drained soil on short breaking slopes and along hillsides of the uplands. Typically, the surface layer is dark gray sand about 5 inches thick. The subsurface layer is light brownish gray sand about 5 inches thick. In the Bivans soil, the subsurface layer and upper part of the subsoil are saturated by a perched water table for 1 to 3 months during most years. Permeability is moderate to moderately rapid in the surface and subsurface layers. Natural fertility is low to medium and the organic matter content is moderately low to moderate in the surface layer. Natural vegetation is slash and loblolly pines, live, laurel and water oaks and sweetgum, hickory and magnolia.

Blichton Urban Land Complex (0-5% slope, Main Campus). This complex consists of poorly drained, nearly level to gently sloping Blichton soils and Urban land. It is irregularly shaped with relatively small areas. About 50 to 85 percent of each delineation is open areas of Blichton soils. These open areas are gardens, vacant lots, lawns and playgrounds. About 15 to 50 percent of each delineation is Urban land. Urban land consists of areas covered with houses, streets, parking lots, sidewalks, industrial buildings and other structures. Typically, the surface layer of Blichton soils is dark grayish brown sand about 6 inches thick. The subsurface layer is grayish brown to light brownish gray sand about 22 inches thick. In the Blichton soils, the water table is within 10 inches of the surface for about 1 to 4 months during most years. Natural fertility is low. Organic matter content is low to moderate. Natural vegetation is slash, longleaf and loblolly pines, sweetgum, magnolia, hickory, maple waxmyrtle, pineland threeawn and other adapted shrubs and herbs.

Blichton Sand (2-5% slope, Main Campus & Satellite Properties). This gently sloping, poorly drained soil is on gently rolling uplands. Slopes are slightly convex. The areas are mostly irregular in shape and elongated and range from 10 to 40 acres. Typically the surface layer is dark grayish brown sand about 6 inches thick. It is about 3 percent nodules of ironstone and fragments and nodules of phosphatic limestone. The subsurface layer extends to a depth of 28 inches. The upper 7 inches is grayish brown sand and it has about 2 percent nodules of ironstone and fragments of phosphatic limestone. In Blichton soil, the subsurface layer and the upper part of the subsoil are saturated by a perched water table for 1 to 4 months during most years. Surface runoff is medium. The available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. Natural fertility is low to medium and organic matter content is moderately low to moderate. Natural vegetation consists of hickory, magnolia, pineland, three awn, slash, longleaf, loblolly pines, sweet gum and bluestem.

Bonneau Fine Sand (0-5% slope, Main Campus). This gently sloping, moderately well drained soil is in small to relatively large areas on uplands. Slopes are generally convex. Typically, the surface layer is dark gray fine sand about 9 inches thick. The subsurface layer is brownish yellow fine sand to a depth of 29 inches. The Bonneau soil has a water table that is at a depth of 40 to 60 inches for 1 to 3 months and at a depth of 60 to 72 inches for 2 to 3 months during most years. Surface runoff is slow. Permeability is moderately slow to moderate in the upper part of the subsoil and very slow to slow in the lower part. The available water capacity is low in the sandy surface and subsurface layers. Natural fertility is low in the sandy layers and medium in the loamy subsoil. Organic matter content is low to moderately low in the surface layer. The natural vegetation is chiefly slash, longleaf and loblolly pines, laurel, live, water and red oaks and hickory, dogwood and sweetgum. The understory consists of wild grape, American beautyberry and waxmyrtle.

Bonneau Sand (2-5% slope, Main Campus). This gently sloping, moderately well drained soil is in small to relatively large areas on uplands. Slopes are generally convex. Typically, the surface layer is dark gray fine sand about 9 inches thick. The subsurface layer is brownish yellow fine sand to a depth of 29 inches. The Bonneau soil has a water table that is at a depth of 40 to 60 inches for 1 to 3 months and at a depth of 60 to 72 inches for 2 to 3 months during most years. Surface runoff is slow. Permeability is moderately slow to moderate in the upper part of the subsoil and very slow to slow in the lower part. The available water capacity is low in the sandy surface and subsurface layers. Natural fertility is low in the sandy layers and medium in the loamy subsoil. Organic matter content is low to moderately low in the surface layer. The natural

vegetation is chiefly slash, longleaf and loblolly pines, laurel, live, water and red oaks and hickory, dogwood and sweetgum. The understory consists of wild grape, American beautyberry and waxmyrtle.

Candler fine sand (0-5 % slope, Satellite Properties). This nearly level to gently sloping, excessively drained soil is in the deep sandy uplands. Slopes are nearly smooth to convex. Typically, the surface layer is very dark grayish brown fine sand about 6 inches thick. The underlying layers are fine sand to a depth of 82 inches or more. This Candler soil has low available water capacity. Permeability is rapid. Natural fertility of the soil is low. Natural vegetation is mostly turkey, bluejack, post and scrub live oak and longleaf pine.

Chipley Sand (flat, Satellite Properties). This nearly level, somewhat poorly drained soil is in relatively small areas of the broad flatwoods and in both small and large areas on the transition between broad flatwoods and rolling uplands. Typically, the surface level is sand about 12 inches thick. The upper 6 inches is very dark gray and the lower 6 inches is dark grayish brown. The underlying layers are sand to a depth of more than 81 inches. This Chipley soil has a water table that is 20 to 40 inches below the surface for 2 to 4 months during most years. During extremely wet seasons, the water table rises to a depth of 15 to 20 inches for brief periods. Natural vegetation of this soil is slash and longleaf pine and water, laurel, and live oak.

Kanapaha Sand (0-5% slope, Main Campus). This soil consists of nearly level to sloping, poorly drained soils that formed in thick beds of sandy and loamy marine deposits. The water table is at a depth of less than 10 inches for 1 to 3 months and at a depth of 10 to 40 inches for 3 to 4 months during most years. Natural fertility is low to medium. Organic matter content of the surface layer ranges from moderately low to moderate. The natural vegetation is chiefly slash and loblolly pine, water, live and laurel oak, sweetgum and holly. The understory is mostly waxmyrtle, low paspalum, pineland threeawn, longleaf uniola, hairy panicum, fringeleaf paspalum, huckleberry and some bluestems.

Kendrick Sand (2-5% slope, Main Campus). This gently sloping, well-drained soil is in both small and large areas on the gently rolling uplands. These areas are mostly irregularly shaped or elongated and range from about 20 to 200 acres. Typically the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is yellowish brown loamy sand to a depth of 26 inches. In this Kendrick soil, the available water capacity is low in the surface and subsurface layers, medium in the upper 5 inches of the subsoil, and medium to high below this depth. Permeability is rapid in the surface and subsurface layers. Permeability is moderate to moderately rapid in the upper 5 inches of the subsoil, moderately slow to moderate in the next 42 inches, and slow in the lower 17 inches. Natural fertility is low in the sandy surface layer and medium in the loamy subsoil. Surface runoff is moderately slow. Natural vegetation of this soil is chiefly slash, loblolly and longleaf pines, oak, dogwood, hickory, magnolia and sweetgum. The understory consists of several varieties if bluestem, lopsided indiangrass, toothachegrass, hairy panicum, fringeleaf paspalum, briers, creeping beggarweed, eastern bracken, huckleberry, blueberry, greenbrier, and sedges

Lochloosa Fine Sand (2-5% slope, Main Campus & Satellite Properties). This gently sloping, somewhat poorly drained soil is in small and large areas on the rolling uplands. Typically, the surface layer is dark gray fine sand about 7 inches thick. The subsurface layer is yellowish brown loamy sand or sand to a depth of 31 inches. This soil has a water table that is about 30 to 40 inches below the surface for 1 to 4 months during most years. Surface runoff is slow. The available water capacity is low to medium in the sandy surface and subsurface layers and medium in the subsoil. The natural vegetation of this soil is chiefly slash and loblolly pines, oak, dogwood, hickory, magnolia and sweetgum. The understory consists chiefly of waxmyrtle, wildgrape, dwarf huckleberry, toothachegrass, several varieties of bluestems, low panicums and creeping beggarweed.

Lochloosa Soil (2-5% slope, Main Campus). This gently sloping, somewhat poorly drained soil is in small and large areas on the rolling uplands. Typically, the surface layer is dark gray fine sand about 7 inches thick. The subsurface layer is yellowish brown loamy sand or sand to a depth of 31 inches. This soil has a water

table that is about 30 to 40 inches below the surface for 1 to 4 months during most years. Surface runoff is slow. The available water capacity is low to medium in the sandy surface and subsurface layers and medium in the subsoil. The natural vegetation of this soil is chiefly slash and loblolly pines, oak, dogwood, hickory, magnolia and sweetgum. The understory consists chiefly of waxmyrtle, wildgrape, dwarf huckleberry, toothachegrass, several varieties of bluestems, low panicums and creeping beggarweed.

Mascotte (flat, Satellite Properties). This soil consists of very deep, poorly and very poorly drained, moderately slowly permeable soils on areas of flats, depressions, and on low stream terraces of the lower Coastal Plain. Natural vegetation consists of creeping and chalky bluestem, indiangrass, low panicums, and pineland threeawn. Longleaf pine, slash pine, sawpalmetto, gallberry, fetterbush, and waxmyrtle are the dominant woody plants on flatwoods sites. Depressional areas are dominated by cypress, slash pine, sand pine, loblolly bay, black gum, red bay, red maple, and sweetbay. The understory includes chalky bluestem, cinnamon fern, club moss, yelloweyed grass, pitcher plant, greenbriar, and sedges.

Millhopper Sand (0-5% slope, Main Campus & Satellite Properties). This nearly level to gently sloping, moderately well drained soil is in small and large irregularly shaped areas on uplands and slightly rolling knolls in the broad flatwoods. Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is sand or fine sand about 49 inches thick. This Millhopper sand has a water table that is at a depth of 40 to 60 inches for 1 to 4 months and at a depth of 60 to 72 inches for 2 to 4 months during most years. Natural vegetation of this soil consists of live laurel, post, water oaks, sweet gum, cherry laurel, hickory, slash and longleaf pines. The understory is chiefly lopsided indiangrass, hairy panicum, low panicum, green brier, hawthorn, persimmon, fringeleaf paspalum, hoary tickclover, dwarf huckleberry, chalky and creeping bluestems and pineland threeawn.

Millhopper Sand (5-8% slope, Main Campus). This sloping moderately well drained soil is in small areas on narrow breaks and on long slopes of rolling uplands. Typically the surface layer is dark grayish brown sand about 7 inches thick. The subsurface layer is sand about 47 inches thick. This Millhopper soil has a water table that is at a depth of 40 to 60 inches for 1 to 2 months and at a depth of 60 to 72 inches for 2 to 3 months during most years.

Millhopper Urban Land Complex (0-5% slope, Main Campus). This complex consists of moderately well drained, nearly level to gently sloping Millhopper soils and Urban Land. The areas are irregular in shape and range from about 15 to 250 acres. This complex is within the most urbanized areas. About 50 to 85 percent of each delineation is open areas of Millhopper soils. These open areas are vacant lots or are used for gardens, lawns, parks or playgrounds. About 15 to 50 percent of each delineation is Urban land covered with buildings, streets, parking lots, sidewalks and other structures. Typically the surface layer of Millhopper soils is dark grayish brown sand about 9 inches thick. The subsurface layer is yellowish brown to pale brown sand about 49 inches thick. The available water capacity is low in the surface and subsurface layers and low to medium in the subsoil. Natural vegetation of this unit consists chiefly of live, laurel, post and water oaks, sweetgum, cherry laurel, a few hickory, slash and longleaf pines. The understory is chiefly lopsided indiangrass, hairy panicum, low panicum, greenbrier, hawthorn, persimmon, fringeleaf paspalum, hoary tickclover, dwarf huckleberry, chalky and creeping bluestems and pineland threeawn.

Monteocha Loamy Sand (0-2% slope, Main Campus & Satellite Properties). This nearly level, very poorly drained soil is in wet ponds and shallow depressional areas in the flat woods. Slopes are less than 2 precent. Typically, the surface layer is black loamy sand about 12 inches thick. The subsurface layer is light brownish gray sand to a depth of 18 inches. The Monteocha soil has a water table that is within 10 inches of the surface for more than 6 months during most years. Natural fertility is medium in the surface layer and low in the subsurface layer and subsoil. Organic matter content is high to very high in the surface layer. The natural vegetation is chiefly cypress. Some swamp tupelo, pond pine, bay and other water-tolerant hardwoods are in some areas. Water-tolerant grasses grow in a few areas. Most of the areas are still in native vegetation.

Mulat Sand (flat, Satellite Properties). This nearly level, poorly drained soil is in broad areas of the flatwoods. Typically, the surface layer is sand about 8 inches thick. The upper 5 inches is very dark gray, and the lower 3 inches is dark gray. This Mulat soil has a water table that is at depth of 10 inches for 2 to 4 months and at a depth 10 to 30 inches for about 2 to 4 months of the year. Permeability is moderately rapid in the surface and subsurface layers and slow to moderately slow in the subsoil. Natural fertility is low, and organic matter content of the surface layer ranges from moderate to moderately low. The natural vegetation of this soil is chiefly slash pine. The understory is gallberry, waxmyrtle, pineland threeawn, dwarf huckleberry, brakenfern, bluestem, and panicum.

Myakka Sand (flat, Satellite Properties). This nearly level, poorly drained soil is in broad areas of the flatwoods. Typically, the surface layer is dark grayish brown sand about 8 inches thick. The underlying layers are sand to a depth of more than 82 inches or more. This Myakka soil has a water table that is a depth of less than 10 inches for 1 to 4 months and at a depth of 10 to 40 inches for 2 to 4 months during most years. Permeability is rapid to a depth of about 24 inches, moderate to moderately rapid form 24 to 30 inches, and rapid below a depth of 30 inches. Natural fertility and organic content are low. The natural vegetation of this soil is longleaf and slash pines. The understory is sawpalmetto, running oak, gallberry, briers, brakenfern, and other native forbs and grasses.

Newnan Sand (Flat, Main Campus). This nearly level, somewhat poorly drained soil is in small to relatively large areas in flatwoods. Typically, the surface layer is dark gray sand about 5 inches thick. The subsurface layer is light brownish gray sand to a depth of 12 inches. This Newnan soil has a water table that is at a depth of 18 to 30 inches for 1 to 2 months during most years and at a depth of 30 to 60 inches for 2 to 5 months. The available water capacity is very low-to-low. Permeability is rapid to a depth of about 12 inches. Natural fertility is low in the sandy upper 56 inches. Most areas are still in natural vegetation, which is chiefly longleaf and slash pines and water oak. The understory is running oak, palmetto, waxmyrtle, huckleberry, brackenfern, blueberry, briars, gallberry, bluestem and pineland threeawn.

Norfolk Loamy Fine Sand (2-5% slope, Satellite Properties). This gently sloping, well drained soil is in relatively small areas or the rolling uplands. Typically, the surface layer is dark grayish brown loamy fine sand about 9 inches thick. The subsurface soil extends to a depth of 62 inches. This Norfolk soil has a water table that is at a depth of about 49 inches to 72 inches for 1 to 3 months during most years. Permiability is rapid in the surface layers, moderately slow in the upper part of the subsoil, and very slow to slow in the lower part. Natural fertility is is lwo in the sandy surface and subsurface layers and medium in the sandy clay loam and sandy clay subsoil. The natural vegetation of this soil is chiefly slash and loblolly pines, oak, hikory, dogwoods and sweetgums. The understory consists chiefly of toothachegrass, harry panicum, fringleaf paspalum, low panicum, blackberry, greenbrier, creeping beggarweed, dwarf huckleberry, and various bluestems.

Oleno Clay (**occasionally flooded, Satellite Properties).** This nearly level, poorly drained soil is in small to relatively large areas on the floodplain of the Santa Fe River. Typically, the surface layer is dark gray clay about 6 inches thick. The subsoil is dark gray and about 26 inches thick. This soil is occasionally flooded with a water table depth of 6 to 18 inches for 6 to 8 months during most years. Permeability is slow in the clayey surface and subsurface layers. The natural vegetation is chiefly black tupelo, cypress, elm, red maple, holly, sweetgum, sweetbay magnolia, water oak and scattered pine. The understory includes poison ivy, longleaf uniola, greenbriar, dollarwaort, smilax, panicum, and a few saw palmettos.

Pelham Sand (flat, Satellite Properties). This nearly level, somewhat poorly drained soil is in small and large areas in the flatwoods. Typically, the surface layer is sand about 7 inches thick. The upper 4 inches is very dark gray and the lower 3 inches is dark gray. The subsurface layer is sand about 22 inches thick. This Pelham soil has a water table that is less than 10 inches below the surface for 1 to 4 months during most

years. The water table recedes below a depth of 40 inches during dry seasons. The organic content is moderately low. Natural vegetation includes maple, slash pine, and sweetgum. The understory is chiefly gallbery, waxmyrtle, briers, holly and native grasses.

Pickney (flat, Satellite Properties). This nearly level, poorly drained soil is in small and large areas in the flatwoods. The water table occurs at depths of less than 10 inches below the soil surface for more than 8 months during most years. During the drier seasons the water table may recede to a depth of 20 inches. Permabilty is rapid. Natural vegetation includes pond pine, baldcypress, sweetgum, water tupelo, black tupelo, and water oak. The understory consists of waxmyrtle, fern, maiden cane, and large gallberry.

Plummer Fine Sand (flat, Satellite Properties). This nearly level, poorly drained soil is in broad areas of the flatwoods. Typically, the surface layer is black fine sand about 6 inches thick. The subsurface layer is fine sand to a depth of 42 inches. This Plummer soil has a water table that is at a depth of less than 10 for 1 to 3 months and is at a depth of 10 to 40 inches for about 3 to 4 months during most years. Permeability is moderately rapid to rapid in the surface and subsurface layers and moderate in the subsoil. Natural fertility is low. The natural vegetation of this soil is chiefly longleaf and slash pines. The understory is gallberry, waxmyrtle, pineland threeawn, dwarf huckleberry, brakenfern, bluestem, and panicum.

Pomona Sand (0-2% slope, Main Campus & Satellite Properties). This nearly level, poorly drained soil is in small and large areas in the flatwoods. Slopes are nearly smooth and range from 0 to 2 percent. Typically, the surface layer is very dark gray sand about 5 inches thick. The subsurface layer is sand to a depth of 16 inches. In this Pomona soil, the water table is within 10 inches of the surface for 1 to 3 months during most years. The available water capacity is low to medium in the surface and subsurface layers and it ranges from low to high in the subsoil. Permeability is rapid to very rapid in the surface and subsurface layers. Natural vegetation of this soil is a forest of longleaf and slash pine. The understory is sawpalmetto, waxmyrtle, gallberry, bracken fern, pineland threeawn, blueberry, huckleberry, bluestem and running oak.

Pompano Sand (flat, Satellite Properties). This nearly level, poorly drained soil is on poorly defined flats in the broad flatwoods and in shallow depressions in the sand, rolling uplands. Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying layers are sand to a depth of 82 inches or more. This Pompano soil has a water table that is less than 10 inches from the surface for 2 to 6 months during most years. Organic content of the surface layer is moderately low to moderate. The natural vegetation of this soil is chiefly slash pine. The understory is gallberry, waxmyrtle, pineland threeawn, dwarf huckleberry, brakenfern, bluestem, and panicum.

Samsula Muck (0-1% slope, Main Campus). This nearly level, very poorly drained organic soil is in large and small swamps, marshes and ponded areas in the broad flatwoods. Slopes are usually slightly concave and range from 0 to 1 percent. Areas are either circular, irregular in shape, or elongated. Typically, the surface layer is muck about 35 inches thick. The upper 8 inches is very dark brown and the lower 27 inches is very dark gray. The Samsula soil has water at or on the surface for more than 6 months during most years. The water table is within 10 inches of the surface for most of the remainder of the year, except during long extended dry periods. The available water capacity is very high in the organic layer. The natural vegetation of the soil is chiefly cypress, Bay, black gum and swamp maple are in some areas. Water-tolerant grasses are in few areas. Most areas of this soil are still in natural vegetation.

Sparr Fine Sand (flat, Satellite Properties). This nearly level, somewhat poorly drained soil is in relatively small areas on slight rises of the flatwoods and on nearly smooth to slightly convex slopes of gently rolling uplands. Typically, the surface layer is fine sand about 8 inches thick. The upper 4 inches is dark gray, and the lower 4 inches is dark grayish brown. The subsurface layer is about 40 inches thick. This Sparr soil has a water table that is at a depth of 20 to 30 inches for about 1 to 2 months and at a depth of 30 to 40 inches for about 2 to 3 months during most years. Permeability is rapid to very rapid in the sandy surface and subsurface

layers. Natural fertility is low to a depth of about 48 inches and moderate below this depth. Organic matter content is low to moderately low. The natural vegetation consists chiefly of longleaf and slash pines and water, laurel, and live oaks. The understory consists of waxmyrtle, sumac, carpetgrass, pineland theeawn, a few scattered sawpalmetto, dwarf huckleberry, baccharis, low panicum, bluestem, running oak and brakenfern.

Surrency Sand (Flat, Main Campus). This nearly level, very poorly drained soil is in ponds and depression areas in the broad flatwoods and in areas of wet prairie on uplands. Typically, the surface layer is black sand about 15 inches thick. The subsurface layer is light gray sand to a depth of 28 inches. This Surrency soil has a water table that is within 10 inches of the surface for about 6 months or more during most years. The available water capacity ranges from low to high in the surface and subsurface layers and from low to medium in the subsoil. Permeability is moderately rapid, to rapid in the sandy surface and subsurface layers and slow to moderately slow in the loamy subsoil. Natural fertility is medium in the surface layer and is low in the subsurface layer and the subsoil. The natural vegetation is chiefly cypress, swamp tupelo, pond pine, bay, and other water tolerant hardwoods are in the same areas. In a few areas water tolerant grasses grow.

Tavares Sand (0 – 5% slope, Satellite Properties). This is a nearly level to gently sloping, moderately well drained soil. This soil is deep and sandy. It is on slightly convex slopes in broad areas of flatwoods and along gentle slopes of the rolling uplands. Typically, the surface layer I dark gray sand about 8 inches thick. The underlying layers are sand to a depth of 80inches or more. In this Tavares soil, the water table is at a depth of 40 to 72 inches for a cumulative period of 6 months or more during most years. Natural fertility is low and organic matter content is low to moderate in the surface layer. The natural vegetation of this soil is chiefly slash and longleaf pines: turkey, post, bluejack, live and water oaks, and native grasses.

Urban Land Millhopper Complex (0-2% slope, Main Campus). This complex consists of Urban land intermixed with nearly level areas of Millhopper soils. The areas are irregular in shape and range from 15 to 200 acres. About 50 to 85 percent of each delineation is Urban land. This Urban land consists of areas covered with buildings, streets, parking lots, sidewalks, and other structures. About 15 to 50 percent of each delineation is open areas of Millhopper soils. These open areas are vacant lots, lawns, parks, or playgrounds. The Millhopper soils of this complex have a water table at a depth of 40 to 60 inches for 1 to 4 months and at a depth of 60 to 72 inches for 2 to 4 months during the whole year. The available water capacity is low in the surface and subsurface layers and low to medium in subsoil. Permeability is rapid in the surface and subsurface layers, and it is slow to moderate in the subsoil. Natural fertility is low. Organic matter content is low to moderately low in the surface layer. Natural vegetation of Millhopper soils consists chiefly of live, laurel, post, and water oaks; slash and longleaf pines; sweetgum and cherry laurels. A few hickory trees are in these areas. The understory is chiefly lopsided indiangrass, hairy panicum, low panicum, green brier, hawthorn, persimmon, fringeleaf paspalum, hoary tickclover, dwarf huckelbery, chalky and creeping bluestems, and pineland threeawn.

Wauchula Urban Land Complex (0-2% slope, Main Campus). This complex consists of poorly drained, nearly level Wauchula soils and urban land. Slopes range from 0 to 2 percent. Typically, the surface layer of Wauchula soils is black to dark gray sand about 8 inches thick. In the Wauchula soils, the water table is within 10 inches of the surface for about 1 to 3 months during most years. Natural fertility and organic matter contents are low. Permeability of the sandy surface and subsurface layers is rapid. The natural vegetation is slash and longleaf pines. The understory is palmetto, gallberry, waxmyrtle, pineland threeawn and other adapted shrubs and herbs.

Wauchula Sand (0-2% slope, Main Campus & Satellite Properties). This complex consists of well drained nearly level to gently sloping Arredondo soils and Urban Land. About 50 to 85% of each delineation is open areas of Arredondo soils. These open areas are gardens, vacant lots, lawns or playgrounds. About 15 to 50% of each delineation is urban land. Urban land consists of areas covered with buildings, streets, parking

lots, sidewalks and other structures. Typically, the surface layer of Arredondo soils is dark grayish brown fine sand about 6 inches thick. The subsurface layer is brownish yellow to yellowish brown fine sand to a depth of 47 inches. The available water capacity of Arredondo soil is low in the surface and subsurface layer and low to medium in the subsoil. Organic matter content and natural fertility are low. Natural vegetation is slash, loblolly, longleaf pine, live, laurel, water oak, hickory and dogwood. The understory consists of a cover of adapted low growing herbs and shrubs.

Zolfo Sand (0-2% slope, Main Campus). This nearly level, somewhat poorly drained soil is on slight rises of the flatwoods and in the rather broad transitional areas between the rolling uplands of the western part of the county and the flatwoods of the eastern part. Slopes are nearly level and range from 0 to 2 percent. Areas are irregular in shape. Typically, the surface layer is dark gray sand about 8 inches thick. The subsurface layer is sand and extends to a depth of 60 inches. The Zolfo soil has a water table that is at a depth of 24 to 40 inches for 2 to 6 months during most years. Surface runoff is slow. The available water capacity is low to medium. Natural fertility is low. Natural vegetation of this soil is slash and longleaf pines and water, laurel and live oaks. The understory consists of waxmyrtle, sumac, gallberry, palmetto, pineland threeawn, bluestem, carpet grass and panicum.

III. Federal, State and Regional Environmental Standards and Regulations

A. *Federal – Environmental Protection Agency – Clean Water Act*

The Federal Clean Water Act of 1972, 33 U.S.C., created much of the basis for today's environmental regulatory framework for development. This legislation gives the U.S. Environmental Protection Authority (EPA) the responsibility for setting national water quality standards to protect public health and welfare, while giving states the job of determining how best to meet those standards. In Florida, the Florida Department of Environmental Protection and Florida's five water management districts administer the implementation and enforcement of the Act, with some oversight maintained by the EPA. By addressing both point and non-point source pollution these agencies both monitor water quality and implement rules that will improve impaired waters.

Under the Clean Water Act (CWA), states are required to develop lists of pollutant-impaired waters. As described in subsection 303(d) of the CWA, impaired waters are those that do not meet water quality standards that states have set for them. For those waterbodies that are listed, the states must develop Total Maximum Daily Loads (TMDLs) of pollutants.

B. *State – Department of Environmental Protection*

A number of State laws govern environmental protection within the State of Florida. Most of these laws are administered by the Florida Department of Environmental Protection, with some delegation of responsibilities given to water management districts and local governments.

The 1999 Florida Watershed Restoration Act authorizes the Florida Department of Environmental Protection to create the 303(d) list, which is currently based on the state's 1996 305(b) Water Quality Assessment Report. The "305(b) report" uses a watershed approach to evaluate the state's surface waters and ground waters. This report and list identify "impaired" water segments, with the four most common water quality concerns: coliforms, nutrients, turbidity, and oxygen demanding substances. Listed water segments are candidates for more detailed assessments of water quality and, where necessary, the development and implementation of a TMDL. TMDLs take into account the water quality of an entire water body or watershed and assess all the pollutant loadings into that watershed, rather than simply considering whether each individual discharge meets its permit requirements. The management strategies that emerge from the TMDL process encompass approaches such as regulatory measures, best management practices, land acquisition, infrastructure funding, and pollutant trading. They also include an overall monitoring plan to test their effectiveness.

Historically the 305(b) report and 303(d) list have been managed and reported as separate documents. However, in 2002 the EPA recognized that water quality monitoring and data analysis (under 305(b)) are the foundation of water resource management decisions (using 303(d)). Thus, EPA and its partners are developing a consolidated 305(b)/303(d) assessment approach called, "Consolidated Assessment and Listing Methodology" (CALM), which aims to help states improve the accuracy and completeness of 303(d) lists and 305(b) report.

The FDEP 2002 305(b) Report lists Bivens Arm – Tumbin Creek watershed with poor water quality that does not meet its designated use as a Class III water, while both Lake Alice and Hogtown Creek watersheds meet their designated use and are listed as having good water quality. However, the 303(d) list is currently based on the 1998 305(b) list, which lists Tumblin Creek, Hogtown Creek, and Lake Alice as potentially impaired waters.

C. *Archeological Sites - Division of Historical Resources, Department of State*

The University of Florida and the Division of Historical Resources (DHR) within the Department of State have signed a Programmatic Memorandum of Agreement (MOA) pursuant to Section 267.061(2), Florida Statutes. Under this agreement, the University identified and mapped known and high probability archeological sites. The University has agreed to take specific actions outlined in the MOA, before commencing maintenance, construction and development activities that may affect known and probable archaeological sites within the confines of campus.

D. *Regional – St. Johns River Water Management District / Suwannee River Water Management District*

The environmental resource and surface water permitting program (ERP –Florida Administrative Code – 40B and 40C) of the Suwannee River Water Management District and St. Johns River Water Management District regulates the storage of surface waters, stormwater discharge and wetland resource permitting programs on the University's main campus. Environmental resource permitting is a tool for managing the effects of land use changes on water quantity, water quality, and wetland habitat. The program includes permit application review, compliance activities, outreach to the regulated public, and rule development. Monitoring and research activities that focus on discharges of surface water from agricultural areas also fall under the program. In addition, the program provides for collection of data on wetlands and completion of periodic assessments of wetland status and trends. All building on campus is required to be addressed under an ERP permit.

IV. Best Management Practices

A. *Public Participation*

In 2003-2004 an ad-hoc group of interested faculty, staff, students and community stakeholders participated in site tours of all of the University's natural areas lead by staff of the Facilities, Planning and Construction Division. The purpose of the tours was to engage interested people from different backgrounds into coming up with creative ideas for management, improvements and alternative uses for all existing and potential natural areas. The following discussion on management goals and best management practices is largely derived from the collaboration that resulted, along with additional input from the Conservation Study Committee for the Campus Master Plan. Specific recommendations from this working group are to be found within the specific area plans.

B. *Stormwater*

Erosion and sedimentation are two of the primary concerns that are common to many of University's Conservation Areas. Since the Lake Alice watershed covers 80% of campus, Conservation Areas within this

watershed are perhaps of most concern. This is in part due to the fact that Lake Alice has been designated as this watershed's retention pond. The current permit with the St. Johns River Water Management District (SJRWMD) allows the University to increase impervious surfaces within the watershed by an additional 184 acres (as of 7/11/2000) without additional stormwater facilities being built. While this allows the University to maintain a compact core of buildings without large areas dedicated to stormwater treatment, it also leads to an exacerbation of creek erosion and downstream sedimentation to a system that already has fairly severe problems. Thus, even though the SJRWMD's permit does not require additional stormwater treatment until the threshold is tripped, degradation to these conveyance systems would be reduced if retention / detention and other runoff management techniques were accommodated within the watershed wherever possible.

In order to reduce stormwater runoff and improve water quality in campus natural areas, new technologies should be incorporated into future building sites that will retain and percolate water. Additionally, areas being retrofitted must be looked at as opportunities to incorporate stormwater treatment into landscaping, contouring and paving. Many of the ideas being looked at come from the field of Low Impact Development (LID). This field looks for small ways to incorporate stormwater retention into building and landscaping, depressions, and multifunctional design. Some examples of LID include grassy swales, bio-retention areas, permeable pavement and grading to reduce runoff.

LID Practice	Lower Post Development CN	Increased Time of Concentration	Retention	Detention
Grade slope		X		
Increase roughness		X		
Grassy Swales		X		X
Vegetative filter strips	X	X	X	
Disconnected impervious surface	X	X		
Reduce curb and gutter	X	X		
Rooftop storage		X	X	X
Bioretention	X	X	X	
Revegetation	X	X	X	

The above chart illustrates the reduction in stormwater that can be achieved from different LID approaches (CN = runoff curve number).

This example illustrates a bio-retention (rain garden) stormwater treatment in a parking lot.

Another approach that uses the traditional stormwater pond design with an ecological design twist is a large scale bio-retention area, which is a BMP that should be considered in developing areas of campus. This approach to stormwater retention can be found currently at the Stormwater Ecological Enhancement Project (SEEP), adjacent to the Performing Arts parking lot and the Natural Areas Teaching Lab (NATL) Conservation Area. The retention pond was originally constructed in 1988 as a typical wet retention pond with a flat bottom and no attention paid to plant species diversity. In 1995, an initiative to redesign the basin into a more ecologically sensitive manor that befitted its placement next to the NATL was initiated. As articulated by its designers, the primary goal of the SEEP was to increase the diversity of flooding depths and frequency of flooding that will occur, since this is the primary factor regulating species composition in a wetland. To do this, two depressions (one 4-feet, the other 5-feet deep), were dug at the southeastern end of the pond providing a deep, open-water habitat. At the north end a low berm was constructed to temporarily impound 80% of the entering stormwater. This forebay provides the first phase of treatment and was planted with species known to take up heavy metals and remove nutrients. Water from the forebay is then slowly released, first flowing through an area planted to resemble a bottom-land hardwood swamp, moving into a shallow freshwater marsh and then entering the deep-water ponds. The basin was planted with species that resemble those found in wetlands of North Central Florida.

The expected benefits of this type of retention are species diversity, wildlife habitat, aesthetics, water quality, and research potential. All of these benefits have been shown to have merit at the SEEP, however one issue remains that has not been adequately studied. This issue is the potential effects that these ponds have on wildlife, and particularly federally listed species. Since stormwater ponds are designed to treat the noxious constituents found in run-off, they are laden with metals, pesticides and fertilizers all of which can prove harmful to wildlife. The main species of concern that use ponds for foraging are wading birds, such as the federally listed Wood Stork. At present little research has been conducted on what the long-term impacts are on these species from utilizing stormwater detention, roadside swales, and ecologically enhanced ponds. Arguments can be made that these species will utilize wet retention ponds regardless of whether they have been ecologically enhanced, however it is equally likely that by enhancing them the probability of more productivity (more food) will encourage increased use. Thus, while it is hoped that these ponds are the panacea that is a win-win, additional research is sorely needed.

Pre-SEEP (looking north) – Cattail dominated

SEEP (looking south) – Variety of plant species

C. *Fire Management*

Many areas now listed as Conservation Areas on campus would look and function in a dramatically different way, if not for the prevention of fire. The predominate systems in campus natural areas are thick, hardwood-dominated forests that are not considered fire dependent systems. However, some of these forested areas would have had a thinner tree canopy, different vegetative dominance and more abundant understory without fire suppression. Currently, the only Conservation Area that is fire maintained is the Natural Areas Teaching Lab (NATL). This area is maintained by various departments' staff that study the effects of burning on flora and fauna and what is needed to bring back a system to pre-suppression conditions. In practice, the reality of trying to use fire as a widespread management tool in urban settings like the University is generally considered by land management professionals as un-manageable and cost prohibitive, due to concerns of smoke on roads and people, along with the liability potential if a burn escapes into adjacent areas. Therefore, while it is recognized that burning is a very important tool in Conservation Area preservation and restoration (maintenance), it is also recognized that given the urban setting of many of campus's Conservation Areas that active fire management is unlikely. Locally, the City of Gainesville has come to similar fire management conclusions on their Bivens Arm Nature Park, which they manage chemically and mechanically, rather than with fire (Bivens Arm Nature Park, 2002).

E. *Mowing*

Throughout campus, many areas have been traditionally mowed to give a neat and orderly appearance. While this has been the traditional approach, there are some areas where mowing is not necessary and by eliminating some of these areas, the University may save time, money, and energy while enhancing wildlife habitat. In fact, quite often the use of infrequent mowing, decorative fencing and planting of wildflowers can be done in such a way that it both enhances habitat and is aesthetically pleasing. Additionally, in some areas a less frequent mow schedule versus an all out ban on mowing may be more appropriate. As with all operational decisions there are a number of factors that must be considered, before deciding which areas are appropriate for non-traditional approaches. The balance between aesthetics (form) and function will always have to be determined on a case-by-case basis. Public education can improve the acceptance of strategic no-mow areas by explaining the benefits of this approach and recognizing the areas as wildlife habitats

Mowed to the water's edge

Fenced off natural area – no mow area

F. *Habitat Enhancement*

One important recommendation for all of the campus Conservation Areas is to enhance habitat wherever practicable. Some of the ideas for enhancement included: nesting boxes for birds, bat houses, planting of wildflowers for bees and butterflies, removal of invasive non-native plants, and the planting of shrubs and trees that are important to local fauna. Some of these recommendations (bird and bat boxes, invasive plant removal) have been carried forward in the specific area plans of the CALM plan document, while others (planting of trees and shrubs) are noted here as an advisory to consider incorporating wildlife friendly planting wherever possible.

G. *Public Use*

Conservation lands on campus differ in their potential to accommodate use by the campus community and general public. Some areas are primarily wetland floodplains that without clearing and elevated boardwalks would be inaccessible to most potential users. Other areas have a fair degree of slope that would not be accessible to most people without improvements. If improvements were not made unrestricted access would lead to erosion and disturbance of the natural area. However, some campus Conservation Areas do not have these access limitations and this is where public access improvements will need to be prioritized.

While not specifically identified in the land use designation, the management approach of each Conservation Area will generally fit into one of the three following broad categories – Nature Park, Academic Preserve and Nature Preserve. The Nature Park management approach is where public use is encouraged and physical improvements will be targeted to enhance the visitation experience. Examples of Conservation Areas that fit into the Nature Park category are McCarty Woods, Bartram-Carr Woods and Reitz Ravines. Academic Preserve is the designation that fits Conservation Areas where the basic focus is on the research of natural processes, in these areas teaching and research are encouraged and public use is prohibited or discouraged. The NATL is the obvious example of this category. Improvements and accessibility will be determined by the types of research and teaching being conducted and its compatibility with public use. The final category, Nature Preserve, is reserved for wetland areas, areas of steep slope and areas with known or probable listed species. In these areas physical improvements will be limited to habitat and hydrologic restoration, with public use discouraged. While each Conservation Area will be identified with one of these primary management approaches, there are some Conservation Areas that will contain a combination of these approaches. Presumably, all Conservation Areas will be used to some degree for academic purposes. An example of a Conservation Area that fits into all three categories is Lake Alice. Portions of Lake Alice are very accessible and public use is warranted, many areas within are used for teaching, while some areas are wet and inaccessible where public use should be discouraged. Each specific area plan will identify which management approach best fits the Conservation Area.

V. Overview of Conservation Areas

The following brief description of Conservation Areas is divided into two groups. The first group consists of areas that were approved by the Conservation Study Committee as Conservation Areas to this update of the Master Plan, while the second group consists of areas that were defined as a Conservation land use or were identified as Preservation areas in the Conservation Element of the 2000-2010 Comprehensive Master Plan for the University of Florida.

A. *Areas to be retained or added to Conservation*

Bat House Woods is the unofficial name for the wooded area adjacent to Physical Plant greenhouses and across Museum Road from the northwest corner of Lake Alice. This area was identified in previous master plans as Preservation Area 3, due to its relatively undisturbed character and its proximity to Lake Alice. However, it appears that since that time additional encroachment has occurred and portions of the understory have been converted to low-light plant propagation and greenhouse maintenance activities. Additionally, much of the area not being used by Physical Plant has been taken over by invasive non-native plants that cover most of the ground and are winding up many of the pines and oaks. The 2005 Campus Master Plan enlarges the conservation boundary from 5 acres to 8.5 acres. Management activities include relocating the current Physical Plant Nursery operations out of the Conservation Area.

Bivens Rim Forest Conservation Area is located on the southern portion of campus, adjacent to the northern shoreline of Bivens Arm Lake, south of Archer road and west of US 441. Along with the natural areas around Lake Alice and the Natural Areas Teaching Lab, this Conservation Area has some of the most significant and diverse environmental resources on the main campus. This determination is based on the relatively large size of the area, mix of community types, undeveloped shoreline buffer and proximity to a large water body.

Wetlands on site are primarily represented by the bottomland forest associated with Tumblin Creek and with the hardwoods and marsh vegetation that ring the northern half of the lake. Mixed hardwood forest communities dominate the upland portions of this area. The 2000-2010 Comprehensive Master Plan recommended preservation for this area (Preservation Areas P5 and P6), due to its proximity to the lake, diversity and abundance of wildlife, ability to provide watershed protection and biological treatment of stormwater runoff. Additionally, the master plan also stated that development activities including, but not limited to agriculture, earthwork, silviculture and construction, will be limited within these areas in order to protect the natural resources and habitat benefits they provide.

The 2005-2010 Comprehensive Master Plan adopted new boundaries for the Bivens Rim area. Improved pastures associated with IFAS activities were removed from the Conservation land use, while a large forested area, contiguous to the lake, that had been previously planned as a Lake Wauberg style passive recreation area was brought into the Conservation boundary. The new boundary of 114 acres adds an additional 49 acres to the Conservation boundary (some of this increase is due to water being included within the Conservation Area, which had previously been excluded).

Blue Wave Wetland is a 2.1 acre forested wetland and pond system located adjacent to the Coastal Science Engineering building on what is generally considered the P. K. Yonge campus. This area was designated as Academic on the Future Land Use Map of the 2000-2010 Campus Master Plan. 1940s historical photography indicates that this area was part of a riparian corridor that wound its way to Paynes Prairie through what is now known as the Kirkwood subdivision. At some point since this time, portions of the corridor were dug out and ponds were created, one of which is located within this Conservation Area. The 2005-2010 Comprehensive Master Plan designates this area as Conservation based on its wetland features (pond and forests).

DASH Course is a located on Village Drive and SW 2nd Avenue. In the 1980s this area was designed for use as a passive recreation, exercise area for people with disabilities. While some of these facilities are still present (paved trails, pavilion and some work out stations), the facility has not been maintained sufficiently to be used for this purpose any longer. Additionally, since the time of its inception, other facilities for people with disabilities have been placed in the student fitness centers. This site contains a disturbed, upland mixed forest that lost pine trees during the Pine Beetle outbreak in 2003, which opened it up to invasive plant species. Mapping from the 2000-2010 Campus Master Plan inconsistently showed this area as upland preservation, with an underlying land use of Passive Recreation. These inconsistencies are corrected in the 2005-2010 Comprehensive Master Plan that designates the DASH Course as a Conservation Area, with the appropriate land use of Conservation. The approved boundary is 3.3 acres.

Digital Design Wetland is a Conservation Area south of the Digital Design Facility and includes a portion of the floodplain of an unnamed creek that flows east to Lake Alice, between Center Drive and Gale-Lemerand Drive. As the name implies, this Conservation Area is primarily made up of wetlands and their associated buffers. Historical photography and documents indicate that this area was previously more of a depression marsh and sink. According to a 1948 report, "Lake Alice Drainage Project", this sink was plugged to prevent wastewater from directly entering the aquifer (and then the City's drinking wells). This sink was/is appropriately named Sweet Sink.

The 2000-2010 Campus Master Plan identified this area as Wetland Preservation Area 11. Future alternative uses of this Conservation Area are limited by the fact that the majority of the area is wetland, with only small areas of upland buffer surrounding it. The working group that inventoried this area in the spring of 2004 suggested that the boundaries to the Conservation Area be expanded to include a small forested wetland area, largely following the 100-year floodplain. The 2005-2010 Comprehensive Master Plan incorporates this boundary modification, which increases the Conservation Area from 4 acres to almost 8 acres.

Fraternity Wetland is a forested Conservation Area, located immediately behind (east and south) Fraternity Row and west of the Band Shell. This forest grades from a mixed hardwood forest into a narrow stream valley wetland. The steep slopes of the riparian corridor limit the development potential of these woods as both a future building site and as a more passive park. Therefore, management of the site should to be focused on stormwater management and invasive plant removal where appropriate. Public access and related improvements should be limited, due to the steep slopes and small size. The 2000 – 2010 Campus Master Plan identified Fraternity Wetland as Preservation Area 13. The 2005-2010 Comprehensive Master Plan reduces in the Conservation boundary from a little over 6 acres to approximately 4.5 acres in order to accommodate existing and potential fraternity house use including a service drive and other backyard activities.

Graham Woods Conservation Area is a forested hardwood system that lies east of Flavet Field (Bandshell) and north of Graham Hall. An unnamed creek runs through these woods that drains into Graham Pond through culverts under Graham Hall. These woods are dominated by an upland mixed hardwood forest that grades down to a bottomland /floodplain swamp stream valley, which has been created by a deeply incised creek / ravine that runs southeasterly through the Conservation Area. The primary human use of the woods is as a short-cut between Flavet Field and the main campus. The steep slopes of the ravine and the wetland composition of the bottomland forest limit the development potential of these woods for future building sites. The 2000 – 2010 Campus Master Plan identified Graham Woods as Preservation Area 14. The 2005-2010 Comprehensive Master Plan provides a Conservation boundary that is identical in area (7.5 acres) to the existing boundary.

Green Pond is a 1.5 acre natural area located just north of Museum Road and on the west side of Center Drive. Green Pond is also known as the Reitz Union Pond because of its adjacency to the Reitz Union. This area is characterized by two sinkholes, one of which is Green Pond, and a small hardwood forest that buffers a creek that flows out of Green Pond. This site is used primarily as a pedestrian path that connects the Reitz Union to Center-

McCarty Drive via a boardwalk through the Conservation Area. The 2000-2010 Campus Master Plan identified these areas as Preservation Areas 16 (Green Pond). The 2005-2010 Comprehensive Master Plan includes a Conservation boundary that is nearly identical to the previously identified Conservation boundary, with only the pond itself being added.

Harmonic Woods is a 10 acre hardwood natural area located north of Lake Alice on Museum Road and bordered on the east by Fraternity Drive and on the west by Village Drive. This property is a relatively undisturbed upland hardwood dominated forest, which slopes down to Lake Alice. Unlike many other natural areas on campus these woods have not been taken over by invasive exotic plants, although ardesia is fairly widespread. The primary use of the property has been by the Botany Department for plant identification and by the Geomatics (Survey and Mapping) Department for teaching surveying techniques in woods and on slopes. Due to its close proximity to campus, this site has been ideal for these departments. According to information from the 2000-2010 Campus Master Plan, the area was recommended for preservation (Preservation Area 12) by several university staff and faculty members as well as representatives from state and local environmental agencies, who value the area for its relatively pristine condition and proximity to the campus. The protection of the resources provided by this area will require the exclusion of development activity, including clearing, earthwork, and paving. Only minor restoration along the forested edges is necessary due to its relatively undisturbed condition. Approximately 1 acre was added in 2005-2010 Comprehensive Master Plan Conservation boundary modification for these woods.

Bartram-Carr Woods is the name of a wooded area located between Center Drive and Newell Drive, west and south of the University's Psychology building. This area was identified in previous master plans as Preservation Area 11 (also, portions of this area are referred to by some as Health Center Park), due to the water quality, flood control and erosion abatement benefits the area provided. While these functions are still present, it appears that since that time additional encroachment has occurred and portions of the understory have been taken over by invasive non-native plants that cover most of the ground and are winding up many of the pines and hardwoods. The primary use of the property is as a respite from the hustle and bustle of campus for local office residents and as a pass through, or short cut, for people walking from health center facilities (south) to the main portions of campus (north). Additionally, some departments use the park as an outdoor teaching area, due to its close proximity to the main campus. This Conservation boundary was modified in 2005-2010 Comprehensive Master Plan to allow a new facility adjacent to the Psychology building, however the overall acreage remained the same at 8.7 acres.

Hogtown Creek Woods is a primarily wetland Conservation Area adjacent to southwest 34th Street (west side of the street) on the far western side of the main campus. These woods are primarily bottomland hardwood wetlands. Future, alternative, uses of the Conservation Area are limited by the amount of wetlands, which would require wetland mitigation approval through the St. Johns River Water Management District, before any development could occur. The 2000-2010 Campus Master Plan identified this area as Wetland Preservation Area 1. Approximately 5 acres was added to the Conservation boundary of these woods by the 2005-2010 Comprehensive Master Plan making the new total 24.8 acres. However, a slightly smaller boundary, 2.5 acres, has also been identified to accommodate a future connector road to be built on the southeastern edge of the woods. These alternate boundaries will be considered in the context of roadway capacity needs and environmental mitigation requirements.

Lake Alice Conservation Area is an approximately 102 acre natural area located on the southwestern portion of the main campus, bounded by Museum Road to the north and west, Mowry Road to the south and North-South Drive to the east. Along with the natural areas around Bivens Arm, this Conservation Area has the most significant and diverse environmental resources on the main campus. This determination is based on the relatively large size of the area, mix of community types, undeveloped shoreline buffer and presence of a large water body.

The 2000-2010 Master Plan and the 1987 Stormwater Master Plan identified Lake Alice and Hume Pond and their surrounding uplands and wetlands as preservation areas (Preservation Areas, 8, 9,10 – Wetland Preservation – 8 and 10). Adjacent to this Conservation Area is a Passive Recreation (Urban Park) area known as University Gardens, which is also known as a medicinal garden due to some of the plants found within its confines. In the 2005-2010 Comprehensive Master Plan plan, all of the contiguous uplands and wetlands have been placed into one Conservation Area with a total acreage of 129.5. This increase of approximately 28 acres is largely due to the inclusion of the water in Lake Alice, which was excluded from the previous Conservation boundary.

Lake Alice South Wetland is an approximately 16-acre Conservation Area adjacent to IFAS Facilities and Laboratories, south of Mowry Road on the southwest quadrant of campus. This Conservation Area is primarily a forested wetland surrounded by a small upland buffer of mowed pasture.

This Conservation Area was recommended for preservation in the Stormwater Management Master Plan (1987), due to its hydrological sensitivity and its proximity to Lake Alice. The 2000-2010 Campus Master Plan identified this area as Wetland Preservation Area 8. Future alternative uses of the Conservation Area are limited by the amount of wetlands, however some upland pasture areas that were included in Conservation are now recommend to be excluded. Previously this Conservation boundary bore little resemblance to the reality on the ground. Approximately 7 acres within the 2000-2010 boundary were horse pastures with barns and other animal research facilities. In recognition of this, the 2005-2010 Comprehensive Master Plan reduces much of the boundary that was inappropriately identified as Conservation. This boundary modification reduces overall acreage from 15.6 to 10.6 acres.

Lakes, Creeks and Sinks - These systems have been grouped together due to their similar management strategies and for ease of presentation. The following systems are included in the Lakes, Creeks, and Sinks management plan, Gator Pond, Ocala Pond, Dairy Pond, Graham Pond, Diamond Creek, Jennings Creek, Tumbin Creek, Hume Creek and Newins-Ziegler Sink.

The main campus at the University has many creeks, sinks and ponds that are both of natural and man-made origin. However, as campus has developed almost all of them have been integrated into the stormwater management system. Many of the ponds appear to have originated as sinkholes that were altered to retain water to a certain elevation and then were outfitted with a release structure that feeds into the stormwater system. Also, a few sinks have been altered with stormwater conveyance incorporated, usually at the base taking advantage of the lower elevation in the overall gravity flow system. On campus all of these systems feed into the University's creeks. As in pre-development conditions, these creeks are the primary conveyance system for stormwater, however while most would have only flowed on an intermittent basis, they now flow most of the time. This flow is established by both rainfall and irrigation. The 2005-2010 Comprehensive Master Plan boundaries for these systems that included a 25 foot buffer from the median high water line of the water body, where encroachment such as sidewalks and roads had not previously taken place. At the convergence of Diamond and Jennings Creeks, a larger buffer of wetlands and floodplains was included in the boundary.

McCarty Woods is a 2.9-acre natural area located on the northwest corner of Museum Road and Newell Drive. This property is a disturbed upland hardwood dominated forest, bisected with paths for pedestrians. The primary use of the property has been by the Botany and Forestry Departments for plant identification, due to its close proximity to the department, and as a respite for residents of the buildings on the northeast portion of campus, since this is the closest natural area to the historic parts of campus.

According to the 2000-2010 Campus Master Plan, McCarty Woods (Preservation Area 18) should be preserved because of its use as a teaching laboratory and research material resource. Additionally, the Master Plan states that these areas would greatly benefit from a restoration program that would remove invasive non-native species, primarily cat-claw vine, that dominate the understory and replant with native species. At 2.9 acres, the boundary

of McCarty Woods in the 2005-2010 Comprehensive Master Plan remains relatively the same as previously identified.

The Natural Areas Teaching Lab West (NATL) is a Conservation Area on the southwest corner of the main campus, backing up in places to both Archer Road and SW 34th Street. As the name implies, the primary use of the property is as an outdoor teaching lab, which is used by a number of campus faculty to demonstrate natural and human induced changes in flora and fauna makeup. The 2000-2010 Campus Master Plan identified this area as Preservation Area 1 and along with the 1987 Stormwater Master Plan recommend that this area be preserved for its potential hydrological sensitivity. In consultation with the Natural Area Advisory Committee approved increasing the boundary of this area to include the SEEP stormwater/nature park, along with a few minor boundary adjustments adjacent to the Surge Area. The new boundary places the total acreage count at 48.8.

President's Park is a hardwood hammock located behind the President's house between University Avenue and S.W. 2nd Ave. The property was classified as Conservation in the Campus Master Plan 2000 - 2010. Since the park is considered to be part of the President's residence, it is not generally open to the public, nor to students and faculty. Some minor modifications were made to the Conservation boundary in the 2005-2010 Comprehensive Master Plan since the previous boundary included a swimming pool in the residence back yard. The approved boundary is approximately 0.5 of an acre smaller at 4.1 acres.

