

9.
GENERAL INFRASTRUCTURE
ELEMENT

Introduction

The general infrastructure element includes Goals, Objectives and Policies that apply to the University's main campus and, where applicable, to the University's satellite properties. This element focuses on the University's existing infrastructure and procedures for improving existing deficiencies, while providing guidance on future additions and improvements. Sub-elements included within this element are stormwater, potable water, wastewater and solid waste. Additionally, reclaimed water usage is addressed in both the potable water section and in the wastewater section. The University's commitment to using reclaimed water for irrigation is a major component of the main campus's sustainable water conservation practices. Areas of campus served by university reclaimed water are depicted in Figure 9-3. The Facilities Services 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 infrastructure permits, maintenance and improvements.

The Facilities Services 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) (i.e. GRU includes the University's use in its permit to the SJRWMD) and the University's wells. Wastewater is treated in on-campus facilities and handled under a permit from the Florida Department of Environmental Protection while 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 49% of the total waste generated on campus. University personnel are continually exploring ways to increase this percentage on an on-going basis.

Stormwater Sub-Element

Goal 1: To Design, Construct and Maintain a Safe, Sustainable, Economical and Environmentally Sound Stormwater Management System that Reduces the Potential of Flooding, Protects Natural Drainage Features, and Preserves and Enhances Desirable Water Quality Conditions.

Objective 1.1: Meet or exceed all applicable federal and state regulatory requirements for stormwater management and water quality protection.

Policy 1.1.1: The University shall continue to comply with the regulations set forth in the Clean Water Act, Title 40 CFR as applicable.

Policy 1.1.2: The University shall maintain water quality standards for stormwater quantity and quality that are consistent with the St. Johns River Water Management District (SJRWMD), Suwannee River Water Management District and Department of Environmental Protection standards for stormwater management systems as outlined in Section 120.373 and Chapter 403,

Florida Statutes and Chapters 62-3, 62-25, 62-40, 40B- 1, 40B-2, 40B-4, 40C-1, 40C-4, 40C-8 and 40C-40 through 40C-44, of the Florida Administrative Code.

Policy 1.1.3: The University shall obtain a Standard General or Individual Environmental Resource permit from the appropriate water management district for construction that is located outside of the Lake Alice Basin and UF Depressional Basins 1-3 and 5-9 as required, and shall coordinate with the City of Gainesville and Alachua County on these construction projects.

Policy 1.1.4: The University shall provide stormwater management facility capacity and the capital improvements required to meet future service demands on campus.

Policy 1.1.5: The University shall abide by all requirements and conditions of the current Master Stormwater Permit by the SJRWMD and shall seek renewal of the permit in advance of its expiration. Those conditions include reporting water levels in monitoring wells quarterly and submission of groundwater and surface water monitoring tests to the water management district.

Policy 1.1.6: The University shall submit an annual report to the SJRWMD that includes details of specific construction projects and update the proposed construction plan with changes in impervious surface by basin within the Lake Alice Basin and depressional basins 1-3 and 5-9. Additionally, the University shall provide as-built plans or certification by a Florida Registered Engineer that all facilities have been constructed in accordance with the design approved by the water management district. Plans for any construction on the main campus within 50 feet of a jurisdictional wetland shall be submitted to the SJRWMD for review and approval.

Objective 2.1: Maintain existing stormwater management infrastructure and provide sufficient infrastructure capacity to meet the future needs of the University.

Policy 1.2.1: Stormwater management facility improvements shall be implemented based on the following ranked priorities:

1. Eliminating existing system deficiencies and deferred maintenance, particularly those that may affect life safety and property protection;
2. Maintaining the existing system through routine preventive maintenance activities; and
3. Expanding the system to accommodate new stormwater management needs.

Policy 1.2.2: The Facilities Services Division shall appropriately size stormwater facilities to meet anticipated future demand (based on the 10-year capital improvement list) when doing routine upgrades, replacements or new installations including provisions to account for anticipated landscaping that could displace function and consider the addition of stormwater pretreatment systems within the Lake Alice basin, where feasible.

Policy 1.2.3: The Facilities Services Division shall be charged with reviewing all proposed development projects to ensure that increases in impervious surface can be accommodated in the capacity of the existing and/or committed drainage system. Any proposed increase in campus impervious surfaces shall be implemented only upon a finding by the Facilities Services Division that

existing facility capacity is already on-line to accommodate the increased need, or that additional capacity will be funded and on-line at the time of need.

Policy 1.2.4: The University Design and Construction Standards shall maintain standards for retention facilities and associated landscapes including those that are natural and curvilinear in outline, with variable side slopes, smooth transitions, and those that are constructed in densely developed areas to be a structured part of the pedestrian hardscape features.

Policy 1.2.5: The University Design and Construction Standards shall maintain standards for landscape treatment of retention facilities that shall be planted with native material and provide access for ease of maintenance whether set into a natural, existing vegetative context or urban hardscape.

Policy 1.2.6: Implement infrastructure improvement projects identified in Figure 9-1 to reduce stormwater erosion, and to reduce the quantity and improve the quality of stormwater discharge based on priorities established in 1.2.1 as feasible.

Policy 1.2.7: The University shall work with the City of Gainesville and Florida Department of Transportation to ensure that stormwater issues that can include water quality, trash, erosion, and flooding are controlled at points where off-campus stormwater is accepted into the University's stormwater system and water bodies or when the University's stormwater system adversely impacts the stormwater systems and water bodies under control of the City of Gainesville or the Florida Department of Transportation.

Objective 1.3: Protect the natural functions of hydrological areas, maintain water quality and control sedimentation.

Policy 1.3.1: The University shall not allow stormwater discharge to cause or contribute to a violation of water quality standards in Waters of the State.

Policy 1.3.2: The University shall continue to mitigate University generated stormwater and to minimize stormwater borne pollutants in new and existing facilities through implementation of Best Management Practices (BMPs) that include, but are not limited to:

- Incorporating stormwater management retention and detention features into the design of parks, trails, commons and open spaces, where such features do not detract from the recreational or aesthetic value of a site.
- Using slow release fertilizers and/or carefully managed fertilizer applications timed to ensure maximum root uptake and minimal surface water runoff or leaching to groundwater.
- Conducting regular training for maintenance personnel about issues such as motor vehicle maintenance in order to prevent leakage of oil, grease and other fluids, collection and proper disposal of yard debris, disposal of paint and cleaning products (including their empty containers) and collection of suitable recyclable materials.
- Avoiding the widespread application of broad-spectrum pesticides by involving only

- purposeful and minimal application of pesticides, aimed at identified targeted species.
- Coordinating pesticide application with irrigation practices to reduce runoff and leaching.
- Using pervious materials to minimize impervious surface area.
- Incorporating features into the design of fertilizer and pesticide storage, mixing and loading areas that are designed to prevent/minimize spillage.
- Using vegetative management (e.g., planted buffers and minimal mowing).

Policy 1.3.3: The University shall require appropriate methods of controlling soil erosion and sedimentation to help minimize the destruction of soil resources used or disturbed during site development as outlined in NPDES Phase II requirements. Such methods shall include, but not be limited to:

- Phasing and limiting the removal of vegetation;
- Minimizing the amount of land area that is cleared;
- Limiting the amount of time bare land is exposed to rainfall;
- Using temporary ground cover on cleared areas if construction is not imminent;
- Using silt fencing, hay bales, or other appropriate sediment barriers adjacent to water bodies, wetlands and areas of slope; and
- Maintaining vegetative cover on areas of high soil erosion potential (i.e., banks of streams, steep or long slopes, stormwater conveyances, etc.), where feasible.

Policy 1.3.4: The University shall implement the latest advances in agricultural BMPs in all campus agricultural areas, unless the BMPs directly interfere with the research being done at the site. These BMPs shall include, but are not limited to, the use of buffer strips, soil erosion control measures, fertilizer recommendations based on research and soil sampling, efficient manure management, barnyard and/or feedlot runoff control, water diversions, fencing, grade stabilization structures, grass waterways, and ponds/sediment basins.

Policy 1.3.5: The University shall provide the City of Gainesville the opportunity to review and comment on proposed development and construction projects within the Hogtown Creek and Tumblin Creek/Bivens Arm Lake Drainage Basins. The University shall ensure that any potential adverse impacts to the Hogtown Creek Drainage Basin are identified and that any increase in volume of runoff over the pre-development volume for a 72-hour period shall be accommodated in the site design for the development.

Policy 1.3.6: The University shall cooperate with the City of Gainesville and Alachua County on efforts to restore the natural functions of Tumblin Creek prior to its discharge into Bivens Arm Lake.