Reitz Ravine Woods Conservation Area is approximately 3.3 acres in size and is buffered by 2.4 acres of Passive Recreation land use to the west. These woods lie southwest of the Reitz Union, south of the Mechanical Engineering Building and just north of Museum Road. A mixed hardwood forest that grades down to a narrow stream valley, flowing southwesterly, is the feature that characterizes this area. The steep slopes of the ravine limit development potential of these woods as a future building site. The 2000- 2010 Campus Master Plan identified this Conservation Area as Preservation Area 15. This Conservation boundary was only slightly modified in the 2005-2010 Comprehensive Master Plan review. The approved boundary is 0.3 acres smaller than previously, with the new boundary at 2.9 acres.

Solar Park Pond is a Conservation Area located on both sides of SW 23rd Terrace, adjacent to Energy Research and Education Park (EREP) (east side of 23rd) and Organic Gardens (west side of 23rd), south of Archer Road. This Conservation Area is centered around two sinkhole ponds / depressions that appear, based on historical photography, to have been split by the building of SW 23rd Terrace.

The 2000-2010 Campus Master Plan identified this area as Wetland Preservation Areas 5 (west) and 6 (east). Previously, Preservation Area 6 was called Preservation, but had an underlying land use of Passive Recreation. Future alternative uses of this Conservation Area are limited by the sinkhole ponds, small area of upland buffer and wetlands. The working group that inventoried this area in the spring of 2004 suggested that the boundaries to the Conservation Area be expanded to include both some forest and grass areas on both the eastern and western sides, largely following the 100-year floodplain, but exclude some research areas planted with non-native trees on the west-side. The 2005-2010 Comprehensive Master Plan incorporates these ponds and forested upland buffers as a 10.5 acre Conservation Area, more than doubling the amount of acreage in Conservation.

Surge Wetland (**NATL East**) is adjacent to Surge Area Road and the Natural Areas Teaching Lab Conservation Area (NATL), north of Archer Road on the southwest quadrant of campus. Surge Wetland consists primarily of a shrub wetland surrounded by a small upland buffer of hardwood hammock. This Conservation Area was recommended for preservation in the Stormwater Management Master Plan (1987), due to its hydrological sensitivity and its proximity to the NATL. The 2000-2010 Campus Master Plan identified uplands portions of this area as Preservation Area 2, but excluded the actual wetland from the land use designation. In 2005, the Conservation Study Committee, Lakes, Vegetation and Landscape Committee and the Natural Area Advisory Committee unanimously recommended that Surge Wetland be incorporated in the NATL

as an outdoor teaching laboratory focused on wetland ecology. Their recommendation was accepted by the University's administration in 2005. The 2005-2010 Comprehensive Master Plan identifies a Conservation boundary modification that reduced the area by about 1.5 acres to 10.9 acres to exclude two existing buildings that were included in the previous boundary.

Swine Unit Woods is a 3.5-acre Conservation Area adjacent to IFAS's Swine Unit, south of Archer Road and east of SW 23rd Terrace. This formerly pine dominated system was heavily impacted by pine beetle infestation in 2003, resulting in the loss of much pine canopy. As a result of this loss of canopy, invasive non-native plants have taken over much of the site. Additionally, it appears that that the previous Conservation Area boundary mistakenly included much of the adjacent swine farm facilities. The property was changed to Conservation in the Campus Master Plan 2000-2010 from its previous classification as Passive Recreation in the 1995-2000 Comprehensive Master Plan. According to the Master Plan, the area was recommended for preservation due to its large size, proximity to Bivens Arm and potential for wildlife habitat. It also noted that restoration of this area would require the removal and maintenance of nuisance vegetative species. This Conservation boundary was modified by the 2005-2010 Comprehensive Master Plan to eliminate areas that were in active swine husbandry and to include a forested wetland to the west that had been previously omitted. The overall boundary of these woods was increased by 4 acres to 7.7.

Trillium Slope is named after a rare Florida plant that is found in this wooded area adjacent to the University Golf Course. In fact, its location in these woods is thought to be the southern most extent of its range (it is also found in Hogtown Creek Woods). These woods are located on the northwest corner of the University Golf Course and border SW 34th Street. This area is made up of an upland mixed forest community with moderate slope edging down into the Hogtown Creek floodplain. In the 2000-2010 Campus Master Plan this area was designated as Active Recreation, since it is located on University Athletic Association (UAA) property. The 2005-2010 Comprehensive Master Plan, with concurrence from UAA, incorporates this 4.9 acre area as a campus Conservation Area.

University Park Arboretum was donated by W.A. and Catherine Shands to the University of Florida in 1950 to be utilized as an Arboretum. This area is located at the corner of University Avenue and N.W. 23 Street. Due to its proximity to the stadium, this 2.4 acre property has been used primarily as a parking (tailgating) area during football games and as a neighborhood and campus natural area. In 2003, the University in conjunction with the local neighborhood association joined forces to begin implementation of the Shands family's wishes to turn the property into a true Arboretum. Current plans include tree planting with identification markers, on-site stormwater improvements, invasive plant removal, and fencing. No adjustments were made in the 2005-2010 Comprehensive Master Plan to this Conservation boundary.

B. Areas Removed From Conservation Land Use or Preservation

Sorority Park was designated as a Conservation land use in the previous master plan. This 1.2 acre area is adjacent to Sorority Row and consists of a small creek and grass buffer that is just over an acre in size. Sorority Park's unnamed creek flows towards the main campus, entering from a culvert under SW 13th Street and ultimately ending up in Lake Alice. The Conservation Study Committee determined upon review that this Park would fit better into the Urban Park land use due to its small size, park like setting and mowed grass appearance.

West Woods is an approximately 2-acre hardwood hammock located on SW 34th Street, adjacent to the Physical Plant Division complex on campus. The property was classified as Conservation in the Campus Master Plan 2000 - 2010. These woods serve as a vegetated buffer for offices to the east from the noise of 34th Street, one of Gainesville's few six-lane highways. In the past this area was landscaped with ornamental plants and a cedar hedge row, but at some point in time maintenance of the area was stopped allowing it to become overgrown. The Conservation Study Committee determined that this property was better suited in the Buffer land use category, due to its small size, lack of environmentally sensitive features and location adjacent to 34th Street.

Wilmot Gardens is a 4.6 acre former Camilla garden that has been hit hard by neglect, pine beetles, hurricanes and invasive non-native plants. The property was classified as Passive Recreation in the Campus Master Plan 2000 – 2010, while also identifying it as a Preservation Area in the Conservation Element. The Conservation Study Committee determined that this area, once restored, would fit better in an Urban Park land use classification, due to its ornamental plantings and lack of environmentally sensitive features.

C. Alachua County Satellite Properties Conservation Areas

Austin Cary Memorial Forest – is 2040 acre forest located off of SR24/ Waldo Road in northeast Alachua County. This forest was originally acquired for the School of Forestry (now the School of Resources and Conservation) to meet accreditation requirements by the Society of American Foresters. This school still maintains management responsibilities and uses the site for resident and continuing education, extension and demonstration and research. Of the 2040 acres, 110 are in the Conservation land use designation with the remainder in Academic / Research – Outdoor. Being a forestry research station in Florida, the primary community type is planted pine or mesic flatwoods (most Florida forestry involves pine plantations). However, the majority of the forest in Conservation is covered by bottomland hardwood communities. The CALM plan for this area is covered by the State's Land Management Plan as updated by IFAS and the School of Forest Resources and Conservation. The Conservation acreage will not have public access and no improvements have been identified.

Beef Research Unit – is an IFAS cattle research station adjacent to County Road 225 on the northeastern side of Alachua County. The site is primarily covered by pastures used for research; however a few isolated cypress domes exist along with a bottomland/ floodplain hardwood forest. This floodplain forest's creek is known as Hatchet Creek a primary tributary of Newans Lake. The entire research unit is 1268 acres with 120 acres in the Conservation land use designation. This Conservation acreage will not have public access and no improvements have been identified.

Dairy Research Unit – is an 1144 acre research unit located adjacent to C.R. 237, just off U.S. 441and near the unincorporated community known as Hague. As the name implies, this research unit is focused on dairy cattle research. This site is made up primarily of pasture lands dedicated to dairy cattle husbandry, however a few isolated wetlands and some bottomland forest are also present on site. Approximately 140 acres of the site are in the Conservation land Use designation with the remaining in Academic / Research – Outdoor. This Conservation acreage will not have public access and no improvements have been identified.

Millhopper Horticulture Unit – is located at the terminus of 75th Street just off of Millhopper Road in the northwest Gainesville area. This research unit is used for agricultural field plot research, aquatic fisheries research and also houses the US Department of Interior Fisheries Laboratory and the IFAS Fisheries Department and Center for Aquatic Weeds. The majority of the site is designated as Academic / Research – Outdoor on the Future land Use Map, with approximately 90 acres in Conservation. However, IFAS is in the process of transferring approximately 40 acres that is in Conservation along the western boundary to the State Park – San Felasco Sate Preserve. Additionally, IFAS is selling approximately 50 acres on the southern portion of the Unit to Alachua County to provide access and parking to Blues Creek Ravines (Alachua Conservation Trust owns Blues Creek Ravines, but the County manages). Thus, most if not all of the Conservation acreage on site will be transferred to conservation entities for ownership and management.

Santa Fe River Beef Research Unit- is located off of C.R. 241 and borders the Santa Fe River in northern Alachua County. This property is on of two cattle research unit that IFAS maintains in Alachua County. While the total site acreage is 1700 acres, 737 acres along the river are leased from the Suwannee River Water Management District (SRWMD). These leased lands make up the total Conservation land use acreage on site with the remaining land in Academic / Research. Most of the site is characterized as pasture and wood pasture, however most of the Conservation acreage along the Santa Fe is made of floodplain/ bottomland

forest and upland mixed forest. IFAS and SRWMD are in the process of writing a State required Management Plan for the site. A component of this plan will be to promote and fund research that focuses on cattle management adjacent riverine systems looking at stocking densities, streamside buffers and fertilization management. The areas in Conservation will not have public access and no improvements have been identified.

V. 2000-2010 Campus Master Plan Evaluation and Appraisal

The evaluation of any policy document is based in the level of commitment to implementation and the results achieved as a result of implementation. Rather than reciting policies with simplistic "yes" or "no" achievement evaluations, this Evaluation and Appraisal summary seeks to identify the specific actions employed by the university to implement master plan policies, and the specific outcomes of these actions where milestones can be identified.

A. Policies Related to Project Development, Grounds and Facility Management

The following Conservation Element policies for Goal 1 affect project development and the management of University facilities and grounds as related to environmental sensitivity and resource conservation: 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.4, 3.5, 3.6, 3.7, 4.1, 4.2, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11 8.2, 8.3, 9.1, 9.2, 9.3, 9.4, and 9.5. The University has engaged in many activities to meet these policy requirements as described below.

Project Development and Review Process. The University utilizes a review process including four committees: Lakes, Vegetation and Landscaping (LVL); Preservation of Historic Buildings and Sites (PHBS); Transportation and Parking (T&P); and Land Use and Facilities Planning (LUFP). These committees review university construction projects, typically at three stages of design. The review criteria include building location and orientation, tree removal and mitigation, access/circulation, landscape materials and master plan consistency. A landscaping subcommittee of the LVL reviews landscape plans to ensure appropriate use of native and drought-tolerant plants as well as efficient design and use of irrigation systems.

Campus Sustainability. The University has made strides toward sustainable business practices in many areas including recycling, composting, reclaimed water use, non-auto travel modes, energy efficiency and resource conservation. Chief among these initiatives is a commitment to new construction that utilizes the Leadership in Energy and Environmental Design (LEED) criteria of the U. S. Green Building Council. All new construction projects are required to seek LEED certification, and the University boasts one Gold-Certified new building with eight additional construction projects registered for possible LEED certification in 2004. The University also applied for and received Phase I (Environmental Planning) Certification as an Audubon Cooperative Sanctuary from Audubon International. As such, the University of Florida serves as a national model for certifying university campuses through this program. The University continues to seek additional certification levels through Audubon International including those that document environmental education programs and operational best management practices. The University's Clean Water Campaign also advances many sustainability objectives and satisfies some requirements for public education and water quality monitoring set forth by the U. S. Environmental Protection Agency. Other sustainability initiatives include conversions to energy efficient lighting and other efficient utilities in campus facilities. Additional recycling containers were installed on campus in 2004-2005, and recycling/composting programs have been initiated for food waste and waste associated with football game crowds. The University maintains a Committee on Sustainability, with joint appointments by the Faculty Senate and University President, to advance and monitor sustainability initiatives.

University Construction Standards. During 2002-2003, the University of Florida completed an overhaul to its Construction Standards to incorporate the revised Florida Building Code and Campus Master Plan policies. These standards include requirements for indoor air quality, erosion control and tree protection, among other

standards. Compliance with relevant state, federal and university requirements for facility construction and management is provided by the building permit and hazardous materials monitoring programs administered by the University's Office of Environmental Health and Safety.

B. Policies Related to Conservation Area Management

The following Conservation Element policies for Goal 1 affect the management of designated Conservation Areas: 1.1, 1.10, 1.11, 3.1, 3.3, 3.4, 7.1, and 8.1. To implement these policies, and specifically to take the action prescribed in Policy 1.1, the University has completed final drafts of a campuswide Conservation Area Land Management (CALM) Plan that will be finalized during the 2005-2006 academic year concurrent with adoption of the 2005-2015 Campus Master Plan. This CALM Plan provides site conditions inventory data, best management practices and recommended actions for each individual Conservation Area on the main campus. These recommended actions include a variety of strategies such as access control, interpretive signage, habitat restoration, bird boxes, invasive non-native plant removal, erosion control, no-mow zones, etc. The CALM Plan was developed with the involvement of many university and community stakeholders including faculty with expertise in a variety of ecological disciplines. Together with the 2005-2015 Campus Master Plan development, the definition and identification of campus Conservation Areas was thoroughly reviewed and revised.

Implementation of some CALM Plan recommendations occurred simultaneous with plan development as the university sought to solve immediate problems with currently available resources. The 2005-2006 release of Capital Improvement Trust Fund monies will be used to finance an additional $500,000 of enhancements and restoration in campus Conservation Areas. A Florida Department of Environmental Protection grant was obtained through a joint-application with the City of Gainesville to implement removal of invasive non-native plants in two campus Conservation Areas. Additional funding is sought through routine operating capital to address issues related to stormwater, erosion control and landscaping. Future construction projects and private benefactors are other possible sources of implementation funds.

C. Policies Related to Non-Automobile Travel

Conservation policy 2.1 references the Transportation Element of the Comprehensive Master Plan and encourages the use of non-auto modes such as transit, bicycling and walking for the purpose of preserving air quality. Between 2000 and 2004, the University has made specific strides in these areas as demonstrated by the following.

- Construction of 4,000 linear feet of new bicycle lanes and shared-use paths on campus
- Construction of 6,730 linear feet of new sidewalks adjacent to campus roadways
- Due to the success of a pre-paid universal transit access program for UF students and employees, ridership on the Regional Transit System increased from 4,413,198 riders in 2000 to 8,146,496 riders in 2004, with university students, faculty and staff accounting for 65% - 75% of system-wide ridership
- Three significant new bus shelters were constructed and an additional ten bus shelters are programmed for installation during 2005
- Eligibility requirements to purchase campus Student Commuter parking decals were raised to 110 credit hours minimum, while students with less than 110 credit hours were only eligible to purchase Park and Ride decals for parking in remote parts of campus

8.
TRANSPORTATION DATA & ANALYSIS

I. Transportation Modeling and Traffic Analysis Zones

As a partner with the Metropolitan Transportation Planning Organization (MTPO), the University of Florida has developed much of its transportation analysis as part of the regional traffic model and planning effort. All of the analysis for the Campus Master Plan, 2005-2015, as discussed herein was completed using the Voyager model software package as specified by the Florida Department of Transportation and used by the MTPO. The first step in developing the countywide transportation model for the MTPO, is to define traffic analysis zones (TAZs). These zones are used to organize trip generation into a spatial distribution for analysis across the countywide transportation network. The boundaries of these zones are geographical areas that include relatively homogeneous land use activities and are defined, generally, by both the total number of trips produced and by the existing roadway network. These zones are the basic geographic units that define the source of travel demand. For this MTPO model update, Alachua County is defined by 465 TAZs. These zones vary in size with the smallest representing a single city block while the largest spans several square miles.

Much effort was spent in refining the TAZ boundaries on the university campus and its surrounding area so that zonal boundaries correspond with property boundaries of the university. In this way, TAZs that contain university land uses managed by the campus master plan can be isolated and evaluated. The map, Transportation Analysis Zones 2005, presents the TAZ boundaries and numbering for the University main campus.

A. Campus Future Population and Employment

The travel demand process uses current estimates and future year projections of socioeconomic information by TAZ. These estimates and projections of socioeconomic information at the TAZ level establish a foundation for the model validation process. Activity forecasts by TAZ are made using the following socioeconomic and land use information: 1) area population and employment forecasts; 2) expected location behavior of people and businesses; and 3) local land development policies contained in the City of Gainesville and Alachua County Comprehensive Plans. Forecasts for socioeconomic and land use information was provided based on the adopted 2000-2010 University of Florida campus master plan, with consideration for anticipated modifications. The 2005-2015 campus master plan is incorporated through the planning process which includes testing of alternate land use and development phasing scenarios.

Through a subcommittee of the MTPO's Technical Advisory Committee, representatives of the University of Florida, City of Gainesville, Alachua County, City of Alachua and City of Newberry reviewed existing data sources and plans to assign existing and future socioeconomic and land use data to the zones. These existing sources include the US Census Bureau, Info USA (a private data development company under contract with the Florida Department of Transportation), the Florida Statistical Abstract, and the Florida Agency for Workforce Innovation. Through this process, an official population forecast for Alachua County was adopted and allocated to each TAZ. Complete TAZ data tables for the base year 2005, the campus master plan horizon year 2015, and the MTPO long-range transportation plan horizon year 2025 are available in separate technical memorandum.

The analysis for campus included data for employees, residents (i.e. residence halls, village complexes and Greek housing), parking and student destinations (e.g. concentrations of student destinations were defined by location of classrooms and analysis of classroom utilization).

Existing and projected employment on the University of Florida campus was assigned to TAZs as a portion of total county employment figures. Campus residents were assigned to TAZs representing the population distribution on campus as a portion of regional population and housing location. Non-campus resident populations were assigned to TAZs based on total county population and local government comprehensive plans. Location behavior of people and businesses on campus were analyzed as a factor of parking and classroom location.

From these inputs, the transportation model generates different trip types for the entire community. The trip type for Home Based Work (HBW) includes UF employees. The model also generates trip types for students, and was specifically designed to differentiate between on-campus student residents and off-campus student residents. Other trip types in the model include Home Based Other (HBO) and Non-Home Based (NHB).

Existing and Projected Employment. For the campus, employees were defined as the headcount of all university employees and Shands-UF employees with primary place of employment on a property included in the university master plan jurisdiction. These university employees may include faculty, staff, OPS, part-time, graduate and student assistant employee classifications. A growth trend was analyzed to provide annual projections to the year 2015 and 2025. The existing headcount employment on the university main campus, including employees of the University and Shands-UF in 2003-2004 was 22,211. That number is estimated to be 22,433 employees in the base year 2004-2005. The projected headcount employment is anticipated to be 24,654 in the year 2015 and 26,875 in the year 2025.

The annual trend line for university employees was calculated from data of the Office of Academic Affairs including all statewide university employees, which demonstrated a six-year annual average employee growth of 1.13 percent per year as demonstrated in the following table.

Total Statewide University of Florida Headcount Employees, 1998-2004

YEAR	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	1998-2004
TOTAL	20,979	23,524	20,978	21,848	21,940	22,399	na
CHANGE		12.13%	-10.82%	4.15%	0.42%	2.09%	6.77%
AVERAGE ANNUAL CHANGE							1.13%

Source: Office of Academic Affairs (data as of Sept. 1st in each academic year; includes Faculty, Staff, OPS, Part-Time, graduate & student assistants statewide). Note that this does not include employees of UF&Shands.

Next, university headcount employment was analyzed by primary place of employment based on the 2004 Space Inventory and Allocation Survey. University employment on the Main Campus and P.K. Yonge Developmental Laboratory School was found to be 76.74% of total statewide University of Florida employment. The following table displays the 2004 headcount employment for each university property covered within the campus master plan jurisdiction.

University of Florida Employment by Location, 2004

SITE #	NAME	HEADCOUNT
0001 & 0002	Main Campus & P. K. Yonge School	17,188
0005	TREEO Center	15
0016	Eastside Campus (Waldo Road)	54
0016	Libraries Remote Services (NE 39 Ave.)	10

SITE #	NAME	HEADCOUNT
0107	Austin Cary	4
0108	Beef Research Unit	6
0109	Dairy Research	20
0111	Wall Farm / HTU	5
0114	Lake Wauburg Recreation	42
0120	Santa Fe River Ranch Beef Unit	1
0012	Millhopper Horticulture Unit	44
0601	Ft Lauderdale REC	80
1000	Mid-Florida REC (Apopka)	79
na	All other statewide sites	4,851
	TOTAL	22,399

An employment trend for Shands-UF employees was based upon data included in the 2000-2010 campus master plan (Tech Memo for Analysis) and 2004 information from Shands Hospital for those employees primarily assigned to the University of Florida facilities. This information identified 4,800 Shands-UF employees in 2000-2001 and 5,023 Shands-UF employees in 2003-2004 for an increase of 223 employees or 1.16% annual increase. The Shands-UF employee four-year annual growth rate is comparable to the 1.13% annual growth rate found for university employees over the recent six-year period.

From these analyses, the 2015 and 2025 employment projection was calculated assuming a 1% annual growth rate for both university and Shands-UF employees with 76.74% of all university employees working on the main campus including P. K. Yonge Laboratory School. The following table displays the employment forecasts for these the main campus and Shands-UF including a total of both.

Headcount Employment Projections for Main Campus and PKY, 2005-2025

	Existing 2003-2004	Projected 2004-2005	Projected 2014-2015	Projected 2024-2025
	Main Campus & PKY			
University of Florida	17,188	17,360	19,079	20,797
Shands-UF	5,023	5,073	5,576	6,078
TOTAL Employment	22,211	22,433	24,654	26,875
CHANGE		222	2,221	2,221

NOTE: Projections are not compounded. They are based on 1% growth annual average from the base year.

For the purpose of transportation modeling these existing employment totals were allocated to TAZs on the main campus as presented in the following table. These assignments were the result of analyzing details of the 2004 Space Inventory and Allocation Survey. For this analysis, employees were assigned to buildings, which were then assigned to TAZs in order to calculate the number of employees in each TAZ. Shands-UF employees on the main campus were assigned to TAZs 101, 452 and 450 in the base year and also to TAZ 455 in the year 2015.

University and Shands-UF Main Campus Employment by TAZ, 2004 and 2015

	Employees	
TAZ2000	2003-2004	2014-2015
74	395	415
83	2,014	2,115
85	313	329
86	51	54
90	107	112
91	53	56
97	855	811
101	9,231	9,474
104	20	21
110	1,288	1,352
112	2,483	2,607
122	1,164	1,222
125	32	34
126	13	14
130	24	20
146	242	254
149	526	819
160	1	1
166	332	349
178	459	500
433	637	669
435	118	124
437	19	19
441	35	37
442	45	197
443	2	2
445	121	127
446	70	1,009
447	21	22
450	262	286
452	403	417
453	590	690
454	147	154
455	0	200
466	138	143
Total	22,211	24,654

Existing Campus Residents. For the campus, resident population was defined as all persons living in residence halls, village complexes and Greek housing. For the base year 2005, this was defined to be 10,677 persons. Exact occupancy in Greek Houses and Village Complexes is difficult to determine with strict accuracy. For the purposes of the transportation model, 10,649 residents were allocated to each TAZ as displayed in the following table. For the year 2015, an additional 781 on-campus residents were coded to the model. Additional information about

campus housing trends is presented elsewhere in the Data and Analysis report for the Housing Element.

University Student Residents by TAZ and Housing Complex, 2004

Residence Halls	**TAZ**	**Units**	**Occupancy**
Beaty Towers	454	200	787
Broward	91	325	690
Buckman	110	84	124
East	126	105	218
Fletcher	110	91	177
Graham	126	105	218
Hume	449	179	608
Jennings	454	248	520
Keys	126	107	419
Lakeside	441	135	528
Mallory	91	91	175
Murphree	110	171	354
North	126	85	158
Rawlings	91	176	364
Reid	91	87	168
Riker/South	126	105	196
Simpson	126	109	225
Sledd	110	94	178
Springs	146	149	476
Thomas	110	109	170
Tolbert	126	127	252
Trusler	126	104	208
Weaver	126	98	172
Yulee	91	94	177
TOTAL		3,178	7,562
Fraternity Housing	**TAZ**	**Houses**	**Occupancy**
Sorority Row	79	12	660
Fraternity Row	141	12	540
SE of Fraternity Row	126	2	75
W. Fraternity Drive	146	2	75
TOTAL		29	1,350
Village Complexes	**TAZ**	**Units**	**Occupancy ***
Corry Village	443	216	374
Diamond Village	454	208	360
Maguire Village	440	220	381
University Village South	440	128	221
Tanglewood Village	460	208	360
TOTAL		980	1,695

* Village occupancy was calculated based on 1.73 persons per dwelling unit. The total number of occupants in Village Complexes in 2003 was 1,765, however, that total is not recorded by unit.

University Residents Total by TAZ, 2004

TAZ2000	Residents
79	660
91	1,574
110	1,003
126	2,156
141	540
146	576
440	601
441	528
443	374
444	2
449	608
454	1,667
460	360
TOTAL	10,649

B. Parking

Existing Parking. The physical tracking and mapping of parking locations on campus can be difficult because different data sources provide different levels of detail with regard to non-decal parking space which is found in small quantities in many localized areas. Typically, such locations provide limited employee parking in non-public parts of campus such as the Physical Plant Division compound. Detailed parking location and decal assignment is also subject to frequent modification due to construction and a variety of factors. For the purposes of the transportation model, 23,261 parking spaces were allocated to TAZs as presented in the following table. Additional detailed analysis of parking locations, trends and decal assignments is presented in Section X, Parking Facilities and Programs, of this report.

Parking by TAZ, 2004

TAZ	Parking Spaces	TAZ	Parking Spaces
59	32	166	563
74	499	178	1,540
79	362	433	843
83	535	440	399
85	51	441	499
86	23	442	699
91	878	443	426
97	114	446	81
101	171	447	25
110	564	449	2,529
112	576	450	1,989
122	1,043	451	1,742
125	1,626	452	605
126	743	453	222
130	48	454	432

TAZ	Parking Spaces	TAZ	Parking Spaces
141	139	455	1,473
146	1,183	466	20
149	587		

Future Parking Assignment. For the year 2015, and additional 1,898 parking spaces were coded into the transportation model consistent with the recommendations summarized in Section X, Parking Facilities and Programs, of this report.

C. Student Destinations

Existing Student Destinations. For the purpose of the transportation model, information was needed about destinations of students on campus. One measure of where students want to go on campus is the location of classrooms, while the classroom size gives information about the attractiveness of that location for destination trips. To this end, data was generated and supplied to the transportation consultant listing every space on the main campus designated as classroom, class laboratory or assembly with its room capacity, size and TAZ location.

II. Mode Split

Mode split is generally defined as the prediction of how trips will be divided among the available modes of travel such as bicycle, pedestrian, transit and auto (including auto by number of occupants). This is an important step in the traditional four-step model, as it determines how many trips need to be accommodated on the roadway and transit networks. Traditional models are not capable of predicting origins, destinations and routing for non-auto trips, however, these non-auto trips are very important to the overall system capacity. For the purposes of transportation modeling, various sources are utilized to evaluate the countywide mode split including U.S. Census Bureau Journey-To-Work data and the Florida Department of Transportation Household Survey. The likelihood that a person will choose a travel mode other than a personal vehicle are dependent upon many factors including proximity, bicycle/pedestrian environments and parking. For the University of Florida campus, restricted parking availability is the number one influencing factor for mode choice. The model is able to account for parking policy through the mode usage module.

A number of additional resources can be cited to further understand the importance of alternate modes of transportation on campus. In general, the conclusion of these sources and the campus count data is that non-auto modes are a critical component of the traffic mix on the university campus. This has been the case historically, and will continue to be increasingly important in the future. While some of these percentages may be small, their impact is quite large for the trip-making behavior of over 22,000 employees and 45,000 students.

BOR 1993 Study. In 1993 the Board of Regents published a "State University System Transportation Study, BOR-052" including data from all of the state universities. Data collection with regard to mode choice was gathered through random classroom surveys for students, and one-on-one group surveys for faculty and staff. The 1993 survey included 4,649 respondents from the University of Florida. Based on these respondents, the mode split at UF for all trips was found to be: 46.6% auto, 38.1% Walk, 12.4% Bike, 2.4% Bus, and 0.5% Motorcycle. Regarding automobile trips, 34.3% of all trips were reported to be single-occupant vehicles and 2.1% were vehicles with three or more passengers. The frequency of bicycling was the highest at the

University of Florida than any other SUS school. Walking was also highly reported at UF and a few other SUS schools. Reported external trip lengths averaging 2.94 miles for all trips at the University of Florida were shorter than any other SUS school. Short trip lengths demonstrate close proximity of destinations and, thereby, greater likelihood of using non-auto modes.

University Vision 2040. In 2003-2004, the University of Florida conducted a series of forums and surveys in preparation of the master plan update. During this time, surveys included questions about the mode of travel used to access campus. This question is similar to the "external trips" question in the 1993 BOR survey, except that the BOR asked about all trips while this survey asked only about the trip accessing campus. In the 2003 forums, 48 respondents (60% staff, 15% faculty, 8% students and 17% other) answered a survey and reported their primary mode of transportation to campus as follows: 77% auto, 8% bicycle, 6% walk, 6% bus and 2% no response. In January 2004, an online student survey asked the same question and received 579 respondents (62% undergraduate students and 38% other students) who reported their primary mode of transportation to campus as follows: 38.1% auto, 34.6% bus, 12.5% walk, 11.4% bicycle, 2.8% motorcycle/moped/scooter, and 0.7% other.

III. Trip Origins

A. Context Area Analysis

An analysis of students' and employees' residence locations was conducted in order to understand the origin of work and school trips coming to campus. This analysis was also used as background information to establish the Context Area for the campus master plan development agreement.

Student Residences. Two sources of data were used to map student addresses. The 2000 United States Census, Population Characteristics, provides data by block group for the student population. The data, which are collected in April of the survey year, represent the location of the students at that time. The census stratifies the data on male and female students by university undergraduate and graduate levels. The student population is further stratified by public versus private university. The second data source was the University's records of its student residence addresses that were then compared to the Census data. While Census data are developed from a sample and depict 2000 conditions for all university and community college students, University of Florida information is for the 2003-2004 academic year. Those two data sets vary in many cases. UF has more than 45,000 students for whom 33,000 addresses are available. And, some of these are not "local" addresses. The key limitation on the Census data is that they do not differentiate between University of Florida students and Santa Fe Community College students. Because of the data limitations, both sets were used to analyze the student population as a percent of total population in Alachua County census blocks. The combined results are presented in the following figure "Composite Data Analysis: Student Population as a Percent of Total Population" that displays those census blocks where the following criteria are met:

1. Blocks with a student population of at least 30 percent as defined by the U.S. Census;

2. Blocks with a student population of 20 to 29 percent as defined by the U.S. Census and a student population of at least 8 percent as defined by UF student addresses;

3. Blocks with a student population of at least 10 percent according to the U.S. Census and a student population of at least 20 percent as defined by the UF student addresses.

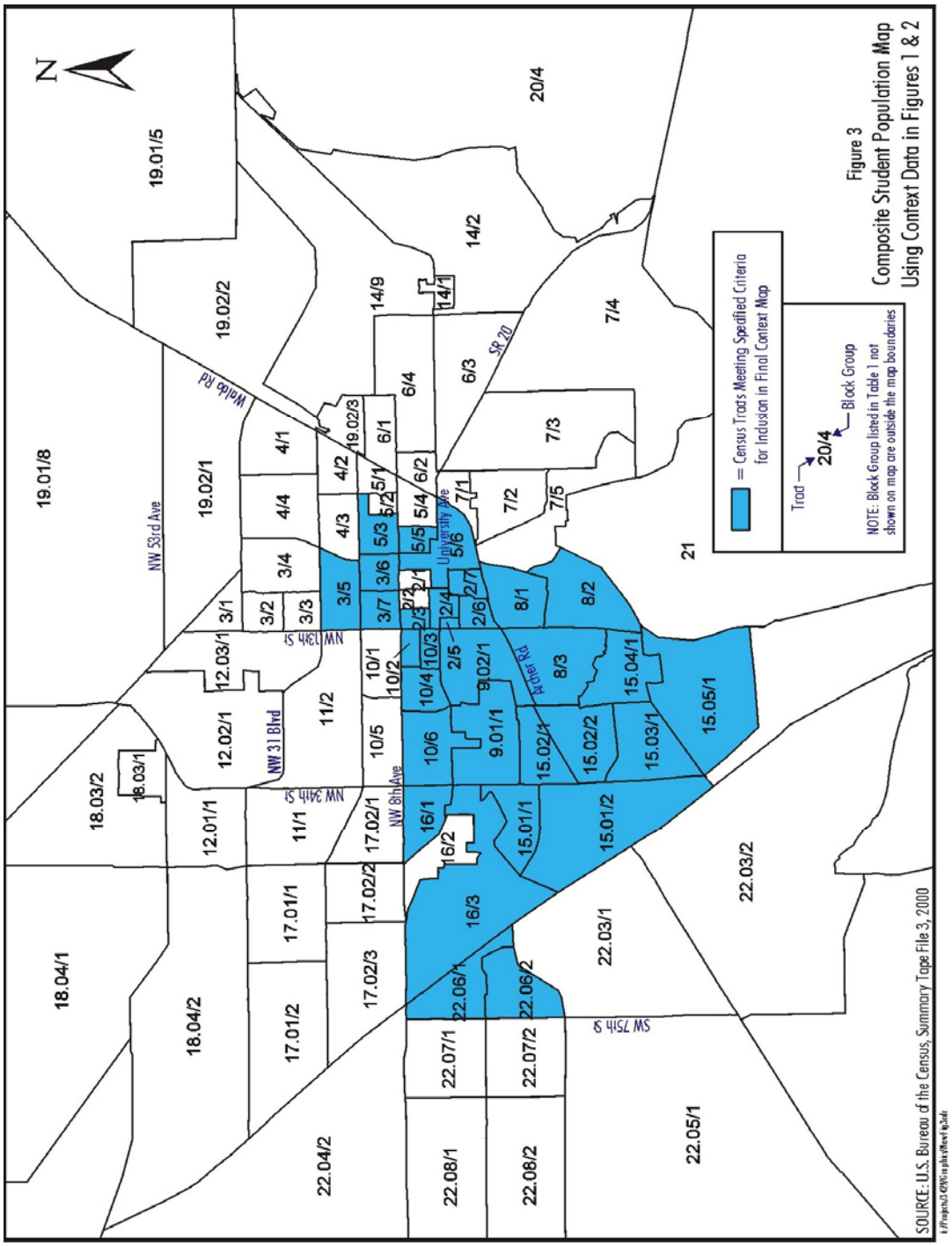
Use of these two data sets allows areas of both dominant and marginal student concentrations to be included in the analysis map, while recognizing important characteristics of each data set: 1) the U.S. Census is limited in its accuracy plus includes information which cannot be segregated on non-UF students; and, 2) the University of Florida student address file, while very accurate, does not include the local addresses of all of its students, nor do all students live in Alachua County.

Compared to the 2000-2010 and 1995-2000 context area analysis, there is an observed trend of student populations moving from west of I-75 to areas closer to campus in the downtown and West 13th Street Corridor. In-depth examination of the two data sets reveals that marginal student concentrations are found in the Census blocks along SW 75th Street west of I-75 (22.06/1 and 22.06/2). The presence of students west of I-75 was documented in the census data analysis, but not strongly supported by the University's address records. Therefore, the census may be reporting a large number of Santa Fe Community College students in that area. Within the Census blocks around Glen Springs Road near NW 16th Terrace, student residences are concentrated in a cluster of apartment complexes. Because these Census blocks are large with expansive single family neighborhoods, the apartment concentrations do not meet the thresholds established for the mapping analysis, although the university student presence can be verified by other analysis such as transit ridership. Since 1995, another trend is the new concentration of student residences east of campus through downtown as far as Waldo Road in some instances. Another area of newly noted student residence concentrations is bound by Williston Road, SW 13th Street and Rocky Point Road indicating a shift of students to these areas south of campus. Single-family neighborhoods north of NW 8th Avenue west of NW 13th Street and in the area known as Anglewood Subdivision west of SW 34th Street appear to have avoided major influx of student residences. However, those neighborhoods north of NW 8th Avenue and east of NW 13th Street have seen increases in student residences inclusive of multifamily developments that are present in these areas. Taken together, these trends seem to suggest that the popular student apartment complexes of ten years ago located west of I-75 are no longer the primary location of university off-campus student housing. Instead, student housing has shifted east of campus throughout downtown Gainesville, north and south along W. 13th Street, and south of campus along Williston Road. These trends appear to be consistent with recent student apartment construction and policies of the City of Gainesville and Alachua County to encourage student housing in these areas.

Employee Residences. The University's address record for employees was also mapped to census blocks in order to understand employee commuting origins. Employee address information may be useful for transit planning and carpool programs as well as other transportation management efforts. The university employs 17,188 people on its main campus exclusive of Shands-UF employees. Addresses are available for about 12,200 of these employees who reside in Alachua County. The concentration of university employee residents as a percentage of census block population is shown on the following figure "University Employment Population as a Percent of Total Population". Overall, employee residential concentrations are much less dense than student concentrations, with ranges typically between zero and twenty-five percent. Concentrations of employee residences were noted southwest of campus along Archer Road, Tower Road and Williston Road west of I-75; and southeast of campus along SW 13th Street, Hawthorne Road, and East University Avenue. Neighborhoods north of campus along N 8th Avenue and N 16th Street also showed five to twenty percent of residents as university

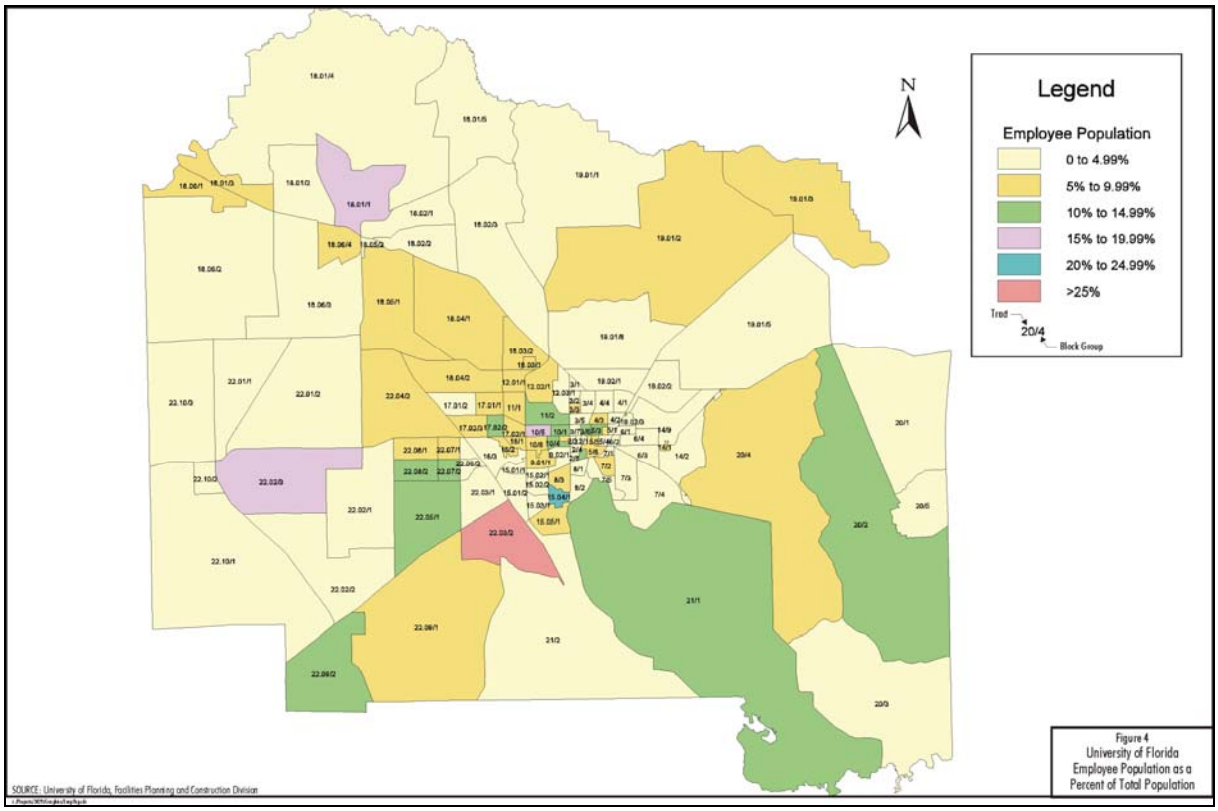
employees. Other concentrations of university employees were identified in the rural communities of Alachua, Archer, Hawthorne, Micanopy and Newberry. Somewhat lower concentrations of university employees were also noted in the communities of High Springs and Waldo.

Composite Data Analysis: Student Population as a Percent of Total Population



Source: The Corradino Group, Inc.

University Employee Population as a Percent of Total Population, 2004



Source: The Corradino Group, Inc.

B. University Trip Purpose Analysis for Modeling

In the Alachua County Regional Transportation Model, a unique trip type was created for Home-Based University Trips. These trips included home-to-work trips with a trip end on the main campus. The model was validated to confirm that transit trips to campus matched the daily transit ridership reported by the Regional Transit System for each TAZ area. Similarly, the model also created a special trip purpose called Campus University for on-campus housing residents making trips to on-campus work or school. The model produced mode choice results for Home-Based University Trips, Campus University, and Home-Based Work Trips (i.e. other work trips in the regional that are not associated with the University) as presented in the following table. The mode choice assignments are based on a variety of factors including auto ownership, availability of transit, pedestrian environmental factors and parking availability.

Model-Generated Mode Choice Assignments by Trip Type, 2000

Mode	Home-Based University	Home-Based Work (Non-University)	Campus University (i.e. Campus Housing)
Drive alone	52.6%	80.5%	0%
Carpool	9.3%	14.3%	0%
Walk to Local Transit	16.2%	0.9%	21.8%
Drive to Transit	0.4%	0%	0%
Walk	11.6%	2.9%	50.1%
Bicycle	10.0%	1.5%	28.1%

IV. Traffic Counts

A. Vehicular Counts

Traffic counts are available from several sources for roads on and around the University of Florida. The City of Gainesville collects traffic counts on local roads including campus roads at approaches to signalized intersections on the campus perimeter. These counts are gathered roughly every three years. The University of Florida obtained traffic counts for its 1995 and 2005 campus master plans. In 2005, the university also gathered daily traffic counts at each of its satellite properties in Alachua County. Traffic counts on arterial roads are gathered by the Florida Department of Transportation since all of the perimeter roads around campus are state-maintained arterial roads. The following tables present trends in traffic counts for roads on and around campus as collected by these various agencies.

Average Daily Traffic, Main Campus, 1993-2005

ROAD *	FROM	TO	YEAR									
			2005	2004	2003	2002	2001	2000	1999	1998	1996	1993
Bledsoe Drive	Hull Road	Radio Rd.		1,947								1,122
Buckman Drive (4041)	CLB Parking Lot	W. Univ Ave.	5,107	4,652			5,880			8,842		9,306
Center Drive (4048)	Archer Rd.	Mowry Rd.		14,975			9,208			12,239		10,061
Center Drive	Mowry Rd.	Museum Road		6,207								4,353
Diamond Road (4047)	Newell Dr.	SW 13th Street				3,249			3,920			904
Fletcher Drive	Stadium Road	Dauer Parking Lot		1,987								
Fletcher Drive (4042)	Dauer Parking Lot	W. Univ Ave.		1,150			5,547			5,000		9,031
Fraternity Drive	Museum Road	W. Fraternity Drive		4,286								
Hull Road (4051)	SW 34th Street	Museum Road		11,105	13,714			11,477				12,042
Hull Road	Museum Road	SW 23rd Drive		7,590								10,726
Inner Road (4057)	Newell Dr.	SW 13th Street		4,622		3,077			2,840			2,129
McCarty Drive	Museum Road	Newell Dr.	1,239									
Mowry Road	SW 23rd Drive	Gale Lemerand Drive	6,748									6,269
Museum Road	Hull Road	Radio Rd.		8,309								5,649
Museum Road	Radio Rd.	Village Dr.		13,917								
Museum Road	Fraternity Drive	Gale Lemerand Drive		11,793								11,498

ROAD *	FROM	TO	YEAR									
			2005	2004	2003	2002	2001	2000	1999	1998	1996	1993
Museum Road	Gale Lemerand Drive	Center Drive		17,282								
Museum Road	Center Dr.	Newell Dr.		15,417								
Museum Road (4046)	Newell Dr.	SW 13th Street	16,301			13,653			14,479			16,254
Newell Drive (4049)	Archer Rd.	Diamond Road		7,195		5,423			8,766			8,655
Newell Drive	Diamond Road	Museum Road		4,551								4,984
Newell Drive	Museum Road	McCarty Drive		9,739								9,765
Newell Drive	Stadium Road	Union Rd.		6,369								
Newell Drive	Union Rd.	W. Univ Ave.										1,258
Gale Lemerand Drive (4059)	Shealy Dr.	Archer Rd.				5,185			2,581			
Gale Lemerand Drive (4058)	Archer Rd.	Mowry Rd.		18,456		9,586			15,343			
Gale Lemerand Drive	Mowry Road	Museum Road		13,199								13,503
Gale Lemerand Drive	Museum Road	Stadium Drive		14,411								24,624
Gale Lemerand Drive (4043)	Stadium Road	W. Univ Ave.		17,146		11,298			11,567			13,503
Radio Road (4050)	SW 34th Street	Museum Road		7,543	6,678			6,270				2,530
Shealy Drive (4051)	Vet School	SW 16th Ave.				3,294			5,302			
Shealy Drive (4060)	SW 16th Av.	Archer Rd.				4,345			3,591			
Stadium Road	Woodlawn Drive	Gale Lemerand Drive		6,245								5,442
Stadium Road	Gale Lemerand Drive	Fletcher Drive		5,429								
Stadium Road (4045)	Newell Dr.	SW 13th Street				540					437	250
Surge Area Dr.	Archer Rd.	Natural Area Dr.	2,106									
SW 23rd Drive (4062)	Archer Rd.	Hull/ Mowry Rd.										4,966
Union Road	Newell Dr.	Criser Parking Lot		3,782								

ROAD *	FROM	TO	YEAR									
			2005	2004	2003	2002	2001	2000	1999	1998	1996	1993
Union Road (4056)	Criser Parking Lot	SW 13th Street				6,827					5,969	6,308
Village Drive	Museum Road	W. Fraternity Dr.		7,428								
Village Drive (4044)	W. Fraternity Drive	SW 2nd Ave.	6,319				6,189			7,619		6,414
Woodlawn Drive	Stadium Road	SW 2nd Ave.		4,737								4,320

* City of Gainesville Count Station numbers are noted in parenthesis where applicable. 1993 counts were obtained for the University of Florida Comprehensive Master Plan, 1995-2005. Traffic counts for 2004 and 2005 were obtained by The Corradino Group, Inc.

Average Daily Traffic, Alachua County Satellite Properties, 2004

	Average Daily *		
Satellite Properties	**Entering**	**Exiting**	**Total**
Beef Research Unit	36.5	18.5	55
Dairy Research Unit	99.5	104	203.5
Lake Wauburg North	104.5	117	221.5
Millhopper Hort. Unit	126	214	340
TREEO Center	97.5	200	297.5
Wall Farm / H. T. U.	91	109.5	200.5
WRUF Radio Tower	3	3	6
WUFT Tower	3	3	6
Austin Cary Memorial Forest Learning Center	21	20	41
Santa Fe Beef Ranch / Boston Farm	10	3	13

NOTE: Two-day counts were obtained at each of the sites except for Millhopper Horticulture Unit, WRUF Tower, WUFT Tower, Austin Cary Memorial Forest and Santa Fe Beef Ranch. Note that the counter location at Millhopper Horticulture was such that some non-university trips from adjacent single-family homes are included in the counts. These counts were obtained by The Corradino Group, Inc. in spring and fall semesters 2004.

Average Annual Daily Traffic, Campus Perimeter Roads, 1999-2003

ROAD *	FROM	TO	YEAR				
			2003	2002	2001	2000	1999
US 441 (6091)	Williston Rd.	SW 16 Ave.	26,500	24,500	25,500	26,000	27,500
US 441 (6090)	SW 16 Ave.	Archer Rd.	21,000	20,400	22,000	23,000	24,000
US 441 (6089)	Archer Rd.	SW 8 Ave.	37,000	36,000	40,500	37,500	40,500
US 441 (6087)	W. Univ. Ave.	NW 8 Ave.	32,000	30,000	32,500	31,500	31,500
Archer Rd. (6157)	SW 16 Ave.	Gale Lemerand Dr.	43,000	39,500	43,000	42,500	37,000
Archer Rd. (6046)	Gale Lemerand Dr.	Center Dr.	32,000	33,000	32,500	34,500	28,500
Archer Rd. (STUDY)	Center Dr.	Newell Dr.	31,650	31,450	31,750	32,500	29,154
Archer Rd. (6045)	Newell Dr.	US 441	30,000	26,500	29,000	26,000	29,000
W. Univ. Ave. (6026)	W. 34 St.	W. 22 St.	30,000	26,500	29,500	27,000	28,500
W. Univ. Ave. (6028)	Gale Lemerand Dr.	W. 13 St.	36,000	32,500	36,500	33,500	34,500
W. Univ. Ave. (6029)	W. 13 St.	W. 12 St.	32,000	25,000	28,000	26,500	25,000
SW 2 Ave. (6040)	SW 34 St.	SW 23 St.	15,000	13,500	12,500	16,500	16,500
SW 2 Ave. (6041)	SW 23 St.	W. Univ. Ave.	15,000	13,500	12,500	14,000	13,000
SW 34 St. (6135)	Archer Rd.	SW 20 Ave.	46,000	48,000	50,000	45,500	42,000
SW 34 St. (6076)	SW 20 Ave.	Radio Rd.	55,500	51,000	54,500	50,500	50,500
SW 34 St. (6136)	Radio Rd.	SW 2 Ave.	44,000	44,000	46,500	43,500	44,500
SW 34 St. (6075)	SW 2 Ave.	W. Univ. Ave.	31,500	32,000	31,000	28,500	28,500

* Florida Department of Transportation Count Station numbers are noted in parenthesis.
SOURCE: Multimodal Level of Service Reports (November 2004 and October 2002), North Central Florida Regional Planning Council

B. Intersection Turn Movement Counts

Intersection turn movement counts were gathered in 2004 on the main campus by The Corradino Group, Inc. for the purpose of intersection analysis and simulation studies. This information is presented on maps at the end of this report.

C. Bicycle and Pedestrian Counts

In the spring and fall semesters of 2004, The Corradino Group, Inc. collected pedestrian counts at intersections in the peak morning hours as presented in the following table. For this two-hour period, pedestrian volumes were significant at all campus locations. However, pedestrian counts

were extremely high in the auto-free zone and at intersections near parking facilities or approaching the auto-free zone.

Total Pedestrian Counts at Intersections, 7:30 AM – 9:30 AM, 2004

Intersection	7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	Total
Newell Dr. & Union Rd.	18	48	115	325	85	62	101	435	**1189**
Newell Dr. & Museum Rd.	11	34	41	68	37	49	38	76	**354**
Center Dr. & Mowry Rd.	48	35	66	51	29	35	13	16	**293**
Gale Lemerand Dr. & Stadium Rd.	9	14	18	110	26	15	15	82	**289**
Center Dr. & Museum Rd.	3	16	24	37	15	24	15	47	**181**
SW 13 St. & Union Rd.	5	4	15	50	25	13	27	31	**170**
Museum Rd. & SW 13 St.	0	3	14	51	18	5	2	62	**155**
Gale Lemerand Dr. & Mowry Rd.	37	33	4	10	7	12	11	15	**129**
Gale Lemerand Dr. & Museum Rd.	5	2	13	17	16	6	14	29	**102**
Museum Rd. & Hull Rd.	6	4	4	9	7	5	22	41	**98**
Museum Rd. & Radio Rd.	7	6	8	18	13	13	15	15	**95**
Village Dr. & Museum Rd.	3	1	4	13	7	8	9	9	**54**
SW 23 Dr. & Hull Rd.	1	11	3	3	6	4	6	13	**47**

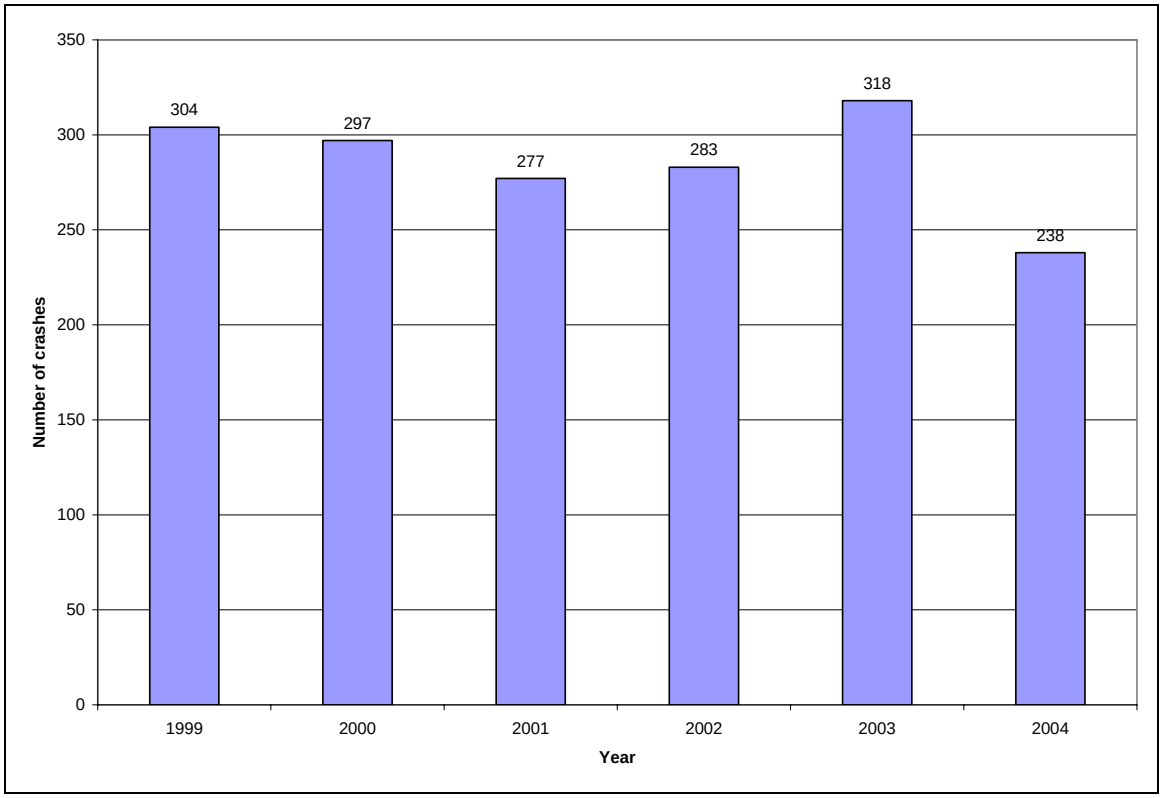
Another source of bicycle and pedestrian counts is a report entitled "Campus Evaluation for Bicycle and Pedestrian Safety," published by Dr. Ruth Steiner of the Department of Urban and Regional Planning. This report is available at UF's Library West and further documents the high volumes of bicycle and pedestrian use on campus by presenting peak hour counts collected in 1995/96.

V. Crash Data

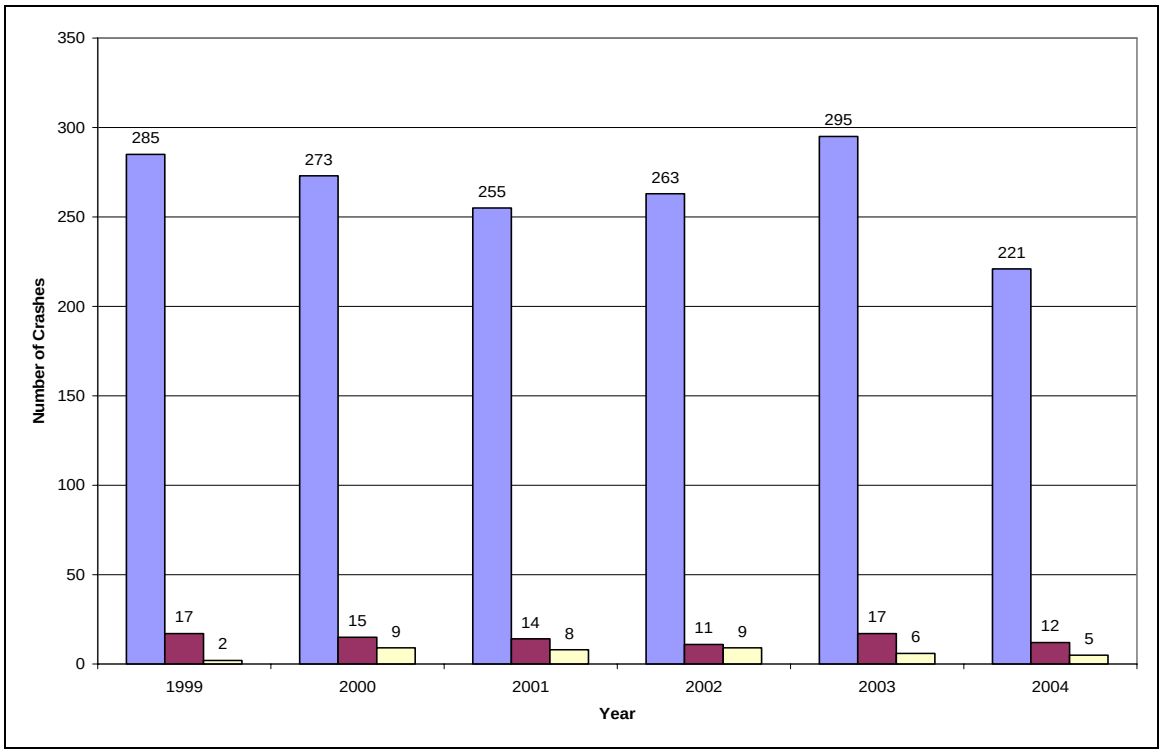
Traffic crash data was obtained from the University Police Department and analyzed for the years 1999-2004. The results are presented in the following tables and on maps included in this report. Although the number of on-campus crashes fluctuates regularly, there was a marked reduction in crashes between 2003 and 2004. Not surprisingly, traffic crashes occur most frequently on weekdays during the afternoon peak as people are leaving campus. In addition to the employees leaving campus in this timeframe, the campus decal restrictions are lifted at 4:30 PM which may

attract other motorists to enter the campus during the same period. Crashes also seem to spike in September and April, possibly due to the larger number of visitors on campus at these times of the year associated with new student arrival and end-of-year graduation.

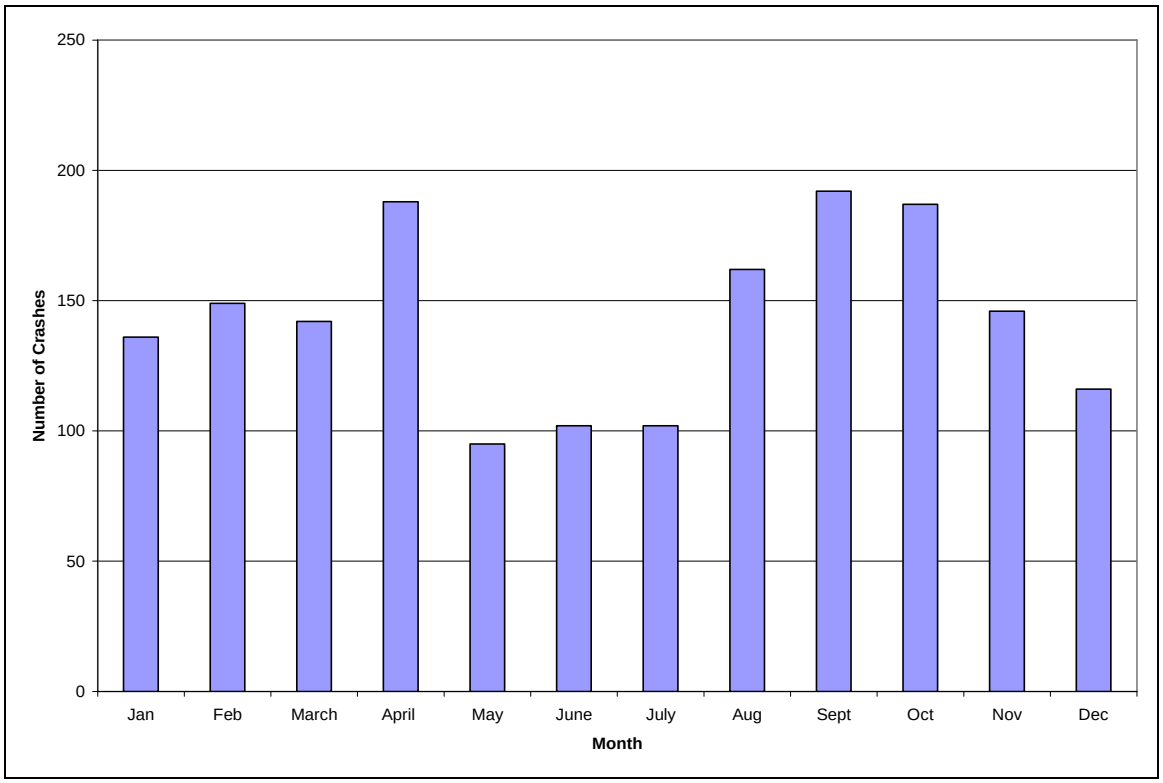
Total Crashes 1999-2004



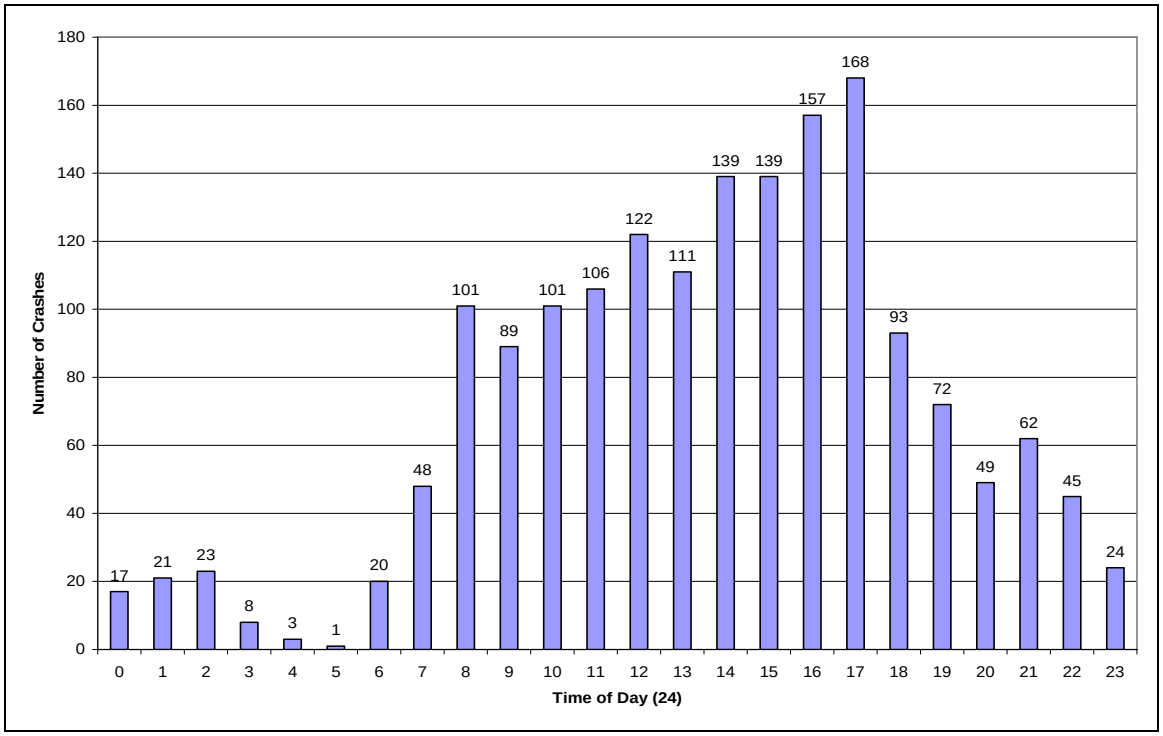
Total Crashes by Year, 1999-2004



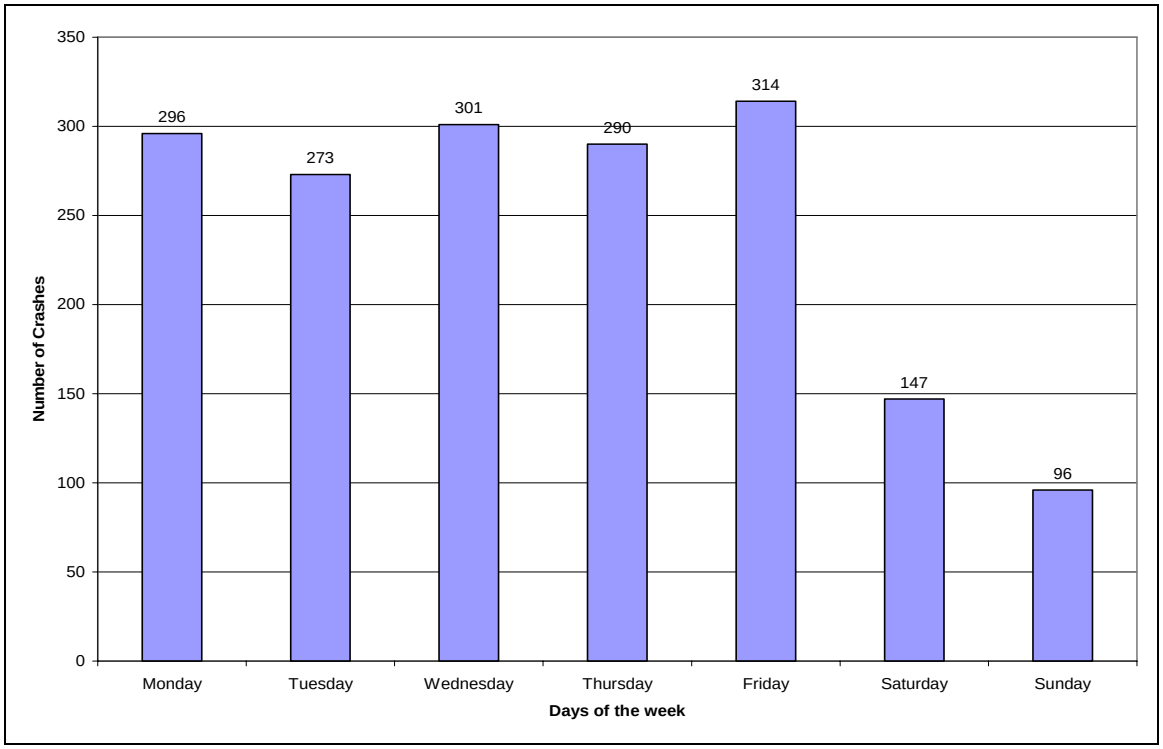
Crashes by Month, 1999-2004



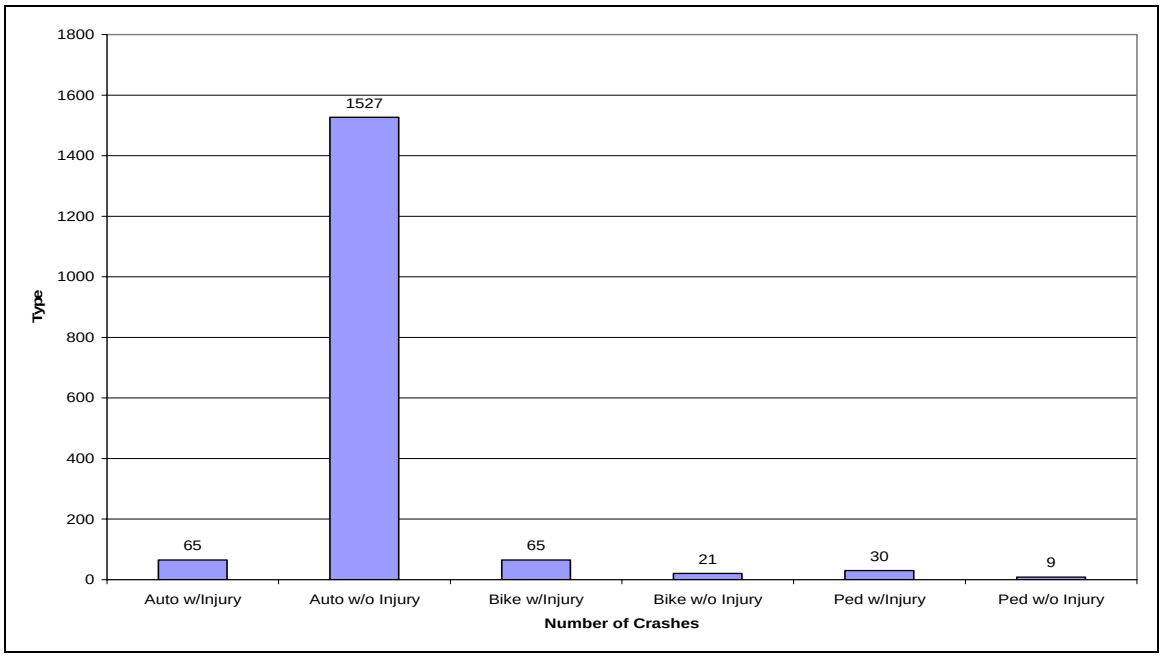
Crashes by Time of Day, 1999-2004



Crashes by Day of Week, 1999-2004



Crashes by Mode and Injury, 1999-2004



VI. Roadway Facility Evaluation

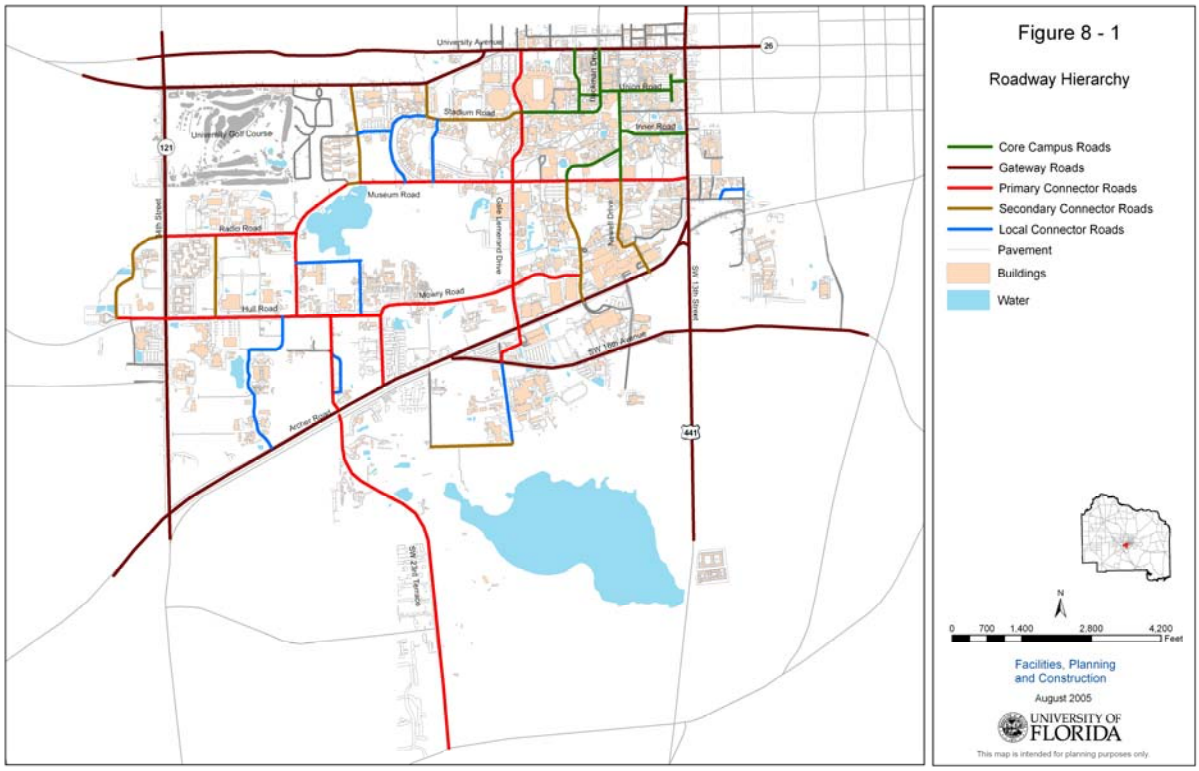
A. Roadway Hierarchy

A roadway hierarchy is a means to distinguish different roadway types on campus that provide different levels of access. This differentiation can be used to develop design guidelines and traffic management approaches. In terms of open space connectivity, many of these roadways also provide pedestrian and bicycle access to urban parks and conservation areas. This typology is similar to that which is developed by other federal, state and local agencies to classify roadways for design and funding considerations. As part of the process of developing the Campus Master Plan for 2005-2015, definitions were developed for a campus roadway hierarchy as follows. A map of the recommended designations is also included below. The recommendations even suggest a hierarchy designation for roads that are not built, but are included as recommended new construction projects. These designations could guide the design of such facilities if and when they are constructed.

- Core Campus roads are within or immediately proximate to the University's Pedestrian Enhancement Zone. These roads are also within the University's Historic Impact Area. Their primary function is to provide access for bicyclists and pedestrians, with limited daytime access for service, delivery and emergency vehicles or vehicles accessing disabled and gated parking areas. Transit vehicles are allowed on core campus roads where necessary to provide convenient access to this core academic area. Slow speeds and priority for pedestrians and bicyclists are emphasized on all core campus roadways.
- Local Connector roads provide access to campus facilities that are more internally focused with less emphasis on providing public access or through movement. They are low-volume roadways that are located in more isolated areas of campus and do not

provide direct access to any primary destinations. Due to their low-volume of vehicles, bicycle access can be provided in bicycle lanes, wide-curb lanes or general shared-use pavements (with or without lane striping). Sidewalks may be provided on one side of the street only. Campus transit routes may run on local connector roads, but are discouraged when conflicting with bicycle and pedestrian access. Transportation planning should strive to maintain these roadways in low-volume use. Appropriate traffic calming techniques are compatible on local connectors where necessary to maintain low volumes and low speeds.

- Secondary Connector roads provide internal circulation, but also serve primary destinations and or gateways. They carry moderate vehicle volumes and should accommodate bicycles and pedestrians with bicycle lanes and sidewalks on both sides. When vehicle volumes are higher or a major gateway is served, access management to restrict turning vehicles and limited development on the road frontage are appropriate techniques to maintain traffic flow without the turn lanes and medians that would be expected on a Primary Connector. Campus and City transit routes may be present on these roadways. Appropriate traffic calming techniques are compatible on secondary connectors where feasible with designs that do not create hazards for transit or bicycle users.
- Primary Connector roads provide access into and through the campus. They serve primary destinations and gateways including critical intersections with state arterial roadways. They carry the highest vehicular volumes on campus and high volume transit routes including City and Campus routes. Transit service should be accommodated with bus shelters and bus pull-out bays where appropriate. Bicycles should be accommodated on bicycle lanes and, in some cases, additional shared-use paths that are located on parallel or alternate alignments. Pedestrians should be provided with sidewalks on both sides of the road, high-visibility crosswalks and other means of identifying conflict points with vehicles. Appropriate traffic calming techniques are compatible on primary connectors where feasible with designs that do not create hazards for transit or bicycle users. Traffic calming and transportation system management techniques should strive to maintain low speeds, smooth traffic flow and provide safe integration of multiple travel modes. Landscaped medians with turn lanes should be included in a standard divided roadway design unless access management and limited development allow smooth traffic flow on a more narrow travel way.
- Gateway Roads are state arterials that form the perimeter of the campus. They provide primary regional access to the university while also accommodating regional through-traffic on the state highway system. As these major throughways pass by the university, their design and intent must create a pleasing and safe environment that enhances the campus experience and accommodates safe movement of pedestrians and bicyclists. These roadways should not form barriers between the university campus and the community of apartments, neighborhoods, shops and restaurants that serve the campus population.



B. Roadway Level of Service

The North Central Florida Regional Planning Council (NCFRPC) maintains the official Level of Service (LOS) Report for the City of Gainesville and Alachua County. University of Florida roadways are also included in this analysis since several of the campus roads are considered part of the regional road network and are functionally classified within that network. Roadway level of service is described in the publication 2000 Highway Capacity Manual (HCM2000). LOS analysis examines roadways at the corridor and segment level, as compared to the regional models that examine roadways in a much broader context with other assumptions and forecasting. In Florida, LOS is analyzed according to the Florida Department of Transportation (FDOT) methodology that includes a two-step process as implemented in the Gainesville Urbanized Area. Tier One analysis utilizes the FDOT Generalized tables that are contained in an FDOT document entitled 2002 Quality/Level of Service Handbook. Tier two analysis is required for all "distressed" arterials. A "distressed" arterial is one where current highway traffic uses 65 percent or more of the maximum service volume (MSV) for the adopted LOS for that roadway in FDOT's Generalized tables. Tier two analysis is a detailed evaluation using FDOT's LOSPLAN software for arterials roads and FREEPLAN software for limited-access arterial roads. These software tools also require use of significant field-collected data. The LOSPLAN software also produces a LOS evaluation for bicycle, pedestrian and transit modes in addition to roadways. The following table presents the most recent analysis performed by the NCFRPC for campus roads. Roadways on the university campus have an adopted target to maintain LOS "E" as consistent with the City of Gainesville adopted level of service for local roads.

Campus Roadway Level of Service Analysis, 2004

ID #	Roadway	From	To	% of Capacity	LOS
G-31	Gale Lemerand Dr.	SR24/Archer Rd.	Museum Rd.	57%	C
G-32	Radio Rd–Museum Rd.	SR121/SW 34th St.	US441/SW 13th St.	104%	F
G-35	Hull Rd–Mowry Rd.	SR121/SW 34th St.	Center Drive	79%	D
G-39	Gale Lemerand Drive	Museum Rd.	SR26/W. Univ. Ave.	112%	F

Source: North Central Florida Regional Planning Council, "Multimodal Level of Service Report", January 2005.

C. Intersection Analysis

The Corradino Group, Inc. performed intersection analysis on the main campus using two different simulation software tools, SYNCRHO and VISSIM. The primary reason that both tools were used for the campus analysis is because VISSIM performs somewhat better in accounting for the impact of bus stops along the roadway difference. The Corradino Group, Inc. conferred with Dr. Scott Washburn, of the University of Florida's College of Engineering in preparation of these simulation studies. The analysis tested the AM peak hour with existing conditions in 2004. Scenarios were also tested for 2015 traffic conditions with and without intersection improvements that are recommended in section VI.-F, Existing and Proposed Roadway Modifications, of this report. Not all of the proposed modifications are tested in the simulation study because certain projects, such as pedestrian refuge islands, cannot be modeled. The results of these simulation model studies are presented in the following tables.

In the 2004 analysis, the two software packages produced significantly different results for the intersection of Museum Road and Village Drive. This discrepancy occurred because the VISSIM analysis recognized that buses stopping along Museum Road create gaps in traffic for turn movements from Village Drive. However, both analyses resulted in a failing condition in 2015 without any improvements at this location. The improvements tested at signalized intersections resulted in decreased delays, but not significant enough to change the level of service outcome. Roundabouts were tested for four unsignalized intersections. In three out of the four locations, the roundabout created significant improvements, sometimes improving from a LOS "F" to a LOS "A" in the year 2015. The intersection of Hull Road and Museum Road performed equally in 2015 with our without a roundabout. This result may suggest that less costly improvements such as a southbound turn lane on Museum Road may satisfy the traffic demand and decrease delay. However, this location has a PM peak rather than an AM peak, and the analysis should be performed for the PM peak prior to final determination of project need.

Intersection Analysis, AM Peak Hour: 2004 Existing Conditions

Peak AM 2005 - (Existing Conditions)	Synchro			Vissim		
Signalized	LOS	V/C	Delay	LOS	V/C	Delay
Fraternity & Gale	B	0.46	16.6	B	n/a	19.6
Museum & Gale	C	0.66	28.4	C	n/a	31.3
Museum & Center	B	0.41	11.6	B	n/a	15.6
Museum & Newell	B	0.41	11.6	B	n/a	15
Gale & Mowry	A	0.55	9.6	B	n/a	12
Unsignlized	LOS	V/C	Delay	LOS	V/C	Delay
Museum & Village (SB LT)	F	0.89	74.3	C	n/a	23
Radio & Museum (EB LT/RT)	C	0.72	24.8	C	n/a	22.4
Museum & Hull (SB LT/RT)	B	0.32	14.9	C	n/a	18.7
Mowry & 23rd (NB LT/RT)	B	0.34	14.9	A	n/a	6.9

Source: The Corradino Group, Inc.

Intersection Analysis, AM Peak Hour: 2015 Without Improvements

Peak AM 2015 - (No improvements)	Synchro			Vissim		
Signalized	LOS	V/C	Delay	LOS	V/C	Delay
Fraternity & Gale	B	0.53	17.8	C	n/a	25.4
Museum & Gale	C	0.82	33.8	D	n/a	38.5
Museum & Center	B	0.47	12.9	B	n/a	19.1
Museum & Newell	B	0.53	12.4	B	n/a	14.8
Gale & Mowry	B	0.62	11.2	B	n/a	12.4
Unsignlized	LOS	V/C	Delay	LOS	V/C	Delay
Museum & Village (SB LT)	F	1.28	205	F	n/a	53.5
Radio & Museum (EB LT/RT)	F	0.97	60	E	n/a	40.6
Museum & Hull (SB LT/RT)	C	0.43	18.5	E	n/a	36
Mowry & 23rd (NB LT/RT)	C	0.43	17.6	B	n/a	11.2

Source: The Corradino Group, Inc.

Intersection Analysis, AM Peak Hour: 2015 With Improvements

Peak AM 2015 - (w/ Improvements)		Synchro			Vissim		
Signalized	Improvement	LOS	V/C	Delay	LOS	V/C	Delay
Fraternity & Gale		B	0.53	17.8	C	n/a	22.6
Museum & Gale	WB RT Lane (575')	C	0.82	33.4	D	n/a	37.3
Museum & Center		B	0.47	12.9	B	n/a	19.3
Museum & Newell		B	0.53	12.4	B	n/a	14.1
Gale & Mowry	WB RT Lane (300')	B	0.62	10.4	B	n/a	12.3
Unsignlized	Improvement	LOS	V/C	Delay	LOS	V/C	Delay
Museum & Village	(Roundabout)	A	0.73	n/a	C	n/a	16.7
Radio & Museum	(Roundabout)	A	0.53	n/a	B	n/a	14.7
Museum & Hull	(Roundabout)	C	0.68	n/a	B	n/a	12.3
Mowry & 23rd	(Roundabout)	A	0.44	n/a	A	n/a	3.5

Source: The Corradino Group, Inc.

D. MTPO Regional Model and Recommendations

For the 2005-2015 campus master plan, the University of Florida collaborated closely with the update of the 20-year regional transportation plan prepared for the Metropolitan Transportation Planning Organization (MTPO) of the Gainesville Urbanized Area. The transportation model used for the MTPO was the same model that was used for the university transportation analysis. The model included university population and employment for the base year and forecasts to the years 2015 and 2025. Transportation project recommendations developed through the MTPO's public involvement process included consideration facilities and services that provide access to the university campus. Two campus roadway projects were identified in the MTPO's Needs Plan along with modifications to transit services, bicycle facilities and off-campus roads near the university. The two recommended campus roadway projects were an extension of SW 23rd Terrace from Archer Road to Hull Road and an extension of Radio Road to the west and south connecting SW 34th Street to Hull Road west of the Orthopaedic and Sports Medicine Institute. Other roadway projects in the MTPO Needs Plan that affect university access included:

- four-laning SE 16th Avenue from Main Street to Williston Road;
- modifications to SW 20th Avenue including turn lanes, medians and facilities for bicycles, pedestrians and transit;
- modifications to Depot Avenue including bicycle lanes and a roundabout;
- modifications to Archer Road between SW 16th Avenue and SW 13th Street keeping four lanes on Archer Road and four lanes on SW 16th Avenue with transit-only access in a portion of Archer Road between SW 16th Avenue and Gale Lemerand Drive, and a new two-lane road connection south of Gale Lemerand Drive to SW 16th Avenue;
- lane reductions on University Avenue east of SW 13th Street;
- transit service enhancements including a new route between main campus and the Eastside Campus;
- countywide traffic signal upgrades; and
- a bicycle path extending west from Hull Road with an overpass at SW 34th Street and Hull Road.

Of these MTPO Needs Plan projects, four were included in the MTPO's Cost Feasible Plan indicating that funds should be available to implement these projects in the next twenty years. The Cost Feasible Plan projects affecting the university included traffic signal upgrades, SE 16th Avenue 4-laning, SW 20th Avenue reconstruction, and Depot Avenue reconstruction. The bicycle path and overpass along Hull Road west of SW 34th Street were also identified as projects that could be funded with anticipated revenue from the federal Transportation Enhancement Program over the next twenty years.

E. Pavement Condition Analysis

The University of Florida, Physical Plant Division, maintains information on the condition of roadway pavements and resurfacing priorities on the university campus. During the period 2000-2005, one roadway resurfacing project was completed for 983 linear feet (0.19 miles) on Center Drive from Archer Road to the culvert north of Mowry Road. The following table presents remaining roadway resurfacing needs, which are also presented on maps at the end of this report.

University of Florida Roadway Resurfacing Priorities, 2005

Priority	Roadway	From/To	Description	Length (L.F.)	Cost
RS-1	Newell Drive	Museum Rd. to Union Rd.	Resurface	1,800	$ 180,000
RS-2	Stadium Road	Gale Lemerand Dr. to Buckman Dr.	Resurface	1,550	$ 175,000
RS-3	Museum Road	Center Dr. to Newell Dr.	Resurface and restripe to lengthen EBL at Newell Dr.	1,100	$ 110,000
RS-4	Buckman Drive	Stadium Rd. to W. University Ave.	Resurface	1,150	$ 115,000
RS-5	Radio Road	SW 34th St. to Museum Rd.	Resurface	2,550	$ 255,000
RS-6	Newell Drive	Archer Rd. to Museum Rd.	Resurface	2,100	$ 210,000
TOTAL COST				**10,250**	**$ 1,025,000**

Note: Cost estimates for planning purposes only – source: Physical Plant Division (unit prices consistent w/ "2004 Transportation Costs", FDOT – Office of Policy Planning, March 2005)

F. Existing and Proposed Roadway Modifications

The last major roadway project at the University of Florida was a 4-laning of Gale Lemerand Drive in 1999 and a realignment of a portion of that road in 2000/01 associated with the reconstruction of the Ben Hill Griffin Stadium. Several roadway and intersection projects were identified and prioritized through the process of developing the 2005-2015 Campus Master Plan. These projects are presented in the following tables as an inventory of need in the campus roadway network. Project location maps are also included in this report and the campus master plan.

University of Florida Roadway Reconstruction Priorities, 2005

Priority	Roadway	From/To	Description	Length (L.F.)	Cost
RC-1	Mowry Road	Gale Lemerand Dr. to Center Dr.	Reconstruct as 2-lane divided with turn lanes including WBR at G-L Dr., sidewalk both sides bicycle lanes, & evaluation of a dedicated SBL turn lane at G-L	1,400	$ 1,096,200
RC-2	Museum Road	Radio Rd. to Village Dr.	Reconstruct sub-base and resurface as existing with new bicycle lanes at Village Drive intersection	1,715	$ 1,119, 895
RC-3	Mowry Road	SW 23rd Dr. to Gale Lemerand Dr.	Reconstruct as 2-lane divided with turn lanes, curb & gutter, landscaped median, sidewalk both sides, bicycle lanes and min. 10' wide bicycle path	2,810	$ 2,200,230

Priority	Roadway	From/To	Description	Length (L.F.)	Cost
RC-4	Hull Road	End of 2-Lane Section to Mowry Rd.	Reconstruct as 2-lane divided with turn lanes, curb & gutter, landscaped median, sidewalk both sides, bicycle lanes and min. 10' wide bicycle path southside	3,050	$ 2,388,150
RC-5	No Name Road	Museum Rd. to Hull Rd.	Reconstruct as a 2-lane road with bicycle lanes and a sidewalk on one side (rural section with swale)	2,340	$ 1,296,360
RC-6	Surge Area Road	Archer Road to north of culvert	Reconstruct to raise above flood level and modify drainage culverts	200	$60,000
TOTAL COST				**11,515**	**$ 8,160,835**

Note: Cost estimates for planning purposes only – reference: "2004 Transportation Costs", FDOT – Office of Policy Planning, March 2005 with input from The Corradino Group, Inc. and UF Physical Plant Division.

University of Florida Roadway New Construction Priorities, 2005

Priority	Roadway	From/To	Description	Length (L.F.)	Cost
NC-1	Shealy Drive Extension	SW 16th Ave. to Archer Rd.	Construct with bicycle lanes and sidewalks both sides on a new alignment to intersect at Gale Lemerand Drive (urban section)	640	$ 701,570
NC-2	SW 23rd Terrace Extension	Archer Rd. to Hull Rd.	Construct as 2-lane with turn lanes where needed, sidewalk both sides and paved shoulder bicycle lanes (rural section)	1,740	$ 3,254,380
NC-3	Med Plaza service drive	Archer Rd. to Mowry Rd.	Reconstruct existing service drive as a 2-lane road with sidewalk on one side and new entrance at Archer Road	710	$ 555,930
NC-4	Radio Road Extension	Hull Rd. to SW 34th St.	Construct as 2-lane divided with turn lanes, landscaped median, sidewalk both sides and bicycle lanes (urban section)	2,160	$ 4,887,081
NC-5	Diamond Road	Newell Dr. to SW 13th St.	Construct with turn lanes where needed, bicycle lanes and sidewalks both sides on a new alignment north and west of existing, but with current termini (urban section)	1,870	$ 1,757,100
TOTAL COST				6,410	**$11,156,061**

Note: Cost estimates for planning purposes only – reference: "2004 Transportation Costs", FDOT – Office of Policy Planning, March 2005. Estimates for N-2 and N-4 provided by The Corradino Group, Inc.

University of Florida Intersection and Transportation System Management Priorities, 2005

Priority	Roadway	At	Description	Length (L.F.)	Cost
TS-1	Museum Rd.	Newell Dr.	Lengthen EBL lane by restriping center lane	100	$ 1,000
TS-2	Center Dr.	Museum Rd.	Lengthen NBL lane by restriping	100	$ 1,000
TS-3	Village Dr.	SW 2nd Ave.	Lengthen NBL lane by restriping	100	$1,000
TS-4	Mowry Dr.	Gale Lemerand Dr.	Construct pedestrian refuge island in existing striped area for WB pedestrians	NA	$ 4,000
TS-5	Campuswide	Five signalized intersections	Traffic Signal Equipment Upgrade and Timing Study	NA	$ 270,000
TS-6	Museum Rd.	Gale Lemerand Drive	Construct WBR lane	300	$ 40,000
TS-7	Museum Rd.	Radio Rd.	Construct roundabout	NA	$ 450,000
TS-8	Museum Rd.	Gale Lemerand Drive	Restripe NBR lane and bicycle lane; and install NB right-turn arrow (assumes mast arm will bear weight of signal head)	500	$ 10,000
TS-9	Museum Rd.	Village Drive	Construct roundabout	NA	$450,000
TS-10	Gale Lemerand Dr.	O'Connell Center Parking Lot Entrance	Construct NBLlane, SBR lane, and reconstruct EBR lane with pedestrian refuge	200	$ 30,000
TS-11	Newell Dr.	Brain Institute and ARB	Reconfigure two stop-controlled intersections into one 3-way stop (includes restriping and modifications to curb ramp locations)	NA	$ 20,000
TS-12	Union Rd. and Fletcher Dr.	Newell Hall to Dauer Hall	Construct pedestrian and service access improvements (includes removal of some on-street parking)	NA	$ 45,000
TS-13	Fletcher Dr.	Ustler Hall to Yardley Courtyards	Construct pedestrian access improvements	NA	$ 45,000
TS-14	Mowry Dr.	Gale Lemerand Dr.	Construct WBR lane and provide a dedicated SBL turn lane as feasible (can be accomplished in road reconstruction project)	300	$ 50,000
TS-15	Museum Rd.	Hull Rd.	Construct roundabout	NA	$ 450,000
TS-16	Hull Rd.	Mowry Rd.	Construct roundabout (or interim southbound right turn lane)	NA	$ 450,000
TOTAL COST				NA	**$ 2,317,000**

Note: Cost estimates for planning purposes only – reference: "2004 Transportation Costs", FDOT – Office of Policy Planning, March 2005 with input from The Corradino Group, Inc.

VII. Bicycle and Pedestrian Facility Evaluation

A. Bicycle and Pedestrian Existing Facilities

Between 2000 and 2005, several bicycle and pedestrian projects were completed on the UF campus and the surrounding community roads that serve as corridors to campus. The projects in the following tables include only sidewalk projects that were completed along campus roadways, and does not include sidewalks between buildings in the internal campus.

University of Florida Completed Bicycle Projects, 2000-2005

Corridor	From	To	Distance (L.F.)	Description
Buckman Drive	Access Gate	W. University Ave.	330	Off-road bicycle facility separated from sidewalk for intersection approach
Stadium Road	Gale Lemerand Drive	Union Road	1,163	Bicycle and bus separated on-road facilities
Union Road	Criser Parking Lot Exit	SW 13th Street	839	Striped bicycle lanes
Center Drive	Archer Road	Culvert north of Mowry (end of existing bicycle lanes)	983	Striped bicycle lanes
PKY Trail	SW 10th Terrace	SW 11th Street	860	Paved 10' wide shared-use path
TOTAL			**4,175**	

University of Florida Completed Pedestrian Projects, 2000-2005

Corridor	From	To	Distance (L.F.)	Description
Museum Road	Hull Road	Radio Road	1,650	Sidewalk, east side
Museum Road	Radio Road	Village Drive	1,720	Sidewalk, north side
Village Drive	Museum Road	W. Fraternity Drive	960	Sidewalk, east side
W. Fraternity Drive	Village Drive	Fraternity Dr.	640	Sidewalk, south side
Shealy Drive	Archer Road	Ritchey Road	1,120	Sidewalk, west side
Newell Drive	Brain Institute	ARB Bldg. Loading Dock	200	Sidewalk, west side
TOTAL			**6,290**	

Several bicycle and pedestrian facility projects were also completed by the City of Gainesville, Gainesville Community Redevelopment Agency, Gainesville Regional Utilities, Alachua County and Florida Department of Transportation during the period 2000-2005. The following table includes sidewalk projects funded through the UF Campus Development Agreement, although local governments have funded additional sidewalk construction during this period.

Off-Campus Completed Bicycle and Pedestrian Projects, 2000-2005

Corridor	From	To	Description
NW 17th Street	W. Univ. Ave.	NW 5th Ave.	Streetscape improvements including wide sidewalks and bicycle lanes
W. 12th Street	SW 8th Ave.	NW 5th Ave.	Construct missing sidewalk segments
W. 12th Street	SW 8th Ave.	SW 2nd Ave.	Striped and colored bicycle lanes
SW 2nd Avenue	SW 13th St.	SW 12th St.	Intersection restriping for bicycle lanes; construct landscaped median
SW 4th Avenue	SW 13th St.	SW 12th St.	Construct missing sidewalk segments
SW 6th Avenue	SW 12th St.	SW 10th St.	Construct missing sidewalk segments
NW 18th Street	W. Univ. Ave.	NW 1st Ave.	Install bollards to prohibit parking on sidewalk
Kermit Sigmon Rail-Trail	Newell Drive; & Old Archer Road east end	SW 16 Ave.; & SW 34th St.	Shared-use path on the south side of Archer Road and a trail spur into the Little Gandy neighborhood
W. Univ. Ave.	Gale Lemerand Drive	S. 13th Street	Pedestrian lighting upgrade
W. Univ. Ave.	W. 38th Street	W. 22nd Street	Sidewalk widening, landscaped medians and bicycle lanes (west of SW 34th St.)
SW 34th Street	Archer Road	W. Univ. Ave.	Striped bicycle lanes

In addition to these projects, additional improvements are programmed for construction off-campus in the next five years including:

- Construct missing sidewalk gap on W. University Ave. between SW 2nd Avenue and NW 22nd Street (FDOT)
- Construct sidewalks on both sides of SW 2nd Avenue including some sections of 10' wide shared-use facilities from the western confluence with University Avenue to the eastern confluence.
- Construct bicycle lanes on SW 2nd Avenue from SW 34th Street to SW 28th Street

B. Bicycle/Pedestrian Level of Service

Several analysis methodologies have been developed to assess the quality of bicycle and pedestrian travel. These methodologies vary in degree of detail, and not all of them have been validated against real-world experience. None of these analyses have been applied comprehensively to assess conditions on the University of Florida campus at this time. The FDOT has integrated a very basic bicycle, pedestrian and transit LOS evaluation tool into its ARTPLAN software. Using this analysis tool, the NCFRPC has prepared a bicycle and pedestrian LOS rating for some campus roads.

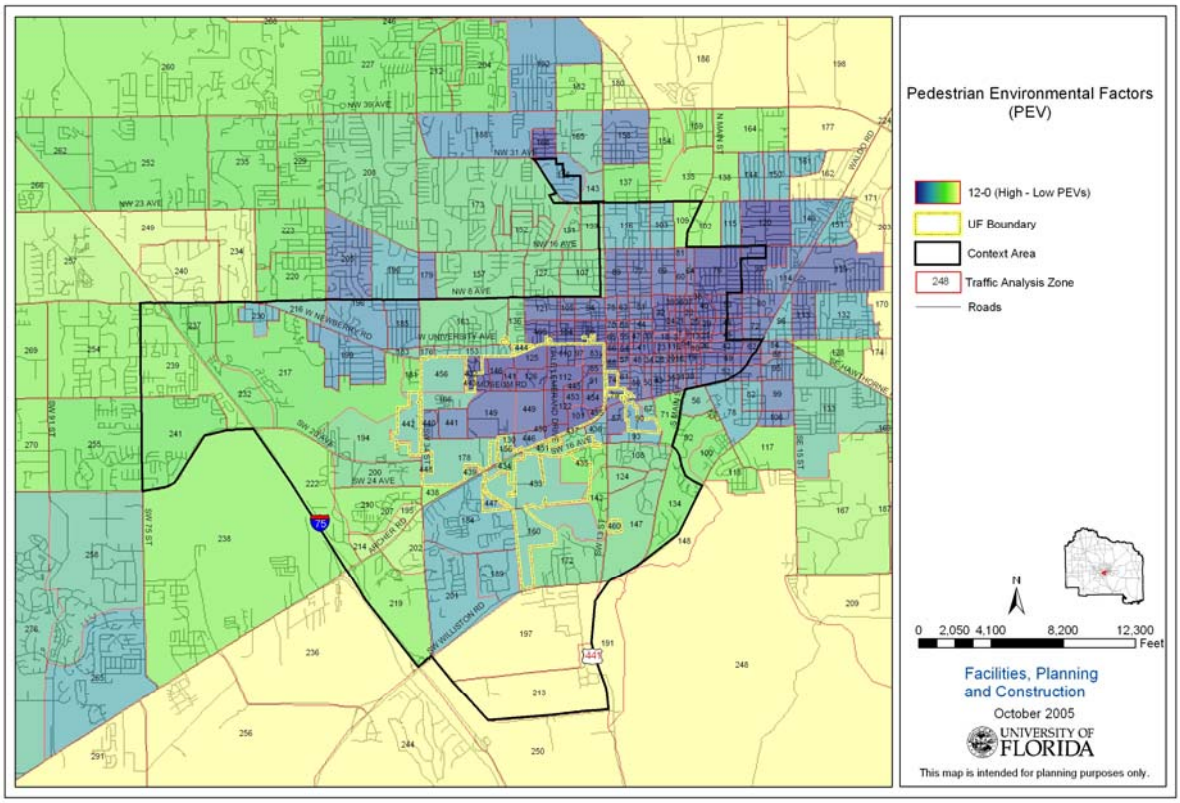
C. Pedestrian Environmental Factors

Within the MTPO's regional transportation model, a factor is included that assesses the quality of pedestrian environments similar to a pedestrian level of service score. The model utilizes a methodology known as the Pedestrian Environmental Factor (PEV), which assesses walkability by the following criteria:

- presence of sidewalks;
- east of street crossing;
- street connectivity; and
- building setbacks.

(Source: methodology published in "Paper No. 0492 - Modeling Non-Motorized Travel", Thomas F. Rossi, Transportation Research Board proceedings, 2000)

Two University of Florida faculty members, Dr. Ruth Steiner and Dr. Linda Crider, were recruited to assist NCFRPC and university staff in assigning a PEV value to each transportation analysis zone (TAZ) in the model. The PEV values range on a scale from zero to twelve. Overall, the university campus areas scored between three and twelve, and were generally comparable to downtown Gainesville and higher than the balance of the Gainesville Urbanized Area. On campus, the PEV ratings were highest in the developed areas on the east side of campus decreasing toward the west side of campus and south of Archer Road where buildings are more setback, sidewalks and street connections are fewer, and street crossings are less controlled. The following map displays the PEV values distributed across the campus and surround area.



D. Proposed Bicycle and Pedestrian Facilities

Several bicycle and pedestrian projects were identified and prioritized through the process of developing the 2005-2015 Campus Master Plan. These projects are presented in the following tables as an inventory of need in the campus roadway network. Project location maps are also included in this report and the campus master plan. These projects do not include upgrades to bicycle and pedestrian facilities that are described as part of a roadway construction or reconstruction project presented elsewhere in this report. The projects lists as grade-separation projects were identified as problematic at-grade crossing locations where the feasibility of an overpass or underpass should be explored. In general, the use of grade separated facilities is discouraged because they are expensive and often are underutilized if not properly designed and located. The crossing locations identified for further study have some characteristics that channel

bicyclists and pedestrians to single crossing points where overpass/underpass utilization may be high enough to justify the project. The existing Norman Hall underpass is an example of a facility that is located an integrated into the circulation system such that usage is high.