Policy 1.3.7: Considering different use expectations for Lake Alice, which is also the university's permitted stormwater treatment facility, the University shall continue to monitor Lake Alice and other surface water bodies for compliance with existing standards for water quality and strive to meet Class III-Limited water quality standards in Lake Alice and report findings to the Lakes, Vegetation and Landscape Committee biannually starting in 2015.

Objective 1.4: Implement sustainable stormwater practices in all campus site development incorporating Low Impact Development techniques where physically, economically, and practically possible.

Policy 1.4.1: The University shall strive to incorporate stormwater improvements into all new building sites and into modification of existing sites. These improvements include, but are not limited to, rain gardens, roof-top gardens, porous soil amendments, hardscape storage, pervious pavement and other innovative stormwater techniques as depicted in Figure 9-2 with a commitment to funding proper maintenance of their appearance and function.

Policy 1.4.2: The University shall follow the examples and recommendations in the Landscape Master Plan to incorporate stormwater treatment techniques in the existing landscape through identified utilities and roadways projects and other project opportunities to be identified.

Policy 1.4.3: All proposed stormwater projects on campus involving the use of designated open space (land use classifications of Green Space Buffer, Urban Park and Conservation) shall seek approval from the Lakes, Vegetation and Landscape Committee during the design phase. These projects must be in conformance with the primary function of the open space.

Objective 1.5: Inform faculty, staff, students and visitors on stormwater issues through outreach and demonstration projects.

Policy 1.5.1: The University shall strive where practicable to include interpretive information and educational opportunities that support the University's efforts to integrate innovative structural stormwater design and BMP concepts.

Policy 1.5.2: The University shall maintain financial and personnel support of stormwater related education and awareness programs for the campus community.

Policy 1.5.3: The University shall pursue grants and other opportunities to fund implementation, outreach and study of stormwater best management practices on campus.

Potable Water Sub-Element

GOAL 2: To Provide a Reliable, Sustainable, Safe, and Efficient Potable Water System to Meet the Current and Future Demands of the University.

Objective 2.1: Coordinate with the provider of potable water service to ensure that adequate capacity and levels of service are maintained to meet current and future demands of the University.

Policy 2.1.1: Water distribution facilities shall be designed in accordance with engineering best practices and shall be congruent with Chapter 64E-8, Drinking Water Systems, Florida administrative Code and adhere to an average daily level of service (LOS) as outlined in Table 1 in 64E-6.008 Florida Administrative Code.

Policy 2.1.2: Potable water infrastructure improvements shall be implemented in accordance with the following priorities:

1. Elimination of existing system deficiencies;
2. Maintaining the existing system; and
3. Expanding the system to accommodate new potable water demands.

Policy 2.1.3: The University shall construct new potable water facilities as needed. The timing and phasing requirements for these improvements shall be established in the Capital Improvements Element.

Policy 2.1.4: Design criteria for potable water facilities and level of service standards shall be consistent with those outlined in the Florida Administrative Code, Chapters 62-550 and 62-555.

Policy 2.1.5: The University shall coordinate with the Gainesville Regional Utilities (GRU) to ensure that adequate water service will be available for any proposed development connecting to the GRU system consistent with the University's Consumptive Use Permit issued by the St. Johns River Water Management District. The University shall update as necessary, memoranda of understanding or interlocal agreements to ensure that potable water will be supplied to the campus to meet the future needs of the University.

Policy 2.1.6: The Facilities Services Division shall appropriately size water infrastructure to meet anticipated future demand (based on the 10-year capital improvement list) when doing routine upgrades, replacements or new installations.

Policy 2.1.7: The Facilities Services Division shall be charged with reviewing all proposed development projects to ensure that adequate potable water capacity is available.

Policy 2.1.8: Proposed increases in consumptive use of potable water shall be approved only upon a determination that adequate potable water treatment and distribution facility capacity is

already on-line to accommodate the increased demand, or that additional capacity will be funded and on-line concurrent with demand.

Objective 2.2: Protect and conserve the potable water supply and sources.

Policy 2.2.1: The University shall maintain a water protection and conservation program for the main campus and satellite facilities in Alachua County through the St. Johns Water Management District, Suwannee River Water Management District and the Gainesville Regional Utility, which outlines various procedures on how to protect and conserve the potable water supply and source. This program shall include measures designed to:

- Ensure compliance with water management district conservation program requirements;
- Irrigate in compliance with conditions of the University's consumptive use permit from the Water Management District(s);
- Use treated wastewater effluent for an expanded campus irrigation system;
- Use automated timers and other irrigation flow monitoring equipment;
- Use low water demand procedures for new building construction and common areas.
- Retrofit existing buildings with water-conserving plumbing fixtures, where feasible.