Independent Bicycle Project Priorities, 2005

Priority	Facility	From	To	Description	Length	Cost
BK-1	Village Dr.	Museum Rd.	SW 2nd Ave.	Bicycle lanes (remove parking, resurface & re-stripe)	1,970	$ 246,250
BK-2	Shared-Use Path	Gale Lemerand Dr.	Museum Rd.	Upgrade existing path west of Black Hall	2,100	$ 262,500
BK-3	Shared-Use Path	Particle Science Bldg.	Diamond Rd.	Construct new and upgrade existing shared-use path following existing creek	1,560	$ 195,000
BK-4	Shared-Use Path	Museum Rd.	Newell Dr.	Construct shared-use path through Reitz Lawn	2,560	$ 320,000
BK-5	Hull Road Shared-Use Path	Western campus boundary	Genetics/ Cancer/ Biotech Pavilion Site	Construct on south side	5,910	$ 738,750
BK-6	Shared-Use Path	Mowry Rd.	Hume Hall & Gale Lemerand Dr.	Construct new shared-use path	3,940	$ 492,500
BK-7	Shared-Use Path	Physics Bldg.	Newell Dr.	Construct new shared-use path	2,016	$ 252,000
BK-8	Shared-Use Path	Gale Lemerand Dr.	Museum Rd.	Construct new shared-use path behind Hume Hall	1,440	$ 180,000
BK-9	Shared-Use Path	Hume Hall	Band Shell	Construct new and upgrade existing shared-use path	732	$ 91,500
BK-10	Shared-Use Path	Graham Hall	Stadium RD.	Construct new and upgrade existing shared-use path around Graham Woods perimeter	1,600	$ 200,000
BK-11	Shared-Use Path	Diamond Rd.	Museum Rd.	Construct new shared-use path east of creek and west of Beaty Towers	1,520	$ 190,000
BK-12	Service Road	SW 23rd Terrace	Ritchie Road	Construct paved service road from SW 23rd Terr. at Bee Unit to Ritchie Road with gated motor vehicle access allowing bicycle through-access	1,640	$ 205,000

Priority	Facility	From	To	Description	Length	Cost
BK-13	Shared-Use Path	Mowry Rd.	Archer Rd.	Construct new shared-use path in conjunction with new building construction	1,120	$ 140,000
BK-14	Center Drive	End of Bicycle Lanes	Museum Rd.	Reconstruct roadway to provide bicycle lanes &/or wide sidewalk in conjunction with new building construction	330	$ 258,390
BK-15	Shared-Use Path	Diamond Rd.	Norman Tunnel	Construct new shared-use path in conjunction with new road and building construction near SW 13th St.	2,568	$ 321,000
BK-16	Shared-Use Path	Diamond Rd.	Archer Rd.	Construct new shared-use path in conjunction with new building construction	617	$ 77,125
TOTAL					**31,623**	**$ 4,170,015**

Note: Cost estimates for planning purposes only – reference: "2004 Transportation Costs", FDOT – Office of Policy Planning, March 2005

Independent Pedestrian Project Priorities, 2005

Priority	Facility	From	To	Description	Length	Cost
SW-1	O'Connell Center Parking Lot Central Drive	West entrance road	Gale Lemerand Dr.	North side and south side at Gale Lemerand Dr.	790	$ 26,860
SW-2	Newell Dr.	Garage I	Diamond Road	East side	165	$ 5,610
SW-3	Museum Road	Village Dr.	Woodlawn Dr.	North side	1,470	$ 49,980
SW-4	Fraternity Drive	Museum Rd.	W. Fraternity Dr.	West side	1,070	$ 36,380
SW-5	Village Drive	W. Fraternity Dr.	SW 2nd Ave.	West side	890	$ 30,260
SW-6	Radio Road	Bledsoe Dr.	Lakeside Residence	South side and partial north side	641	$ 21,794
SW-7	Bledsoe Drive	Hull Rd.	Radio Rd	Both sides	1,660	$112,880
SW-8	Rhines Hall Service Drive	Materials Eng. Bldg.	Gale Lemerand Dr.	West and south side	710	$ 24,140
SW-9	Village Drive	Museum Rd.	W. Fraternity Dr.	East side	1,080	$ 36,720
SW-10	Museum Road	Hull Rd.	Radio Rd	West side	1,700	$ 57,800
SW-11	Radio Road	SW 34th St.	Museum Rd.	North side and south side at SW 34th St.	2,630	$ 89,420
SW-12	SW 23rd Dr.	Archer Rd.	Mowry Rd.	Both sides	1,422	$ 96,700
SW-13	Gale Lemerand Dr.	Rhines service drive	Stadium Rd.	Reconstruct east sidewalk in conjunction with Bldg. #183 reconstruction	970	$ 29,580
SW-14	Surge Area Drive	Archer Rd.	Natural Area Dr.	West side	2,080	$ 70,720
SW-15	Shealy Dr.	Equine Hospital	Archer Rd.	East side	1,650	$ 56,100
TOTAL					18,928	$ 744,944

Note: Cost estimates for planning purposes only – reference: "2004 Transportation Costs", FDOT – Office of Policy Planning, March 2005

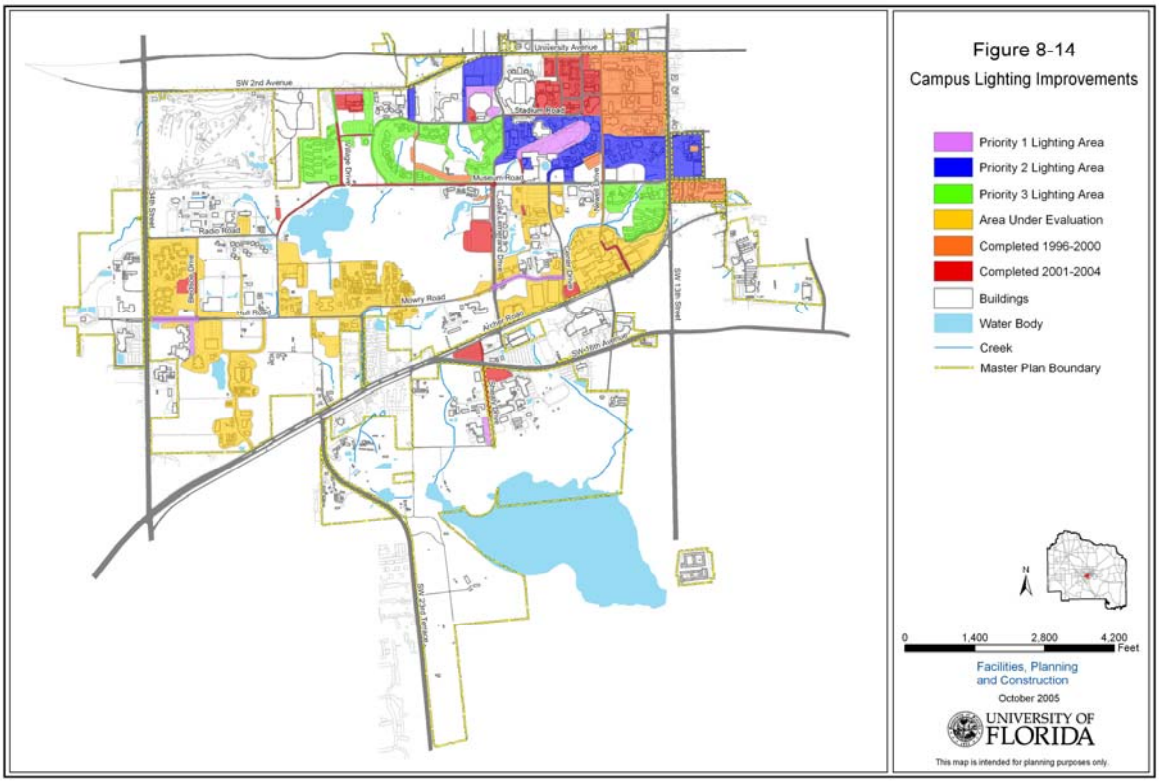
Bicycle / Pedestrian Grade-Separation Project Priorities, 2005

Priority	Facility	From	To	Description	Length	Cost
GS-1	Cultural Plaza Pedestrian/ Bicycle Overpass	Hilton Hotel	Cultural Plaza	Attractive bridge on the south side of Hull Rd/SW 34 St. intersection integrated with building sites and shared-use path alignment	450	TBD
GS-2	Reitz Union Pedestrian/ Bicycle Overpass or Underpass	Phelps Lab	Reitz Union	Overpass or underpass (depending upon utilities and site design considerations) providing a north-south crossing of the west side of the intersection of Museum Rd/Reitz Union driveway	350	TBD
GS-3	Wilmot Gardens Pedestrian/ Bicycle Overpass	Wilmot Gardens	Genetics/ Cancer/ Biotech Pavilion	Overpass utilizing existing grade change on the south side of the intersection of Mowry Rd/ Gale Lemerand Drive	375	TBD
GS-4	Museum Road Underpass	Beaty Towers	Broward Recreation	Underpass (depending upon utilities and site design considerations) providing a north-south crossing of Museum Road at existing midblock crossing	350	TBD

VIII. Exterior Lighting (Roadways, Walkways and Parking Facilities)

During 2003, the University completed a comprehensive update to its *University of Florida Design and Construction Standards*. Among other changes, the exterior lighting standards were modified in an attempt to increase the quality of lighting without necessarily increasing the quantity of lighting called for by the standards. The update also clarified the appropriate lighting fixtures for various types of walkways, roadways and parking lots including a designation of appropriate fixtures within the Historic Impact Area (as defined in the Standards and also in the Urban Design Element of the Campus Master Plan).

The University's Lighting Committee convenes to prioritize lighting improvements that are typically funded by Capital Improvement Trust Funds (CITF). Other lighting upgrades are accomplished with funds related to building construction, parking lot upgrades or other campus infrastructure investment. Funding for lighting upgrades was released from the CITF in 1995 and 2005. Since 1995, lighting upgrades have been completed in the Historic District, auto-free zone, Sorority Row and several parking lots. The following map illustrates the recently completed projects and those prioritized by the Lighting Committee.



IX. Transit Facilities and Services

A. The RTS System and University Collaboration

In 1996, service on most transit routes was provided at a one-hour frequency with a Regional Transit System (RTS) annual budget of $5,046,404. There were eleven fixed routes operating in the Gainesville urban area and four routes on campus. At this time, the University, City of Gainesville and RTS recognized the potential for transit to serve campus transportation access and alleviate parking demand.

In September 1997 a demonstration project enhancing frequency on student-oriented routes (Routes 9, 12, and 20) was in place with the partnership of the City, Alachua County, University and Florida Department of Transportation (FDOT). In cooperation with the FDOT, a grant was secured for $493,340 for two years. Additionally, as part of the University's Campus Development Agreement (CDA), RTS received a total of $3.5 million to enhance transit for seven years of service along specific corridors.

By 1998, RTS and the University entered into an Interlocal Agreement to provide students prepaid, unlimited access to transit service simply by showing their student identification card. In fall 1998, routes 13 and 16 were further enhanced. Funding for these enhancements came from a combination of sources including FDOT funding, Campus Development Agreement payments, and a $0.19 per credit hour student transportation access fee that generated $180,000 in revenue to RTS. In September 1998, a service development agreement with FDOT was executed to provide late night service. Better known as "Later Gator" service, this enhancement was funded jointly by the University, City and FDOT for a total of $560,000. Under these interlocal and

service development agreements, the University pays RTS a negotiated hourly rate for buses placed in service on specified RTS routes serving geographic areas where University students live in high concentration. Currently the negotiated hourly rate is $46.75/hour for the period August 20, 2005 to August 19, 2008. About 90% of the student transportation fee collections were used to pay RTS for the unlimited pre-paid access program. The University also pays RTS for other services that are not funded by the student transportation fee such as shuttle buses from remote parking lots to the center of campus. Additionally, Alachua County continues to contribute toward some transit service enhancements, such as Route 75, for service into the campus from the unincorporated urbanized area.

This partnership has continued to flourish over the following years with additional revenues, service expansions, capital fleet investments, and ridership growth. Pre-paid universal transit access was extended to University faculty and staff. In 2003, the Campus Development Agreement was amended to provide annual payments for an increased amount of $700,000 per year for five years beginning in fiscal year 2005-06. The student transportation fee, authorized in state statute, grew from $0.19/credit hour in 1998-99 to $4.24/credit hour in 2005-06. Historically the transportation fee has increased every year that it has been in existence. It is important to note that students have the controlling majority on the fee committee, and continue to vote for increased fees to fund transit services that serve students. Recent growth in the transportation fee by academic year (September to August) is as follows:

- 2001-02: $2.00
- 2002-03: $3.00
- 2003-04: $3.59
- 2004-05: $4.10
- 2005-06: $4.24

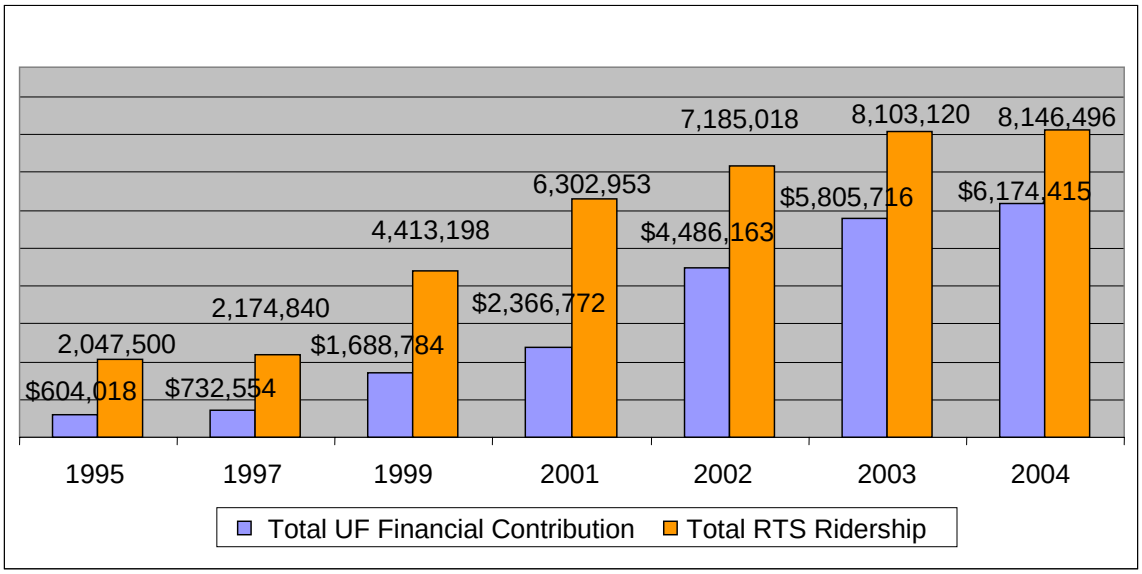
Annually, a committee comprised of a majority of University students meets to establish the per credit hour student transportation access fee for the coming academic year. The students and staff of the committee meet with RTS leadership, as well as other providers of transportation on campus, to discuss service levels and potential costs of any service enhancements. RTS service enhancements requested by University students and funded by the transportation fee include:

- A significant increase in the number of buses operating on routes serving areas with large student-oriented apartment complexes (23 new buses were put into service in May 2001, with fleet expansions occurring annually to retire older fleet)
- Hours of operation extended to 2:00 A. M. on a number of RTS City Routes.
- Weekend service to 3:00 A. M. on selected “Later Gator” Routes
- Increased Saturday service both on and off campus
- The addition of several new bus routes to better serve those areas with a high concentration of students.

The trend in University funding and system-wide ridership growth is depicted in the following graph. These figures include funds from all sources including the student transportation fee,

Campus Development Agreement and direct payments for service from University administrative sources.

UF Financial Contribution and Ridership Growth, 1995-2004



Routes. In 2004, RTS ran twenty-one City bus routes many of which provided service to the university campus. Additionally, there were nine campus routes in operation plus Saturday service to Lake Wauburg. RTS monitors route productivity in terms of passengers per hour and other standard transit assessment. Adjustments to route alignments and services are made based upon these measures.

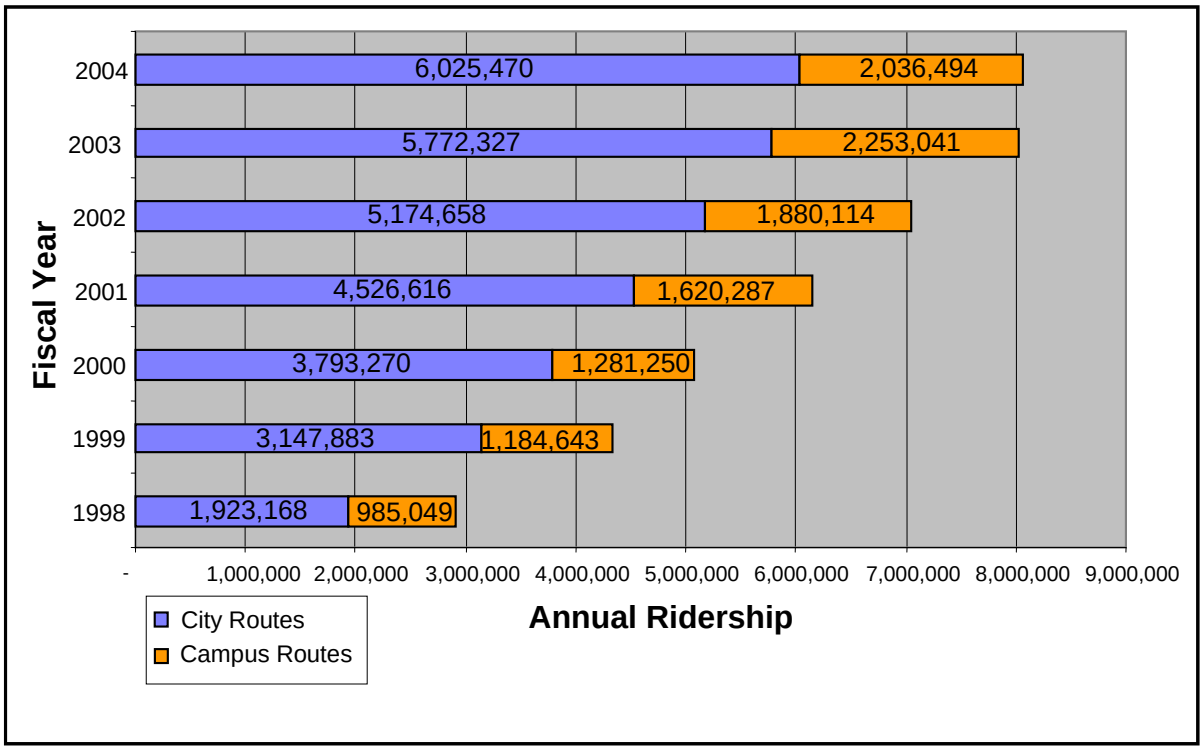
B. Ridership Trends

Annual Weekday Ridership. Overall weekday ridership on the RTS system has grown dramatically since the universal access pre-paid program was put into place for university students and employees. Recently, Shands&UF have also worked with RTS to make universal access available to their employees as well. Due to these partnerships, RTS ridership ballooned from 2.9 million annual passengers in 1998 to 8.1 million annual passengers in 2004, making it the fourth largest transit system in the State of Florida in terms of ridership. University students and employees have continued to be a growing portion of that ridership while enhanced services supported by the university have improved transit service for larger sectors of the community. The most dramatic increase in ridership occurred in the initial years of the universal access program. The rate of increase has leveled in more recent years with a slight decrease in campus route weekday ridership in 2004. One possible explanation for the 2004 dip in ridership may be the hurricanes that arrived at the end of that fiscal year causing the university to close for a few days and many commuter habits to be changed for several weeks. Another possible explanation for the decrease in campus route weekday ridership is that students may have switched to City routes accessed from their residence rather than using park-and-ride facilities at the University served by campus routes.

RTS Annual Ridership – All Routes, 2000 - 2004

FY	City Routes	%Change	Campus Routes	%Change	Total	%Change
1998	1,923,168	NA	985,049	NA	**2,949,724**	NA
1999	3,147,883	200.1%	1,184,643	128.7%	**4,412,773**	**176.2%**
2000	3,793,270	83.4%	1,281,250	90.2%	**5,203,221**	**84.6%**
2001	4,526,616	52.2%	1,620,287	75.8%	**6,302,953**	**56.6%**
2002	5,174,658	27.5%	1,880,114	39.1%	**7,185,018**	**28.6%**
2003	5,772,327	11.5%	2,253,041	19.8%	**8,103,120**	**13.4%**
2004	6,025,470	4.4%	2,036,494	-9.6%	**8,146,496**	**0.5%**

RTS Annual Ridership Trend – All Routes, 2000 - 2004



University Ridership. February 2004 transit ridership information was collected from the Gainesville Regional Transit System (RTS). The following table shows the percent of total ridership that is university student/faculty riders. The associated map illustrates those bus routes that are over 40 percent student/faculty ridership and their relationship to areas of high student resident concentration. Only Route 8, which runs from the campus north along NW 13th Street to NW 23rd, serves a Census Tract/Block Group not identified as one of high student concentration with the use of data discussed previously. An examination of detailed "on and off" information

reveals that three stops on Route 8 have the majority of boarding activity: NW 23rd/NW 31st, NW 23rd/NW 28th, and NW 13th and NW 23rd. These stops serve the apartment complexes of Cobblestone, Country Manor, and Covered Bridge, which house a large student population. Routes 9, 34, 35 and 36 serve an area southwest of campus along SW 23rd Terrace, SW 34th Street and SW 35th Place have university ridership of 93-97 percent of all riders. Routes 20 and 21 serving the SW 20th Avenue corridor have student ridership of 87 percent and 97 percent respectively. Route 16, which provides service along NW 16th Avenue and NW 23rd Avenue to Santa Fe Community College carries 92% university ridership, most of whom board the route along W. 13th Street.

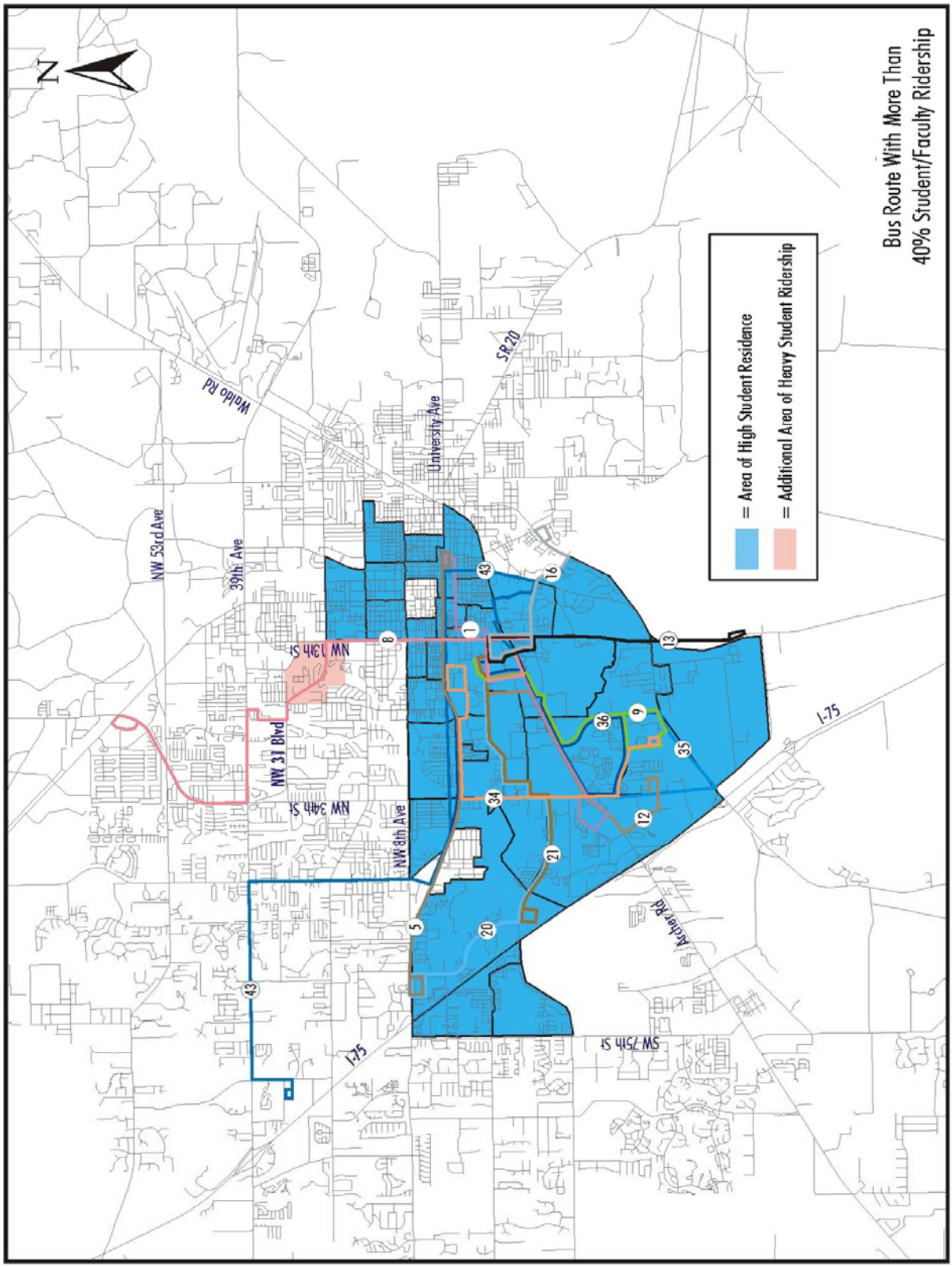
Faculty and University Student Transit Ridership By Route, 2004

Route #	University Student Riders	University Faculty Riders	Total Ridership	% University Riders
1	25,025	652	44,537	57%
2	137	272	6,229	6%
5	15,965	645	34,825	47%
6	285	187	7,614	6%
7	514	22	8,928	6%
8	15,538	1,183	27,099	62%
9	64,671	155	66,695	97%
16	45,333	1,320	50,458	92%
20	59,034	535	68,488	87%
21	16,959	130	17,972	97%
24	416	145	9,474	6%
34	17,346	107	18,285	95%
35	44,295	609	48,093	93%
36	13,267	9	13,721	97%
43	5,397	1,104	15,599	41%
75	1,858	347	17,489	12%

= 40%+

Source: The Corradino Group, Inc.

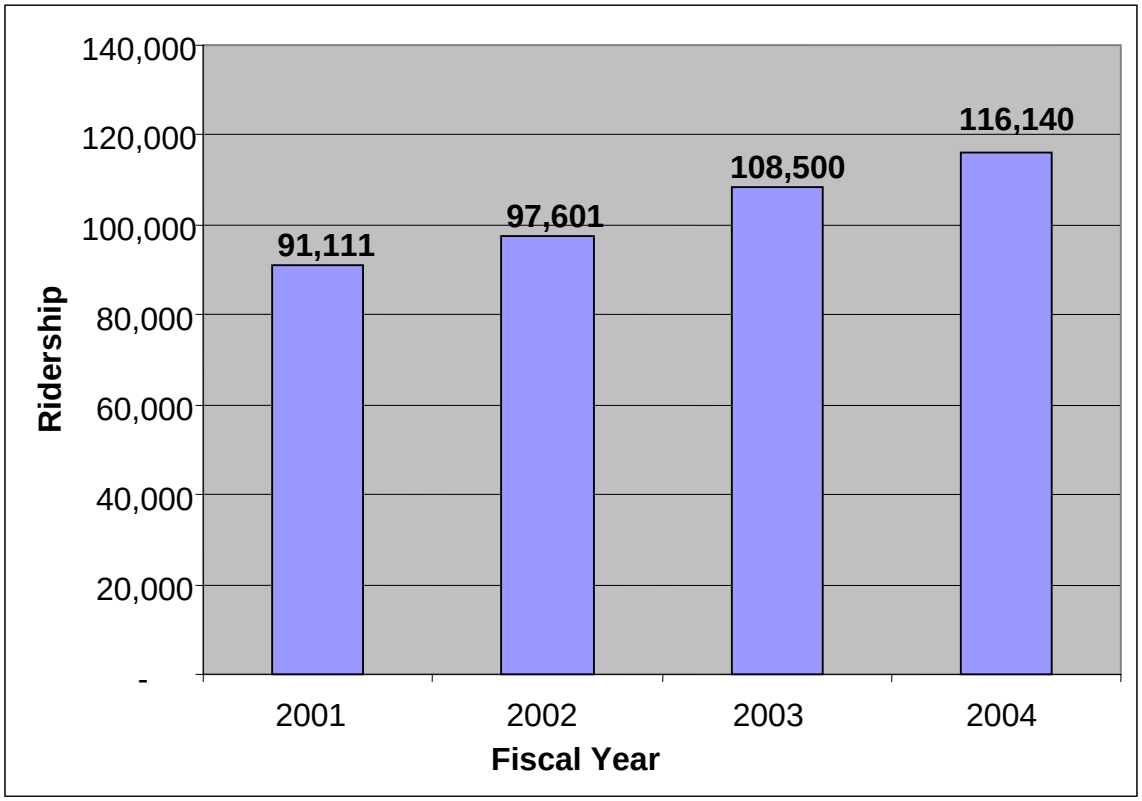
RTS Bus Routes With More Than 40% Student/Faculty Ridership, 2004



UF Faculty and Staff Annual RTS Ridership and Percent Change - All Routes, 2001-2004

Fiscal Year	UF Faculty and Staff	Percent Change
2001	91,111	NA
2002	97,601	7.1%
2003	108,500	11.2%
2004	116,140	7.0%

UF Faculty and Staff RTS Ridership - All Routes, 2001-2004



C. Transit Level of Service

Service Levels. The quality of transit service is often measured in terms of the frequency intervals between bus arrivals (often called "headways") and the length of time that the routes operate during a 24-hour period (often called "span of service"). The Florida Department of Transportation provides a simplified transit level of service measure within its ARTPLAN software corridor analysis. This measure, along with other nationally accepted transit level of service methodologies, identifies transit headways as one of the most critical transit level of service. Specifically, ARTPLAN measures headways in terms of the number of buses in the peak direction at the peak time of demand. This measure is combined with the presence of sidewalks to achieve transit level of service minimum standards. Assuming the roadways on which the transit operates have at least 85% sidewalk coverage, then a minimum of seven buses arriving in the peak hour are required to achieve the highest "A" transit level of service. In descending

order, five to six buses achieve a transit LOS "B"; three to four buses achieve a transit LOS "C"; two buses achieve a transit LOS "D"; and one bus achieves a transit LOS "E". Other national transit level of service measures, including the Transit Capacity and Quality of Service Manual (TCQSM) identifies headways as one of three most critical transit service measures. The TCQSM methodology identifies headways of ten minutes or less as being high frequency, and headways of 30 minutes or more being infrequent. Headways translate directly to the number of buses arriving in the peak hour with headways of ten minutes requiring six bus arrivals.

The Spring 2005 RTS schedule provides a total of 88 buses in service on 36 routes during peak travel times. Assuming that sidewalks are present on at least 85% of the roadways, the RTS citywide transit routes achieve an overall LOS "C"; campus transit routes achieve overall LOS "B"; and Later Gator transit routes achieve an overall LOS "C". Individual routes, particularly those serving student oriented areas achieve transit LOS "A" (e.g. Route 9, Park and Ride 1, Fraternity Row and Commuter Lot). Other routes achieve a very high LOS "B", including Routes 12, 16, 20, 35, Sorority Row and Later Gator A.

While not a critical factor in the ARTPLAN analysis, span of service is also nationally recognized in the TCQSM as an important factor in transit level of service evaluation. A review of RTS route schedules reveals that service is available as early as 5:48 A.M. and continues well past the 5:00 P.M. rush hour on all mainline City routes, with some continuing to 2:00 A.M. Some Campus routes cease service around the 5:00 P. M. peak period, but are supplanted with late service on overlapping routes or Later Gator routes. The span of service on mainline City and Campus routes has increased 53% between 2000 and 2004 to reach a total of 233,535 hours of service annually. Saturday service and very late night service are also consistent with a well-developed high-level-of-service transit system.

City Route Schedule – Spring 2005

Route	Buses	Headway	Peak Buses Per Hour	Span	Sat
1	3	20-mins	3	6-8pm	7-6:30 (2)
2	1	60-mins	1	6:30-7:30	7:30-6:00 (1)
4	1	30-mins	2	8:00p-12:00a	M - T
5	3	20-mins	3	6-2:30am	7-2:30a (2)
6	1	60-mins	1	6:30-8p	7-6 (1)
7	1	60-mins	1	6-8p	7-6 (1)
8	3	30-mins	2	5:48am-8pm	6:30-6:30(1)
9/912	5	8-mins/20-mins	7.5	6:45-2:21a	6:57a-6:30p (1)
10	2	60-mins	1	7-7pm	7-6p (1)
11	1	60-mins	1	6:30-8p	7-6 (1)
12	4	11-mins/20-mins	5.5	6:33-2:20a	6:57a-6:30p (1)
13/1316	2	15-mins/30-mins	4	6:28-2a	6:45-6:15(1)
15	2	30-mins	2	6:26-2a	7-6 (1)
16/1613	4	10-mins/15-mins	6	6:30-2a	7:15-6:30 (1)
20	6	10-mins/30 mins	6	6-2am	7-8(2)
21	2	20-mins	3	7:30-6p	NO
24	1	60-mins	1	6-8p	7-6p (1)
34	3	17-mins/25-mins	3.5	6:40-2:10a	NO
35	4	11-min/22-mins	5.5	6:30-2:10a	NO
36	2	20-mins	3	7-6p	NO

Route	Buses	Headway	Peak Buses Per Hour	Span	Sat
43	2	60-mins	1	6-7pm	NO
75	3	30-mins	2	6:00-8:09p	6:40-6:39 (1)
22 Routes	**56**		3.0 Ave.		

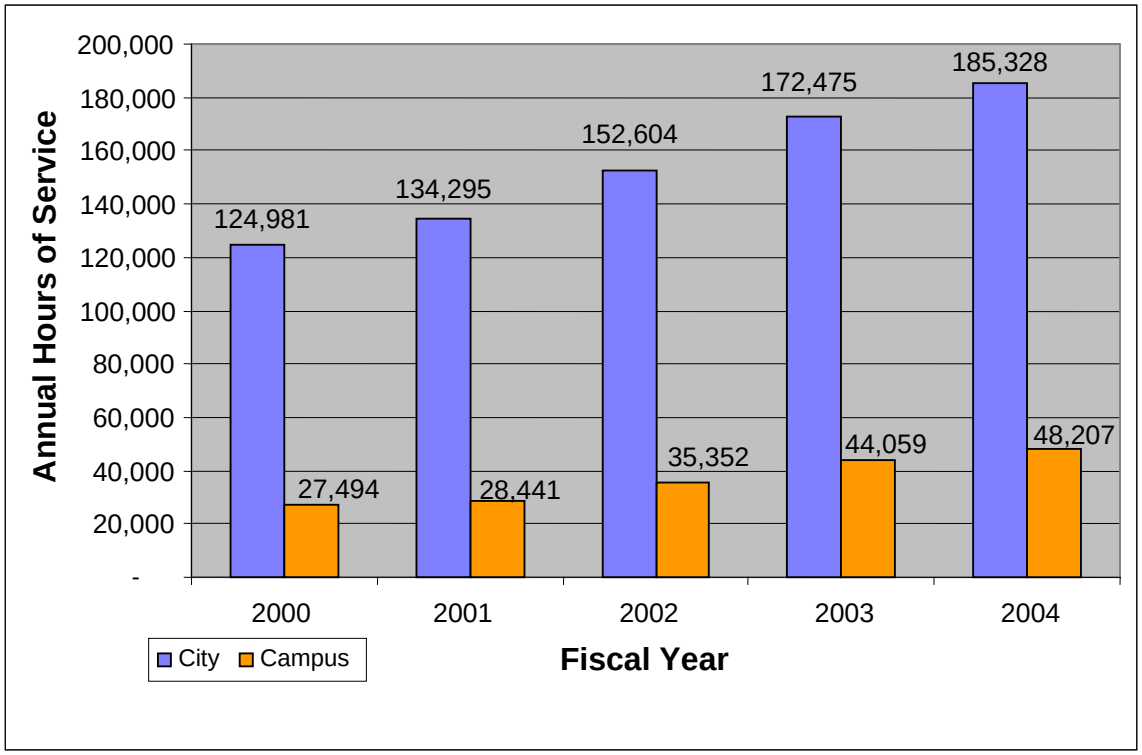
Campus Route Schedule – Spring 2005

Route	Buses	Headway	Peak Buses Per Hour	Span	Sat/Sun
PNR 1	5	6-mins/30-mins	10	7-7:30p	NO
PNR 2	2	15-mins	4	7-7p	NO
Family	1	30-mins	2	7-5:30p	NO
Frat	3	6-mins/18-mins	10	7-7:30p	NO
Com Lot	3	7-mins/21-mins	8.6	7-7:33p	NO
N/S Circ	2	15-mins/30-mins	4	7:30-2a	NO
Lakeside	1	30-mins	2	9-4:30p	NO
E/W	2	15-mins	4	5:30p-2:12a	Sat:7am-2am/2p-12a Sunday
Sorority	2	10-mins/20-mins	6	7-7:30p	NO
Wauburg	1	60-mins	1		9:30-5:30p Sat
10 Routes	**22**		5.1 Ave.		

Later Gator Route Schedule – Spring 2005

Route	Buses	Headway	Peak Buses Per Hour	Span	Sat
A	3	10-mins	6	8:30p-3a	Wed -Sat
B	3	20-mins	3	8:30p-3:10a	Thur-Sat
C	3	20-mins	3	8p-3:06a	Thur-Sat
F	3	20-mins	3	8p-2:50a	Thur-Sat
4 Routes	**12**		3.8 Ave.		

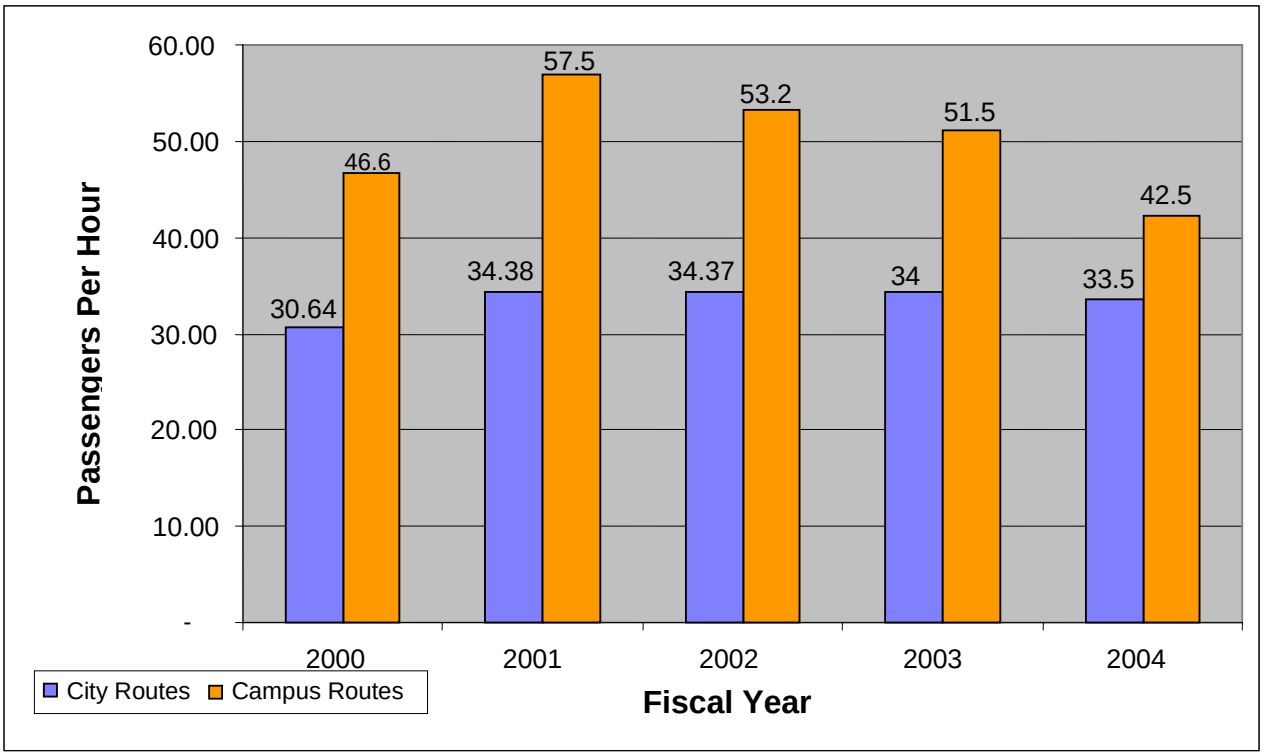
RTS Annual Hours of Service – All Routes, 2000 – 2004



NOTE: Routes include Later Gator and Lake Wauburg routes, but excludes other service such as basketball/football game day, ADA paratransit service and special services.

Route Productivity. RTS has experienced "full buses" on heavily used student routes. RTS classifies a "full bus" as one that is filled to passenger capacity and has to leave passengers at the bus stop. Routes providing service directly from high-density student areas to the University averaged over 60 passengers per hour in September 2000.

RTS Passengers Per Hour – All Routes Excluding Later Gator, Lake Wauburg and Shuttle Service, 2000 – 2004



D. Existing and Proposed Transit Facilities and Services

In collaboration with the University of Florida, the MTPO's 2025 Regional Long-Range Transportation Plan identified a number of transit service enhancements, new routes, park and ride facilities and express bus routes. As noted previously, none of these service enhancements are identified for funding from the anticipated federal revenue of the twenty-year forecast for the Gainesville Urbanized Area. However, these recommendations are contained in the MTPO's Needs Plan and RTS will continue to seek funding opportunities for these enhancements. Several of the identified transit projects have a direct benefit to the University of Florida by providing convenient transit access to students and employees. Transit enhancements on campus and within the University Context Area are displayed on the following tables and on maps that appear at the end of this report. Outside of the Context Area, transit recommendations included several park and ride facilities with express bus services that could potentially serve university employees. The express bus routes recommended in the MTPO's Needs Plan included service from City of Archer with a stop near Haile Plantation, service from the City of Alachua with a stop near Hunter's Crossing and service from the City of Hawthorne.

University of Florida Campus Transit Route Proposed Modifications, 2005

Priority	Route	From/To	Description	Cost
CMP-1	East-West Circulator	University Village South to Norman Hall	Divert the route on its westbound trip to go south on Center Dr, west on Mowry Rd. and north on Gale Lemerand Dr. (current route stays on Museum Rd.)	No change
CMP-2	Family Housing	University Village South to Buckman Drive	Divert the route to pass by University Village South (rather than circle in parking lot) and extend route to the SW 34th St. Park & Ride 2 Lot	No change
CMP-3	Route 128 Lake Wauburg (Saturday service only)	Main Campus to Lake Wauburg	Divert the route to circle through Fraternity Drive and Stadium Drive on main campus	No change

City Transit Route Proposed Modifications in the University of Florida Context Area, 2005

Priority	Route	From/To	Description	Cost
CTY-1	Route 301 / Later Gator "B"	Downtown to Lexington Crossing	Divert the route on its westbound trip to enter campus at SW 23rd Drive and continue on Mowry Rd. to Center Dr. (current route stays Archer Rd. to Center Dr.)	No change
CTY-2	Route 34	Colonial Village / Countryside to Buckman Drive	Divert the route to travel Village Dr. to W. Fraternity Dr. to Stadium Rd. (current route takes Woodlawn Dr. from SW 2nd Ave. to Stadium Rd.)	No change
CTY-3	Route 21	Butler Plaza to McCarty Hall	Extend the route from its current terminus from the Fire Station on SW 20th Ave. to continue on SW 43rd St through Windmeadows Blvd, SW 35th Blvd. and SW 37th Blvd. (30 min. HDWY)	No change
CTY-4	New Route 25	Health Science Center to Airport via Eastside Campus	New route following Center Drive, Archer Rd, Gale Lemerand Dr, Museum Rd, Newell Dr, Union Rd, SW 2nd Ave, Waldo Rd, NE 39th Ave. (30 min. HDWY)	$425,799 (30 min.) $283,866 (45 min.)
CTY-5	New Route 44	Health Science Center to Hunters Crossing via Glen Springs Rd.	New route following Archer Road, Center Dr, Museum Rd, SW 13th St, NW 23rd Ave/23rd Blvd/Glen Springs Rd, NW 34th St, NW 39th Ave. and NW 43rd St. (45 min. HDWY)	$337,091 (45 min.)
CTY-6	New Route 46	Health Science Center to Downtown Loop	New route following Center Dr, Museum Rd, SW 13th St, University Ave. to downtown plaza, S. Main St, SW 16th Ave, SW 6th St, Depot Ave, SW 9th Rd. and Archer Rd. (30 min. HDWY)	$153,760 (30 min.)
CTY-7	New Route 62	Oaks Mall to Butler Plaza	New Route starting at the Oaks Mall via 62nd Blvd. to 43rd Street to Butler Plaza (20 min. HDWY)	$482,133 (20 min.)
TOTAL COST				**$ 1,398,783***

* Assumes 30 minute headways for proposed new Route 25. Total equals $1,256,850 if new Route 25 has 45 minute headways.

An inventory of bus shelter improvements was conducted in 2003 and 2004. Some improvements including new shelters and bus pull-out bays were funded as part of a partnership between the University, RTS and the Florida Department of Transportation (FDOT). Additional bus shelters are still needed to provide high-use transit stops with rain cover, seating and lighting. The following table displays those priority locations for bus shelters that are in currently unfunded phases.

Campus Bus Shelter Priorities, 2005

Priority	Roadway	Location	Description
PHASE TWO			
SH-1	Center Drive (Southbound)	Across from Psychology	Shelter 5A – standard aluminum
SH-2	Fraternity Drive	South end	Shelter 19 – standard aluminum
SH-3	Museum Road	Across from Hume Hall	Shelter 10 – standard aluminum
SH-4	Center Drive (Northbound)	Near Greenhouse	Shelter 5 – standard aluminum
SH-5	Gale Lemerand Drive	Across from Graham Hall	Shelter 9 – standard aluminum
SH-6	Museum Road	Across from Dickinson Hall	Shelter 4 – standard aluminum with a bus pull-out bay
SH-7	North/South Drive	Commuter Lot	Shelter 8 – replace existing with standard aluminum double including covered bicycle parking or bicycle lockers
SH-8	Newell Drive	Across from Brain Institute	Shelter 3 – standard aluminum with a bus pull-out bay
SH-9	Newell Drive	Across from Police Station at Dickinson Hall	Shelter 2 – standard aluminum
SH-10	Museum Road	Near Microbiology/Cell Science	Shelter 14 – standard aluminum
PHASE THREE			
SH-11	Museum Road	Near Kindercare	Shelter 11 – standard aluminum an move crosswalk to bus stop
SH-12	Bledsoe Road	Near Softball Fields	Shelter 16 – standard aluminum and move bus stop away from corner
SH-13	SW 12th Street	Behind Norman Hall	Shelter 20 – City/CRA (CPUH) standard shelter
SH-14	SW 8th Avenue	Near Norman Field	Shelter 21 - City/CRA (CPUH) standard shelter
SH-15	Hull Road	In front of Fifield Hall	Shelter 18 – standard aluminum
SH-16	Center Drive	Near HPNP	Shelter 6 – replace existing with standard aluminum double

Regional Park-and-Ride Facilities. The transportation model analysis conducted for the "Needs Plan" of the MTPO's Regional Long-Range Transportation Plan tested various potential park-and-ride express bus routes that could serve small towns and other activity centers outside of the Gainesville Urbanized Areas. The model forecast ridership on these proposed express bus routes and other proposed new City routes is depicted in the following table. The 2025forecast ridership provides some indication of which potential routes may be worthy of further exploration; however, none of the proposed express bus routes generated significant weekday ridership forecasts.

MTPO 2025 Needs Plan: Forecast Ridership on Proposed New Transit Routes Including Bus Rapid Transit and Park-N-Ride Express Bus Service

CATEGORY- ALTERNATIVE 2- TRANSIT			MODEL RESULTS					
	YEAR 2025 WEEKDAY							
ROUTE	HEADWAYS [minutes]	DAILY HOURS OF OPERATION*	YEAR 2025 ALT 2 WEEKDAY PASSENGERS	YEAR 2025 ALT 2 WEEKDAY PASSENGERS / MILE	B/PAB	CAC	TAC	MTPO STAFF
PROPOSED ADDITIONAL BUS ROUTES								
N 8th Avenue	15	74	-	-				
23	15	74	73	22.67				
25	15	74	987	136.11	✔	✔	✔	✔
39	15	74	99	9.30				
44	15	74	1138	125.12	✔	✔	✔	✔
46	15	74	464	84.35	✔	✔	✔	✔
62	15	74	100	24.20				
BRT- I-75 / SR 24 Route	15	74	40	4.42				
BRT- I-75 / SR 20 Route	15	74	41	5.10				
PROPOSED PARK-N-RIDE - EXPRESS BUS								
High Sprs - [a] Gainesville	15	8	71	3.73	✔#	✔#	✔	✔
Archer - Gainesville	15	8	26	2.50	✔#	✔#		
Hawthorne - Gainesville	15	8	13	1.13	✔#	✔#		
Newberry - Gainesville	15	8	105	6.31	✔#	✔#	✔	✔
Waldo - Gainesville	15	8	32	3.25	✔#	✔#	✔	✔

*Park-N-Ride- Weekday, 5:30 a.m. - 9:30 a.m. and 2:30 - 6:30 p.m.

[a] Extend express route to the University of Florida area.

Research what type of transit vehicle/operator, such as express minibus or vanpooling, would provide reasonable cost effective high occupant vehicle (HOV) service to park-n-ride facilities.

E. Other Campus Transportation Services

SNAP. Student Nighttime Auxiliary Patrol (SNAP) is co-sponsored by Student Government, Student Traffic Court and the University Police Department (UPD) to provide nightly escorts

anywhere on campus to persons on request. The service is staffed by students equipped and supervised by the UPD. Members of the UF community may request a walking escort or a ride with SNAP by calling the campus dispatch center. SNAP services are provided until 2:00 a.m. nightly during semesters when classes are in session. UPD officers are available to provide escorts after SNAP's regular hours.

Gator Lift. Gator Lift provides fast, dependable and comfortable on campus transportation to University faculty, students and staff with permanent and temporary disabilities. Gator Lift hours of operation are 7:00 am to 11:00 pm excluding holidays. Rides are by appointment only and may be scheduled by calling the campus dispatch center. Gator Lift intends primarily to meet the needs of those with motor disabilities and vision impairments. Although permanently disabled persons receive priority seating, temporarily disabled students and staff may be accommodated as well.

Shands Shuttles. Shands&UF provides free shuttle service for employees, students and patients between several parking garages, Shands Teaching Hospital, Shands Medical Plaza and Shands Administration in the Archer Road corridor. This service operates between 7:00 a.m. and 9:30 p.m. Monday through Friday excluding holidays.

X. Parking Facilities and Programs

A. Parking Supply

Parking Inventory. As a result of the University of Florida Comprehensive Master Plan for 1995-2005, a cap was placed on the amount of new parking that could be constructed not to exceed 2,700 net new spaces during the 10-year period. At that time, in January 1995, the University of Florida parking inventory consisted of 20,764 spaces. By early 1999, construction had resulted in 1,260 net new spaces for a total of 22,024 leaving a balance of 1,440 spaces to be allowed under the cap. This cap was kept in place for the campus master plan horizon of 2000-2010. In October 2000, the university's parking inventory consisted of 23,787 spaces actually putting the inventory over the cap for a very brief period. This was due to the opening of several large parking facilities including Garage 9 Addition on Archer Road, Cultural Plaza Garage and a surface parking lot at Sorority Row. Just two months later, in December 2000, parking removals resulted in a loss of 421 parking spaces related primarily to construction of the HPNP building and Hume Hall. These parking losses brought the University in compliance with the parking cap.

The March 2004 parking inventory consisted of 23,377 parking spaces, nearly unchanged from the December 2000 supply. Although new parking facilities opened in places like Lakeside Residence Hall, additional parking losses were experienced, in part, due to construction of Rinker Hall and Stadium Skybox Expansion. Noteworthy, the parking inventory published in March 2004 did not include changes that occurred in late 2003. Garage 12 (Bookstore/Welcome Center) opened in September 2003 on the site of a former surface parking lot adding a net increase of 206 parking spaces. However, parking losses in December 2003 at the Women's Gym and Library West decreased parking in that part of campus by 156 spaces. The combined effect of these additions and subtractions in late 2003, was to add a net gain of 50 spaces for a total of 2,663 new parking spaces between 1995 and 2004. No significant changes in parking supply occurred during 2004.

Some university-related parking is not included in the decal program, and therefore, is not accounted for in these reported parking totals. Non-decal parking includes 360 parking spaces at Tanglewood Village on SW 13th Street and 342 parking spaces at P.K. Yonge Laboratory School (K-12). These spaces are not managed by Transportation and Parking Services since they exist beyond the contiguous main campus and solely serve the individual housing and public school entities.

Parking Inventory Trends, 1995-2004

Inventory Date	Parking Supply	Number Change	Cumulative Change
January 1995	20,764	-	-
March 1999	22,024	1,260	1,260
October 2000	23,787	1,763	3,023
December 2000	23,366	(421)	2,602
March 2004	23,377	11	2,613

NOTE: In late 2003, construction of Garage 12 and removal of surface parking lots at Women's Gym and Library West resulted in a net gain of 50 parking spaces not including in the inventory published in March 2004. With these changes, cumulative parking increase since 1995 was 2,663 new parking spaces.

Structured Parking (Garages). Roughly 40% of university parking is accommodated in twelve garages. These garages are distributed around campus in perimeter and also more internal locations. These garages tend to be modest in size with three of these garages accommodating less than 500 cars. Only two of the garages accommodate more than 1,000 vehicles. While smaller garages are more costly per parking space, they allow for smaller initial funding increments, less massive structures on smaller building footprints, and better distribution of vehicle traffic impacts among multiple sites. The following table displays the number of parking spaces in each parking garage.

Garage Parking Supply, 2004

Name of Garage	TOTAL SPACES
1329 Garage	599
Garage 1, HSC East	449
Garage 2, HSC West	882
Garage 3, HSC West	943
Garage 4, Newell/Museum	664
Garage 5, GL Drive	1,271
Garage 7, O'Connell Center	608
Garage 8, Norman Hall	453
Garage 9, Archer Rd	1,434
Garage 10, HSC East	789
Garage 11, Cultural Complex	572
Garage 12, Reitz Union	355
TOTAL	**9,019**

Parking by Decal Type. Parking supply by decal type has not changed significantly when measured as a percent of total, although parking supply decreased from a peak in October 2000 to a steady-state between December 2000 and March 2004. During this period, parking allotted for student and state/service vehicles was virtually unchanged as a percent of total. Staff parking decreased slightly, but was offset by increases in visitor parking. Carpool parking spaces decreased slightly from 229 spaces to 217 spaces during these four years. Motorcycle parking is inventoried in terms of the number of parking areas rather than individual spaces. The number of areas for motorcycle, moped and scooter parking decreased during this time; however, the space provided in each area increased such that the total number of these vehicles accommodated has increased slightly.

Parking Supply by Decal Type, 2000-2004

	STUDENT PARKING							
	All Red	Red 1	Sorority Red	Commuter	All Dec	Brown	Total	Percent of Total
October 2000	2,039	1,185	0	4,164	3,593	970	11,951	50.2%
March 2004	2,882	852	214	3,273	3,409	979	11,609	49.7%

	STAFF PARKING							
	Orange	Gated	Blue	Medical Resident	Carpool	Disabled Reserve	Total	Percent of Total
October 2000	3,574	1,584	2,868	299	229	179	8,733	36.7%
March 2004	3,797	1,571	2,217	300	217	179	8,281	35.4%

	OTHER PARKING							
	Disabled General	Other Reserved	Meter	Visitor	Valet	Motorcycle	Total	Percent of Total
October 2000	426	540	301	1,114	120	82	2,583	10.9%
March 2004	458	561	302	1,467	119	77	2,984	12.8%

Note: Motorcycle parking is inventoried by the number of areas so designated not the actual number of parking spaces available in those area.

	STATE/SERVICE				
	State General	State Reserved	Service	Total	Percent of Total
October 2000	137	100	283	520	2.2%
March 2004	153	138	212	503	2.2%

NOTE: Red 3 combined with All Red; Park & Ride Combined with All Decal. Note also that staff is eligible to purchase commuter parking decals.

Patient and visitor parking is critical to many functions on the university campus. Many events that attract visitors, such as sports and entertainment, occur on weekends and evenings when parking restrictions are lifted. However, some visitor interaction occurs during peak weekday times when on-campus parking is at a premium. A certain amount of visitor accommodations must be made for those people interacting with administration or academic departments. The museums at the Cultural Plaza also attract visitors during weekday. Special events occasionally attract large numbers of visitors to the O'Connell Center area during weekdays that require special accommodations. However, the hospital and medical clinics associated with the Health Science Center require the highest level of visitor and patient parking on a daily basis.

The following table presents allocations of visitor parking on campus in various regions of campus defined as "Planning Sectors". The large amount of visitor parking in Garages 2, 3 and 10 demonstrate the high demand for visitor parking near the Health Science Center. In total, visitor, metered and valet parking accounted for 8.6% of the campus parking inventory in March 2004.

Visitor and Patient Parking, 2004

Name of Lot/Garage	Meter	Visitor	Valet	Total Spaces
Planning Sector B				
O'Connell Center Surface Lot	18			**18**
O'Connell Center West Lot		4		**4**
B Subtotal	18	4	0	22
Planning Sector C				
Inst Black & Hispanic Cultures		2		**2**
UF Foundation - Bldg 253		5		**5**
Murphree Hall West	6			**6**
Garage 12, Reitz Union	271			**271**
Weil Hall South		1		**1**
Library West	10			**10**
Fine Arts C		3		**3**
Newell Garage #4		47		**47**
C Subtotal	287	58	0	345

Name of Lot/Garage	Meter	Visitor	Valet	Total Spaces
Planning Sector D				
PPD Staff		3		**3**
Mail and Doc Services		3		**3**
Elmore Hall	7			**7**
Laundry		1		**1**
D Subtotal	7	7	0	14
Planning Sector E				
Baughman Center		2		**2**
Fifield Hall South	10			**10**
Wallace Building		2		**2**
IFAS Conf & Institutes		1		**1**
E Subtotal	10	5	0	15
Planning Sector F				
Small Commuter Lot	5			**5**
Aerospace Lot	13			**13**
F Subtotal	18	0	0	18
Planning Sector G				
Vet Med Small Animal	8	41		**49**
Animal Science East Lot		3		**3**
TAPS East Lot	10			**10**
Heat Plant	6			**6**
Garage 2		562		**562**
Garage 3		326		**326**
Cancer Center East	4			**4**
Garage 10		453	119	**572**
1329 Garage	28	8		**36**
1329 Bldg Circle	2			**2**
G Subtotal	58	1,393	119	1,570
Planning Sector I				
Cultural Complex Surf Lot	38			**38**
I Subtotal	38	0	0	38
TOTAL	**436**	**1,467**	**119**	**2,022**

NOTE: Visitor and patient parking figures include the construction of Garage 12 and changes in the Library West parking lot, but do not include more recent reassignment of existing parking to visitor use at the Cultural Plaza Complex and the Orthopaedic Surgery and Sports Medicine Center.

Parking and Enrollment Trends. The trend of parking supply compared to UF enrollment shows a decline in the ratio of parking to enrollment. While policies may encourage alternative forms of transportation and decrease the demand for parking, the impact of these efforts must be measured against growth in enrollment. The following tables display the trend in parking supply

compared to enrollment, and a projection of the future parking demand based on assumptions of different target ratios.

Parking Supply by On-Campus Headcount Enrollment, 1995-2004

Year	On-Campus Headcount Enrollment	Parking Supply	Ratio of Parking to Headcount Enrollment
1995	37,539	20,764	0.55
2000	43,511	23,366	0.54
2004	45,126	23,377	0.52

Projected Parking Need Based on Enrollment Projection at Variable Ratios, 2015

Year	On-Campus Headcount Enrollment	Calculated Parking Supply	Ratio of Parking to Headcount Enrollment	Net New Parking 2004-2015
2015	49,500	25,740	0.52	2,363
2015	49,500	26,730	0.54	3,353
2015	49,500	27,473	0.56	4,096

The following tables display similar analysis, but only accounting for the decal parking spaces on campus. This examination excludes various types of visitor parking including daily pay spaces, meters, service/delivery parking and general disabled parking. An approach that projects parking need based on a ratio of decal parking spaces to enrollment decreases the overall total parking demand. Policies based on this ratio approach would enable visitor parking to fluctuate in numbers and location.

Decal-Only Parking Supply by On-Campus Headcount Enrollment, 1995-2004

Year	On-Campus Headcount Enrollment	Decal-Only Parking Supply	Ratio of Parking to Headcount Enrollment
2000	43,511	20,684	0.48
2004	45,126	19,890	0.44

Projected Parking Need Based on a Ratio of Decal-Only Parking Supply and Enrollment at Variable Ratios, 2015

Year	On-Campus Headcount Enrollment	Calculated Decal-Only Parking Supply	Ratio of Parking to Headcount Enrollment	Net New Parking 2004-2015
2015	49,500	21,780	0.44	1,890
2015	49,500	23,760	0.48	3,870

A comparable analysis of parking to employment figures cannot be provided as there is not consistent historical data for main campus employment. The ratio of parking to employees in 2004 was 1.05 with 23,377 parking spaces for 22,211 main campus employees. However, less than half of all parking spaces are available to employees.

B. University Parking Facility Utilization Report

The annual Parking Facility Utilization Report, prepared by the university's Parking and Transportation Services Division provides useful data for understanding on-campus parking trends. The most recent report, published in May 2004, reports on parking vacancies by time of day and day of week at thirty one major parking facilities. The results demonstrate that parking availability varies among different parts of campus and parking facilities of different decal types. However, some trends are apparent and may point to opportunities to optimize parking availability.

In general, parking vacancies are lowest between 10:00 a.m. and 2:00 p.m. on Tuesdays and Wednesdays. Employee parking in highly central locations, such as Frazier-Rogers lot, McCarty lot, Murphree Hall (orange spaces) and Garage II (level 1) tend to fill before 9:00 a.m. Gated lots have overall high vacancy rates because of the limited number of decals sold for these spaces.

C. Parking Turnover Study

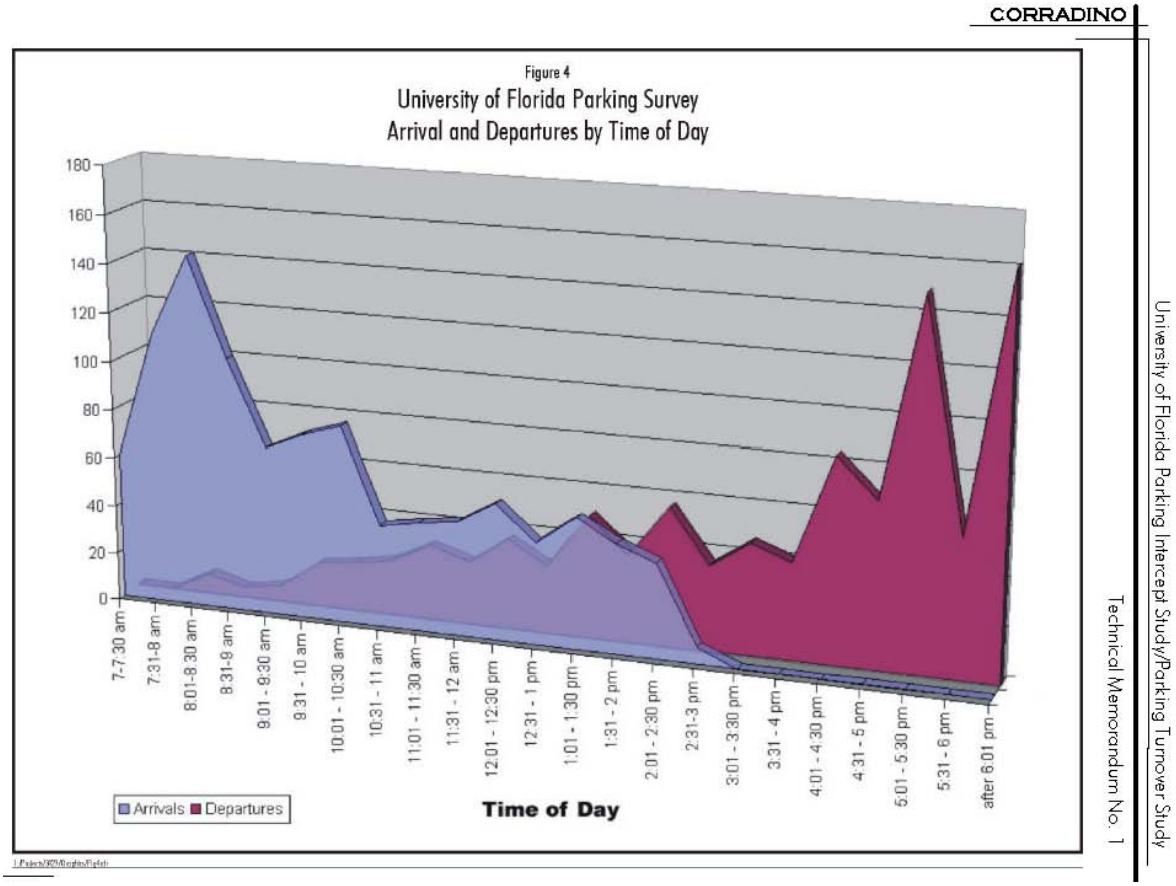
A parking turnover study was conducted over two days in Spring semester 2004 by The Corradino Group, and is published in Technical Memorandum No. 1, April 2004. This survey examined the arrivals and departures at twenty garages and large surface parking lots including Orange, Blue, Commuter, All Decal, Red, Gated and Visitor decal types.

Garage 5 at Hume Hall was found to be somewhat of an anomaly in the survey because of its preponderance of Red decal parking for on-campus residents. Because the on-campus residents use this garage largely as a car storage facility, parking duration was found to be thirty hours. The overall parking turnover study findings are reported with and without the influence of Garage 5 due to its unique characteristics.

The survey found that 40% of all arrivals occurred between 7:30 a.m. and 9:00 a.m., while 53% of parkers leave the facilities after 4:00 p.m. The most significant effect of Garage 5 on the analysis was that parking duration declined by three hours for those parkers entering the facility between 7:00 a.m. and 8:00 a.m.; 9:00 a.m. and 10:00 a.m.; and 2:00 p.m. and 3:00 p.m. Even with Garage 5 excluded from the analysis, campus parking was still found to have a duration of six to seven hours for parkers who arrived before 10:00 a.m. or after 12:00 p.m. The duration for parkers arriving between 10:00 a.m. and 12:00 p.m. was four to five hours. The average parking duration was seven hours for the entire campus surveyed including Garage 5. These results

demonstrate that parking on campus is generally long in duration with parkers leaving their cars for the entire day while they work or study on campus. The exception to this pattern, as would be expected, is the Welcome Center/Garage 12 where the typical parker stays 1.5 to 2.0 hours. In general, the study observed that the earlier a parker arrived on campus, the longer their stay.

Parking Survey – Arrivals and Departures by Time of Day, Spring Semester 2004



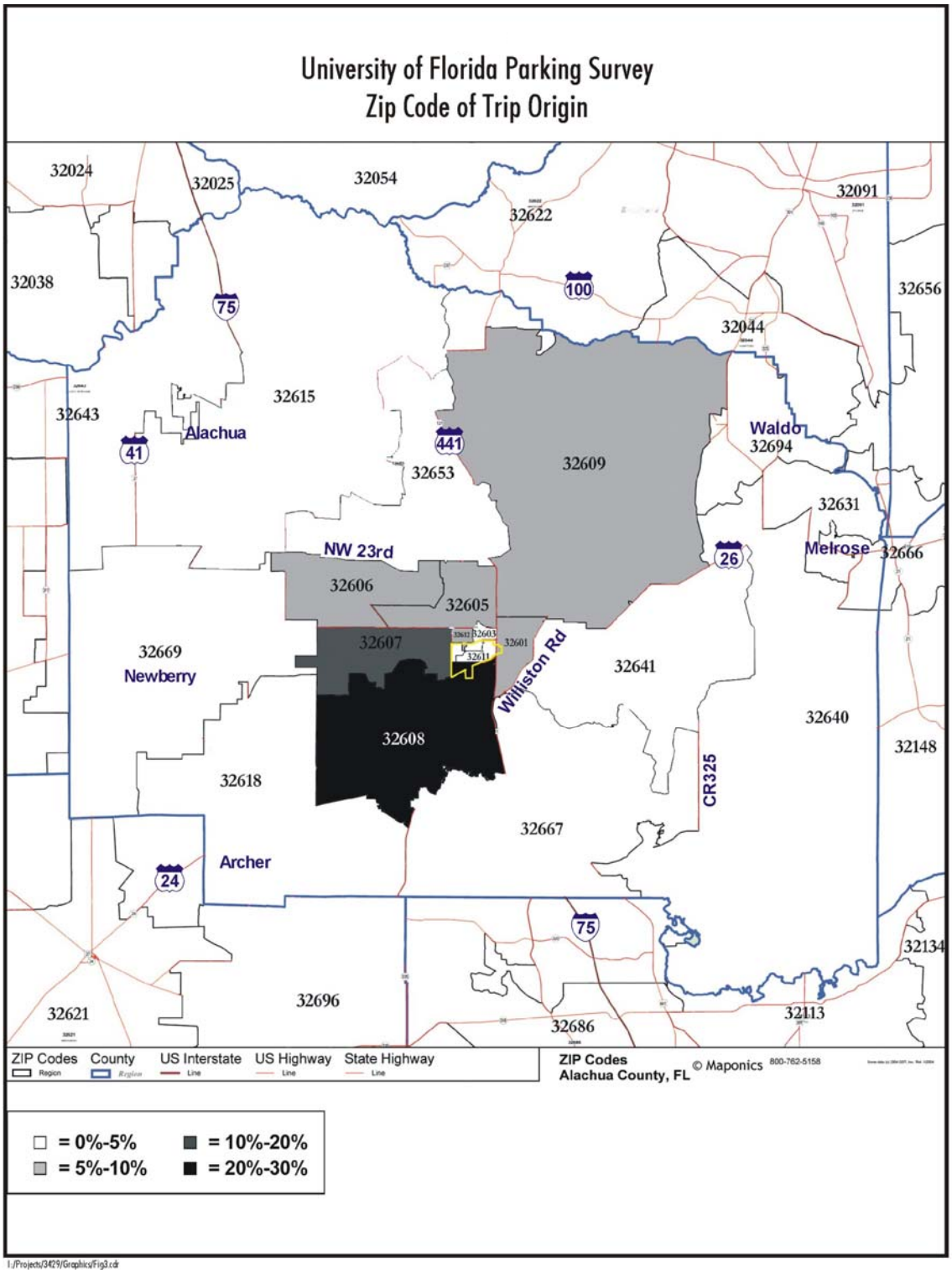
D. Parking Intercept Study

A parking intercept study was conducted in Spring semester 2004. This survey intercepted parkers in twenty garages and large surface parking lots including Orange, Blue, Commuter, All Decal, Red, Gated and Visitor decal types. The majority of respondents (60%) were interviewed in seven facilities: Garage 10 (12%), Benton Hall/Aerospace Engineering lot (10%), O'Connell Center lot (9%), Garage 4 (8%), Garage 11 (7%) and Garage 3 (6%). Detailed results of the study are published in Technical Memorandum No. 1, prepared by The Corradino Group, Inc, April 2004.

Based on these interviews, fifteen percent of the parkers began their trip to campus from outside Alachua County. Garage 10, serving Shands Hospital, accounted for almost half of the out-of-county trips. Garage 3 (Medical Plaza) and Garage 12 (Welcome Center) each accounted for an additional 10% of out-of-county parkers. Five zip codes produced more than half of all parking trips originating in Alachua County. Zip code 32608 (southwest of campus) produced 27% of all

the parkers interviewed. Zip code 32607 (immediately west of campus) produced about 13% of parking trips. Zip codes 32601 (east of campus), 32605 (north of campus) and 32606 (northwest of campus) each produced between five and eight percent of parking trips surveyed.

Regarding trips made from the parking locations to the final on-campus destination, the majority are made by walking or transit (78.7% and 20.1% respectively). The remaining 1.2% of on-campus trips were made by either bicycle, scooter, skateboard, rollerblades or Shands Shuttle.



Source: The Corradino Group, Inc. 2004

E. Parking Policies, Decal Sales and Carpool Program

Decals and Programs. The majority of campus parking requires the purchase of a decal. Different decals are available for students depending upon their number of credit hours earned or

on-campus residency; staff depending upon whether they are in the Health Science Center area or other parts of campus; and various types of reserved and visitor spaces. The general approach has been to provide parking in relatively close proximity for staff and for students who reside on-campus. Parking for visitors/patients, disabled, gated employee and service vehicles are typically provided with the most convenient parking. Commuting students and employees who park in the perimeter areas of campus are provided with less expensive parking. Transit service is used to offset the scarcity of proximate parking and to serve more remote parking locations. Employee carpool decals are available for employees who belong to a carpool group of at least three employees. There are currently 217 carpool parking spaces (2.6% of employee parking) to match the number of carpool groups registered in the program. The university, as a whole, does not offer ride matching services for carpool programs. However, individual units may provide this service as demonstrated by the Law School's ride matching program that screens and matches student commuters.

Student decal types, including commuter, brown and red cost less than employee parking. In 2003, the number of credit hours was raised for certain student parking decals. Students living off-campus must have accumulated 110 credit hours (seniors and graduate students) to be eligible to purchase a commuter parking decal. Students living off-campus with less than 110 credits may only purchase a Park & Ride decal that can be used in the parking facilities on Hull Road at SW 34th Street. For students living on-campus, students with less than 50 credits (freshmen and some sophomores) can only purchase Red 3 parking decals while upper classmen are eligible to purchase Red 1 decals. The Red 1 decal allows vehicles to park in areas designated as All Red or All Decal, which are typically near the campus perimeter and not directly adjacent to housing. Students living in graduate and family housing are eligible to purchase Brown parking decals that provide parking at the student housing complex. Because residence hall occupancy is largely lower division students, the demand for Red 1 parking near residence halls is kept to a minimum and the Red 3 decal provides the ability to store vehicles in more remote areas.

Parking Cost. The cost of parking generally corresponds with its proximity to main campus destinations. Gated employee parking is the most expensive decal type and provides nearly guaranteed spaces to employees in specific parking lots near academic buildings. At annual rates of $744 and $672 (Official Gated and Gated respectively), these areas cost roughly $2.00 per day, or more than three times the typical employee parking. The 1,571 gated parking spaces account for roughly 19% of all employee parking, although a waiting list exists for additional gated parking. Visitor parking at the Welcome Center/Bookstore and Health Science Center are the next most expensive daily parking rates, costing $5.00 and $3.00 respectively per day. Parking rates are reviewed annually by the University's Parking and Transportation Committee. Adjustments to the rates are made by official rule-making processes. Parking rates were recently raised in the academic years 2003-04 and 2005-06. Still, the price of a typical "Orange" or "Blue" employee decal amounts to $8.75 per two-week pay period for an annual parking decal.

An analysis was conducted to examine the number of parking spaces by decal type and the cost of those decal types to determine an average daily cost of parking. Parking spaces were assigned to Transportation Analysis Zones (TAZs) by decal type for this analysis. A total of 20,817 were assigned excluding motorcycle, meter, carpool, general disabled and state/service vehicle. This assignment allowed examination of the spatial distribution of parking types on campus to compare the cost of parking in central locations and peripheral locations. This analysis found that the daily cost of parking ranges from $0.54 per day to $3.00 per day, with a median cost of $0.56 per day and an average of $0.78 per day. As expected, the most expensive average parking prices are found in area north of Museum Road and east of Gale Lemerand Drive, and in the Health

Science Center area. These areas have larger quantities of paid visitor spaces and gated employee lots. The least expensive parking was found at the commuter and student housing areas along SW 34th Street.

Parking Cost by Transportation Analysis Zone, 2004

		Decal Type					
TAZ	General Location Description	Gated	O/B/DR*	C/A/R/B*	Visitor ($3/day)	Visitor ($5/day)	Ave. Daily Price
440	Maguire/UVS			499			0.540
441	Lakeside/SW Rec			429			0.540
141	Frat Row			96			0.540
79	Sorority Row			167			0.540
449	Hume/Commuter Lot			2528			0.540
130	IFAS Operations			48			0.540
447	Energy Park			25			0.540
442	Hilton/Ortho/P&R2			699			0.540
443	Corry Village		15	391			0.541
178	Cultural Plaza/Surge		86	1408			0.542
146	Law School/Springs		110	1084			0.544
126	Tolbert/Graham		92	641			0.545
166	PPD/Radio Road		119	420			0.549
446	Genetics/Cancer/Bio		24	57			0.552
125	O'Connell Center		475	680			0.556
149	Fifield/Baughman		187	167			0.561
74	Norman Hall		258	207			0.562
454	UPD/Beaty/Diamond		241	142			0.565
122	Physics/Black Hall		687	248			0.569
451	Garage 9		1434	308			0.573
91	Broward/Garage 4		685	115			0.574
445	Newins-Ziegler		236				0.580
97	Chemistry/Keene-F.		105				0.580
86	Bldg.105/CLO		13				0.580
85	Fine Arts/Music		31				0.580
453	Dickinson/Psych		149				0.580
433	Vet School/Swine U.		218	462	41		0.692
110	Stadium/Buckman	76	141	142			0.831
83	LibW/Criser/Tigert	190	299				1.070
452	1329 Bldg.	336	210		4		1.367
455	Garage 10 &1	637		232	696		2.163
450	Med Plaza/Gar. 2 & 3	308	365		901		2.212
112	Reitz/Weil/Turlington	24	92			137	3.093
Totals		1571	6272	11195	1642	137	

* O/B/DR = Orange, Blue and Disabled Reserve; C/A/R/B = Commuter, All Decal, Red and Brown.

Analysis was also conducted within the transportation model to examine the effects of parking pricing on travel behavior in the future year 2015. The current prices, as reflected in the above table, were assumed as the base condition for the years 2000 and 2015. Three different scenarios of parking cost were examined including: 1) 50% increase (factor of 1.5x current cost); 2) 100%

increase (factor of 2.0x current cost); and 3) 300% increase (factor of 4.0x current cost). The 2000 base year of the model included 16,184 commuter parking spaces (i.e. commuter parking was defined as those spaces with decal types available to employees and students living off-campus). The 2015 parking model inputs included 17,987 commuter parking spaces, an increase of 1,803 parking spaces that would be recognized by the model.

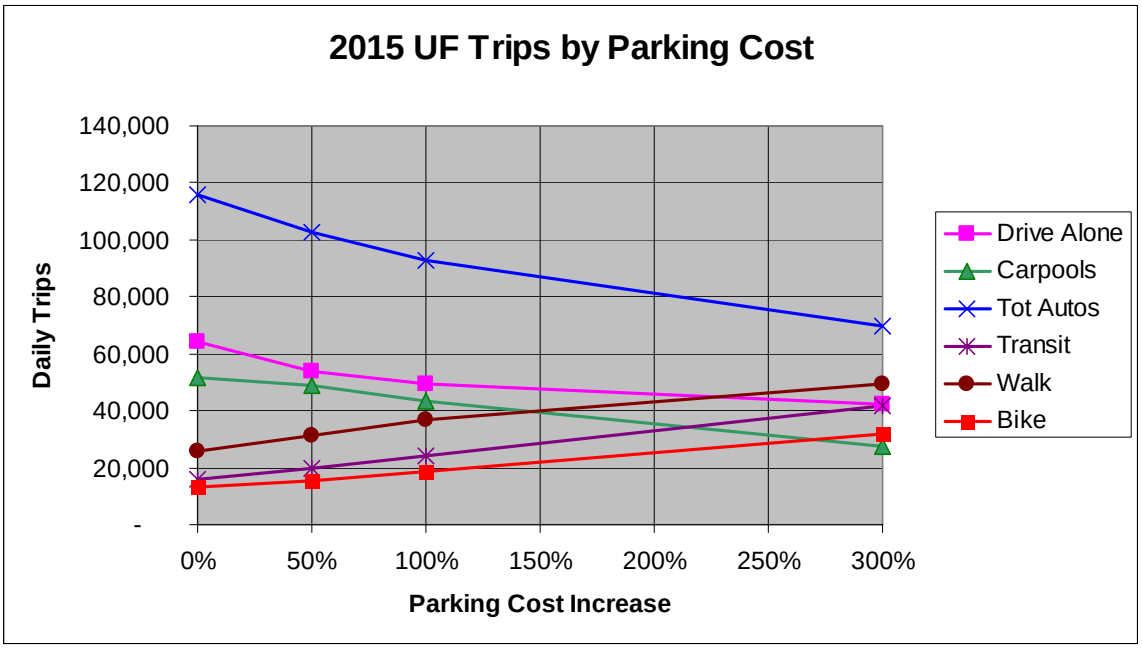
The model demonstrated that higher parking costs encourage more travelers to walk, bicycle or take transit to reach campus. Within the model, certain constraints were placed on bicycle, pedestrian and transit trips to ensure that trip lengths were reasonable and transit trips occurred only where service was provided. Interestingly, the model predicted carpool usage to drop when parking prices become significantly higher as those carpool patrons are often the most likely individuals to switch to walking, bicycling or transit. People who drive alone to campus also shift to non-auto modes, but at a lower rate. While there is logic to this model response, campus policies that increase incentives for carpooling could modify this model-predicted outcome. Even still, the model predicts that an increase of 50% in parking costs could have the effect of reducing campus-bound auto trips by 12% in 2015. This would result in future parking demand that it is not greatly increased over demand experienced in the base year (i.e. 102,476 vehicle trips in 2015 compared to 98,553 vehicle trips in 2000 with a 50% increase in parking costs). Similarly, an increase of 100% in parking costs could reduce campus-bound auto trips by 20% in 2015 according to the model analysis. Caution should be used when evaluating the model outputs for the 300% increase in parking cost because the factors influencing mode choice in the model are based on general, not local, assumptions about travel behavior. The larger the variation in the model input, the more important those assumptions become in generalizing the findings to the local conditions. However, the model demonstrates a clear trend that increases in parking cost can have a significant impact in automobile trips and related parking demand. The significant elasticity of the parking cost factor is also supported in much of the transportation demand management research literature.

University Trips Modeled by Parking Cost Variations, 2000 and 2015

2015 UF Trips by Parking Cost								
Parking Cost		Vehicles				Persons		
Year	Increase	Drive Alone	Carpools	Autos		Transit	Walk	Bike
2015	0%	64,078	51,857	115,935		15,976	25,654	13,176
2015	50%	53,634	48,842	102,476		19,571	31,115	15,565
2015	100%	49,344	43,386	92,730		24,304	36,711	18,597
2015	300%	42,325	27,325	69,650		41,463	49,367	31,637
2000	Validation Base Year	52,627	45,926	98,553		14,766	24,249	11,931

Source: The Corradino Group, Inc.

University Trips Modeled by Parking Cost Variations: Trends, 2015



Source: The Corradino Group, Inc.

Parking Enforcement. The University Police Department is responsible for enforcing parking regulations in coordination with the Transportation and Parking Services Division. In 2003, 85,004 citations were issued for violation of various parking rules. The single most common offense was failure to display a parking decal or having an expired decal. Parking offenses related to parking in restricted areas or out of the decal-assigned area were also frequent violations. Next in frequency were violations of parking in service areas and no parking zones. In 2003, there were 4,789 citations written for parking on sidewalks and grass areas. There were also 605 citations for driving in a restricted area, primarily the auto-free Pedestrian Enhancement Zone in the northeast part of campus. Increases in fines during 2004-2005 were targeted to further discourage driving in this restricted area. Changes to the parking citation payment and appeals process were also implemented to encourage more timely fine payment.

F. Proposed Parking Facilities

Parking Alternative Scenarios. In preparation of the 2005-2015 Campus Master Plan, thirteen structured parking opportunity sites were identified for analysis. Initially, the locations were examined in terms of walking distances to campus destinations. Two of the identified locations were off-campus parking locations; one west of SW 13th Street and one south of Archer Road. While only one of these locations was analyzed for road impacts and selection of a preferred alternative, their identification highlights the opportunity for public-private partnerships that may be available in a variety of off-campus locations to help satisfy the demand for campus-related parking. The remaining structured parking opportunity sites were analyzed in three scenarios with one variation that would examine alternative locations of long-term Red-decal parking. A forth alternative examined in the regional transportation model was a test of parking cost to determine the level at which the model would begin to divert campus trips to other modes.

The parking scenarios included potential removal of existing surface parking that may be displaced by a building or parking garage structure in the future. Of the locations analyzed for potential parking loss (and listed in the following table), only certain ones are anticipated to lose parking within the ten-year horizon including ICBR/Communicore Parking Lot, Bledsoe Parking Lot, SW Recreation Center Parking Lot and Frazier-Rogers Hall Parking Lot. The other locations are identified as future building sites, but are currently identified beyond the 10-year horizon.

The total number of parking spaces reported in the following table assumes a base existing inventory of 23,814 parking spaces on the main campus and in the off-campus location south of Archer Road in the year 2000. The parking totals reported for each scenario include the addition of one off-campus structured parking opportunity site identified as #7, Shands Hotel Garage south of Archer Road. For the purposes of this analysis, that location was anticipated to provide a net gain of 600 parking spaces following the demolition and rebuilding of an existing parking structure. The Shands Hotel Garage is not located within the jurisdiction of the campus master plan. However, a new parking structure at this site would impact campus area roads, and was included in the analysis in order to assess the combined impact of future parking in the vicinity. Scenario 1 proposes to add 4,087 net new parking spaces; Scenario 2 proposes to add 3,415 net new parking spaces; and Scenario 3 proposes to add 5,062 net new parking spaces for the purpose of analyzing road impacts based on variable locations for future parking. This analysis was tested in the regional transportation model using the year 2025 population and employment data with the regional Needs List transportation network (i.e. The Needs List was adopted by the MTPO in August 2005 to represent all transportation projects needed in the region. The Needs List transportation network assumes that all of these projects are completed in the year 2025.) The location of the potential future parking structures tested in these scenarios is presented in a map on page 1-19 of the Urban Design and Future Land Use Data & Analysis report.

Parking Scenario Alternatives for Analysis

Scenario 1	Scenario 2	Scenario 3
1. ICBR / Communicore Parking Lot Loss	same	same
2. Murphree / Union Prkg. Loss	same	-
3. Bledsoe Parking Lot Loss	same	same
4. SW Rec. Center Parking Loss	-	same
5. McCarty Parking Lot Loss	-	same
6. Frazier Rogers Prkg. Lot Loss	same	same
7. Shands Hotel Garage	same	same
8. Ambulatory Surgery Center Surface Lot	same	same
9. Cultural Plaza Garage	same	same
10. TAPS / Gale-Lemerand Parking Garage	-	-
11. Law School Garage	-	-
12. Livestock Pavilion Garage	-	-
13. Beaty Tower Garage	-	same
-	14. Genetics/Cancer/Biotech Garage	-
-	15. O'Connell Center Garage	-
-	16. Tigert Garage	-
-	-	17. Fifield Garage

Scenario 1	Scenario 2	Scenario 3
-	-	18. G-L Commuter Lot Garage
-	-	19. Radio Road Garage
Total 6 Garages & 1 Surface Lot	**Total 5 Garages & 1 Surface Lot**	**Total 6 Garages & 1 Surface Lot**
Total 27,901 spaces	**Total 27,229 spaces**	**Total 28,876 spaces**

Note: A variation of Scenarios 1 and 3 were tested to examine the impact of assigning Commuter or Red decal parking in the proposed new parking garages at the Law School and Gale Lemerand Commuter Lot, respectively. Scenario1-alt proposes to reassign 840 parking spaces in the proposed Law School Garage from Commuter to Red. Scenario 3-alt proposes to reassign 840 parking spaces from Commuter to Red in the proposed Gale Lemerand Commuter Lot Garage.

Analysis Findings. Overall, the analysis found that none of the parking garages created significant impacts to the roadways beyond that projected as background traffic growth resulting from regional employment and population changes. The road impacts associated with the Law School location compared to the O'Connell Center location were negligible. Similarly, there was not much difference in the road impacts when comparing a location near Genetics/Cancer/Biotech site and the Transportation and Parking Services (TAPS) site. However, the model demonstrated that a concentration of parking garages in any one area of campus would have a cumulative impact on the roadway system in that part of campus. The analysis also showed, for the Gale-Lemerand Commuter lot location, that additional traffic will be attracted to the on-campus roads when a garage is more internally located. The scenario modeling provided some information on which to evaluate future parking garage locations; however, other considerations weighed heavier in the final prioritization such as proximity to destinations (as represented by the 5-minute walk maps in the Urban Design and Future Land Use Data & Analysis report), transit accessibility, ingress/egress, pedestrian/bicycle system impacts and other such issues.

G. Proposed Parking Services and Programs

Future parking supply will be influenced by policy decisions of the University and its host communities, as well as funding availability and the loss of existing parking spaces from conversion of land use. The demand for parking will be influenced by policy decisions and growth in enrollment and employment. Employment is expected to grow by 2,221 individuals for a total of 24,654 employees on the main campus and P. K. Yonge campus (including 5,576 on-campus employees of UF&Shands). Taken together with a projected headcount enrollment increase of 4,374 students on the main campus, there are an additional 6,595 individuals projected to work or attend class on the main campus in 2015.

The following table summarizes the changes that are anticipated in the ten-year window the campus master plan's capital projects from 2005-2015. These changes include anticipated losses of surface parking lot and recommendations for three new garages. These garages would be located: 1) northeast corner of Gale Lemerand Drive and Mowry Road in TAZ 122; 2) O'Connell Center Parking Lot in TAZ 125; and 3) vicinity of Hull Road and SW 34th Street (As shown, this parking increase is reflected in TAZ 178, but the alternative location is in TAZ 442. The final location will depend upon funding and traffic impact studies at the time of development.)

Preferred Parking Alternative, 2004-2015

TAZ	Parking Spaces - Base Year 2004*	Parking Spaces - Preferred Alternative 2015	Less 2015	Plus 2015	2015 Parking Modifications
59	32	32	0	0	no change
74	499	499	0	0	no change
79	362	362	0	0	no change
83	407	407	0	0	no change
85	51	51	0	0	no change
86	23	23	0	0	no change
91	878	878	0	0	no change
97	114	114	0	0	no change
101	171	71	-100	0	Future buildings at: Communicore (42), ICBR (11), HSC Center Dr. Loading Dock (7), and part of Dental lot (40)
104	0	0	0	0	no change
110	536	488	-48	0	Parking loss at Union Dr. (22), Fletcher Dr. north end (26)
112	782	782	0	0	no change
122	1043	1414	-429	800	Parking loss at TAPS garage site (377); & Center Dr. on-street parking (52)
125	1626	2626	-200	1200	Parking loss at O'Connell Center Garage site (200)
126	743	743	0	0	no change
130	48	48	0	0	no change
141	139	139	0	0	no change
146	1183	1102	-81	0	Parking loss at Village Dr. on-street parking (81)
149	587	642	0	55	New surface lot at Fickie Gardens (55)
160	0	0	0	0	no change
166	563	563	0	0	no change
178	1539	2309	-250	1020	Parking loss at Cultural Plaza Garage site (250); add new ADA lot (20); some parking addition may be on surface lot at new rec fields rather than in garage**
433	843	843	0	0	no change
435	0	0	0	0	no change
440	399	399	0	0	no change

TAZ	Parking Spaces - Base Year 2004*	Parking Spaces - Preferred Alternative 2015	Less 2015	Plus 2015	2015 Parking Modifications
441	499	424	-75	0	Future building at SW Rec. Center (75)
442	699	817	0	118	New surface lot at Ambulatory Surgery (118)
443	426	426	0	0	no change
444	0	0	0	0	no change
445	154	154	0	0	no change
446	81	117	0	36	New Genetics/Cancer site parking
447	25	25	0	0	no change
449	2529	2529	0	0	no change
450	1989	1989	0	0	no change
451	1742	1742	0	0	no change
452	605	605	0	0	no change
453	222	152	-90	20	Future building at Frazier-Rogers parking lot; new parking at NRF bldg.
454	432	354	-78	0	Future building at part of UPD lot, & HSC East construction lot on Newell Dr.
455	1473	1473	0	0	no change
466	20	20	0	0	no change
Total	**23,464**	**25,362**	**-1351**	**3249**	**Net Change = +1898**

* The Base Year 2004 is the March 2004 inventory data plus the changes at Garage 12, Women's Gym, Library West and other minor adjustments made in 2004.

** A proposed recreation field facility may construct an additional 100 parking spaces in this area, or they may be included in the garage structure. The final recommendation will depend upon timing and funding of the two projects. An alternate location for this future parking garage is identified in TAZ 442, with a final decision pending a traffic impact analysis at the time of construction.

While the above table anticipates future parking and makes assumptions about future parking garage size, the final net change in parking will depend on a continued analysis of demand and the potential to relocate Shands-related visitor parking to off-campus locations.

The Transportation Study Committee, formed for the purpose of guiding transportation policy in this campus master plan, recommended that the university pursue a target of retaining a ratio of 0.30 decal-only parking spaces (excluding meter, valet and visitor daily paid) to total campus population (employment plus student enrollment). In 2004, there were 19,890 decal-only parking spaces serving a campus population of 67,337. In 2015, the campus population is projected to be 75,154 which would require an inventory of 22,546 decal-only parking spaces at a ratio of 0.30 to equal the ratio experienced today. This would require a net gain of 2,656 new decal-only parking spaces.

If the net new parking spaces are created solely by construction of new spaces, then the new total parking inventory would be 26,120 in the year 2015. This estimate accounts for anticipated parking losses and assumes zero construction of new meter, valet or visitor daily paid parking. An alternative approach could consider the potential to relocate some visitor and patient parking in the Health Science Center to non-university properties during the next ten years. Such an approach would enable reassignment of existing parking and require a net increase of 1,898 new parking spaces to maintain the target ratio. The true parking need over the ten-year period will likely be somewhere between the 2,656 and 1,898 net new parking spaces depending upon visitor parking alternatives and the success of programs to encourage carpooling and non-auto travel.

Potential Future Parking Alternatives, 2004-2015

2004 Total Spaces	Parking Loss to 2015	Needed Increase at 0.3 Ratio	2015 Total Parking	Net New Parking
23,464	(1,351)	4,007	26,120	2,656

2004 Total Spaces	Parking Loss to 2015	Needed Increase at 0.3 Ratio	Relocated Visitor/Patient Parking	2015 Total Parking	Net New Parking
23,464	(1,351)	3,249	758	25,362	1,898

XI. University Traffic Impacts in the Context Area

The Corradino Group, Inc. performed traffic impact analysis for the University within the Voyager regional transportation model developed for the MTPO during 2004-2005. The model included university employment, enrollment and parking spaces (including approximately 1,900 new parking spaces described in the university's "preferred parking alternative", page 8-65 through 8-66) for the base year 2000, the MTPO mid-year 2015 (campus master plan end year), and MTPO year 2025. The Corradino Group also ran a 2010 model scenario so that the university and host local governments can consider implications of transportation impacts currently mitigated in the campus development agreement (CDA) for 2000-2010. These model inputs are found in the ZDATA files of the model.

The UF traffic data appear in the loaded highway network portion of the model files, as described in Section 2.9 of the MTPO's Long-Range Transportation Plan Technical Report-4. After the highway assignment is complete, the walk and bike (non-motorized) trips are assigned to the minimum distance paths for non-freeway links. Then, link attributes are reorganized, renamed, and new attributes are calculated. The attribute file called "UF_MOTOR" contains the daily highway volume, for every network roadway link, that has one or both ends of the trip at UF. The model shows the percentage of the volume on every link attributable to UF as an output file called "UFPCT". The change in percent of UF traffic between 2000 and 2015 can be obtained by comparing the UFPCT volume in the MTPO's base year 2000 and the MTPO's mid-year 2015.

The transportation model was used to evaluate the percentage of UF traffic on roadways links in the University Context Area that are projected to function in 2015 with a volume-to-capacity (v/c) ratio of 0.9 or greater, representing roadways approaching unacceptable operating capacities. The traffic volumes and percent of UF-trips is analyzed for the base year 2000; the year 2010 to correspond to the existing CDA; and for the future year 2015 with both a zero increase in campus

parking cost and a 100% increase in campus parking cost. The model inputs for campus parking cost were based on analysis presented on pages 8-60 that calculates an average daily cost by TAZ. The model analysis forecast changes of 5% or greater in the percentage of UF traffic on eighteen links of seven different roads in the Context Area for the period covering 2000-2015 with no change in UF parking costs. The number of road links with a change of 5% or greater UF trips decreased when analyzed for the period of 2010-2015, or with a 100% increase in UF parking costs. The scenario with 100% parking cost increase also provides information about corresponding forecast increase in transit ridership as presented on page 8-61. The results for these analyses are presented in a table at the end of this Data & Analysis report, and are based on the final MTPO model (updated in early 2006 to correct an error in External-to-External Trips, i.e. trips passing through with no destination in Alachua County).

XII. 2000-2010 Campus Master Plan Evaluation and Appraisal

The University has continued to collaborate with the City of Gainesville, Alachua County and MTPO for the purposes of coordinated transportation planning. To this end, the University participated in various intergovernmental standing committees and special study task forces. The University's participation in the MTPO included approximately $14,000 of in-kind contribution toward MTPO Work Program tasks during FY2004-05, which is typical of annual UF in-kind contributions. Additionally, the university made a $10,000 cash contribution toward the Archer Road Charrette project in FY2003-04.

Between 1995 and 2005, the university maintained the parking cap designated in the Campus Development Agreement which specified that increases in campus parking would not exceed 2,700 parking spaces. Campus Development agreement funds provided through the campus master planning process injected $10.2 million in transportation funding to host local governments based on the 1995 Plan, and an additional $3.5 million based on the 2000 Plan update. These funds have assisted in the construction of numerous sidewalk, bikeway and lighting projects in the University Context Area. The University has worked successfully to support the Regional Transit System with financial assistance that has provided dramatic increases in transit ridership through pre-paid universal access programs for students and employees in addition to campus development agreement funds. In partnerships with RTS, the University also leveraged its funds with Federal Transit Administration grants to provide bus shelters on campus. Funds allocated to roadway projects have not been spent at the pace expected to create noticeable improvement in the roadway environment; however, the SR26/26A projects have progressed to construction and the SW 24th Avenue project is in a final design phase. Despite the delay in roadway construction, vehicle volumes have decreased or remained steady on most of the major arterial roads surrounding the campus. This may be due in part to the success of transit and shift of off-campus student residences to closer locations as demonstrated in the Context Area update analysis.

Since 2000, the university has constructed 0.8 miles of new bicycle lanes and over 1.2 miles of new sidewalks on campus. Other investments have been made in parking, bus shelters and pull-out bays, road resurfacing and lighting to improve and maintain the campus transportation infrastructure. The *University Design and Construction Standards* were updated to include more detailed specifications for bicycle, pedestrian, roadway, parking and lighting infrastructure. The University has maintained its 20-mph speed limit across campus and improved signage to inform drivers of this regulation. Parking management and enforcement has also been implemented to

reduce vehicle access in the Pedestrian Enhancement Zone and to limit commuter and student resident parking in the campus interior. In order to improve visitor access, a visitor parking garage was constructed as part of the University Welcome Center and daily-pay parking was designated at the Cultural Plaza and Orthopaedic and Sports Medicine Institute. The university administration and Student Government have worked together to continually increase the revenues available to enhance student transit services from RTS. The Transportation and Parking Committee, as well as the HSC Parking and Transportation Task Force, have been continually consulted in regard to parking and transportation policies, programs and facilities. Progress from these efforts between 2000 and 2004 is demonstrated by the following benchmarks:

- Construction of 4,000 linear feet of new bicycle lanes and shared-use paths on campus
- Construction of 6,730 linear feet of new sidewalks adjacent to campus roadways
- Due to the success of a pre-paid universal transit access program for UF students and employees, ridership on the Regional Transit System increased from 4,413,198 riders in 2000 to 8,146,496 riders in 2004, with university students, faculty and staff accounting for 65% - 75% of system-wide ridership
- Three significant new bus shelters were constructed and an additional ten bus shelters are programmed for installation during 2005
- Eligibility requirements to purchase campus Student Commuter parking decals were raised to 110 credit hours minimum, while students with less than 110 credit hours were only eligible to purchase Park and Ride decals for parking in remote parts of campus

In spite of these positive steps in campus master plan implementation and consistency, significant deficiencies still exist in the transportation infrastructure needed on campus and the surrounding area. Funding has not been adequate from state, local and federal levels to keep pace with need. The university campus has need of approximately $30 million dollars in transportation infrastructure improvements including sidewalks, shared-use paths, bicycle parking, roadway and intersection modifications in addition to the need for new parking garage construction and ongoing infrastructure maintenance funding. Similarly, the Gainesville Urbanized Area identified a shortfall of over $350 million dollars for roadway and transit improvements needed in the university's host community.

9.
GENERAL INFRASTRUCTURE
DATA & ANALYSIS

I. Introduction

The general infrastructure data and analysis section of the master plan applies to the University's main campus and satellite properties. This section provides background information on the University's existing infrastructure and provides information on projected improvements that will be necessary in light of future building projects. Sub-elements included within this section are stormwater, potable water, wastewater and solid waste. Additionally, reclaimed water usage is addressed in both the potable water section and in the waste-water section. The University's commitment to using reclaimed water for outside irrigation serves as a major component of the main campus's sustainable water conservation practices. The Physical Plant Division is responsible for permitting, maintenance and expansion of general infrastructure on the main campus. The satellite properties are handled individually with each property handling its own infrastructural permits, maintenance and improvements.

The Physical Plant Division obtains permits for stormwater and consumptive use of water from the St. Johns River Water Management District (SJRWMD). The consumptive use permit covers both the secondary use of potable water (drinking water) that the University receives from Gainesville Regional Utilities (GRU) (GRU includes the University's use in its permit to the SJRWMD) and covers the University's wells. Wastewater is treated in on-campus facilities and handled under a permit from the Florida Department of Environmental Protection (the use of reclaimed water is also covered by the SJRWMD permit). The University's main campus solid waste is handled under an annual purchase agreement with Alachua County, which in turn transfers the non-recycled waste to the New River landfill in Duval County. Recycled waste accounts for approximately 40% of the total waste generated on campus. University personnel are continually exploring ways to increase this percentage on an on-going basis.

II. Stormwater Sub-Element

III. Hydrologic Overview

The University of Florida's hydrology is unique from much of the State of Florida in that runoff from storm events, irrigation and surficial aquifer seepage all empty into depressions that ultimately recharge the Floridan aquifer. This is in contrast to the more typical view of Florida hydrology, which is generally characterized by surface water that runs into larger bodies of water that in turn flow to the ocean, or by areas of porous soils that allow water to recharge directly to an aquifer. The watersheds of the University are along the Cody Scarp. This scarp marks a geologic transition zone where the clays of the Northern Highlands physiographic province give way to karst prone limestones and sands of the Gulf Coastal Lowlands. Lands to the west of campus (transition area grading to Gulf Coastal Lowlands) are generally characterized as a mixture of sand and unconsolidated clays that allow for the easy downward movement of water to the Floridan aquifer, with very little in the way of surface water drainage features. Meanwhile, lands to the north and east of campus consist of remnants of the Northern Highlands province, which are characterized as poorly drained (low aquifer recharge). These lands have significant surface water drainage where water instead of recharging the aquifer makes its way via a series of creeks and rivers into the St. Johns River and, ultimately, the Atlantic Ocean. The University is in the transition zone between these provinces in a zone called a stream to sink watershed. As the name implies, stream to sink watersheds are where surface water flows down gradient and ultimately ends up in a depression or sinkhole. In the University's case the majority of surface water ends up in one of three depressions or sinkholes – Bivens Arm (Alachua Sink), Sugarfoot Prairie (Haile Sink) or Lake Alice (drainage wells – formerly it drained into sinkholes).

This sub-selement looks at current issues on campus, identifies the latest research on Best Management Practices and provides an overview of opportunities for improvements in campus water quality. The

balance that must be addressed in the competing needs of compact urban development and water quality and quantity treatment are not easily solved and will require much give and take from everyone involved. Questions of form and function, cost-benefit analysis and differing views of aesthetics will be key factors in the stormwater debate and are issues that this sub-element strives to address.

A. Watersheds

Four watersheds divide stormwater drainage flows on the University of Florida campus: the Lake Alice watershed, the Hogtown Creek watershed, the Tumblin Creek watershed, and depression basins numbers UF-1 through UF-3, UF-5 through UF-9 and UF-11, 12 and 14.

The acreages of these watersheds, which include areas beyond the campus boundaries, are as follows:

Lake Alice	1,140 acres
Hogtown Creek	189 acres
Tumblin Creek	424 acres
Depression Basins	497 acres

Lake Alice Watershed. The Lake Alice watershed (basin) covers about 80% of campus, with approximately 1,140 acres of the basin on campus and an additional 381 acres contributing from off campus. Stormwater and surficial aquifer seepage from creeks are the major contributors to the lake, which is the ultimate surface destination of water within the watershed. Historical accounts of Lake Alice show a lively past within the internal campus discourse, where different views on how to manage the lake and watershed have held sway over the years. The first accounts of controversy appear around 1946 – 1947 when treated effluent was diverted from a sinkhole, Sweet Sink, adjacent to the sewage treatment plant, to Lake Alice. This sinkhole, according to historical accounts, was the outlet for high water in the basin. The basis for the diversion from the sinkhole was that effluent discharges entering the sink were showing up in the city's public supply water system. This diversion of water to the lake led to a major increase in the water entering the lake and to flooding of traditionally non-flood prone areas. The flooding was further compounded by increases in impervious surface, irrigation and cooling waters (historically, Lake Alice was augmented by well water used for air-conditioning that discharged large amounts of water into Lake Alice. Over the years these non-beneficial uses of water have been taken off line). Many solutions were contemplated, with a final decision reached to allow Lake Alice to hold more water, while also installing two drainage wells that drain when water levels reach a certain elevation within the lake.

During the era of direct treated effluent discharges to the lake, concern was expressed by many campus professionals on the increased nutrient content. It was observed that these nutrients were leading to increased aquatic plant growth and accelerated eutrophication processes within the lake. To deal with the engulfing plant growth of water hyacinths, parrotfeather and coontail, the University started a maintenance removal program of these plants that is ongoing to this day. Eventually, years later and after much discussion from campus personnel about the impacts that effluent discharges were having on the lake the Department of Environmental Protection required the University to remove direct wastewater discharges to the lake (1994).

The Lake Alice Watershed is a closed system that drains to Lake Alice, which is located within the boundaries of the University campus (note: some areas of the City also drain into the watershed). Some runoff is conveyed into the basin from off-campus areas of the city to the north and east of the campus. The watershed is mostly developed with a network of culverts, ponds, and channels collecting stormwater runoff from various sub-basins within the watershed and conveying it to Lake Alice. The natural conveyance system includes a creek, which was dug as a drainage canal in the 1950s, running along the northern perimeter of the Health Science Center/Shands Hospital Complex flowing westward into Lake Alice. This creek conveys runoff to Lake Alice from sub-basins east of SW 13th Street beginning near Sorority Row

Park and west of SW13th Street on campus around the "Broward Beach" area. Adjacent to the Reitz Student Union another creek flows southwesterly into a ravine toward Hume Pond and then into Lake Alice. Smaller conveyances begin adjacent to Fraternity Row and also the College of Law. To the south of Lake Alice, there are creeks conveying runoff to the lake from private off-campus apartment complexes along Archer Road and S.W. 23rd Drive, running through IFAS facility areas and another beginning within the agricultural lands between Archer Road and Mowry Road. Being a closed drainage basin, Lake Alice basin has no external drainage outlet. To alleviate flooding, there are gravity injection wells to discharge into the groundwater aquifer at the lake's west end. In times of low water levels, the University can divert de-chlorinated reclaimed water to the lake in order to maintain water levels.

The following information on Lake Alice is taken directly from a report entitled 2004 Hurricane Impacts on Lake Alice Watershed that was prepared By James P. Heaney, Ruben Kertesz, Daniel Reisinger, Michael Zelazo, and Scott Knight in the Department of Environmental Engineering Sciences (for citations listed below, please refer directly to the report).

> Lake Alice is predominantly a creature of human activity during the past century. It has gone from being a small 1 ha sinkhole to its present state as a 33 ha open water/marsh system. The recent history of Lake Alice is summarized below. Lake Alice has grown in size as a result of a combination of greatly increased inflows from stormwater runoff, sewage, and cooling water, diking the lake to increase its storage capacity, and installation of drainage wells to regulate the outflow rate.

- Early 1900s- A 1 ha farm pond was named Lake Alice for the daughter of the farmer who owned the land (Karraker 1953). Untreated wastewater was cesspooled or discharged into a marshy area west of the UF campus, presumably Lake Alice (Loftin 1910).
- 1925-UF bought this land for an agricultural experiment station and the area around the lake was designated as a wildlife sanctuary (Korhnak 1996).
- 1926-UF constructed a primary wastewater treatment plant with a capacity of 260 m^3/day. This plant provided service for about 1,000 people. Unchlorinated effluent was discharged to a creek that drains to Lake Alice (Guard 1932).
- 1937-An aerial photo indicated a 4 ha lake fed by runoff from a marshy creek that would have included sewage effluent (Karraker 1953).
- 1947-Effluent from the new wastewater treatment plant (WWTP) was discharged to a sinkhole instead of going into Lake Alice (Korhnak 1996).
- 1948-An earthen dam was constructed at the west end of the lake for flood control and to protect aquatic birds and their nesting habitat (Davis 1972). This dam expanded the area of the lake to 8 ha.
- Early 1950s-The area of the lake expanded to 15 ha and flooding killed many of the trees in low lying hammock areas (Karraker 1953).
- 1959-Two injection wells were constructed to control the lake levels (CH2MHILL 1989).
- 1961-Aerial photo shows Lake Alice at an area of 22 ha due to added discharge of about 38,000 m^3/day from UF Heating Plant No. 2 east of Lake Alice. A discharge canal was constructed to direct this flow to Lake Alice.
- 1964-The sinkhole that received wastewater treatment plant (WWTP) effluent was sealed off and the 6,400 m^3/day of effluent was discharged to Lake Alice (CH2M HILL 1989).
- 1968-The combination of WWTP effluent and cooling water discharges to Lake Alice increased its surface area to 33 ha.
- 1968-Dense hyacinth infestation was observed. A fence was constructed perpendicular to the east-west flow to control the water hyacinths. Mechanical and biological controls were introduced to control the problem (Vega 1978).

- 1971- Lake Alice received 3,800 to 7,600 m^3/day of sewage effluent and 38,000 to 45,600 m^3/day of cooling water (Brezonik and Shannon 1971).
- 1976-The effluent from Heating Plant #2 was diverted from Lake Alice.
- 1994-UF's advanced water reclamation plant (WRP) began operation in November. The north injection well was sealed off from Lake Alice and the effluent from the new WRP was discharged directly to this injection well.
- 2004- Discharge of about 3,800 m^3/day of cooling water from the Reitz Union to Lake Alice was discontinued.

The minimum elevation of the lake is 57.5 feet MSL. At elevation 66.7 feet, the lake has a surface area of 9 ha. If the depth exceeds elevation 66.7 feet, water begins to accumulate in the marsh. At a present normal elevation of 68.7 feet, the lake has a maximum depth of about 11 feet. At the same elevation, about 2/3 of its volume is in the lake while nearly 2/3 of its surface area is in the marsh. The estimated 100 year flood elevation is 72.4 feet MSL.

The stage-area-volume relationship for Lake Alice may have changed over the years. The lake has received heavy loads of suspended solids and vegetative material that settles to the bottom. Thus, one would expect that less volume is available for a given stage due to sedimentation.

Hume Pond – where water from Reitz Ravine Creek, Graham and Green Ponds Converge.

Hogtown Creek Watershed. The Hogtown Creek Watershed covers the majority of incorporated City of Gainesville, however only 315 acres out of the 13,440 acre watershed are present on the main campus. Hogtown Creek, the primary drainage conveyer in the watershed, drains into a depression named Sugarfoot Prairie and ultimately into Haile sink. The two areas on campus that drain into Hogtown Creek are Elizabeth Creek that runs through the University Arboretum and the President's home, and the lands on the western side of campus that drain into the Hogtown Creek Woods area along SW 34th Street.

This watershed, as with much of Gainesville, was urbanized before the era of stormwater management and specifically on-site retention and detention. As a result, the creeks in this watershed suffer from high

velocities during storm events, which cause in-stream erosion and lead to down-stream sedimentation that elevates the floodplain, potentially flooding structures. Unlike the Lake Alice watershed, new development within this watershed must be permitted individually with the SJRWMD, which will require the use of on-site retention or detention. Additionally, the University is looking for ways to cooperate with the City to incorporate new stormwater techniques to help ameliorate the downstream impacts of previous development by incorporation of Low Impact Development techniques where practicably feasible.

Hogtown Creek Watershed is a depression basin that occasionally experiences moderate flooding in off-campus areas north-west of the University campus. The University has agreed to implement City of Gainesville runoff standards for development along the western edge of campus lying within this watershed to help reduce pre-existing flooding problems adjacent to campus. UF development lying within the Hogtown Creek watershed includes the Harn Museum of Art and Performing Arts Center, Maguire Village and University Village South residential complex, a portion of the Physical Plant Division facilities, Orthopedic Center, UF Hotel and Conference Center, park and ride lot, and the Animal Research Facility west of SW 34th Street. Retention facilities have been provided for the Harn Museum, Orthopedic Center, Telecommunications Building and parking facilities at the Performing Arts Center. The drainage conveyance system for the remaining development conveys runoff to the Florida Department of Transportation (FDOT) drainage facilities within the SW 34th Street (State Road 121) right-of-way. The FDOT system flows northward along the roadway and then west into the Sugarfoot Prairie wetland portion of Hogtown Creek.

Bivens Arm/Tumblin Creek Watershed. Bivens Arm Lake is the receiving body of this 2,200 acre watershed, 456 acres of which are on campus. The main tributary to Bivens Arm Lake is Tumblin Creek, which runs though the University's developmental research school P.K. Yonge. This creek empties into a large bottomland hardwood forest near US 441 on the northeast rim of the lake. Before being channelized to accelerate upstream drainage, this wetland forest provided water quality treatment through vegetative uptake of nutrients and metals. Other more intermittent tributaries are present to the north of the lake adjacent to the College of Veterinary Medicine facilities and to the west by the University's agriculture and livestock research areas. Bivens Arm, like Lake Alice suffers from eutrophication primarily from anthropomorphic sources upstream.

Tumblin Creek, flows southwesterly into Bivens Arm Lake. University sub-basins within the Tumblin Creek watershed are sparsely developed with much of the land either undeveloped or dedicated to agricultural academics. For this reason, fewer drainage improvements exist in this watershed. The College of Veterinary Medicine and the P.K. Yonge Laboratory School have been equipped with drainage systems to convey runoff to Tumblin Creek and Bivens Arm, respectively.

Tumblin Creek is another Gainesville creek that suffers from in-stream erosion and downstream sedimentation. Additionally, the creek is on the Florida Department of Environmental Protection's 305 (b) list as not meeting water quality standards, with a water quality rating of poor. The City of Gainesville and the University are exploring cooperative solutions that will help enhance the creek and improve water quality entering Bivens Arm.

Depression Watersheds (Basins). In the University's Stormwater Management Master Plan a number of smaller watersheds or basins are defined as depressional basins. A depressional basin occurs when all surrounding land flows into a depression. In karst areas (sinkhole areas) these depressions often have an outlet in the form of a sinkhole that drains into an aquifer. However, when groundwater levels are high enough, sinkholes stop being drains and instead act like plugs or, in some cases, even as discharge points for the aquifer. When this happens the entire depression basin may fill up creating unexpected flooding. If

enough water makes it into the system, water will eventually start flowing into an adjacent basin and ultimately into the Hogtown Creek Basin through the University Golf Course.

In reality, all of the University's watersheds are depression basins, since they all flow into depressions or sinkholes. The Bivens Arm / Tumbling Creek watershed is the only University basin that outlets to an area that can contribute to water that has the potential to make it to the ocean via the surface, but this only occurs during exceedingly heavy rainfall years, when the potentio-metric surface of Floridan aquifer is also close to the surface.

The depression basins are a group of closed basins with no drainage outlet, lying between the Lake Alice Hogtown Creek and Bivens Arm watersheds. Development within these basins includes the cultural complex, various Surge Area buildings, the Poultry and Swine Units, the USDA Herbicide area, some facilities of the Physical Plant Division, and the University Golf Course.

Sinks, Ponds, Lakes and Creeks. While there are numerous small lakes and creeks on campus, only a few are named. The following list of named waterbodies are present on or adjacent to the main campus - Ocala Pond, Gator Pond, Dairy Pond, Green Pond, Lake Alice, Bivens Arm Lake, Sweet Pond / Sink, SEEP (Stormwater Enhancement Ecological Project), Presidents Pond, Hume Pond, Golf Course Pond, Deer Pond. The only named creeks on campus are Elizabeth, a tributary of Hogtown Creek, and Tumblin that runs through P.K. Yonge and into Bivens Arm.

All water bodies play a role in stormwater storage and conveyance. On campus, many ponds and sinks work as storage systems that accept stormwater runoff up to a predetermined elevation where an outlet structure has been placed. When water reaches the specified elevation it will begin to flow into one of these outlets that in turn flow into the University's stormwater system. Meanwhile, creeks act as surface stormwater systems in that they convey stormwater to base elevations within the basin. Additionally, many of the stormwater pipes are routed to drain into the creeks, in many cases contributing significant amounts of the creek's flow.

Satellite Properties. The Santa Fe River Basin to the west and the Orange Creek Basin to the east are the primary watersheds where the University's satellite properties are found. The satellite properties of Millhopper Horticultural Unit, Dairy Research Unit, Santa Fe River Beef Research Unit and the northern half of the Fairbanks area Beef Research Unit all lie within the Santa Fe River Basin, which is regulated by the Suwannee River Water Management District. The remaining properties of Austin Cary, Newnans Lake, Lake Wauburg, Wall Farm, Treeo Center, WUFT, WRUF, Eastside Campus, Remote Library and the southern half of the Beef Research Unit are within the Orange Creek Basin and under the jurisdictional boundary of the St. Johns River Water Management District. All development on these properties must seek permitting authorization from the appropriate water management district.

IV. Regulatory Framework

A. Federal – Environmental Protection Agency – Clean Water Act

The Federal Clean Water Act of 1972, 33 U.S.C., created much of the basis for today's environmental regulatory framework for development. This legislation gives the U.S. Environmental Protection Authority (EPA) the responsibility for setting national water quality standards to protect public health and welfare, while giving states the job of determining how best to meet those standards. In Florida, the Florida Department of Environmental Protection and Florida's five water management districts administer the implementation and enforcement of the Act, with some oversight maintained by the EPA. By addressing both point (discharges from industry and sewage facilities) and non-point source (runoff from farms, forests, urban areas, and natural sources, such as decaying organic matter and

nutrients in soil) pollution these agencies both monitor water quality and implement rules that will improve waters determined to be impaired.

Under the Clean Water Act (CWA), states are required to develop lists of pollutant-impaired waters. As described in subsection 303(d) of the CWA, impaired waters are those that do not meet water quality standards that states have set for them. For those waterbodies that are listed, the states must develop Total Maximum Daily Loads (TMDLs) of pollutants.

Another related program created by the CWA is found in section 402, which gives the EPA the ability to regulate the discharge of pollutants into the nation's rivers, streams, and lakes through the National Pollutant Discharge Elimination System (NPDES). Any organization, company, or entity discharging water into a receiving body of water in the U.S. must apply for and receive an NPDES permit.

The NPDES program was set up into two phases. Phase I relied on permit coverage to address storm water runoff from: (1) "medium" and "large" municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, (2) construction activity is disturbing 5 acres of land or greater, and (3) ten categories of industrial activity. The Phase II program expands the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted storm water runoff. Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of storm water discharges that have the greatest likelihood of causing continued environmental degradation. The Minimum Control Measures that need to meet addressed in Phase II are: Public Education and Outreach, Public Participation / Involvement, Illicit Discharge Detection and Elimination, Construction Site Runoff Control, Post-Construction Runoff Control and Pollution Prevention / Good Housekeeping.

In summary, the two areas discussed above dovetail in that the TMDL program helps the NPDES program to further reduce the pollution in streams that do not meet water quality standards by assigning a pollutant load to the stream. Both non-point and point sources are evaluated to determine their input and cumulative impact on the total pollutant load.

B. State – Department of Environmental Protection

A number of State laws govern environmental protection, and specifically water quality, within the State of Florida. Most of these laws are administered by the Florida Department of Environmental Protection, with some delegation of responsibilities given to water management districts and local governments.

The 1999 Florida Watershed Restoration Act authorizes the Florida Department of Environmental Protection to create the 303(d) list, which is based on the state's 305(b) Water Quality Assessment Report. These reports are required to be updated every two years. The "305(b) report" uses a watershed approach to evaluate the state's surface waters and ground waters. This report and list identify "impaired" water segments, with the four most common water quality concerns: coliforms, nutrients, turbidity, and oxygen demanding substances. Listed water segments are candidates for more detailed assessments of water quality and, where necessary, the development and implementation of a TMDL. TMDLs take into account the water quality of an entire water body or watershed and assess all the pollutant loadings into that watershed, rather than simply considering whether each individual discharge meets its permit requirements. The management strategies that emerge from the TMDL process encompass approaches such as regulatory measures, best management practices, land acquisition, infrastructure funding, and pollutant trading. They also include an overall monitoring plan to test their effectiveness.

Historically the 305(b) report and 303(d) list have been managed and reported as separate documents. However, in 2002 the EPA recognized that water quality monitoring and data analysis (under 305(b)) are the foundation of water resource management decisions (using 303(d)). Thus, EPA and its partners are developing a consolidated 305(b)/303(d) assessment approach called, "Consolidated Assessment and Listing Methodology" (CALM), which aims to help states improve the accuracy and completeness of 303(d) lists and 305(b) report.

The FDEP 2002 305(b) Report lists Bivens Arm – Tumbin Creek watershed with poor water quality that does not meet its designated use as a Class III water, while both Lake Alice and Hogtown Creek watersheds meet their designated use and are listed as having good water quality. The University's Physical Plant Division is following the requirements of the Phase II NPDES permit listed above in its permit with the DEP.

C. Regional – Water Management Districts

Stormwater management on the main campus is administered in accordance with a master stormwater permit issued by the St. Johns River Water Management District (SJRWMD). The master permit is valid through November 8, 2010 and covers the Lake Alice Watershed, two stream drainage basins and a group of ten closed depression basins. Under the permit, the University is authorized to proceed with construction up to a given amount of impervious surface within the Lake Alice watershed and within eight of the depressional basins. Additionally, within these basins the University is allowed to subtract existing pervious surface from the equation. The current permit allows the University to increase impervious surfaces within the Lake Alice Watershed by an additional 184 acres without additional stormwater facilities being built. Since 2000, 8.8 acres of impervious surface have been added, leaving a remaining 175.2 acres. This permit does not cover added stormwater from offsite sources in the City of Gainesville, nor from roads maintained by the Department of Transportation. Construction within either of the stream basins (Hogtown and Bivens/Tumblin), remaining depressional basins or on any of the University's satellite properties requires a separate permit from the appropriate Water Management District.

The stormwater permit does not exempt the University from any required federal, state, local or special district authorizations prior to the start of any activity approved by the permit. The legal authority and criteria addressing stormwater requirements for development are codified in the Florida Administrative Code for each Water Management District (SJRWMD – 40C or Suwannee River Water Management District-40B). These regulations provide for flood protection, maintenance of water quality, and protection of existing natural areas.

V. Stormwater Issues

A. Identified issues with Stormwater and an Urban Campus

A philosophical issue has arisen with the implementation of the NPDES program as applied in Urban Areas. In general, the most effective stormwater treatment techniques come from traditional stormwater systems that retain as much water as is being displaced by new impervious surface. Therefore, these systems are large in area and require a great deal of additional land to treat runoff. This factor contrasts with the documented benefits of compact urban development (shorter distances for utilities, mass transit, walk-ability, fire and police protection, school busing – neighborhood schools and other energy related sustainability factors). Thus, redevelopment and infill projects face a difficult task meeting today's stormwater requirements. A recent publication from the Smart Growth Network, Getting to Smart Growth II, has documented this problem under a heading Encourage Infill by Adopting Innovative Stormwater Regulations and Practices. The following passage from this publication further defines the problem.

Development activities, both during construction and after a project has been built, are cited as factors that worsen the effects of stormwater runoff. Sediment from construction sites and debris and chemicals are carried to streams during heavy rainfalls. As more land in a watershed is built on, less rainfall soaks into the ground, increasing the amount of runoff that eventually makes its way to receiving waters. While localities still invest in storm drains, stormwater sewer systems, and large containment areas, many also require developers to take measures with their projects to control stormwater.

Stormwater retention ponds and infiltration areas are common practices that are written into local regulations. However, developers in urban areas are finding that requirements stipulating that stormwater be managed on the project site are a barrier to redevelopment and construction of infill and more compact projects.

Land for onsite stormwater management is often not available or is prohibitively expensive. In addition, codes that limit the amount of impervious surface that can be built on a site discourage both development in urban areas and compact development. Inflexible stormwater regulations applied in urban areas can have the unintended effect of worsening water quality by forcing development to undeveloped fringe areas.

Fortunately, there are innovative options that foster redevelopment and control stormwater. In 2002, the city of San Diego adopted a policy of allowing infill redevelopers to share in the cost of stormwater abatement in lieu of onsite mitigation. Instead of requiring treatment of each individual project, the Standard Urban Stormwater Mitigation Plan allows developers to contribute to stormwater mitigation that serves the entire drainage basin. Engineers estimate that individual development projects can achieve savings of up to $40,000 by participating in a shared stormwater control program. The Low Impact Development Center, a nonprofit organization dedicated to protecting water resources through site-design techniques, is sponsoring research on low-impact development techniques that require less space.

One technique is the use of soil amendments that allow compact landscaping to absorb and hold stormwater without causing flooding or damage to adjacent buildings.

Local jurisdictions are learning about different ways to satisfy stormwater and drainage issues associated with development and are exploring offsite mitigation possibilities. The possibility of offsite mitigation makes smaller infill projects more feasible and provides an opportunity to locate mitigation facilities in a way that can serve multiple projects. In return for offsite mitigation, jurisdictions could increase allowable densities in downtown and designated areas. In such a case, the municipality would become accountable for maintaining water quality in that particular basin.

However, some of the solutions identified above may not be sufficient to offset stormwater impacts in smaller closed, urban, basins similar to those found in Gainesville. Thus, trade-offs in water quality standards and open space may need to be modified, if the inefficient suburban model is to be avoided.

VI. Stormwater Best Management Practices (BMPs)

As with most urban watersheds, erosion, sedimentation and nutrient loading are the primary water quality concerns that are common to many of University's waterbodies. In most development scenarios in Florida the regulatory framework allows for either on-site retention / detention on a site by site basis or for off-site regional collection. The regional collection system usually is in the form of a stormwater utility, where a large retention / detention area is created and many projects buy credits into this facility. This later scenario is, in effect, how Lake Alice is treated under the SJRWMD permit. As mentioned previously, the current permit with the SJRWMD allows the University to increase impervious surfaces within the watershed by an additional 175 acres (as of 1/1/2005) without additional stormwater facilities being built. While this allows the University to maintain a compact core of buildings without large areas dedicated to stormwater treatment, it also leads to an exacerbation of creek erosion and downstream sedimentation to a system that already has some documented problems. Thus, even though the SJRWMD's permit does not require additional stormwater treatment until the threshold is tripped, degradation to these conveyance systems would be reduced if retention / detention and other runoff management techniques were accommodated within the watershed wherever possible.

A. Low Impact Development

In order to reduce stormwater runoff and improve water quality, new technologies could be incorporated into future building sites that detain and slowly percolate water. Additionally, areas being retrofitted could be looked at as opportunities to incorporate stormwater treatment into landscaping, contouring and paving. Many of the ideas being studied come from the field of Low Impact Development (LID). This field of research looks at incremental ways to incorporate stormwater retention into building and landscaping, depressions, and multifunctional design. As such, LID overlaps with many of the concepts that are also coming out of the US Green Building Council's LEED (Leadership in Energy and Environmental Design) certification process and the University's commitment to sustainability. Some examples of LID include: alternative semi-porous surfaces, reduction of impervious surface – narrow roads, surface roughness technology, rain barrels / cisterns, catch basins / seepage pits, sidewalk storage, vegetative swales, buffer strips, infiltration swales, trenches, elimination of curb and gutter, curb cuts, shoulder vegetation , maximization of sheet flow, maintenance of natural drainage patterns, reforestation, pollution prevention, bio-retention / rain gardens, strategic grading, conservation, flatter wider swales, amended soils, long flow paths, tree / shrub /flower bed depression, turf depression, landscape island storage, rooftop detention / retention, disconnected impervious surface, parking lot / street storage, smaller culverts, pipes & inlets.

Low Impact Development Effectiveness Chart

LID Practice	Lower Post Development CN	Increased Time of Concentration	Retention	Detention
Grade slope		X		
Increase roughness		X		
Grassy Swales		X		X
Vegetative filter strips	X	X	X	
Disconnected impervious surface	X	X		
Reduce curb and gutter	X	X		
Rooftop storage		X	X	X
Bioretention	X	X	X	
Revegetation	X	X	X	

The above chart illustrates the reduction in stormwater that can be achieved from different LID approaches (CN = runoff curve number). From - Coffman, Larry. 2000. Low-Impact Development Design Strategies, An Integrated Design Approach. EPA 841-B-00-003. Prince George's County, Maryland. Department of Environmental Resources, Programs and Planning Division.

This example illustrates a bio-retention (rain garden) stormwater treatment in a parking lot (Tampa).

The O'Connell Center parking lot is an example of LID – curb cuts into grass swale with elevated drain to retain some water - accommodates and treats run-off.

B. Traditional Stormwater Utility with an Ecological Twist

Another approach that uses the traditional stormwater pond design, but with an ecological design twist, is a possibility in developing areas of campus. This approach to stormwater retention can be found currently at the Stormwater Ecological Enhancement Project (SEEP), adjacent to the Performing Arts parking lot and the Natural Areas Teaching Lab (NATL) Conservation Area. The retention pond was originally constructed in 1988 as a typical wet retention pond with a flat bottom and no attention paid to plant species diversity. In 1995, an initiative to redesign the basin into a more ecologically sensitive manor that befitted its placement next to the NATL was initiated. This redesign's primary goal, as articulated by its designers, was to increase the diversity of flooding depths and frequency of flooding that will occur, since this is the primary factor regulating species composition in a wetland. To do this, two depressions (one 4-feet, the other 5-feet deep), were dug at the southeastern end of the pond providing a deep, open-water habitat. At the north end a low-berm was constructed to temporarily impound 80% of the entering stormwater. This forebay provides the first phase of treatment and was planted with species known to take up heavy metals and remove nutrients. Water from the forebay is then slowly released, first flowing through an area planted to resemble a bottom-land hardwood swamp, moving into a shallow freshwater marsh and then entering the deep-water ponds. The basin was planted with species that resemble those found in wetlands of North Central Florida.

The expected benefits of this type of retention are species diversity, wildlife habitat, aesthetics, water quality, and research potential. All of these benefits have been proven to be correct at the SEEP, however one issue remains that has not been adequately studied. This issue is the potential effect that these ponds have on wildlife, particularly federally listed species. Since stormwater ponds are designed to treat the noxious constituents found in run-off, they are laden with metals, pesticides and fertilizers, all of which can prove harmful to wildlife. The main species of concern that use ponds for foraging are wading birds, such as the federally listed Wood Stork. At present little research has been conducted on what the long-term impacts are on these species from utilizing stormwater detention, roadside swales, and ecologically enhanced ponds. Arguments can be made that these species will utilize wet retention ponds regardless of whether they have been ecologically enhanced; however, it is equally likely that by enhancing them the probability of more productivity (more food) will encourage increased use. Thus, while it is hoped that these ponds are the panacea that is a win-win, additional research is needed.


Pre-SEEP (looking north) – Cattail dominated. SEEP (looking south) – Variety of plant species.

C. Agricultural Best Management Practices

Nutrient loading and soil erosion from agricultural lands are major causes of pollution to surface waters. This type of pollution can result in accelerated eutrophication (increase in mineral and organic nutrients combined with a decrease in dissolved oxygen, which creates an environment that favors plants and leads to algae blooms), sedimentation, destruction of fish and wildlife habitat, and decreased recreational and aesthetic values of surface waters. Numerous BMPs for the control of runoff and soil erosion are available. These practices can reduce contaminant transport to surface waters through both passive means, such as buffer strips, and physical structures, such as diversions. The following list of BMPs is a hybridized listing from a number of publications which include: Water Quality BMPs for Cow/Calf Operations, published by the Florida Cattlemen's Association, 1999, BMPs for Agrichemical Handling and Farm Equipment Maintenance, published by FDACS and FDEP, 1998, and other agricultural BMP websites.

Management practices designed to control runoff and soil erosion are:

- Permanent vegetative cover -establishment and maintenance of perennial vegetative cover to protect soil and water resources on land retired from agricultural production
- Conservation cropping sequence (rotation) - a sequence of crops to provide organic residue for erosion reduction
- Conservation tillage and residue management - tillage practices that leave residues from the previous crop on the soil surface
- Contour farming - tillage, planting, and cultivation on sloping land performed on the contour of the landscape perpendicular to the slope
- Strip cropping - farming operations with alternating strips of row crops, hay, or small grain
- Cover crops - ground-hugging crops planted after row crop removal to prevent soil erosion
- Buffer (filter) strips - strips or areas of close-growing vegetation (usually grass) for removing sediment, organic matter, and other pollutants from runoff and wastewater
- Mulching - use of residue from an off-site source for erosion prevention
- Fertilizer recommendations based on research and soil sampling
- Efficient manure management

Structures designed to control runoff and soil erosion include:

- Diversions - channeled ridges perpendicular to slopes
- Fences - barriers that enclose or divide land areas and prohibit stock access to critical streambank areas
- Grade stabilization structures - structures to stabilize slope gradients, control erosion, and prevent the formation of gullies
- Grass waterways - graded, vegetated channels for water runoff
- Ponds/sediment basins - structures to trap water and sediments
- Terraces - earthen embankments of channels and ridges, perpendicular to the slope, designed to intercept and transport runoff at non-erosive velocities.

VII. Identified Priority Stormwater Projects

A. Erosion Control

The University of Florida's Physical Plant Division, contracted with Causseaux & Ellington, Inc. in 2005 to conduct a review of ten identified stormwater related problem areas. This review was to identify specific erosion problems on-site, recommend appropriate on-site control corrective measures, and provide a prioritization that could then be used for budget planning and funding purposes. The University of Florida staff identified the following ten locations as areas of special erosion concern: Dairy Pond Outfall, Museum Road Outfall between Jennings and Beaty, Graham Pond Outfall at Museum Road, University Avenue Outfall at President's House, Sorority Row Creek Near Lift Station, SW 13th Street Outfall Near Diamond Village, Pipe Outfalls South of MEB and West of Reitz Union, Pipe Outfalls North End of Fraternity Row, Pipe Outfalls South of Baseball Stadium, Lemerand Drive Wall at Mowry Road. The final report, Implementation of Erosion Control Measures was completed in June of 2005.

Most of the sites contain stream channels that are eroding and will continue to erode. The scope of this project includes recommendations for stabilization in the vicinity of the outfall structures and for other site specific improvements. It should be noted that channel stabilization beyond the outfalls was not part of the scope of this project. In general, structural improvements consist of drop structures, headwalls, and wingwalls.

Ranking Procedure. The purpose of a prioritized ranking is to provide a means for the University to plan and budget improvements for the sites. The original intent for the prioritization of erosion control projects on campus was to assign a score to each site to arrive at a ranking number. The ranking number would subsequently be used to determine which site should have corrective actions implemented first, second, etc. A preliminary ranking was drafted and shared at a meeting with University of Florida personnel on April 29, 2005. The meeting attendees included Chandler Rozear (UF - PPD), Erik Lewis (UF – Facilities Planning), Erick Smith (UF - Operations Engineering), Clark Collins (UF - Operations Engineering), Joe Dyke (UF - Operations Engineering), Donnie Ellington (Causseaux & Ellington), and Monique Heathcock (Causseaux & Ellington). All meeting attendees recognized that some sites may contain individual issues that should be addressed sooner than other issues at the same site. Causseaux & Ellington examined the ranking issue further after the meeting and concluded that corrective measures should be ranked on an individual drainage feature basis rather than a site basis.

The site features at eight of the ten sites were evaluated to determine if erosion (or some other aspect of the feature) posed an imminent threat to the following: Public safety, Buildings or similar structures, Paving, and Vegetation or landscaping. Drainage features at two of the ten sites (Sites Dairy Pond Outfall and Lemerand Drive Wall at Mowry Road) were not evaluated or prioritized for reasons explained in the Site Sections of this report. Several features from the eight evaluated sites were determined to need immediate corrective action to address imminent threats.

Virtually all of the drainage features evaluated at all of the sites could use some level of corrective action. Erosion issues that threaten public safety, buildings, paving, or vegetation were determined to need immediate action. Some features have severe erosion issues but do not currently threaten public safety, buildings, paving, or vegetation. These features should be inspected on an annual basis and after major rainfall events because it is likely that the erosion will pose a threat at some point in the future. Still other drainage features may require periodic inspection and occasional maintenance but are unlikely to ever pose a threat to public safety, buildings, paving, or vegetation. Some features have issues that require additional investigation prior to determining a category. Based on these observations, the site features have been broken into the following four categories: 1. "Imminent Threat" - Implement suggested corrective action immediate, 2."Frequent Observation" - Inspect on an annual basis and after major rainfall events; elevate to "Imminent Threat" category in the future if conditions warrant, 3."Periodic Observation" - Inspect on a periodic basis and perform occasional maintenance as warranted, 4. "Investigate" - Investigate a specific issue regarding the feature prior to placing it in one of the other three categories or prior to deleting it from the list of features.

The proposed corrective actions considered for the various sites and features include the following: topographical survey, boundary survey, rip-rap energy dissipators, drop structures, new or repaired pipe, headwalls, wingwalls, concrete spillway, and maintenance. Additionally, the report recommended that topographical surveys should be completed for any feature that will require a drop structure, since it will aid in the design of the structure including the determination of the invert elevations. Boundary surveys may be necessary for features adjacent to non-University properties, such as site 4 (University Avenue at the President's House) and site 6 (SW 13'" Street near Diamond Village), where the Department of Transportation has some responsibility and ownership.

Rip-rap energy dissipators are the most effective and appropriate energy dissipators for the sites identified on campus and were used as the default corrective action for most of the drainage features. When erosion control measures are implemented for each drainage feature, the standard design should be tailored to the site specific conditions as needed. The following table illustrates the highest priority sites (imminent threat and frequent observation) that were identified on campus in the report. These sites have been prioritized and will be addressed by the Physical Plant Division over the next few years. Below is a summary table of these erosion control projects.

Identified stormwater infrastructure repairs (Imminent Threat are highest ranked).

	Improvement Location	Imminent Threat	Frequent Observation	Total Cost	Note
1	Dairy Pond Outfall	N/A	N/A		
2	Museum Road Outfall between Jennings and Beaty	Add wingwall,	Rip-rap	$ 38,000	
3	Graham Pond Outfall at Museum Road		Add headwall and rip-rap	$ 40,000	
4	University Avenue Outfall at President's House		Rip-rap	$ 20,000	DOT - 2008
5	Sorority Row Creek Near Lift Station	Replace 2 headwalls /broken pipe/add rip-rap		$ 17,000	
6	SW 13th Street Outfall Near Diamond Village	Replace wingwall/ boundary survey	Rip-rap	$ 6,000	DOT 2008
7	Pipe Outfalls South of MEB and West of Reitz Union	Repair Gabions	Repair 2 headwalls/pipe / rip-rap	$144,000	
8	Pipe Outfalls North End of Fraternity Row		Repair spillway/rip-rap	$ 20,000	
9	Pipe Outfalls South of Baseball Stadium		drop structure/rip-rap	$ 40,000	
10	Lemerand Drive Wall at Mowry Road	Repaired			2005

Sedimentation build-up from up-stream erosion.

Upstream erosion.

B. Other Potential Opportunities

There are a number of sites on campus where low impact development (LID) techniques could be put in place, as well as a few areas in the Lake Alice watershed that could accommodate traditional stormwater measures.

The Yulee Pit depression is one such site that may be suitable for inclusion as a stormwater facility in order to treat runoff from areas around Broward and Norman Halls. This area has the potential to serve for retention / detention for short periods or as a permanent pond that functions like most of the other ponds on campus. The current pit is used primarily as a sunning area in the fall and winter by residents of the adjacent dorms. This function could be maintained, but with the added ambiance of a nicely landscaped water feature. Issues such as size, design, and tree impacts would need to be addressed by committees of interested and knowledgeable faculty, staff and students.

The Yulee Pit area could serve as an aesthetically pleasing water feature / wet retention area?

Another area that could handle some water quality treatment facilities and retain its beauty and function is the Union Lawn that runs from Marston Science Library down to the Reitz Union. This area is a place that could incorporate LID techniques from rain gardens to merely elevating storm drains currently in place so that they temporarily retain water (see example photo of O'Connell Center lot in LID section).

Drain at base of grass area – could this area detain water for short periods of time thereby allowing more water to percolate rather than directly contribute to the storm system?

Many of the University's other Urban Parks could also incorporate a few LID type treatment techniques that would maintain the current use, function, and beauty, but with the added benefit of treating more campus stormwater. Implementation of these ideas should not be done in a vacuum and will require the coordination and input from faculty, staff and students. Additionally, many of these projects could serve as the testing grounds for innovative ideas and documentation of their effectiveness. As such, they should be eligible for grant funds from the Environmental Protection Agency (319 Grants) and the Florida Department of Environmental Protection.

Reitz Union storm drain – a slight depression and elevated storm drain would be a LID technique.

Other areas that should be explored are green roofs, roof drainage routed to landscaping instead of into the storm sewer and disconnected impervious pavement. Below are a few areas that could be retro-fitted to address these concerns. One is the pavement that runs from around McCarty Hall down by the

Constans Theatre and then drain into Newins-Ziegler Sink and Green Pond. Curb Cuts could be placed into the existing network with grass / flower beds lowered, and sidewalks could be graded so that they do not function like a drainage culvert system. A systematic redesign in conjunction with future building renovation in the area could eliminate a large amount of run-off at a relatively minimal expense.

Much of the site could be graded to retain run-off, instead of releasing it.

Green space areas around buildings and in Urban Parks could have bio-retention / butterfly gardens placed in them or merely have storm water outlets raised a little to detain some water that would be allowed to slowly recharge the surficial aquifer, rather then routing it into the storm system. The cumulative benefits of these sites can provide opportunities for improving existing conditions while often providing amenities within the landscape. Unfortunately, it is hard to quantify how much water quality and quantity treatment that these small systems could provide, but in the urban framework of campus these sites provide opportunities for improving existing conditions.

VIII. Potable Water Sub-Element

A. Main Campus

The University of Florida campus receives potable water from the Gainesville Regional Utilities (GRU) system, which is owned by the City of Gainesville. This relationship has existed since 1904, when the City lured the University away from Lake City with the promise of free water from Boulware Springs. In 1992, the City and former governing entity of the University system, Board of Regents, executed the Water Services Agreement to pay for the provision of water to the University. This agreement does not stipulate limits on the amount of potable water to be supplied to the University campus.

GRU's wellfield is located in northeast Gainesville and is called the Murphree Plant. This facility includes water production wells, water treatment facilities, water storage, high service pumping equipment, elevated storage tanks and distribution mains that feed the City and university. According to GRU, there is adequate capacity (with a surplus) projected for both the City of Gainesville and the urban fringe (primarily sub-divisions west of Gainesville in Alachua County) through 2010. The Murphree Plant is classified as a Community Water System (62-550.200 Florida Administrative Code (F.A.C.).

There are ten GRU master meters located at various points around the campus that connect to the University's internal loop distribution system. The distribution piping ranges in size from 4-inches to 12-inches in diameter. This distribution system also provides water campus-wide for fire protection at hydrants, standpipes and building sprinklers. Potable water is not used for irrigation purposes on campus except for a small area around Shands Hospital and south of Archer Road adjacent to the College of Veterinary Medicine.

Four existing level of service (LOS) indicators have been adopted by the City of Gainesville and GRU for the Murphree Water Plant facility. They are:

1. Minimum design flow (measured as average daily per capita consumption in gallons) LOS Average Standard: 137 gallons average daily demand per capita.

2. Peak flow design capacity (measured as maximum daily demand) LOS Maximum Day (Peak) Standard: 200 gallons daily flow per capita - Peak demand is estimated using the maximum daily demand to average day demand ratio from historical GRU operating records. To determine peak daily demand the average daily demand is multiplied by 1.46 (represents the average of 1976-1996 peak to average day ratios).

3. Pressure LOS standard: 20 psig for the overall water system - Adequate system pressure is required to meet fire flow demands and to maintain sanitary conditions in the water mains. Maintaining at least 20 pounds per square inch gauge (psig) pressure minimizes the chance of bacterial contamination.

4. Storage tank capacity LOS standard: 1/2 of maximum day consumption volume - Storage is required to meet distribution equalization, repump needs, fire and operational reserves. GRU's internally adopted standard is to provide storage capacity equal to 1/2 the maximum daily flow.

The University also has a permit with the St. Johns River Water Management District for water use on campus. This permit covers the University's secondary use of water provided by GRU and the University's withdrawal of both ground and surface water withdrawals along with the usage of reclaimed water at the main campus. The following water uses are covered under the permit: agriculture, livestock, cooling, household, recreation and urban landscape.

Table of Ground water wells located on the main campus.

UF No.	SJRWMD ID	Well Name/Location	GRS Station No.	Casing Diameter (inches)	Well Depth (feet)	Status	Source
I-49	CA	New Organic Gardens	23336	4	175	Active	Floridan Aquifer
I-17	BN	Fish Ponds - Bivens Arm Surface Pumps	23333	4	N/A	Active	Floridan Aquifer
I-1	Y	Wilmot Gardens/Cancer Ctr	3505	10	274	Active	Floridan Aquifer
E-8	W	Animal Research	3503	4	84	Active	Floridan Aquifer
E-7	V	Swine Unit	3502	4	80	Active	Floridan Aquifer
E-4	S	Coastal Engineering	3499	8	300	Active	Floridan Aquifer
E-3	R	Coastal Engineering	3498	6	300	Active	Floridan Aquifer
E-2	Q	Bartram Hall	3497	6	56	Active	Floridan Aquifer
E-1	P	Swine Unit	3496	4	105	Active	Floridan Aquifer
C-15	M	Surge Area	3493	6	194	Active	Floridan Aquifer
C-14	L	Nuclear Reactor	3492	6	238	Active	Floridan Aquifer
C-12	J	Mechanical Engineering (Bldg 720)	3490	6	350	Active	Floridan Aquifer
C-9	H	Reitz Union	3488	8	400	Active	Floridan Aquifer
I-50	CB	IFAS Arboretum No. 2	Unknown	4	140	Active	Floridan Aquifer
I-47	BR	PKY Baseball Field	3482	4	Unknown	Active	Floridan Aquifer
I-45	BQ	Vet Med Dog Track	3481	2	Unknown	Active	Floridan Aquifer
I-42	BO	IFAS Arboretum	3480	4	175	Active	Floridan Aquifer
I-46	BI	Fruit Orchard	3479	4	Unknown	Active	Floridan Aquifer
I-44	BH	Entomology/Nematology	3478	4	164	Active	Floridan Aquifer
I-43	BG	Florida Field	3477	5	308	Active	Floridan Aquifer
I-31	AW	Irrigation Park	3466	8	Unknown	Active	Floridan Aquifer
I-30	AV	Fifield (Bldg 263)	3465	4	120	Active	Floridan Aquifer
I-28	AT	Law School	3463	3	232	Active	Floridan Aquifer
I-27	AS	Dairy Science (Bldg 499)	3462	4	427	Active	Floridan Aquifer
I-26	AR	Sledd Hall/Dauer	3461	8	427	Active	Floridan Aquifer
I-24	AP	O'Connell Center	3460	12	273	Active	Floridan Aquifer

I-25	AQ	Perry Field	3459	8	273	Active	Floridan Aquifer
I-23	AO	Bryan Hall	3458	10	348	Active	Floridan Aquifer
I-19	AL	Energy Park	3455	10	167	Active	Floridan Aquifer
I-15	AI	Fruit Orchard	3452	8	Unknown	Active	Floridan Aquifer
I-13	AG	President's Home	3450	6	292	Active	Floridan Aquifer
I-11	AE	Hull & Bledsoe	3448	10	275	Active	Floridan Aquifer
I-6	AD	Dairy Pond	3447	10	450	Active	Floridan Aquifer
I-5	AC	Ocala Pond	3446	10	523	Active	Floridan Aquifer
I-4	AB	Gator Pond	3445	10	133	Active	Floridan Aquifer
C-11	I	Health Center Basement	3489	6	200	Inactive	Floridan Aquifer

Water Usage Summary Table for 2004.

Usage / Allocation 2004	Agriculture	Cooling	Household	Livestock	Recreation	Urban Landscape
Cumulative Monthly Usage Totals (In M-Gallons)	1.3540	2.2950	0.0310	0.2480	2.3820	9.3000
Cumulative SJRWMD Allocations (In M-Gallons)	36.6960	27.9600	0.9960	1.5000	1.3000	20.3000
Cumulative Usage Over +/Under - Allocation (in M-gallons)	-35.3420	-25.6650	-0.9650	-1.2520	+1.0820	11.0000

Potable Water 10-year Projections by Planning Sector.

Project Map Location	Estimated Net New GSF	Estimated Renovated / Relocated GSF	Potable GPM
B	250,520	250,510	10.2
C	711,955	757,796	94
D	329,079	47,070	33
E	207,490	-	28
F	907,662	73,736	106
G	1,199,435	194,573	190
H	27,342	25,500	4
I	389,601	56,600	59
J	51,814	88,186	33

B. Water Conservation

The University demonstrates its commitment to water conservation on campus through the use of native and drought tolerant plants, low flow plumbing fixtures, limited irrigation and use of reclaimed water for outside irrigation.

The University primarily uses native or drought tolerant plants in all new and updated landscape plans. The underlying premise is that native plants should be used wherever possible, since they are already well adapted to the area and have documented their ability to survive Florida' weather cycles that range from severe droughts to heavy rains. However, exceptions to this policy are made to maintain plant diversity on campus, so that Departments can use the main campus as an outdoor teaching lab where students can see a wide variety of plant material.

The average daily amount of wastewater produced by the University is 1.08 mgd, which is treated at the 3.0 mgd capacity Water Reclamation Facility (UFWRF). The UFWRF treats wastewater to public access standards. Of the 1.08 mgd of reclaimed water generated by the UFWRF, UFWRF distributes approximately 0.512 mgd to on-campus sites for irrigation, 0.170 mgd to the UFF Golf Course for irrigation, 0.200 mgd to the Florida Power's Co-generation plant for cooling purposes, and 0.150 mgd to various on-campus buildings. The Lake Alice wetlands system uses the remaining approximately 0.050 mgd of reclaimed water for wetland enhancement. Within the currently projected 5 year period, the average daily treatment amount of reclaimed water anticipated to be available is 1.9 mgd. The University of Florida currently irrigates approximately 90% of the irrigated areas on campus using reclaimed water (a high quality non-potable water supply that is not meant for potable [drinking] purposes) from the Water Reclamation Facility located on North/South Drive. The remaining 10% are supplied from wells on campus or from domestic (drinking) water. Since the University is developing and increasing in population, there is an expectation that there will be increases is in the amount of reclaimed water used for irrigation and cooling. Finally, the water levels in Lake Alice are allowed to fluctuate naturally, but not necessarily decline permanently. The lake will be augmented by highly treated plant effluent during periods of extreme drought to maintain a minimum level as prescribed in the treatment plant operational permit. The priority use of treated effluent is:

1. Cogeneration plant;
2. Cooling towers; and
3. Irrigation.

C. Satellite Properties

All of the University satellite properties are served by onsite potable water wells, except Wall Farm and TREEO (Gainesville Regional Utilities) and the Dairy Research Unit (Alachua Municipal Water System). The WRUF Tower site is within the GRU service area, has service available, but does not create an onsite demand for potable water service.

The University has implemented an on-going program to upgrade the potable water distribution facilities on all satellite properties to better accommodate fire protection and pressure demands.

IX. SANITARY SEWER SUB-ELEMENT

A. Wastewater Treatment Plant

Wastewater on the University main campus is processed using a 3 million gallons a day state of the art facility that treats with a Krurger BioDenipho process. The effluent is suitable for use as reclaimed water and is used for irrigation on campus and at the Progress Energy co-generation plant, which is also located on campus. The plant includes features to foster academic use, including labs for teaching and research.

The University of Florida Water Reclamation Facility is a biological nitrogen and phosphorus removal, or BioDenipho plant. It has two anaerobic tanks, two oxidation ditches, series flow patterns and alternating ambient conditions within the oxidation ditches. The BioDenipho plant separates anoxic and aerobic processes with a clarifier and a return sludge pump system. A wastewater treatment plant employing the BioDenipho process resembles a conventional oxidation ditch treatment plant where aeration or oxygenation of mixed liquor takes place, a clarifier is used for settling the mixed liquor, and a return sludge pumping system is utilized.

The major components common to both conventional oxidation ditch and BioDenipho processes are a closed-loop reactor basin where aeration of mixed liquor takes place, a clarifier for settling the mixed liquor, and a return sludge pumping system. The feature distinguishing the BioDenipho plant is that the anaerobic tank is located prior to the oxidation ditches. The Water Reclamation Facility collection system receives most wastewater from housing and dorm areas (exceptions exist for Maguire, University Village South, Tanglewood and P.K. Yonge, which are served by Gainesville Regional Utilities), as well as academic and auxiliary buildings on the three square miles of the University of Florida main campus.

The sanitary sewer system serving the campus consists of numerous gravity collection pumping stations and an on-site wastewater treatment plant and effluent disposal system. The gravity collection piping ranges in size from 4-inch to 20-inch diameter, while force main piping ranges in size from 4-inch to 16-inch diameter. Pump stations range in size from 40 gallons per minute (gpm) to 1,850 gpm. Currently, the wastewater treatment plant (WWTP) treats an average flow of 2.1 million gallon per day (gpd). The WWTP is permitted to treat 3.1 million gallons per day (mgd) of wastewater. The current permit with the Department of Environmental Protection is in effect until April of 2008, when it will need to be renewed. In general, the performance of the existing sanitary sewer facilities on campus has been adequate according to its designed function. Evaluations conducted during the 2000 Master Plan update indicated the need for various lift station upgrades, which were completed in 2001.

The wastewater treatment facilities are adequate to serve the current and immediate future needs of the University. The Physical Plant Division has proposed doubling the treatment capacity of the existing plant by adding a membrane bio-reactor within the next 10 years.

B. Satellite Properties

The sanitary sewer system serving the university-controlled satellite properties consists primarily of on-site wastewater treatment effluent disposal systems (septic tanks), with the Treeo Center being served by Gainesville Regional Utilities. Expansion of these systems will allow for future growth.

The performance of the existing sanitary sewer facilities on university-controlled satellite properties has been adequate according to their designed function. Improvements have been made in recent years to the Lake Wauburg system to upgrade and expand its capacity. All other systems appear to be operating effectively.

Sanitary Sewer 10-year Projections by Planning Sector

Project Map Location	Estimated Net New GSF	Estimated Renovated / Relocated GSF	Sanitary GPD
B	250,520	250,510	90,120
C	711,955	757,796	217,908
D	329,079	47,070	46,785
E	207,490	-	40,748
F	907,662	73,736	134,796
G	1,199,435	194,573	1,409,831
H	27,342	25,500	5,450
I	389,601	56,600	83,811
J	51,814	88,186	47,086

X. Solid Waste Sub-Element

A. General Refuse Services

The University of Florida provides most of its own internal solid waste removal services using organic refuse trucks, dumpsters, and Grounds Department personnel. The University also operates its own composting facility for processing yard debris from the campus.

From 1989 to 1999 the University's total solid waste output increased 19% while the student population increased by 25% accompanied by increases in staff and faculty. The percentage of solid waste recycled increased to 38%, resulting in an actual decrease in landfill disposals over the 10-year period. For the time frame of 2000 – 2004, enrollment increased 5%, while solid waste generated increased 15%. General refuse generated by the University in Alachua County is processed through the Alachua County Transfer Station for ultimate disposal at the New River Solid Waste Association landfill in Raiford, Florida. The New River landfill has a design capacity to accommodate 20 years of operation with future expansion if needed. University contract haulers take Class III and demolition material to the Marion County Baseline Road landfill.

The Refuse Section of the Physical Plant Division operates a fleet of four front-loader refuse trucks and one transporter truck that provide commercial-type refuse services in support of over 260 refuse dumpsters. The collection routes are divided into three north, south and central campus zones. The Refuse Section also services over 70 paper/cardboard recycling dumpsters on a separate campus-wide route supporting housing areas, print shops and other high-volume generators of non-sensitive material. Vehicles and crews from the University's Grounds Department provide curbside collection and disposal for bulky refuse and yard debris. A small area is maintained on the west side of campus to stockpile yard and plant material pending grinding and reuse as mulch or compost. This facility will need to be relocated due to building expansions anticipated in the University's 10-year building program

B. Recycling Services

The University provides a general recycling program for the collection and marketing of common recyclable commodities generated through University operations on and adjoining the main campus. Over 1100 localized, area support and centralized collection sites are serviced on a regular basis. From 1999 to 2004 the University recovered and recycled an average of 38% of the total solid waste generated on the main campus. UF is currently recycling the following materials: office paper (all kinds), newsprint, phone books, magazines, junk mail, soft-cover books, old corrugated containers (boxes), toner & inkjet cartridges, cans (all), glass bottles & jars, #1 & 2 plastic containers, auto batteries, household batteries, used oil & oil filters, antifreeze, chemicals & solvents, wastewater solids, precious metals, white goods, scrap metal, used pallets, used lumber, yard debris, fluorescent tubes, masonry & concrete cotton goods, and bio-medical waste

All bio-medical waste generated by the University is currently collected and disposed by a contracted vendor who provides direct on-site collection services to the various medical and research facilities on campus. Both boxed and bulk container collection services are provided to the Health Science Center, Animal Resources Facility and Veterinary Medicine Hospital. Bio-medical waste is disposed at the Ogden Waste Solutions incinerator in Okahumpka, Florida. This facility is expected to be available for at least 20 more years with backup incinerators available in other locations. The Shands Teaching Hospital, with its many off-campus corporate facilities, retains responsibility for collection and disposal of its own internal bio-medical and hazardous wastes.

C. Hazardous Wastes

Hazardous waste collection is administered by the University's Environmental Health and Safety Division (EH&S) and is collected and disposed using a combination of in-house and contracted resources. Used oil, oil filters and antifreeze are collected by vendors directly from the University's major generators. Incidental quantities of these products, along with chemical, radiological and other hazardous or controlled products are collected by EH&S staff and assembled at its Waste Management Facility on campus for processing, packaging and ultimate disposal via contracted disposal companies.

D. Satellite Properties

Off-campus facilities are served by independently contracted refuse services. Once solid waste is collected, it is transported to the Alachua County Transfer Station for ultimate disposal at the New River Solid Waste Association landfill in Raiford, Florida. In general, the performance of the existing solid waste collection and disposal facilities has been adequate to meet the needs of the University at the university-controlled satellite properties.

Solid Waste by Year

UNIVERSITY OF FLORIDA SOLID WASTE DISPOSAL SUMMARY 1995 - 2004									
WEIGHTS GIVEN IN SHORT TONS (2000 lbs/ton)									
	CONTRACT LANDFILL DISPOSALS			IN-HOUSE LANDFILL DISPOSALS			TOTAL LANDFILL DISPOSALS		
			CONTRACT			IN-HOUSE			TOTAL
Period	Conststruction	Garbage	Total	Construction	GARBAGE	TOTAL	CONST	GARBAGE	TO LANDFILL
1995 TOTAL	2,495.95	1,923.70	4,419.65	447.06	6,145.67	6,592.73	2,943.01	8,069.37	11,012.38
FY 95/96 TOTAL	2,329.22	2,040.63	4,369.85	367.87	6,070.53	6,438.40	2,697.09	8,111.16	10,808.25
1996 TOTAL	1,872.90	2,185.10	4,058.00	266.67	5,819.22	6,085.89	2,139.57	8,004.32	10,143.89
FY 96-97 TOTAL	1,990.79	2,321.76	4,312.55	401.90	5,540.22	5,942.12	2,392.69	7,861.98	10,254.67
1997 TOTAL	1,898.71	2,518.46	4,417.17	769.51	5,504.71	6,274.22	2,668.22	8,023.17	10,691.39
FY 97-98 TOTAL	1,543.20	2,632.03	4,175.23	745.62	5,507.72	6,253.34	2,288.82	8,139.75	10,428.57
1998 TOTAL	1,660.58	2,661.38	4,321.96	452.74	5,562.40	6,015.14	2,113.32	8,223.78	10,337.10
FY 98-99 TOTAL	2,501.94	2,729.64	5,231.58	268.72	5,656.47	5,925.19	2,770.66	8,386.11	11,156.77
1999 TOTAL	2,677.79	2,790.53	5,468.32	222.75	5,626.32	5,849.07	2,900.54	8,416.85	11,317.39
FY 99-00 TOTAL	2,187.84	2,879.75	5,067.59	623.16	5,519.77	6,142.93	2,811.00	8,399.52	11,210.52
2000 TOTAL	2,234.35	3,035.43	5,269.78	858.06	5,406.51	6,264.57	3,092.41	8,441.94	11,534.35
FY 00-01 TOTAL	2,323.61	3,071.44	5,395.05	654.78	5,410.53	6,065.31	2,978.39	8,481.97	11,460.36
2001 TOTAL	2,277.22	3,041.90	5,319.12	323.14	5,489.45	5,812.59	2,600.36	8,531.35	11,131.71
FY 01-02 TOTAL	2,143.77	2,981.11	5,124.88	118.96	5,232.22	5,351.18	2,262.73	8,213.33	10,476.06
2002 TOTAL	2,169.79	3,095.25	5,265.04	127.25	5,203.79	5,331.04	2,297.04	8,299.04	10,596.08
FY 02-03 TOTAL	2,754.50	3,292.58	6,047.08	131.19	5,505.43	5,636.62	2,885.69	8,798.01	11,683.70
2003 TOTAL	2,705.21	2,976.08	6,318.89	101.70	5,444.82	5,546.52	3,028.94	8,836.47	11,865.41
FY 03-04 TOTAL	2,557.12	3,384.67	5,941.79	101.67	5,432.74	5,534.41	2,658.79	8,817.41	11,476.20
2004 TOTAL	2,250.71	3,057.09	5,769.47	915.65	5,527.08	6,442.73	3,364.81	8,847.39	12,212.20

Recycled Materials by Year

UNIVERSITY OF FLORIDA SOLID WASTE DISPOSAL **(RECYCLED)** 1995 - 2004											
WEIGHTS GIVEN IN SHORT TONS (2000 lbs/ton)											
	RECYCLED									OVERALL	
									TOTAL	TOTAL S.W.	% SW
Period	Paper	Cans	Glass	Scrap Metal	Masonry	Misc.	Yard Waste	Sludge	RECYCLED	(ALL FORMS)	RECYCLED
1995 TOTAL	1,469.92	20.71	61.97	411.05	492.00	0.00	2,256.00	232.10	4,943.75	15,956.13	30.98%
FY 95/96 TOTAL	1,542.11	20.47	62.28	380.20	573.50	0.00	2,256.00	219.00	5,195.70	16,003.95	32.47%
1996 TOTAL	1,752.74	20.17	62.28	445.92	1,175.00	0.00	2,256.00	252.00	5,964.11	16,108.00	37.03%
FY 96-97 TOTAL	1,657.29	20.50	62.28	430.31	1,143.50	0.00	2,256.00	319.90	5,889.78	16,144.45	36.48%
1997 TOTAL	1,637.18	19.51	62.28	381.42	752.10	0.00	2,256.00	272.21	5,380.70	16,072.09	33.48%
FY 97-98 TOTAL	1,580.60	18.63	62.28	337.91	1,182.60	7.21	2,256.00	204.21	5,649.44	16,078.01	35.14%
1998 TOTAL	1,697.56	18.93	65.86	387.50	1,137.00	24.56	2,353.00	228.46	5,912.88	16,249.98	36.39%
FY 98-99 TOTAL	1,829.72	18.99	65.86	457.93	1,084.50	37.98	2,773.00	262.27	6,530.25	17,687.02	36.92%
1999 TOTAL	1,838.46	19.27	62.28	443.66	1,087.50	20.63	3,120.00	269.67	6,861.45	18,178.84	37.74%
FY 99-00 TOTAL	1,768.00	18.96	62.28	487.99	544.50	0.00	3,188.00	265.93	6,335.66	17,546.18	36.31%
2000 TOTAL	1,822.73	13.45	46.71	495.31	82.50	7.25	3,132.00	261.10	5,862.38	17,396.73	33.83%
FY 00-01 TOTAL	1546.24	4.38	15.57	446.73	709.50	30.34	3,230.54	256.38	6,529.86	17,990.22	36.12%
2001 TOTAL	1,865.67	misc	misc	452.39	1,197.50	31.38	3,250.54	229.85	6,557.41	16,738.90	39.06%
FY 01-02 TOTAL	2046.43	misc	misc	505.56	1,085.00	18.08	3,060.00	211.04	6,926.11	17,402.17	39.92%
2002 TOTAL	2067.68	misc	misc	418.52	994.50	21.78	3,008.00	238.41	6,748.89	17,344.97	39.03%
FY 02-03 TOTAL	2,000.14	misc	misc	459.43	928.50	24.67	3,032.00	265.36	6,710.10	18,393.80	36.50%
2003 TOTAL	2,104.91	misc	misc	443.48	873.00	25.87	3,036.00	258.76	6,742.02	18,607.43	36.34%
FY 03-04 TOTAL	2,057.50	misc	misc	392.91	673.50	45.34	3,072.00	271.51	6,512.76	17,988.96	36.34%
2004 TOTAL	1,935.70	misc	misc	350.54	484.50	53.49	5,724.41	272.34	8,820.98	21,033.19	41.94%

XI. 2000-2010 Campus Master Plan Evaluation and Appraisal

A. Stormwater

The University met all the requirements set out in the SJRWMD permit for stormwater in the Lake Alice and depressional basins. Additionally, the University obtained site specific permits for building projects in the Tumblin Creek and Hogtown Creek basins. In the Tumblin Creek basin, the University is cooperating with the City of Gainesville in studying existing stormwater issues through participation in the Tumblin Creek workgroup. The University has studied stormwater infrastructure problems and is in the process of implementing improvements in accordance with the priorities set out in this plan.

The University is committed to monitoring stormwater quality as it transverses through the University's surface water drainage system. This monitoring is under taken by the Wetlands Club under the guidance of Dr. Mark Clark, Assistant Professor of Soil and Water Sciences and covers 15 campus water bodies including Lake Alice. Additionally, the University is sponsoring the Clean Water Campaign to inform University staff, students and faculty about stormwater issues and best management practices.

B. Potable Water

The University met all the requirements set out in the SJRWMD permit for potable water use. Additionally, the University completed upgrades to the distribution system as recommended in the 2000-2010 Master Plan. While on the conservation side, the University increased its reuse of reclaimed water for irrigation, incorporated drought tolerant plants in all new landscaping and used permeable materials in parking lots and in landscape plans.

C. Sanitary Sewer

The University met all the requirements of its wastewater treatment permit with the Department of Environmental Protection. Currently, the wastewater treatment plant (WWTP) treats an average flow of 2.1 million gallon per day (gpd). The WWTP is permitted to treat 3.1 million gallons per day (mgd) of wastewater. The current permit with the Department of Environmental Protection is in effect until April of 2008, when it will need to be renewed. In general, the performance of the existing sanitary sewer facilities on campus has been adequate according to its designed function. Evaluations conducted during the 2000 Master Plan update indicated the need for various lift station upgrades, which were completed in 2001.

The wastewater treatment facilities are adequate to serve the current and immediate future needs of the University. The Physical Plant Division has proposed doubling the treatment capacity of the existing plant by adding a membrane bio-reactor within the next 10 years.

D. Solid Waste

The University of Florida provides most of its own internal solid waste removal services using organic refuse trucks, dumpsters, and Grounds Department personnel. The University also operates its own composting facility for processing yard debris from the campus. From 1989 to 1999 the University's total solid waste output increased 19% while the student population increased by 25% accompanied by increases in staff and faculty. The percentage of solid waste recycled increased to 38%, resulting in an actual decrease in landfill disposals over the 10-year period. For the time frame of 2000 – 2004, enrollment increased 5%, while solid waste generated increased 15%.

Over 1100 localized, area support, and centralized collection sites are serviced on a regular basis. From 1999 to 2004 the University recovered and recycled an average of 38% of the total solid waste generated on the main campus.

10.
UTILITIES
DATA & ANALYSIS

I. Introduction

The Utilities Element includes goals, objectives and policies that apply to the University's main campus as well as the University's satellite properties. This element focuses on the University's existing utilities and procedures for improving deficiencies, while providing guidance on future additions and improvements. Sub-elements included within this element are Chilled Water/Steam, Electric Power, and Telecommunications. The Physical Plant Division (PPD) is the entity primarily responsible for permitting, maintenance and expansion of all distributed utilities on the main campus (Progress Energy is responsible for electric power and steam generation in coordination with PPD). The utilities at the satellite properties of Treeo Center, Lake Wauburg, Eastside Campus, WRUF, WUFT, and Remote Library are handled individually by the Physical Plant Division, while the IFAS research properties of Austin Cary, Beef Research Unit, Dairy Research Unit, Santa Fe River Ranch and Wall Farm are handled by IFAS.

II. Steam and Chilled Water Sub-Element

A. Chilled Water

Chilled Water Plants. The University operates and maintains twelve chilled water production plants located on the campus. The plant machines range in age from 28 years to newly installed ones in 2005. In all 11 chillers have been added or upgraded since 2000. The newest of these is scheduled to come in service in the fall of 2005 at Library West. New plants are designed to be efficient and conserve energy. The Land Use and Facilities Planning Committee will review the location of utility buildings such as chiller plants and telecommunication huts. Below is the chiller plant tonnage by plant, as measured by the Physical Plant Division.

Chilled Water Plants

Plant Name	Capacity (Tons)
Weil Plant #1	5,975
Heat Plant #2	11,400
Walker Plant #3	4,000
Southwest Plant #4	2,600
McCarty Plant #5	7,200
West Plant #6	1,200
Holland Law #7	1,894
Southeast Plant #9	4,800
North End Zone (Yon Hall)	650
Vet Medicine	3,710
Library West	200
Cancer Genetics	4,350
Orthopedics	523
Total	48,502

Chilled Water Distribution. The campus chilled water plants distributes chilled water from the plants to the individual buildings through an extensive supply and return piping system, which supplies chilled water at an average temperature of 45 degrees. In the north area of campus currently five of the plant's (Weil Plant #1, Heat Plant #2, McCarty Plant #5, SE Plant and Walker Plant #3) distribution systems are interconnected to allow greater reliability in case of individual plant failure.

Northeast Quadrant. The northeast area of campus is supplied mainly by three plants (Weil Plant #1, Walker Plant #3, and McCarty Plant #5). The distribution systems for these plants are interconnected, as discussed previously, to eliminate the need for a redundant chiller at each of the plants. In 2005 a 1700 ton chiller was installed at Weil Plant #1, replacing a 1425 ton chiller. This plant is scheduled to be upgraded with an additional 1425 ton chiller in 2006. Walker Plant #3 was upgraded in 2003 with a new 1500 ton chiller. In 2000, the McCarty Plant was expanded with two 1200 ton chillers, for a total of six, and changed from plant #8 to plant #5. In 2005 the Library West chiller came in service with 200 tons.

Although Heat Plant #2 is also interconnected to the distribution system of the three above mentioned plants, its participation in relieving the anticipated future demands in the northeast part of campus is limited since this plant is currently at capacity at peak demand conditions. In 2005 three new chillers, #1 (2600 tons), #2 (1700 tons), and #3 (1700 tons) were added to this plant, replacing a 2400 ton and two 1750 ton chillers. Forecasting for this plant shows an increase of 532 tons within the next 10 years and could increase depending on the Health Center interior renovation or space use changes. The distribution system of Heat Plant #2 that supplies chilled water to the Health Center complex is also interconnected to the Southeast Plant #9 distribution system; although under normal operation the valving is closed to prevent this interconnection and is only open for emergency conditions. Construction began in 2005 on a new distribution piping that will improve the interconnection between these plants.

The area of the Shands Hospital and the J. Hillis Miller Health Center is served by tthree chiller plants, a chiller plant owned and operated by Shands within Heat Plant #2, which serves only the Shands Hospital and Southeast Plant #9 which is UF owned and which serves Shands Hospital demand as well as the Health Center complex. The 10 year forecast demand for this area is 5,387 tons. Southeast Plant #9 has been designed for plant expansions that could add up to 4,800 tons.

Chiller Plant #10 is scheduled to be built adjacent to Center Drive, just south of Museum Road by the fall of 2007. This 4800 ton chiller alleviates that need for expansion of the McCarty plant in the next 10 years and will help improve interconnectivity and redundancy in the northeast quadrant of campus

Northwest Area. This area of campus is served by Holland Law Plant #7. In 2002 one 650 ton, Chiller #4, was added to this plant.

Southwest Quadrant. Currently this quadrant does not have a redundant chiller system available for emergency chiller outage at peak demand. This condition will be remedied at the time the plant expansion is required to support the next facility located in this area of campus. The West Plant and its related distribution piping was originally designed with major expansions in mind and the plant addition of multiple chillers and cooling towers can be accomplished by expanding the plant to the north. Southwest Plant #4 was upgraded in 2003 with a 650 ton chiller, chiller #4.

South Area. The Veterinary Medicine complex located in the south area of campus has a central chilled water system that can be expanded for future demands. This system is not connected to any other University chilled water system.

West Area. The area west of 34th Street does not have a central chilled water system but employs individual direct expansion air conditioning units for cooling the facilities in this area.

Other Chiller Systems. Most individual building chillers have been removed over the years and the building connected to the closest campus chilled water distribution system. As a result the only unitary

systems remaining are a 600 ton system located in the north part of the Ben Hill Griffin Stadium which is used to supply the North End Zone and parts of the east side of the Stadium. This system is cross-connected to the campus distribution system and currently this chiller is only operated during Stadium game events while the campus water serves this system on non game-day times. Other agencies such as the Housing Division, UAA, and the Reitz Union have chiller plants that operate independently of the campus system.

Chilled Water 10-year Projections by Planning Sector.

Project Map Location	Estimated Net New GSF	Estimated Renovated / Relocated GSF	Chilled Tons
B	250,520	250,510	1,474
C	711,955	757,796	4,242
D	329,079	47,070	858
E	207,490	-	1,318
F	907,662	73,736	5,132
G	1,199,435	194,573	38,218
H	27,342	25,500	124
I	389,601	56,600	1,483
J	51,814	88,186	851

B. Steam

Steam for the main campus is provided by a Cogeneration Plant (electricity and steam production) constructed in 1993 by Progress Energy. Located on Mowry Road near the Health Science Center, the plant is owned and operated by Progress Energy.

Steam is generated by a gas fired combustion turbine exhausting into a heat recovery steam generator. The combustion turbine is a General Electric aircraft derivative engine packaged by Stewart & Stevenson as an LM6000 capable of producing over 40,000 kilowatts of electrical energy while producing 220,000 pounds per hour (pph) of steam as exhaust heat. The Cogeneration Plant steam production may also be supplemented by two natural gas fired boilers owned by UF and operated by Progress Energy, which are located in Heat Plant #2 located immediately east of the Cogeneration Plant. These boilers are capable of delivering an additional 150,000 pph of steam to the campus system.

The combined systems have a design capacity to produce a maximum 370,000 pph of steam. However, the Steam and Electric Sales Contract between the University and FPC limits production to 220,000 pph. Additional steam production above the contract amount would require negotiation for commercial terms of conditions and pricing. To date, the University has reached the contract limit only on rare occasions. Should future steam demands reach or exceed the contract limit on a regular basis, the steam export reliability would need to be evaluated with the possibility that alterations to the steam backup supply and steam load curtailment equipment would need to be implemented.

North Area. This area of campus, north of Archer Road and east of Lake Alice, is served by a piped distribution system originating from Heat Plant #2 and supplied by the Cogeneration Plant. Although, historically, steam service has been adequate to campus buildings it is unlikely that the existing network can support the additional 10-year demand without upgrades. Boiler #4 at Heat Plant #2 is scheduled to be replaced, which should increase the steam output sufficiently for the 10-year horizon.
South Area. The campus area south of Archer Road is occupied mainly by the Veterinary Medicine complex. The Veterinary Medicine building has a central boiler system providing steam and hot water for

various needs within the complex. This system is not connected to the central campus steam distribution. Planned development requires limited additional boiler capacity but may require additions to the existing boiler system.

West Area. None of the facilities in this area of campus are connected to the central campus system, but employ individual hot water boilers. Replacement and additions to the building boilers will be evaluated on a case by case basis.

Steam 10-year Projections by Planning Sector.

Project Map Location	Estimated Net New GSF	Estimated Renovated / Relocated GSF	Steam Lbs/hr
B	250,520	250,510	12,764
C	711,955	757,796	27,422
D	329,079	47,070	5,092
E	207,490	-	4,405
F	907,662	73,736	26,104
G	1,199,435	194,573	267,484
H	27,342	25,500	650
I	389,601	56,600	12,916
J	51,814	88,186	4,465

III. Electrical Power and Other Fuels Sub-Element

The University of Florida campus is fed by three Progress Energy substations, Progress Energy #1 located adjacent to the Cogeneration Plant, Progress Energy #2 located in the west area of campus, and the Gainesville Substation located west of Gainesville Fire Station #2 (on Archer Road near the intersection of SW 16th Ave.). The Progress Energy #1 Substation has a total of three 33.6 mVA transformers providing 23 kV service via 7 underground feeders to main campus. The Gainesville Substation has one 33.6 mVA transformer (with provisions for a second transformer) which provides 23 kV service via three feeders that terminate at three switches in the Progress Energy #1 Substation yard. These switches provide the point of service for two campus feeders (#8 and #9) which also supply 23 kV power to campus. The FPC #2 Substation consists of two 10.5 m VA transformers providing 12.47 kV service to the west area of campus. The 23kV service feeders supply 16 UF owned substations which reduce the transmission voltage from 23kV to 4.16 kV, 13.8 kV or 12.47 kV.

The main 23kV feeders serving the northern part of the campus substations are feeders 6, 8& 9. In peak demand times a failure of anyone of these feeders necessitating load transfer to the other two could cause seriously high loading conditions, and in some cases, could exceed the capacity of one of the individual feeders. As a result a UF project that will be completed in 2001 will add 3 additional 23kV feeders in a loop fed configuration from the FPC #1 transformers and the Gainesville Substation feeder switches located in the FPC #1 yard out to strategically located switches on the UF campus. This project will allow load distribution among a greater number of 23kV feeders as well as better feeder failure isolation.
The University of Florida East Campus is fed by one GRU substation via NW 23rd Avenue, which is primarily a metering connection. Current plans are to add new loads via underground infrastructure and to also provide temporary connections simultaneously. The long-term goal is to place a second underground feed from NE Waldo Road in to the campus

A. Existing Capacity and Loading – Utilization (Surplus vs. Deficiency)

In the year 2000 the Progress Energy #1 Substation with the Gainesville Substation recorded a combined peak demand of 57 MW versus a capacity of 134.4 MVA. The Progress Energy #2 Substation recorded a peak demand of 6.9 MW versus a capacity of 21 MVA.

Substations - The University of Florida has a policy to provide redundancy by providing double ended substations and loading the transformers to below 50% of their maximum capacity to enable them to pick up the other transformer's load. All substations have double ended configurations and are loaded below 50% of their maximum capacities. A Construction project was completed in 2001 that brought Substation #4 into conformance with the other sub-station by adding a third transformer. In 2003 Substation # 8 was eliminated.

Distribution - For most of the campus, a network of feeders originating at the various campus substations transmits 4.1 kV power to the individual building transformers. These feeders are predominantly loaded to well beyond 50% of their capacity. Within the feeder network numerous distribution switches allow feeder failure isolation as well as loading transfer from one feeder network to another. Even with this load switching ability, great care must be taken in load transfer due to the large loading conditions described above. In most cases any new demand from new facilities will require major costly feeder extensions from the nearest substation to the immediate vicinity of project.

B. Capacity vs. 10 Year Plan - Surplus (Deficiencies)

Northeast Academic Area. The Northeast academic area (Sub-Area A) is currently served by substations 1, 3, 7 and 9. Substations 7 and 9 serve only the mechanical equipment in the Walker Hall Chiller Plant and the Weil Hall Chiller Plant and may not be a potential power source for any of the master plan buildings.

Health Science Center. The Health Science Center (Sub-Area B) is served by substation 2, 2H, 2A, 2B, 2C and 4. All substations except 2 can accept significant additional loads and may be useful in powering 10YR Plan loads.

Housing and Recreation. The Housing and Recreation Area (Sub-Areas C and E) are currently served by substation 5. In 2004 Substation 5 was upgraded with transformers, substation houses and switches in order to eliminate a deficiency of 11 KVA.

Southwest Academic Area. The Southwest Academic area (Sub-Areas D and F) is served by substation 10. In 2003 Substation 8 was decommissioned and now only substation 10, which has been upgraded with transformers, substation houses and switches, serves this area.

East Main Campus Area. The East Campus Area will be served by two ampere 12,470 KVA underground feeders.

Veterinary Area. The Veterinary Area is served by substation 6, which may have to be upgraded or moved in the 10-year horizon depending upon certain long range plans outside the scope of this master plan.

Chiller Plant Loads. The total chilled water load for new ten year projects is 8809 tons. Assuming a conversion factor of 1,200 VA per ton, which includes chillers, local and distribution loop pumps, fans, chiller plant lighting, ventilation and auxiliary loads, substations have to be added to serve the 10 year Plan Chiller Plant load of 10,570 KVA.

Other Fuels. Natural gas is supplied to buildings on an as needed basis. Gas is supplied by the local utility. The current supply is adequate for the demand. Fuel oil for emergency generators is stored at the buildings where the generators are located. The current fuel oil supply is adequate for the demand. It is anticipated that natural gas will continue to be supplied to buildings needing this fuel on an as-needed basis. The gas utility should be able to supply the quantities needed. Fuel oil will continue to be stored near the generators requiring the fuel.

Electric Power 10-year Projections by Planning Sector.

Project Map Location	Estimated Net New GSF	Estimated Renovated / Relocated GSF	Electric KW
B	250,520	250,510	5,737
C	711,955	757,796	9,654
D	329,079	47,070	1,751
E	207,490	-	3,073
F	907,662	73,736	12,702
G	1,199,435	194,573	89,156
H	27,342	25,500	180
I	389,601	56,600	3,853
J	51,814	88,186	1,694

IV. Telecommunications Sub-Element

Communication technologies are a critical element in the design of virtually all new and renovation building projects. These technologies include voice, data and video transmission, security and fire alarm systems, audio/visual systems, or other communication technologies.

A Structured Cabling Plant is a key concept in enabling Information Technology for the University. In order to maximize network functionality, and to minimize labor and materials costs, a common set of network codes and standards is followed. To accomplish this, the University has adopted a policy in which these codes and standards are managed and administered centrally. The Office of Information Technology (OIT) is charged with this responsibility.

UF's communications systems follow the codes and standards set forth in the following: NEC 2002, NESC, NFPA, ANSI/TIA/EIA Telecommunications Infrastructure Standards, FCC, IEEE and BICSI'S Telecommunications Distribution Methods Manual. These codes and standards are to be used as references when designing telecommunications systems. OIT promotes the use of widely accepted industry standards in deploying the University telecommunications infrastructure. Employees of the university, consultants and contractors working on behalf of the university should have a working knowledge of these standards prior to performing work for the university and should follow the university preferred standards and practices while deploying telecommunications infrastructure. University employees, consultants and contractors should contact OIT for clarification and interpretation of these standards. The following standards are practiced at the University of Florida:

- ANSI/TIA/EIA-568-B.1.2.3 Commercial Building Telecommunications Cabling Standard (May 2001)
- ANSI/TIA/EIA-569-A Commercial Building Standard for Telecommunications Pathways and Spaces (February 1998)
- ANSI/TIA/EIA-606-A Administration Standard for the Telecommunications Infrastructure (May 2002). See Appendix 1 for the current UF Labeling standard based on ANSI/TIA/EIA-606-A
- ANSI/TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications (August 1994)
- ANSI/TIA/EIA-758 Customer-Owned Outside Plant Telecommunications Cabling Standard (February 1999)

These standards can be obtained through BISCI at www.bicsi.com as well as www.tiaonline.org.

Pathways should be reinforced in capacity to serve present and 10 year Plan requirements, expanded to serve 10 year Plan and/or to replace old aerial and direct buried installations. TC1 is a hub improvement adjacent to the Physical Plant Division that will be completed in 2005. TC2 is planned for near Criser Hall, with TC3 adjacent to McCarty and TC4 adjacent to Tigert Hall.

WiFi – Wireless - The University of Florida has established WiFi or wireless access for faculty, staff and students in most of the heavily populated areas of campus. Computer Networking Services is primarily responsible for the maintenance and continued expansion; however some local units exist and are maintained internally. Figure 10 – 5 illustrates the University's wireless coverage area as of January 2005.

Projects currently underway.

Current Projects	91.9 - #	Funded by	Status
Williston Rd. FLR		CNS	Complete
Waldo Rd, East Campus			
Criser Electrical Outlet	8040	CNS	Complete
Fiber to Garage ll	8038	Parking	Complete
FCLA	8027	FCLA	Complete
Install Conduit Infirmary	8032	Infirmary	Complete
Griffin Floyd Cable replacement Bell South	None	ClassNet	Complete
Place Fiber at Performing Arts	8034	PPD	Complete
Terminate Fiber at Performing Arts	8035	PPD	Complete
Fraternities on 13th St		Not Funded	Estimate
Tie cable Florida Gym	8036	Health Perform.	Complete
Terminate Fiber Weil Hall and Reed Lab	8037	IFAS	Complete
Terminate Fiber Physics	8039	Physics	Complete
Terminate Fiber Broward	8041	Circa	Complete
Fiber Placement Elmore to SSRB	8000	CNS	25% Complete
Fiber Placement Elmore to Centrex	8001	CNS	25% Complete
Fiber Placement Fifield to SSRB	8002	CNS	25% Complete
Fiber Placement Fifield to Centrex	8003	CNS	25% Complete
Fiber Placement MEB to SSRB	8004	CNS	25% Complete
Fiber Placement MEB to Centrex	8005	CNS	25% Complete
Fiber Placement Aero to SSRB	8006	CNS	25% Complete
Fiber Placement Moury to SSRB	8007	CNS	25% Complete
Fiber Placement Moury to Centrex	8008	CNS	25% Complete
Fiber Placement Criser to SSRB	8009	CNS	25% Complete
Fiber Placement Criser to Centrex	8010	CNS	25% Complete
Fiber Placement Tigert to Centrex	8011	CNS	25% Complete
Place Fiber Hut at East Campus	7983	Provost	Complete
Place Conduit East Campus	7984	Provost	Complete
Place Fiber to Building 1603	7986	Provost	75% Complete

5 Year Fiber Option Plan

5 Year Fiber Option Plan
Short Range Plan: 0 to 1 Year
Title
Elmore Hall Communications Vault
Mechanical Eng. Communications Vault
SSRB to MEB Vault (96sm)
Mowry Vault to Fifield Vault to SW Rec Ctr (includes FIF vault)(36/12)
Fiber from Poultry Cabinet to Solar Energy Park(36/12)
SSRB MCE to Acad. Advising to Stadium(48/24) to UFF 24sm
CSE-Rolfs Cab-Rolfs-Tur Cab(24sm only)
SW Recreation Center to Elmore Vault (36/12)
Tigert-Criser(36/12)
Medium Range Plan 1 to 2 Years
Title
Fifield to Entomology to Surge Area (48/24)
CSE to O'Connell Center(48/24)
Sorority Row to PK Yonge(48/24)
CSE MCE(48/24)
Fla Gym Cab to Fla Gym (sm)
Stadium to O'Connell (sm)
MEB to JWRU (24sm)
New Physics Bldg.(48sm)
Williamson Cab to Williamson(12/12)
Fifield to Elmore(diverse routing)(36/12)
Connection to the President's home
Conduit Infrastructure along stadium road, SSRB conduit, phase 1
Long Range Plan 3 to 5 Years
Title
MEB to Aerospace Vault reinforcement
MEB Vault to O'Connell Center (48/24) for physical diversity to Law
Aero Vault to Mowry Vault Reinforcement
O'Dome to Holland Law (diverse routing)
CSE-Music Cabinet (24sm)

V. 2000-2010 Campus Master Plan Evaluation and Appraisal Report

A. Chilled Water and Steam

The University has increased chiller redundancy and kept up with demand by the installation of new chillers. In 2005 a 1700 ton chiller was installed at Weil Plant #1. Walker Plant #3 was upgraded in 2003 and 2004 with two new 1200 ton chillers. In 2000, the McCarty Plant was expanded with two 1200 ton chillers and changed from plant #8 to plant #5. In 2005 Library the Library West chiller came in service with 200 tons. In 2005 two new chillers, #1 (2600 tons) and #2 (1700 tons), were added to this heat plant #2. The university is scheduled to replace Boiler #4 at Heat Plant #2, which should alleviate potential steam deficits over the 10-year horizon cover in this plan.

B. Electric

The University main campus is fed by three Progress Energy substations, Progress Energy #1 located adjacent to the Cogeneration Plant, Progress Energy #2 located in the west area of campus, and the Gainesville Substation located west of Gainesville Fire Station #2 (on Archer Road near the intersection of SW 16th Ave.). Some upgrades and changes to substation #6 will be necessary in the 10-year horizon, which may include a shifting of the substation to a new area south of S.W. 16th Ave.

C. Telecommunications

The University has increased its telecommunications abilities over the proceeding 5-years, by placing new fiber huts in some locations, laying new lines and increasing wireless internet connections to many areas of campus.

11.
PUBLIC SAFETY
DATA & ANALYSIS

I. University Police Department

The mission of the University of Florida Police Department (UPD) is to preserve a safe, secure campus environment where diverse social, cultural and academic values are allowed to develop and prosper through a combination of reactive, proactive and educational law enforcement services. The department provides a full range of police services including, but not limited to, investigating all crimes committed in its jurisdiction, making arrests, providing crime prevention and community service programs, victim services, enforcing traffic laws, and providing crowd control and safety functions for campus special events. The department maintains a close liaison with local, state, and federal law enforcement agencies in implementing and coordinating campus law enforcement operations. The department has mutual aid agreements with both the Gainesville Police Department (GPD) and the Alachua County Sheriff's Office (ASO). The UPD maintains very close working relationships with the Dean of Students Office, Department of Housing and Residence Education, Student Judicial Affairs, Student Government, Interfraternity and Panhellenic Councils, Physical Plant Division, Transportation and Parking Division, University Counseling Center and many other campus and non-campus organizations.

A. University Crime Statistics

The following statistics, provided in compliance with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, are are compiled and released annually by the UPD. They include all reports of the following offenses received by the UPD, both from the department's personnel as well as from university officials with significant responsibility for student and campus activities. These statistics also include data received from other law enforcement agencies in response to the UPD's annual requests.

Crimes Reported by University Police Department, 2002-2004

	On Campus Buildings or Property * Total (Residential)			Non-Campus Building or Property			On Public Property			Total Crimes Reported		
Offense Type (includes attempts)	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
Murder	0	0	1 (1)	0	0	0	0	0	0	0	0	1
Manslaughter	0	0	0	0	0	0	0	0	0	0	0	0
Forcible Sex Offenses	4 (4)	6 (5)	4 (2)	0	0	0	0	1	1	4	7	5
Non-Forcible Sex Offenses	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	0	1 (0)	0	0	0	0	1	6	4	1	7	4
Aggravated Assault	3 (3)	2 (0)	2 (2)	0	0	0	4	6	7	7	8	9
Burglary	28 (12)	55 (16)	33 (9)	0	0	0	0	0	0	28	55	33
Arson	1 (1)	1 (0)	1 (1)	0	0	0	1	0	0	2	1	1
Motor Vehicle Theft	0	0	0	0	0	0	39	40	39	39	40	39
Hate Crimes (by prejudices)												
Race	0	0	0	0	0	0	0	0	0	0	0	0
Gender	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	1 (0)	0	0	0	0	0	0	0	0	1	0
Sexual Orientation	0	0	0	0	0	0	0	0	0	0	0	0
Ethnicity	0	0	0	0	0	0	0	0	0	0	0	0
Disability	0	0	0	0	0	0	0	0	0	0	0	0

Source: UPD publication "Together for a Safe Campus, 2005."
* Figures in parentheses represent the number of reports that originated in campus residential facilities.

Number of Arrests/Referrals (Select Offenses) by University Police Department, 2002-2004

	On Campus Buildings or Property * Total (Residential)			Non-Campus Building or Property			On Public Property			Total Crimes Reported		
	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Liquor Law Violations												
Arrest	10 (10)	1 (1)	3 (3)	0	0	0	170	131	219	180	132	222
Referral	2 (2)	0	0	0	0	0	33	7	6	35	7	6
Drug Law Violations												
Arrest	19 (19)	19 (19)	12 (12)	1	0	0	25	38	29	45	57	41
Referral	10 (10)	22 (22)	9 (9)	0	0	0	4	9	9	14	31	18
Weapons Law Violations												
Arrest	0	0	0	0	0	0	4	4	1	4	4	1
Referral	0	0	0	0	0	0	0	0	0	0	0	0

Source: UPD publication "Together for a Safe Campus, 2005."
* Figures in parentheses represent the number of reports that originated in campus residential facilities.

Crimes Reported by University Officials or by Other Law Enforcement Agencies, 2002-2004

	On Campus Buildings or Property * Total (Residential)			Non-Campus Building or Property			On Public Property			Total Crimes Reported		
Offense Type (includes attempts)	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Murder	0	0	0	0	0	0	0	0	0	0	0	0
Manslaughter	0	0	0	0	0	0	0	0	0	0	0	0
Forcible Sex Offenses	2 (2)	6 (5)	7 (7)	0	2	2	0	0	2	2	8	11
Non-Forcible Sex Offenses	0	0	0	0	0	0	0	0	0	0	0	0
Robbery	0	0	0	0	0	0	0	0	2	0	0	2
Aggravated Assault	0	0	0	0	0	2	1	0	2	1	0	4
Burglary	0	0	0	7	20	7	0	0	0	7	20	7
Arson	0	0	0	0	0	0	0	0	0	0	0	0
Motor Vehicle Theft	0	0	0	0	3	0	2	0	0	2	3	0
Hate Crimes (by prejudices)												
Race	0	0	0	0	0	0	0	0	0	0	0	0
Gender	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Sexual Orientation	0	0	0	0	0	0	0	0	0	0	0	0
Ethnicity	0	0	0	0	0	0	0	0	0	0	0	0
Disability	0	0	0	0	0	0	0	0	0	0	0	0

Source: UPD publication "Together for a Safe Campus, 2005." This chart is compiled in accordance with the provisions of the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act. It includes offenses that were reported to law enforcement agencies other than the University of Florida Police Department, and to individuals with significant responsibility for student and campus activities at the University of Florida. These individuals include numerous university officers, deans, directors, department

chairs, and advisors who have been instructed to contact the University of Florida Police Department whenever one of the crimes listed below is reported to them.
* Figures in parentheses represent the number of reports that originated in campus residential facilities.

Number of Arrests/Referrals (Select Offenses) by University Officials or by Other Law Enforcement Agencies, 2002-2004

	On Campus Buildings or Property * Total (Residential)			Non-Campus Building or Property			On Public Property			Total Crimes Reported		
	2002	2003	2004	2002	2003	2004	2002	2003	2004	2002	2003	2004
Liquor Law Violations												
Arrest	12 (0)	13 (0)	25 (0)	0	0	0	18	13	8	30	26	33
Referral	227 (227)	188 (188)	339 (339)	0	0	0	0	0	0	227	188	339
Drug Law Violations												
Arrest	2 (0)	0 (0)	0 (0)	0	3	0	7	4	10	9	7	10
Referral	0 (0)	0 (0)	0 (0)	0	0	0	0	0	0	0	0	0
Weapons Law Violations												
Arrest	0	0	0	0	1	0	0	0	1	0	1	1
Referral	0	0	0	0	0	0	0	0	0	0	0	0

Source: UPD publication "Together for a Safe Campus, 2005." This chart is compiled in accordance with the provisions of the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act. It includes offenses that were reported to law enforcement agencies other than the University of Florida Police Department, and to individuals with significant responsibility for student and campus activities at the University of Florida. These individuals include numerous university officers, deans, directors, department chairs, and advisors who have been instructed to contact the University of Florida Police Department whenever one of the crimes listed below is reported to them.
* Figures in parentheses represent the number of reports that originated in campus residential facilities.

II. Environmental Health and Safety Office

The Environmental Health and Safety Office (EH&S) also has a role in preserving public safety on campus by coordinating hazardous materials management, emergency planning and disaster preparedness. The university has a comprehensive Emergency Management Plan that is coordinated with the Alachua County Comprehensive Emergency Management Plan. The Emergency Management Plan includes emergency procedures to address critical operations for specific university units, response plans for specific situations, and emergency plans for specific buildings, colleges and areas. These plans follow the National Incident Management System (NIMS) guidelines of the Department of Homeland Security, and address issues such as response procedures, interagency coordination, evacuation, shelters, hardening of building sites, and protection of critical data and other electronic information. Under the guidance of EH&S, a Continuity of Operations Plan exists for the University to prepare for maintenance of business operations during an emergency condition. EH&S also coordinates with the Facilities Planning and Construction Division and the Physical Plant Division to participate in the Local Hazard Mitigation Strategy Work Group administered by the Alachua County Office of Emergency Management for the preparation and maintenance of the Local Hazard Mitigation Plan required by the Federal Emergency Management Agency. The University also serves as a back-up Emergency Operations Center for the City of Gainesville and Alachua County, and is a signatory of the Florida Statewide Mutual Aid Agreement.

III. On-campus Emergency Response.

The UPD also assists in coordinating on-campus emergency response. For all campus locations, a UPD officer is dispatched upon receipt of an alarm. If the officer can determine in a limited time period that the alarm activated falsely, then our police dispatch will not place a call to the Gainesville Fire Rescue department. The delay between alarm activation and issuance of the notice for emergency forces assistance is limited to that allowed by the Life Safety Code (NFPA 101) criteria. As specified in this code, the University provides immediate notification to emergency forces for alarms in housing and medical units. The UPD and EH&S Office work together on the university's new alarm analysis and action function. The fire safety unit located in EH&S receives the same alarm activation information as the police dispatch unit. An activation analysis report is obtained for all alarm activations. This information is analyzed to determine frequency and cause of activation. This allows the university to separate alarm system maintenance needs from those activations resulting from human tampering/malicious actions and in turn initiate the appropriate mitigation action. These new alarm response protocols were implemented in 2005, and the table below indicates early positive results.

Fire Alarm Activation Responses, December 2005-February 2006

Response	December 2005	January 2006	February 2006
Fire Alarm Activations	51	47	43
GFR Called (required immediate notification)	21	22	6
GFR Called (status could not be determined in <4 min.)	6	4	1
GFR Not Called	24	21	36
Decrease in number of GFR dispatch due to response monitoring	47%	45%	84%

IV. 2000-2010 Campus Master Plan Evaluation and Appraisal

The Public Safety Element is an optional element according to Chapter 1013.30 Florida Statutes. The campus master plan for 2000-2010 did not include a Public Safety Element.

12.
FACILITIES MAINTENANCE
DATA & ANALYSIS

I. Operations and Maintenance

A. Overview

The mission of the University of Florida Physical Plant Division and IFAS Facilities Operations is to maintain a physical environment conducive to teaching, learning and research at the university. The University's preventive maintenance activities are designed to minimize functional failures in the physical environment so that the university community is not interrupted in pursuit of its educational and research objectives. Facility maintenance must also address the long-term viability of a structure and the health, fire and life safety requirements of its occupants.

Buildings. Maintenance of buildings, utility systems and grounds is a significant activity that must be on-going in order to protect and maintain the public investment. A comprehensive preventive maintenance program promotes safety and decreases the total long-run cost of maintenance.

Preventive maintenance is the utilization of planned services, inspections, adjustments and replacements designed to ensure maximum utilization of equipment at minimal cost. Specifically, preventive maintenance includes cleaning, adjustments, lubrication, minor repairs and parts replacement that are performed on scheduled frequencies according to written preventive maintenance standards.

The benefits of a successful preventive maintenance program almost always represent cost savings. Most notable is the reduction of unscheduled downtime of critical systems and equipment. A good preventive maintenance system extends the useful life of equipment and facilities, ensures proper equipment operation, increases equipment reliability, reduces energy consumption and improves indoor air quality. Public health is protected by assuring indoor air quality with routine replacement of filters and keeping air handlers free of mold growth and other hazards. In addition, preventive maintenance improves safety by identifying and correcting unsafe conditions before a loss occurs. Preventive maintenance also improves the overall appearance of facilities, thus improving the public's image of both the institution and the State that manages it.

The purpose of the preventive maintenance program is to maintain buildings and associated utility systems in a serviceable condition for the expected useful life of the structure. The preventive maintenance program provides for the automatic generation of work orders to inspect and service mechanical and electrical systems (heating, ventilation, air conditioning, plumbing and utility distribution systems), safety items and other building components.

The custodial maintenance of university buildings and the continuous maintenance of the campus grounds are performed on a planned maintenance basis which ensures that all buildings and areas receive service at the required periodic intervals. Different services are provided on a daily, weekly, monthly, quarterly, semi-annual or annual basis depending on the service, the building type and the use of the individual building or area.

Equipment and Vehicles. The University of Florida has adopted the Department of Transportation's vehicle preventive maintenance program. This program meets the requirements of either the vehicle manufacturer's recommendations and includes preventive maintenance requirements for warranty enforcement.

II. Conditions Inventory

The University's preventive maintenance programs and automated work order systems provide useful information for identifying deficiencies in buildings, building systems and infrastructure. However, periodic and ongoing facility condition audits are useful to document the extent and specifics of deficiencies. The IFAS Facilities Operations recently completed an audit of its statewide facilities. The Physical Plant Division also maintains an inventory of deficiencies for use in developing the funding requests for Public Education Capital Outlay (PECO) monies. The Physical Facilities Space Files, maintained by the Facilities Planning and Construction Division, also record information about the general condition of facilities. A map depicting the condition of E&G buildings is included at the end of this report. These conditions are reported through the Educational Plant Survey and demonstrate that most space on the University of Florida campus is in satisfactory condition. However, a complete audit of main campus facilities is needed to gain a comprehensive view of facility deficiencies and the extent of deferred maintenance. The last comprehensive audit performed of University of Florida facilities was in 1992 with a Board of Regents Task Force follow-up review conducted in 1998. An updated comprehensive audit may reveal where major renovation and rehabilitation is appropriate, or where building replacement is a more efficient solution. It would also enable the tracking of progress in reducing deferred maintenance.

III. Deferred Maintenance

A. National Trends

Nationwide, universities have been unable to adequately fund the routine maintenance of their capital facilities. A 1988 study conducted by the Association of Physical Plant Administrators found that universities were deferring four dollars of maintenance for every one dollar spent. At that time, the total capital renewal and replacement needs of the country's universities were estimated to total sixty billion dollars. A follow up study in 1995 estimated that this need had dropped to approximately twenty-six billion dollars, but that figure is estimated to have increased by about twenty-five percent by 2003.

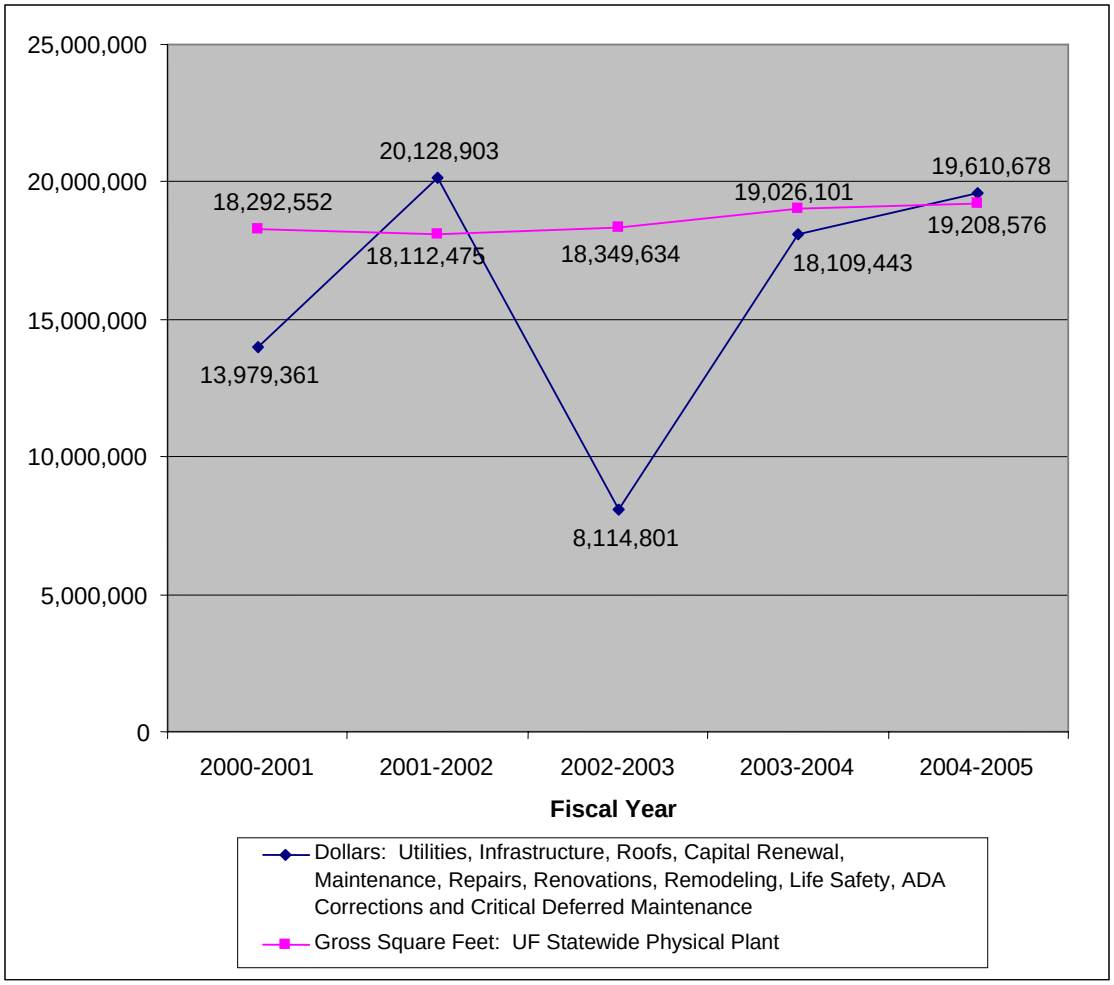
B. University of Florida Trends

The University of Florida has followed the national trend in its struggle to keep pace with maintenance needs. A 1992 Deferred Maintenance Report, prepared by Schenkel and Schultz, Inc. identified over $272 million of deficiencies at UF. Of this figure, $45,666,013 were attributed to IFAS facilities; $67,909,978 attributed to Health Science Center facilities; and $158,992,496 attributed to Education and General facilities. These maintenance needs included code corrections, building envelop, structure and interiors, building systems and infrastructure.

As a result of the 1992 study, a State University System Task Force conducted an evaluation of the University of Florida facilities in 1998. The Task Force found over $103 million in deficiencies that were categorized as critical. Their report recommended a maintenance spending plan of $100 million each year for two years for the entire State University System. Following the initial two-year period, the report recommended spending $50 million for an additional two years on system-wide maintenance. This funding level would have resulted in $300 million in maintenance spending system-wide, with the University of Florida receiving $94 million. However, actual allocation for the UF during that four-year period was $42.4 million, or less than half of the recommendation. Although the UF is using its maintenance allocations wisely and there are no catastrophic failures of buildings or systems, the appropriated monies continue to fail to impact the deferred maintenance backlog.

State PECO funds provide most of the monies required to maintain university buildings, building systems and infrastructure. These funds are allocated in several "minor monies" funding categories including: Utilities/Infrastructure/Capital Renewal/Roofs; Maintenance, Repairs, Renovations, Remodeling; Life Safety, ADA Corrections, Capital Renewal; and Critical Deferred Maintenance. Historically, funding for renovations and remodeling have also come from major project funding categories. However, the university's need for major new research buildings to support its academic strategic plan will likely decrease the amount of funding available for renovation and remodeling from this PECO budget line. In General, state funding for maintenance and capital renewal activities are subject to variations related to overall state budgets and priorities rather than real need. Funding received by the University of Florida for "minor monies" projects over the past five years is presented in the following chart and table in relation to the statewide gross square footage of facilities to maintain.

Statewide Building Space by Total PECO Minor Monies Project Funding



C. Department of Housing and Residence Education

Facilities under the management of the university's Department of Housing and Residence Education have similar deferred maintenance needs to those of other campus facilities. The following table displays the anticipated funding to be budgeted for deferred maintenance of Housing and Residence Education facilities. These funding levels are for deferred maintenance only and do not include any new construction projects.

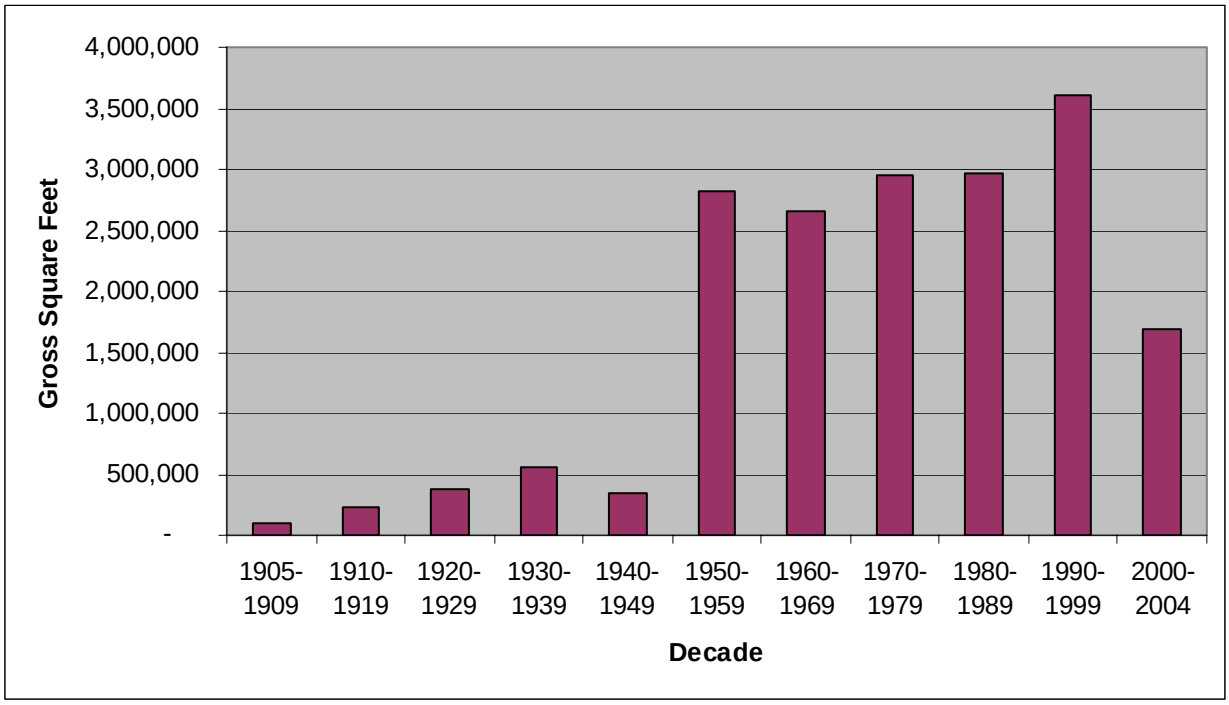
Department of Housing and Residence Education, Anticipated Deferred Maintenance Project Funding, 2005-2015

Fiscal Year	Projected Funding
2006-07	$ 4,761,851
2007-08	$ 5,430,316
2008-09	$ 5,489,606
2009-10	$ 5,165,091
2010-11	$ 5,418,314
2011-12	$ 5,048,882
2012-13	$ 4,745,300
2013-14	$ 4,626,209
2014-15	$ 5,411,309
Total, 2005-2015	$ 49,102,078

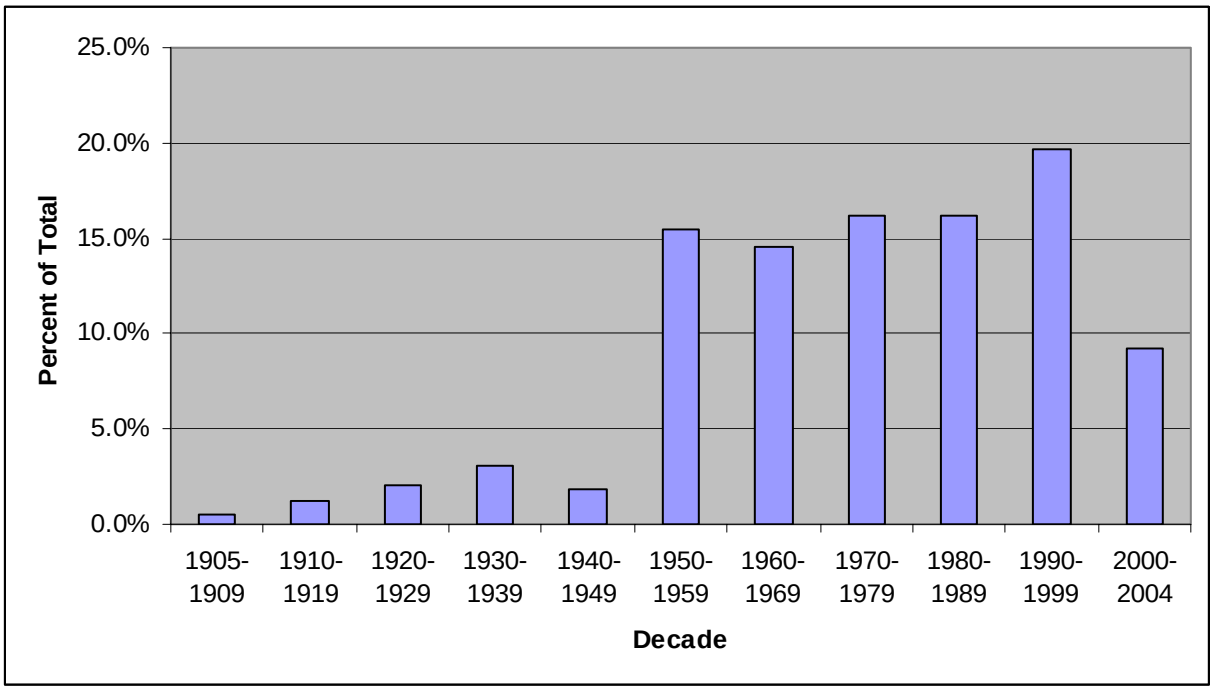
D. Building Age

One factor in the backlog of University of Florida maintenance needs is the age of its physical plant. Over half of the university's main campus buildings were constructed prior to 1979. A full forty-six percent totaling over eight million gross square feet were built between 1950 and 1979, making them fifty-five to twenty-six years old. At this age, most buildings' major systems and building components are in need of rehabilitation and modernization. New construction standards, energy efficiency opportunities and changing building usage each place new demands on capital renewal budgets for older buildings. The following graphs display the age of existing building space on the UF main campus.

Main Campus Building Space by Decade Constructed



Main Campus Building Space by Decade as a Percent of Total Main Campus Building Space



IV. Historic Preservation

Historic resources are defined as all areas, districts or sites containing properties listed on the Florida Master Site File, the National Register of Historic Places, or designated by the University as historically, architecturally or archaeologically significant, and those properties eligible for inclusion on the National Register of Historic Places based on being at least 50-years of age and having received a review from the State Division of Historical Resources documenting its historical significance. The historic building resources of the University of Florida create unique opportunities and challenges for building maintenance. Per the above data, over 1.6 million gross square feet equaling over eight percent of the main campus building space was constructed prior to 1950. Another 2.8 million gross square feet built between 1950 and 1959 are becoming fifty years old and eligible for consideration as nationally registered historic structures. These historic structures require special consideration during routine maintenance and any rehabilitation, renovation or remodeling. The University of Florida's Programmatic Memorandum of Agreement with the state's Division of Historical Resources identifies the Historic District and twenty-one buildings currently on the National Register of Historic Places.

The University has completed some recent renovation and rehabilitation on historic structures that has revealed a number of best practices and procedures. Through a current grant-funded effort from the Getty Foundation, the Physical Plant Division, Facilities Planning and Construction Division, and College of Design Construction and Planning have been collaborating to develop cyclical maintenance, training and best practices documentation that is specific to the character of the university's historic structures. Several recent case studies highlight the unique efforts being made to protect historic structures.

A. Smathers Library East Window Refurbishment and Brick Re-pointing

The Project was initially begun to address the leakage of air and water into the Library, especially the second floor Grand Reading Room.

The window refurbishment portion of the Project was undertaken because the window units, most of which were installed in 1927 had deteriorated over time. The windows, as originally installed were operable metal sashes with hammered, tinted glass in leaded frames. The metal sashes were mounted in wood frames that were painted white.

Many of the operators were not functional, some windows could not be completely closed and some of the glazing was cracked or broken. The original glass did not reduce either heat loads or UV rays. The wood frames had considerable rot especially at the bottoms.

The Project first abated the asbestos bearing caulking and removed the entire window assemblies. The openings were closed with plywood and the windows were sent to Tampa for the asbestos abatement of the paint, repair and/or replacement of the sash and frames. After renovation of the sash and frames, they were returned to the building and installed in the openings in which they were originally installed. The wood frames were then caulked and painted in place. Due to the presence of and preference for utilizing air conditioning it was decided to re-install the sashes such that they no longer operate.

The original glazing that could be reused was interspersed with similar new glazing, which produced an interesting mosaic of varying tints. Both existing and new glazing was covered with a clear film to reduce the heat load and UV rays.

The brick re-pointing was done because of moisture intrusion through the brick joints and the cast clay cap joints on the parapets.

The mortar was removed from the horizontal joints by power grinding and from the vertical joints by hand chisel. The joints were then refilled with mortar that was selected to match the original color and texture. The cast clay caps were removed and a copper cap was installed over the top of the parapet. The capstones were then replaced, anchored with metal pins and the joints were caulked with a flexible caulk, which matches the original mortar.

In addition to the above the east and west walls of the Grand Reading Room, were patched and painted, the landscaping adjacent to the west side of the building was renewed and the southwest entrance to the building, which has not been used for many years was refurbished.

The Project was completed in August of 2004

B. University Auditorium Repair of Water Leak

The University Auditorium has a Cupola with a skylight at the peak of the main seating area roof, directly above the center of the fifth row of seating, which was leaking when it rained.

Within the Cupola is a skylight and above the Cupola is a copper Spire topped by a copper cap, which holds a copper Finial with a copper ball. The Finial had been tilted on an angle for some time.

The Project was undertaken to attempt to stop the leaking. The first thing that had to be done was to attain access to the Cupola. This was done by accessing two levels of flat roof via ladders and then resting a third ladder up a valley to the base of the Cupola.

The first repair that was attempted was to inspect the copper cladding of the Cupola and the Spire and then solder or caulk the joints as appropriate. After the next rain, the Cupola still leaked.

Next, the outer and inner skylight covers were removed, inspected and re-installed with new caulking. After the next rain, the Cupola still leaked.

Although it did not seem logical that enough water could come in around the Finial, however, since this was the only area that had not been addressed, it was decided to see if this area required repair. Inspection of the Finial required the use of a very large crane. The crane was set up, the cap and Finial were removed, a new cap was fashioned, the new cap and Finial were installed, including new lead boots and the crane was removed in one day. After several rains, the Cupola has not leaked.

C. Norman Gym Roof Replacement

Norman Gym was built in 1932 as part of the Norman Hall complex, which was originally constructed to house the PK Yonge Developmental Research School. PK Yonge moved to a detached campus in 1959.

The original sloped roofs on the Norman Hall complex were all clay tile with the exception of Norman Gym, which was copper. Over the years repairs and replacements of the roofs were done with clay tile, including the Gym, which was converted to a clay tile roof sometime between 1958 and 1975. Exhaustive research of records and archives could not determine the exact date of the conversion.

When presented with the historic research showing the first roof was copper, the UF Historic Preservation Committee approved the concept of replacing the clay tile with copper. The copper roof concept and rationale was then forwarded to the Florida Architectural Preservation Services Department in Tallahassee for approval. This department determined that, since Norman Gym had been identified as

having a clay tile roof for most of it's existence, the roof should be replaced with clay tile. The Construction Documents were, therefore, modified to reflect the use of clay tile.

When a representative of the Florida Architectural Preservation Services Department inspected the existing roof and the relationship of Norman Gym to the rest of the complex a few weeks later the previous determination was reversed and a copper roof was recommended.

A copper roof was then successfully installed.

D. Tigert Hall Window Replacement

There were several reasons for replacing the windows at Tigert Hall, some of which are the following:

- The existing windows were double hung, and no longer weather tight (estimated 44 CFM air leakage per window).
- Occupants would open windows, which further disrupted the HVAC system
- The single pane loose fitting windows resulted in excessive noise from 13th Street.
- There was considerable heat load through the glazing, which was not insulated or tinted.
- Prototype replacement windows indicated that new non-operable, double insulated, tinted windows could successfully address the problems with the old windows, while maintaining the appearance of the building as originally constructed.

Tigert Hall is not currently listed on the National Register of Historic Places and is not included in the Memorandum of Agreement with the Florida Division of Historical Resources. However, at the inception of the window replacement project, it was determined that, given the construction date of 1950 and the importance of Tigert Hall in the history of the University of Florida, the project should be executed as though the building was officially historic.

The replacement aluminum window frames were designed such that they would match the existing mill finish and mullion proportions. These frames were designed such that they would also fit inside the fixed portion of the existing windows. Insulated, tinted glass was selected that retained the appearance of the original glazing. Considerable care and experimentation was taken to select the most appropriate caulking that would have the appearance of the original, but also have flexibility and durability.

The concept was approved by the UF Historic Preservation Committee and also submitted to the Florida Architectural Preservation Services Department in Tallahassee.

A representative of the Florida Architectural Preservation Services Department inspected and approved the prototype.

The installation of the windows involved careful measurements of each window and identifying the occupants of each room so they could be accommodated during the demolition/installation process. After coordinating with the occupants, the existing operable portions of the window systems were cut and broken out and then replaced with the new fixed units. One of the major policies for the project was that windows that were not demolished unless they could be replaced the same day.

The project resulted in a quieter, more comfortable, more energy efficient environment which maintains the original appearance of the building.

E. Dauer Hall Southeast Entrance

The Southeast Entrance has been the main entrance to Dauer Hall since the original construction, which was completed in 1932. One of the notable features of this entrance is the ceiling mural, which is attributed to Rudolph Weaver. Mr. Weaver was the Architect to the Board of Control of Institutions of Higher Learning and was the architect for most of the earlier buildings in the historic area of the University of Florida campus.

In 1987 a project was initiated to provide handicapped accessibility to Dauer Hall. To achieve this the original, relatively small, cast stone landing and steps were covered by a larger concrete landing to accommodate the installation of an exterior wheelchair lift. New steps and handrails were installed at the end of the new landing, approximately 10 feet east of the original steps. The lift, while not unattractive, was not compatible with the adjacent building.

After the installation of a new elevator tower, which provided better accessibility, it was decided to remove the 1987 lift. After the lift was removed it was discovered that the original landing and steps were apparently mostly intact.

Hoping to preserve the original landing and steps, the rest of the demolition of the 1987 work was done carefully, to protect the material below. These precautions were successful as most of the landing and steps were maintained in excellent condition. The original outside pieces of the landing and stairs were missing so new pieces were fabricated and installed that are similar, but not identical to the original pieces.

New metal handrails that match the originals were also installed.

F. Dauer Hall South Entrance

The Southeast Entrance has been utilized for access to Dauer Hall since the original construction, which was completed in 1932. In the course of over 70 years the landing, steps and wrought iron railing have deteriorated and have had various repairs made to them, mostly without sympathy regarding the historical nature of the area. One of the immediate problems is that the landing, which extends approximately 10 feet beyond the building is leaking.

The landing is constructed of quarry tile on a mud bed over a brick vault. Water has leached through the landing structure and caused efflorescence on the surface of the vault as well as infiltrating into the lower level of the building.

The PPD A/E Department has developed a Scope of Work to do the following:

- Document the existing quarry tile colors and designs for future reference when the tile is replaced.
- Carefully remove and identify the quarry tile from the landing.
- Remove the mud bed under the existing quarry tile.
- Remove dirt that is suspected to be between the mud bed and the top of the brick vault.
- Stabilize the space between the top of the brick vault and the mud bed, perhaps with concrete.
- Remove and reset the precast steps that are loose – repair if damaged.
- Strip and repaint the wrought iron railings.
- Install an impervious pan over the concrete that was placed over the brick vault.
- Install a mud bed over the pan and install the quarry tile, utilizing as much of the existing tile as possible.
- Clean off the efflorescence on the vault walls.

G. Dauer Hall Window Refurbishment

It has been noted that there are windows in Dauer Hall that are in need of repair/refurbishing. PPD A/E is presently seeking funds with which to enable this project.

13.
CAPITAL IMPROVEMENTS
DATA & ANALYSIS

I. Facility Needs Assessment

The need for building space at the University of Florida is driven, in part, by employment and enrollment growth. Enrollment growth over the past decade has left a deficiency of space for certain types of academic, study, student support, recreation and other uses. Future space needs are generated due to modest projected enrollment growth on the main campus combined with the university's desire to hire new faculty to reduce the student-to-faculty ratio. At the same time, the university's intent to increase graduate enrollment, as a total number and as a percent of total enrollment, has an impact on space demands. The space requirements for a graduate full-time equivalent (FTE) student are greater than for an undergraduate FTE student because of the added need for graduate research and office space. Similarly, graduate student and family housing requires more square footage per student than undergraduate housing. Another contributor to the space needs at the University is the requirement to upgrade laboratory space and equipment to accommodate modern areas of scientific discovery. In particular, the health sciences, life sciences, engineering, basic sciences and multidisciplinary programs have need for creating and maintaining state-of-the-art research facilities. Similarly, classrooms, auditoriums and student housing must be modernized to take advantage of evolving technologies. The Educational Plant Survey process is one means of determining adequacy of academic, instructional and support space on the university campus. Academic program accreditation reviews also evaluate space and facilities, which may reveal deficiencies in specific program areas compared to peer institutions. Other university space needs are related to extension services and community-oriented programs including museums, theaters, conference facilities and medical clinics that must expand to meet the needs of the citizens of the State of Florida.

A. Enrollment Growth

Headcount Enrollment. There are two types of enrollment that describe student populations. The headcount enrollment is the total number of individuals enrolled at the university, while the full-time equivalent (FTE) enrollment translates those individuals based on the credit hours they are registered for to produce an equivalent number of students if all were enrolled on a full-time basis.

During its 100 year history, the University of Florida has experienced steady enrollment growth with trends typically following national and state influencing factors such as war time, financial aid availability, and population growth. Total headcount enrollment increased by 10% in the five years from 1999 to 2004. Enrollment will continue to be influenced by external factors such as population growth and scholarship programs in the State of Florida. It will also be influenced by internal policies that seek to emphasize graduate student programs and matriculate undergraduate students at a more efficient rate. Actual headcount enrollment for the period 2001-2004 is about three percent higher than projections made in 2000. However, the trend depicts an increase in graduate and professional enrollment as a percent of total enrollment accompanied by a decline in undergraduate enrollment as a percent of total, which is consistent with the policy direction of the University. The following tables display trends in headcount enrollment.

Historic Total Headcount Enrollment, Fall Semester, 1905-2004

Year	Total Headcount Enrollment	Percent Change in 5-Year Period
1905	135	-
1909	186	37.8%
1914	395	112.4%

1919	664	68.1%
1924	1,488	124.1%
1929	2,257	51.7%
1934	2,848	26.2%
1939	3,323	16.7%
1944	755	-77.3%
1949	10,573	1300.4%
1954	9,863	-6.7%
1959	12,710	28.9%
1964	15,701	23.5%
1969	20,769	32.3%
1974	28,332	36.4%
1979	32,314	14.1%
1984	36,010	11.4%
1989	36,242	0.6%
1994	39,024	7.7%
1999	44,276	13.5%
2004	48,765	10.1%

Source(s): Office of the University Registrar Historical Data, SUS Fact book, SUS Master Files, Final Student Data Course Files

Total Headcount Enrollment by Class Level, Fall Semester, 1989-2004

Year	Lower Division	Upper Division	Graduate	Professional	Unclassified	Total
1989	10,865	14,576	5,781	2,161	2,859	36,242
1990	10,378	14,916	6,037	2,427	2,773	36,531
1991	10,519	15,390	6,400	2,478	2,619	37,406
1992	10,528	15,657	6,687	2,215	2,440	37,527
1993	11,271	15,492	6,886	2,239	2,511	38,399
1994	11,364	15,941	7,047	2,256	2,416	39,024
1995	11,955	16,502	6,828	2,285	2,381	39,951
1996	11,939	16,948	6,881	2,370	2,234	40,372
1997	12,575	17,743	7,094	2,520	2,121	42,053
1998	12,472	18,367	7,555	2,855	2,078	43,327
1999	12,553	18,571	8,231	2,985	1,936	44,276
2000	13,368	18,892	8,788	3,165	1,894	46,107
2001	13,193	19,451	9,067	3,281	1,806	46,798
2002	13,104	20,244	9,468	3,434	1,934	48,184
2003	13,285	20,457	9,928	3,554	1,449	48,673
2004	13,354	20,064	10,089	3,793	1,465	48,765

Source: Final Student Data Course File
Note: Lower Division includes freshmen and sophomores; Upper Division includes juniors and seniors; Unclassified includes non-degree and post-baccalaureate students.

Headcount Enrollment by Class Level as a Percent of Total Headcount Enrollment, Fall Semester, 2000-2004

Year	Undergraduate	Graduate and Professional	Unclassified	Total
1995	71.2%	22.8%	6.0%	39,951
2000	70.0%	25.9%	4.1%	46,107
2004	68.5%	28.5%	3.0%	48,765

Total Headcount Enrollment Projections vs. Actuals, Fall Semester, 2000-2004

Projected in 2000				
	Undergraduate	Graduate and Professional	Unclassified	Total
2001	32,007	12,161	1,958	46,126
2002	32,163	12,611	1,658	46,432
2003	32,240	13,061	1,658	46,959
2004	32,025	13,511	1,658	47,194
Actual Enrollment				
	Undergraduate	Graduate and Professional	Unclassified	Total
2001	32,644	12,348	1,806	46,798
2002	33,348	12,902	1,934	48,184
2003	33,742	13,482	1,449	48,673
2004	33,418	13,882	1,465	48,765

Source: Office of Institutional Research

Headcount Enrollment by College, Fall Terms, 1990-2004

College/School	1990	1995	2000	2001	2002	2003	2004
Accounting	803	623	800	844	903	947	972
Agricultural and Life Sciences	1,407	2,562	3,642	3,508	3,623	3,707	3,798
Building Construction	310	369	541	561	559	609	628
Business Administration	2,020	2,820	6,357	6,600	6,713	6,221	5,682
Dentistry	297	348	368	370	374	373	380
Design, Construction, and Planning	670	810	1,003	1,005	981	989	987
Division of Continuing Education*	283	722	414	450	535	294	372
Education	1,547	1,663	1,885	1,777	1,810	1,749	1,912
Engineering	3,574	4,236	6,244	6,437	6,607	6,580	6,402
Fine Arts	528	658	1,126	1,175	1,180	1,180	1,147
Forest Resources and Conservation	228	254	124	124	129	144	161
Health and Human Performance	1,021	1,192	1,899.33	1,892.67	1,881.67	1,815.33	1,838

College/School	1990	1995	2000	2001	2002	2003	2004
High School	0	21	8	28	35	36	27
Journalism and Communications	1,517	1,709	3,352	3,441	3,305	3,157	2,985
Law	1,179	1,261	1,264	1,299	1,312	1,267	1,273
Liberal Arts and Sciences (Class LS)**	5,236	17,776	12,368	12,336.5	12,953.5	13,712.5	14,015.5
Liberal Arts and Sciences (Class UF)**	11,757	0	0	0	0	0	0
Medicine	633	668	712.33	758.67	757.67	789.33	800
Natural Resources and Environment	0	30	202	198	180	181	177
Nursing	653	765	837	806	860	936	920
Pharmacy	423	496	366	351	372	468	574
Pharmacy Doctor	0	0	952	1,016	1,174	1,387	1,595
Physician Assistant Program	317	115	122	120	119	117	119
Public Health & Health Professions	458	493	1,219.33	1,343.17	1,409.17	1,560.83	1,551.50
Veterinary Medicine		360	416	444	501	511	512
SUB-TOTAL	34,861	39,951	46,222	46,885	48,274	48,731	48,828
Minus Concurrent Degree***			115	87	90	58	63
TOTAL			46,107	46,798	48,184	48,673	48,765

NOTES: College of Agriculture name changed to Agricultural and Life Sciences Fall 2000. College of Architecture name changed to Design, Construction, and Planning Fall 2000. College of Health Professions name changed to Public Health and Health Professions Fall 2003. *** Concurrent Degree programs counted separately as of Fall 1998. Prior to this time they were included within the College of Law figures. Audiology program divides enrollment between Colleges of LS and HP as of Fall 1998. Prior to this time they were split between LS and HP based on their major code. Public Health program divides enrollment between Colleges of HH, HP and MD as of Fall 1998. Prior to this time they were within the College of HP.

On-Campus and Off-Campus Enrollment. While overall university headcount enrollment has been increasing, the percent of enrollment accommodated in locations other than the main campus in Gainesville has also been increasing. Between 2003 and 2004, the increase in off-campus enrollment exceeded the total increase in enrollment causing on-campus enrollment to decline slightly. The total number of student credit hours earned off-campus has also increased in recent years with the largest increase of 26.1% occurring between 2003 and 2004. The following tables display analysis of headcount enrollment on the main campus and off of the main campus.

On-Campus and Off-Campus Headcount Enrollment, Fall Semester, 2000-2004

Year	On-Campus	Percent On-Campus	Off-Campus	Percent Off-Campus	Total Enrollment
2000	43,511	94.4%	2,596	5.6%	46,107
2001	44,079	94.2%	2,719	5.8%	46,798
2002	44,894	93.2%	3,290	6.8%	48,184
2003	45,210	92.9%	3,463	7.1%	48,673
2004	45,126	92.5%	3,639	7.5%	48,765

Source: Final Student Data Course Files and Backup of CSTAT

Percent of Headcount Enrollment Growth Accommodated Off-Campus, Fall Semester, 2000-2004

Year	Off-Campus	Increase in Off-Campus	Total Enrollment	Total Increase	Percent of Total Enrollment Increase Accommodated Off-Campus
2000	2,596	-	46,107	-	-
2001	2,719	123	46,798	691	17.8%
2002	3,290	571	48,184	1,386	41.2%
2003	3,463	173	48,673	489	35.4%
2004	3,639	176	48,765	92	191.3%

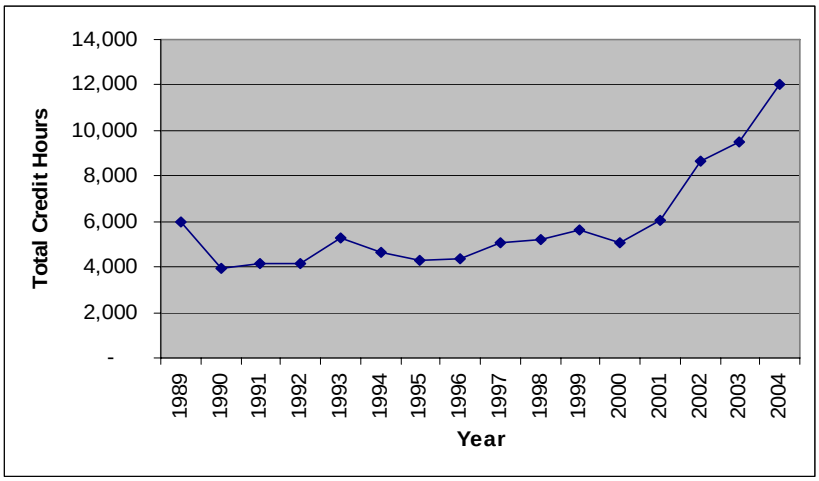
Source: Final Student Data Course Files and Backup of CSTAT

Total Student Credit Hours Produced Off-Campus, Fall Semester, 2000-2004

Year	Hours	Percent Increase
1989	5,965	-
1990	3,954	-33.7%
1991	4,159	5.2%
1992	4,138	-0.5%
1993	5,275	27.5%
1994	4,658	-11.7%
1995	4,291	-7.9%
1996	4,340	1.1%
1997	5,078	17.0%
1998	5,175	1.9%
1999	5,605	8.3%
2000	5,056	-9.8%
2001	6,027	19.2%
2002	8,620	43.0%
2003	9,512	10.3%
2004	11,995	26.1%

Source: Final Student Data Course File, Office of Institutional Research

Total Student Credit Hours Produced Off-Campus, Fall Semester, 2000-2004



Source: Final Student Data Course File, Office of Institutional Research

Headcount Enrollment 2015 Projection. On-campus headcount enrollment is projected to increase at an average of less than one percent per year over the period 2005 to 2015. Between 2000 and 2004, the highest annual percent increase in on-campus enrollment was 1.85%, but 2004 also saw a decrease in on-campus enrollment due to significant increases in off-campus enrollment. The on-campus headcount enrollment is projected to be 49,500 students in 2015; however, trends of increasing off-campus headcount enrollment are also expected to continue.

Actual and Projected On-Campus Headcount Enrollment, Fall Semester, 2000-2015

Year	On-Campus	Increase	Percent Increase
Actual			
2000	43,511	-	-
2001	44,079	568	1.31%
2002	44,894	815	1.85%
2003	45,210	316	0.70%
2004	45,126	(84)	-0.19%
Projected			
2005	45,500	374	0.83%
2006	45,900	400	0.88%
2007	46,300	400	0.87%
2008	46,700	400	0.86%
2009	47,000	300	0.64%
2010	47,500	500	1.06%
2011	47,900	400	0.84%
2012	48,300	400	0.84%
2013	48,700	400	0.83%
2014	49,000	300	0.62%
2015	49,500	500	1.02%

FTE Enrollment. Full-time equivalent enrollment (FTE) is the basis of statewide campus budgeting and space need formulas. FTE enrollment is always lower than headcount enrollment since it accounts for students attending on less than full-time basis. Enrollment growth in graduate and professional levels is evident in FTE enrollment as it is in headcount enrollment. Similarly, an increase in off-campus enrollment is also demonstrated by FTE enrollment and headcount enrollment.

Actual and Projected Total FTE Enrollment, Fall Semester, 2002-2013

	Actual				Planned							
	2001-2002	**2002-2003**	**2003-2004**	**2004-2005**	**2005-2006**	**2006-2007**	**2007-2008**	**2008-2009**	**2009-2010**	**2010-2011**	**2011-2012**	**2012-2013**
Main Campus												
Under-graduate	24,125	23,902	24,370	24,237	24,515	24,505	24,431	24,357	24,283	24,184	24,175	24,166
Graduate	7,571	7,667	7,904	8,022	8,530	9,336	9,150	9,325	9,500	9,647	9,812	9,977
Profess-ional	1,080	1,089	1,093	1,114	1,139	1,169	1,199	1,229	1,244	1,244	1,244	1,244
Total	32,776	32,658	33,367	33,373	34,184	35,010	34,780	34,911	35,027	35,075	35,231	35,387
Off Campus												
Under-graduate	299	339	321	306	344	354	429	504	579	679	689	699
Graduate	68	215	352	500	603	630	676	751	826	929	1,032	1,135
Total	367	554	673	806	947	384	1,105	1,255	1,405	1,608	1,721	1,834
Grand Total	33,143	33,212	34,040	34,179	35,131	35,394	35,885	36,166	36,432	36,683	36,952	37,221

Source: Office of the Provost and Senior Vice President for Academic Affairs, May 2005

B. Employment Trends

For the campus, employees were defined as the headcount of all university employees and Shands-UF employees with primary place of employment on a property included in the university master plan jurisdiction. These university employees may include faculty, staff, OPS, part-time, graduate and student assistant employee classifications. A growth trend was analyzed to provide annual projections to the year 2015 and 2025. The existing headcount employment on the university main campus, including employees of the University and Shands-UF in 2003-2004 was 22,211. That number is estimated to be 22,433 employees in the academic year 2004-2005. The projected headcount employment is anticipated to be 24,654 in the year 2015.

The annual trend line for university employees was calculated from data of the Office of Academic Affairs including all statewide university employees, which demonstrated a six-year annual average employee growth of 1.13 percent per year as demonstrated in the following table.

Total Statewide University of Florida Headcount Employees, 1998-2004

YEAR	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	1998-2004
TOTAL	20,979	23,524	20,978	21,848	21,940	22,399	na
CHANGE		12.13%	-10.82%	4.15%	0.42%	2.09%	6.77%
AVERAGE ANNUAL CHANGE							1.13%

Source: Office of Academic Affairs (data as of Sept. 1st in each academic year; includes Faculty, Staff, OPS, Part-Time, graduate & student assistants statewide). Note that this does not include employees of UF&Shands.

Next, university headcount employment was analyzed by primary place of employment based on the 2004 Space Inventory and Allocation Survey. University employment on the Main Campus and P.K. Yonge Developmental Laboratory School was found to be 76.74% of total statewide university employment. The following table displays the 2004 headcount employment for each university property covered within the campus master plan jurisdiction.

University of Florida Employment by Location, 2004

SITE #	NAME	HEADCOUNT
0001 & 0002	Main Campus & P. K. Yonge School	17,188
0005	TREEO Center	15
0016	Eastside Campus (Waldo Road)	54
0016	Libraries Remote Services (NE 39 Ave.)	10
0107	Austin Cary	4
0108	Beef Research Unit	6
0109	Dairy Research	20
0111	Wall Farm / HTU	5
0114	Lake Wauburg Recreation	42
0120	Santa Fe River Ranch Beef Unit	1
0012	Millhopper Horticulture Unit	44
0601	Ft Lauderdale REC	80
1000	Mid-Florida REC (Apopka)	79
na	All other statewide sites	4,851
	TOTAL	22,399

An employment trend for Shands-UF employees was based upon data included in the 2000-2010 campus master plan (Tech Memo for Analysis) and 2004 information from Shands Hospital for those employees primarily assigned to the University of Florida facilities. This information identified 4,800 Shands-UF employees in 2000-2001 and 5,023 Shands-UF employees in 2003-2004 for an increase of 223 employees or 1.16% annual increase. The Shands-UF employee four-year annual growth rate is comparable to the 1.13% annual growth rate found for university employees over the recent six-year period.

From these analyses, the 2015 employment projection was calculated assuming a 1% annual growth rate for both university and Shands-UF employees with 76.74% of all university employees working on the main campus including P. K. Yonge Developmental Research School. The following table displays the employment forecasts for the main campus and Shands-UF including a total of both entities.

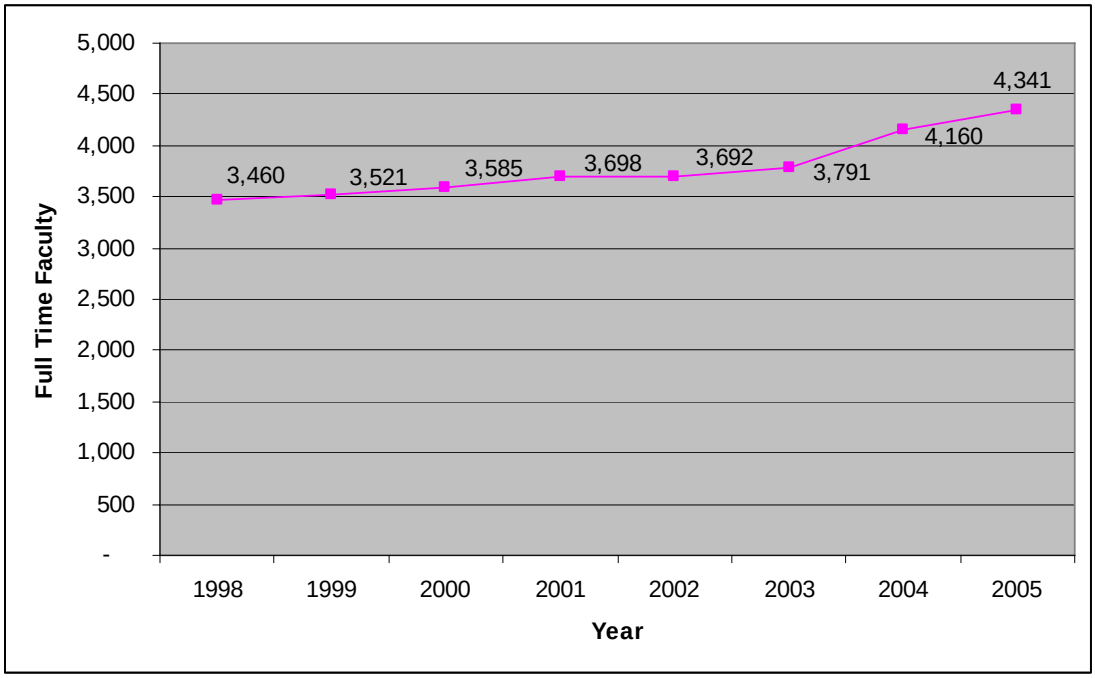
Headcount Employment Projections for Main Campus and PKY, 2005-2025

	Existing 2003-2004	Projected 2004-2005	Projected 2014-2015
University of Florida	17,188	17,360	19,079
Shands-UF	5,023	5,073	5,576
TOTAL Employment	22,211	22,433	24,654
CHANGE		222	2,221

NOTE: Projections are not compounded. They are based on 1% growth annual average from the base year.

Faculty Employment. In the fall semester of 2003, there were 3,791 faculty members accounting for nearly 17% of all statewide University of Florida employees. There were 881 faculty members added between 1998 and 2005 for an average of 125 new faculty members per year. The following tables display the trend in full-time faculty hires and the 2005 status of faculty members by College and rank.

Full Time Faculty Employment, Fall Semesters, 1998-2005



Source: Office of Institutional Research, UF Fact Book

Full Time and Part Time Faculty by College and Rank, Spring 2005

UNIT NAME	Subtotal Tenure /Accruing	Subtotal Not Tenure Eligible	Other Support Faculty	TOTAL Faculty
FULL TIME				
Agriculture	499	43	292	834
Business Administration	88	12	21	121

UNIT NAME	Subtotal Tenure /Accruing	Subtotal Not Tenure Eligible	Other Support Faculty	TOTAL Faculty
Dentistry	75	42	4	121
Design, Construction and Planning	61	7	4	72
Education	74	24	44	142
Engineering	230	33	28	291
Fine Arts	81	4	4	89
Florida Museum of Natural History	22	3	1	26
Group 1	25	46	17	88
Group 3	83	215	1	299
Health and Human Performance	43	4	6	53
Health Professions	50	33	14	97
Journalism and Communications	55	1	13	69
Law	56	23	7	86
Liberal Arts and Sciences	553	90	53	696
Medicine	481	330	42	853
Nursing	30	27	1	58
Pharmacy	36	24	1	61
University of Florida Libraries	64	3	17	84
Veterinary Medicine	76	30	0	106
FULL TIME TOTAL	2682	994	570	4246
PART TIME				
Agriculture	1	8	3	12
Business Administration	0	0	2	2
Dentistry	1	6	1	8
Design, Construction and Planning	1	0	1	2
Education	1	4	4	9
Engineering	2	9	2	13
Fine Arts	2	0	0	2
Florida Museum of Natural History	0	1	0	1
Group 1	0	5	2	7
Group 3	6	15	0	21
Health and Human Performance	1	0	0	1
Health Professions	9	10	2	21
Journalism and Communications	0	1	1	2
Law	12	7	3	22
Liberal Arts and Sciences	30	49	4	83
Medicine	0	4	0	4

UNIT NAME	Subtotal Tenure /Accruing	Subtotal Not Tenure Eligible	Other Support Faculty	TOTAL Faculty
Nursing	1	1	0	2
Pharmacy	3	0	0	3
University of Florida Libraries	2	8	0	10
PART TIME TOTAL	72	128	25	225

Source: Office of Institutional Research and Faculty Senate member pool data.

C. Educational Plant Survey

The Department of Education, Office of Educational Facilities (OEF), conducted Surveys for each of the universities before July 1, 1995. The 1995 Legislature, through amendment of s. 235.014 and 235.15, Florida Statutes, eliminated the conducting of Surveys from the functions of the Department of Education and gave this responsibility to the Board of Regents (BOR). The Board of Regents was then given the choice to accomplish Surveys with support staff or arrange for them to be conduct by an outside agency. The Board of Regents executive committee meeting on October 6, 1995, establish the procedures for conducting university Surveys. During the Legislative Session of 2000, the Florida Board of Education was formed replacing the Department of Education. Under this new structure the Division of Colleges and Universities was formed, and the BOR Office of Facilities became the DCU Office of Facilities, taking with it the responsibility for accomplishing Surveys. The Board of Regents devolved and ceased on January 7, 2003, and several responsibilities again shifted. The DCU Office of Facilities was absorbed into the Florida Board of Education's Office of Educational Facilities; the responsibility for accomplishing Surveys became that of the newly created Universities' Board of Trustees; and the FBOE Office of Educational Facilities became responsible for review of Surveys and for recommending approvals to the Commissioner of Education. The restructure of Department of Education also essentially eliminated Chapters 235 and 240 of the Florida Statutes and, except for the reference above to Chapter 235, the remaining references to Florida Statutes within this document will cite Title XLVIII K-20 Educational Code, Chapters 1000 – 1013 F.S.

Definitions and Requirements for the Educational Plant Survey. An Educational Plant Survey is defined in s. 1013.01(8), Florida Statutes, as a systematic study of present educational and ancillary plants and the determination of future needs to provide an appropriate educational program and services for each student based on projected capital outlay FTE's approved by DCU. The term "Educational plant" is defined in s. 1013.01(7), F. S., as those areas comprised of the educational facilities, site, and site improvements necessary to accommodate students, faculty, administrators, staff, and the activities of the educational program. The term "Ancillary plant" is defined in s. 1013.01(1), F. S., as an area comprised of the building, site, and site improvements necessary to provide such facilities as vehicle maintenance, warehouses, maintenance, or administrative buildings necessary to provide support services to an educational program. A Survey is required at least every five years pursuant to s. 1013.31(1) F.S. In addition, s. 1013.64(4)(a), F.S., requires that each remodeling and renovation project included in the Department of Education's 3-year PECO Project Priority List (s.1013.65 (1), (2)(a) F.S.) be recommended in a Survey and, that the educational specifications for new construction be approved by the Commissioner before appearing in the first year of this list. PECO (Public Education Capital Outlay) Funds are the primary source available to universities for academic and support facilities. By definition, as found in Section 1013.01(16), Florida Statutes, a PECO Funded Project is any "site acquisition, renovation, remodeling, construction project, or site

improvement funded through this source of revenue and all buildings, equipment, other structures, and special educational use areas that are built, installed, or established must be necessary to accommodate and serve the primary educational instructional program of… a University's Board of Trustees."

Surveys may be amended if conditions warrant a change in the construction program. Each revised Educational Plant Survey and each new Educational Plant Survey supersedes previous Surveys. This report may be amended, if conditions warrant, at the request of the board or commissioner (s. 1013.31(1)(a), F. S.). Recommendations contained in a Survey Report are null and void when a new Survey is completed.

Purpose of the Educational Plant Survey. The purpose of a survey is to aid in the formulation of five-year plans to house the educational program and student population, faculty, staff, and auxiliary and ancillary services of the campus. Specific recommendations are provided to assist in the facilities planning process. The survey should be considered as one element in the overall facilities planning process, which begins with the master planning process, includes the capital improvement element of the master plan for the long-term physical development of the university, the shorter-term five-year capital improvement program, and the development of specific building programs before submitting a request for funding.

Types of Facilities Addressed in the Survey. The following ten categories of space have been identified as those needed to meet educational program requirements: Classroom, Teaching Laboratory, Research Laboratory, Study, Instructional Media, Auditorium/Exhibit, Teaching Gymnasium, Student Academic Support, Office/Computer and Campus Support Services. These categories are included within the nationally recognized space classification, as identified within the Postsecondary Educational Facilities Inventory and Classification Manual, dated November 1992. The need for merchandising facilities, residential facilities, and special-purpose non-credit facilities such as demonstration schools, continuing education centers, or dedicated intercollegiate athletic facilities are not addressed in the Educational Plant Survey. An evaluation of facilities needs associated with these activities would require a separate analysis of demand measures and program requirements.

Survey Process. The survey process is comprised of two main components: the facilities inventory validation component and the needs assessment component. The fieldwork portion of the processes is carried out by a survey team, which is directed by the Survey Leader from one of the University's Sister Institutions. Other survey team members include a professional architect from the Florida Board of Education and professional staff from other universities. A Survey Facilitator is assigned by the subject university to facilitate logistics, collection of data for inventory validation, development of the survey workbook used by the survey team, ordination of university activities, and final preparation and publication of this document. Significant preparation is necessary before each of the two survey components are carried out.

Space Needs Formula. The space needs model applied the State University System Space Needs Generation Formula (Formula). The Formula was designed to recognize space requirements for a site based on academic program offerings, student enrollment by level, and research programs. The most important measure in the Formula is student of full-time-equivalent enrollment. Other important measures include positions, research activity, and library materials. The following space categories are included in the Formula:

Instructional	Academic Support	Institutional Support
Classroom	Study Facilities	Student Academic Support
Teaching Laboratories	Instructional Media	Office/Computer
Research Laboratories	Auditorium/Exhibition	Campus Support
	Teaching Gymnasium	

Application of the formula results in unmet space needs that are then compared to the effect of proposed projects on the facilities inventory. In cases where the Formula does not support a proposed project, the justification provided by the university is considered. Such justification may include the unique space requirements associated with a particular program. In some cases, the proposed facilities meet program requirements that are not addressed in the Formula. An example of such a case is a large wind tunnel facility or linear accelerator facility that far exceeds the space allowances provided for in the Formula. This type of space is regarded as ineligible to meet the space needs generated by the Formula. Similar treatment is given to unique facilities within the existing facilities inventory to ensure that Formula space needs are compared to facilities designed to meet those needs. The formula does include basic room and station utilization assumptions for classrooms and teaching laboratory facilities. The following tables report the results of applying the formula generated space factors for the main campus, and the results of comparing the generated space needs to the existing satisfactory and eligible facilities inventory for the main campus.

Generated Net Assignable Square Feet (NASF) by Space Category, Main Campus, 2004-2009

Space Category	Site 0001 Main Campus
Instructional	
Classroom	410,915
Teaching Laboratory	563,398
Research Laboratory	1,763,570
Academic Support	
Study (i.e. includes Libraries)	944,962
Instructional Media	27,561
Auditorium/Exhibition	107,382
Teaching Gymnasium	133,154
Institutional Support	
Student Academic Support	21,476
Office/Computer	2,156,589
Campus Support Services	306,450

Comparison of Existing Satisfactory Space with Generated NASF Needs by Category, 2004-2009

Space Category	Generated Need	Existing Space	Unmet Need
Instructional			
Classroom	410,915	381,286	29,629
Teaching Laboratory	563,398	475,888	87,510
Research Laboratory	1,763,570	1,561,365	202,205
Academic Support			
Study	944,962	451,129	493,883
Instructional Media	27,561	18,953	8,608

Space Category	Generated Need	Existing Space	Unmet Need
Auditorium/Exhibition	107,382	83,384	23,998
Teaching Gymnasium	133,154	71,516	61,638
Institutional Support			
Student Academic Support	21,476	2,221	19,255
Office/Computer	2,156,589	1,993,660	162,929
Campus Support Services	306,450	196,238	110,212

II. Building Construction Trends

A. Existing Building Inventory and Recent Development

In December 2004, the University of Florida main campus contained 18,804,010 GSF of building space. The allocation of main campus and satellite building square footage by land use classification is presented in the following table.

Existing Building Gross Square Footage by Land Use Classification in the 2000-2010 Campus Master Plan, December 2004

Site 0001 - MAIN CAMPUS	
Academic	7,757,144
Active Rec	1,204,790
Conservation	35,259
Cultural	219,327
Housing	3,156,882
Parking	2,871,159
Passive Rec	165,138
Support	3,210,143
Utility	184,168
Total	18,804,010

Site 0003 - WRUF RADIO	
Support	3,364

Site 0004 - WUFT TV TOWER	
Support	3,102

Site 0005 - TREEO CENTER	
Academic	23,910

Site 0107 - AUSTIN CARY	
Academic	31,280

Site 0108 - BEEF RESEARCH UNIT	
Academic	35,150

Site 0109 - DAIRY RESEARCH	
Academic	176,633

Site 0111 - WALL FARM / HORSE TEACHING UNIT	
Academic	72,602

Site 0112 - MILLHOPPER HORTICULTURE UNIT	
Academic	83,542
Conservation	1,470

Site 0114 - LAKE WAUBURG	
Active Rec	20,982

Site 0002 – PKY LABORATORY SCHOOL	
Support	82,034

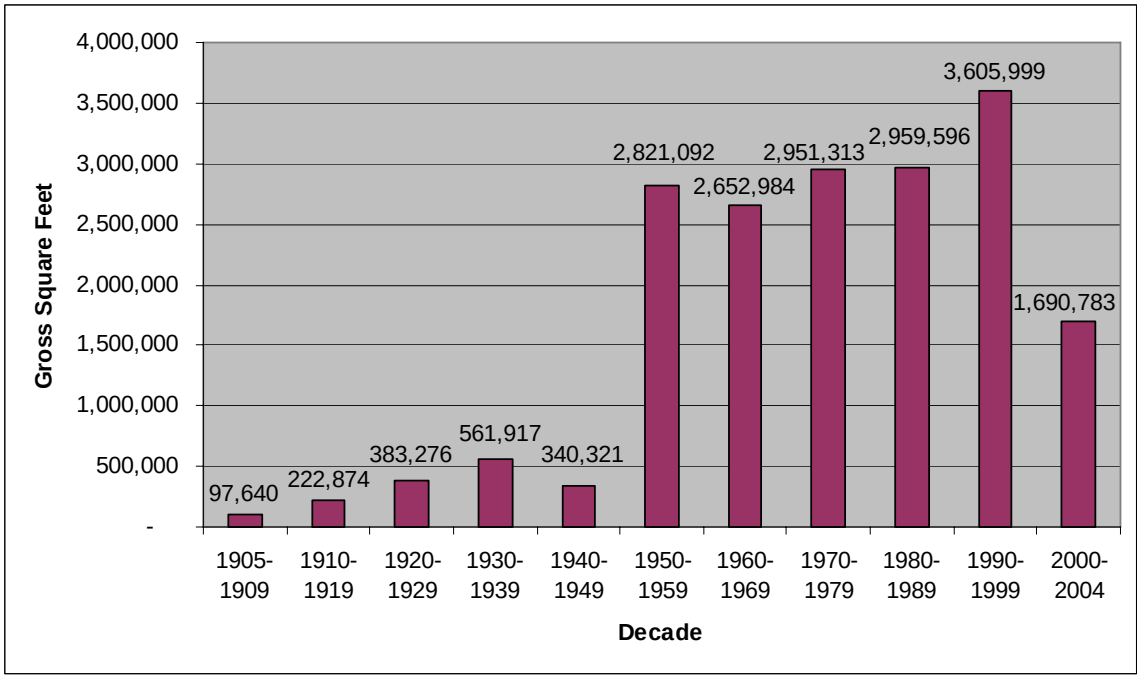
Site 0016 – EASTSIDE CAMPUS	
Support and Academic	184,200

Site 0016 – LIBRARIES REMOTE SERVICES	
Support	51,764

Site 0120 - SANTA FE RIVER RANCH BEEF UNIT	
Academic	31,670

The following graph depicts a history of building construction trends on the University main campus as indicated by the year in which existing buildings were constructed. The most aggressive building program occurred during the decade of 1990-1999, and the five-year trend for 2000-2004 indicates a similar rate of construction can be anticipated for the decade of 2000-2010.

Main Campus Building Inventory in GSF by Year Built



Following adoption of the Campus Master Plan for 2000-2010, the University of Florida constructed 1,114,795 gross square feet (GSF) of new space on the main campus. The building projects and associated land use classification for main campus are presented in the following table. During this period at the Alachua County Satellite Properties, an 18,000 GSF barn was constructed at the Santa Fe River Beef Research Unit along with a hay/yearling barn and graduate student residence at the Wall Farm/Horse Teaching Unit totaling 4,600 GSF.

Completed New Construction Projects, Main Campus – 2000-2004 (GSF) *

Project	Housing	Utilities	Passive Rec.	Active Rec.	Academic	Support/ Cultural
Accounting Building / Gerson Hall					39,640	
Alpha Pi Omega Addition	1,631					
Basketball Practice Facility				48,850		
Bivens Lake Recreation Facilities (combined with Broward Basketball/a.k.a. Housing Recreation Facilities)				10,000		
Bookstore/Welcome Center						216,750
Constans Theater Ph. II					45,840	
Environment Health & Safety						2,100
Foundation Office Bldg. Phase II - (a.k.a. Emerson Hall and Alumni Hall)						61,862
Health Professions, Nursing & Pharmacy					184,596	
HP-1 Hume Hall Replacement (163,000 less demolition)	13,294					
JHMHC Animal Facilities Relocation						3,281
McGuire Lepidoptera Lab					32,577	
M. E. Rinker Hall (School of Building Construction)					48,906	
Orthorthopaedic Surgery and Sports Medicine Center						119,105
PKY Auditorium Replacement (22,000 GSF less demolition)						9,100
Poultry Science Farm Relocation (2002 decision to delete program)					0	
Reitz Union Expansion (a.k.a. Ballroom)						25,800
Shands Medical Plaza Expansion						60,000
Stadium Skybox/Pressbox Expansion				191,463		
TOTAL	14,925	-	-	250,313	351,559	497,998

* Note: This list of completed projects varies slightly from that which appears in the University of Florida Educational Plant Survey, June 2004 and the previous graph because some projects constructed in 2000 were included in the existing buildings inventory of the Campus Master Plan, 2000-2010.

Since the 1995-2005 Campus Master Plan, the University has been projecting 10-year building construction projects from all potential funding sources. These project lists are translated into projected building gross square footage (GSF) by land use designation that is used as the basis of the Campus Development Agreement (CDA) between the University of Florida, City of Gainesville and Alachua County. The following two tables present the chronology of building activity by land use category in terms of total GSF for projected master planned projects declared in the CDA compared to actual building construction. An examination of these tables reveals that the University construction program has been consistent with the CDA terms. Importantly, the CDA for the 2000-2010 Campus Master Plan did not increase the total amount of GSF authorized for construction even though the plan horizon was extended by five additional years from the 1995-2005 Campus Master Plan CDA.

University Building Program in GSF by Land Use Designation: Campus Development Agreement v. Actual, 1995-2005 Campus Master Plan

	Housing	Utilities	Passive Recreation	Active Recreation	Academic	Support/ Cultural	TOTAL
CDA Authorized 1995-2005	397,700	20,300	2,800	186,400	2,304,200	964,500	3,875,900
Net Built 1995-1999	193,040	15,880	2,482	86,415	698,290	487,460	1,483,567
Remaining Authorized 2000-2005	204,660	4,420	318	99,985	1,605,910	477,040	2,392,333

University Building Program in GSF by Land Use Designation: Campus Development Agreement v. Actual, 2000-2010 Campus Master Plan and 2005-2015 Campus Master Plan Proposed

	Housing	Utilities	Passive Recreation	Active Recreation	Academic	Support/ Cultural	TOTAL
CDA Authorized 2000-2010	204,660	50,000	3,000	334,000	1,218,800	581,873	2,392,333
Net Built 2000-2004	14,925	0	0	250,313	351,559	497,998	1,114,795
Remaining Authorized 2005-2010	189,735	50,000	3,000	83,687	867,241	83,875	1,277,538
Proposed Projects in 2005-2015 Master Plan *	284,502	19,500	na	342,760	2,089,856	680,262	3,707,336

* Projects completed, under construction or in design after December 2004 are included in the 2005-2015 proposed projects list of the Capital Improvements Element.

B. Future Building Program

Build-Out Scenario Test. The 2005-2015 Campus Master Plan analyzed the main campus to identify a potential build-out scenario well beyond the 10-year horizon. This was accomplished by examining natural and man-made constraints to development, along with the goals of concentrating development in higher-density clusters and preserving open space including that which is necessary for outdoor recreation and teaching/research. The build-out scenario also considered the implications of the historic campus and the need for sensitive infill in that area on the National Register of Historic Places. This analysis resulted in the identification of 3,586,000 GSF of potential building footprints. Assuming an average five-story construction, these footprints yield 18,000,000 GSF of potential new building space. This estimate does not include the likelihood of much taller buildings in certain areas of campus or the space efficiencies that may be gained from renovations within existing structures. However, the estimate also does not represent net gain as a result of some demolish-and-rebuild projects proposed in the scenario, which may represent as much as one million GSF including a number of buildings classified as temporary structures. Maps of potential building demolitions and temporary building status are provided in the Capital Improvements Element.

As of December 2004, the university's main campus included just over 18,800,000 GSF of existing building space. This building inventory represents ninety-eight years of construction activity between 1906 and 2004. Therefore, the future building footprints identified in the 2005-2015 Campus Master Plan reasonably represent a very long-term build-out potential that can accommodate a great deal more development on existing land resources without sacrificing valuable natural resources or resources for outdoor teaching, research and recreation.

Short-Term Development Strategies. The building program identified for the ten-year period from 2005 to 2015 projects an addition of approximately 3,707,336 GSF of building space on the main campus. The descriptions and locations for these projects appear in the Capital Improvements Element of the Campus Master Plan. In general, the development approach for building locations follows a strategy of sensitive infill in the northeast portion of campus; more intense infill development south of Museum Road, along Center Drive and north of Archer Road; and new development concentrations centered around existing development at the sites of the Genetics/Cancer Institute, Fifield Hall, Cultural Plaza and Orthopaedics/Sports Medicine Institute.

Long-Term Development Strategies. Beyond the ten-year horizon, the future land use and building sites recommendations suggest relocating the Diamond Village graduate family housing complex to an area near Radio Road and SW 34th Street in order to provide space for academic facility expansion related to the Health Science Center. In support of that new development, additional structured parking and graduate housing in a more vertical footprint should be considered. Potentially, future graduate housing in this area could be considered for medical residents in proximity to the UF&Shands hospital facilities. Just as these future Health Science Center facilities would displace Diamond Village, the new graduate family housing complex on Radio Road would also displace some existing administrative buildings and surface parking. The Radio Road redevelopment site is suggested to evolve as a student services hub that could include housing together with facilities for day care, dining, parking and other student services. Similarly, the future land use and building sites maps suggest consideration of relocating the Civil and Coastal Engineering facilities from the SW 6th Street site potentially to the Eastside Campus thereby making the SW 6th Street site available for redevelopment. This site could potentially be used for expansion of P. K. Yonge Developmental Laboratory School, which is landlocked and financially prohibited from relocating. Functionally, the school would operate more efficiently

with additional land and the ability to better segregate students of different age groups. Alternately, the SW 6th Street site could prove critical in partnership with the City of Gainesville's desires to attract biomedical and other research-and-development private enterprise to the areas around Depot Avenue, SW 6th Street and S. Main Street. Another long-term suggestion for change involves increased development along SW 16th Avenue north of the existing Veterinary Medicine buildings to complement increasing development density in the overall Health Science Center corridor along Archer Road. This area is envisioned with a long-term development pattern that would place academic/research buildings near the road frontage with structured intercept parking and a step-down in development intensity southward to Bivens Lake and the outdoor academic/research land uses.

The future building sites identified beyond the ten-year horizon are, for the most part, not associated with any particular building or occupant. However, a few of these have identified potential uses for which they may be best situated. One such location is an academic building suggested for a portion of the Benton Hall parking lot. This location is suggested as a possible location for future library expansion that could be physically connected to a new student services facility identified adjacent to this location in the ten-year horizon. The Educational Plant Survey has identified a significant shortage of study space (i.e. libraries) through the year 2009, even after completion of the new Library West expansion and renovation; however, funding has not been identified at this time for additional library projects in the ten-year horizon. Any development to occur on the Benton Hall parking lot is recommended to consider incorporation of ground-floor parking to minimize net loss of parking in that part of campus.

III. 2000-2010 Campus Master Plan Evaluation and Appraisal

The policies of the Capital Improvements Element primarily address the process in which the University annually updates its Capital Improvement Program and amends the campus master plan. These policies and procedures have been followed by the University. Amendments to the campus master plan have been very minor in nature, even when considered as a cumulative change over the period from 2000-2005. Campus construction projects have adhered to the land use and other policies of the campus master plan.

Policy 2.3 calls for coordination with the City of Gainesville and Alachua County for updating, as necessary, the campus development agreement. This agreement was amended in 2001 to reflect changed roadway project descriptions, and again in 2004 as a result of the 2000-2010 campus master plan update. As documented herein, the University has adhered to the building program declared in the campus development agreement.

Policy 2.1 recommends that the University provide necessary support functions including utilities, parking, circulation and site improvements associated with capital projects. While the University's capital projects have contributed to enhancements in the vicinity of the construction site, overall infrastructure development and maintenance funding has not kept pace with campus-wide need in many areas.