Policy 2.2.2: The University shall continue to comply with the potable water regulations and requirements set forth in the Florida Administrative Code, Chapters 62-3, 62-40, 62-550 and 62-555.

Policy 2.2.3: The University shall not undertake activities on campus that could contaminate groundwater sources or designated recharge areas, unless provisions have been made to prevent such contamination.

Policy 2.2.4: The University shall conserve water resources through the use of low water demand design principles, including:

- Use of drought tolerant and site-appropriate native plant material to the maximum degree possible;
- Use of ultra-low volume irrigation delivery fixtures except where reclaimed water is being used;
- Separation of turf and non-turf irrigation zones;
- Soil moisture sensors and rain shut-off switches;
- Use of drought tolerant ground cover;
- Use of canopy trees; and
- Use of soil enhancers and mulch to enable soils to retain moisture.

Sanitary Sewer Sub-Element

GOAL 3: To Provide a Reliable, Sustainable, Safe, Efficient, and Environmentally Sound Sanitary Sewer System and Wastewater Treatment Facility to Meet the Current and Future Demands of the University.

Objective 3.1: Ensure that adequate sanitary sewage treatment and capacity is available to meet the current and future needs of the University.

Policy 3.1.1: New sanitary sewer systems shall be designed to implement the performance standards contained in chapters 62-600, 601, 602, 604, 610, 620 of the Florida Administrative Code and other policies of this master plan.

Policy 3.1.2: Design criteria for sanitary sewer facilities shall be implemented by evaluating system capacities against projected demand in accordance with the applicable standards set forth in the Florida Administrative Code, Chapter 62-600.

Policy 3.1.3: All wastewater force mains shall be designed to accommodate full development peak flow and maintain minimum standards set by the Facilities Services Division.

Policy 3.1.4: The University shall implement sanitary sewer facility improvements as needed. The timing and phasing requirements for improvements are established in the Capital Improvements Element.

Policy 3.1.5: Sanitary sewer facility improvements shall be implemented based on the following priorities:

1. Elimination of existing system deficiencies;
2. Maintaining the existing system; and
3. Expanding the system to accommodate new sanitary sewer needs.

Policy 3.1.6: The University shall continue to comply with the regulations and requirements set forth in its wastewater permit from the Florida Department of Environmental Protection.

Policy 3.1.7: The University shall continue to maintain accurate records of the projected flows to the wastewater treatment plant.

Policy 3.1.8: The University shall provide proper maintenance and ensure adequate capacity of the wastewater treatment plant for future development on campus.

Policy 3.1.9: The University shall coordinate with Gainesville Regional Utilities (GRU) to ensure that adequate sanitary sewer service will be available for any proposed development connecting to the GRU system. The University shall pursue any memoranda of understanding or interlocal agreements necessary to ensure that sanitary sewer will be available to applicable areas of the campus to meet

the future needs of the University.

Policy 3.1.10: The Facilities Services Division shall be charged with reviewing all proposed development projects to ensure that adequate sanitary sewer capacity exists.

Policy 3.1.11: Proposed increases in campus sewer demands shall be approved only upon a finding that existing wastewater collection and treatment plant capacity is already on-line to accommodate the increased need, or that additional capacity is funded and will be on-line at the forecast time of need. It shall be the responsibility of the University's Facilities Services Division to maintain a record of existing and committed project flows in order to determine whether adequate system capacity is available to meet additional demands.

Policy 3.1.12: The Facilities Services Division shall appropriately size wastewater facilities to meet anticipated future demand (based on the 10-year capital improvement list) when doing routine upgrades, replacements or new installations.

Policy 3.1.13: The University shall explore opportunities to use alternative wastewater disposal systems such as composting toilets at remote locations where centralized wastewater collection is not feasible.

Objective 3.2: To maximize the use of reclaimed water for campus irrigation.

Policy 3.2.1: The University shall continue to implement and/or upgrade the reclaimed water distribution and storage systems throughout campus as depicted in Figure 9-3.

Policy 3.2.2: The University shall curtail the use of well water or domestic water for irrigation purposes by increasing the use of reclaimed water.

Policy 3.2.3: Investigate the feasibility of supplying additional reclaimed water to operations on-site or to potential customers off-site, in lieu of sending this effluent to deep-well injection.

Solid Waste Sub-Element

GOAL 4: To provide for Safe, Sanitary, Efficient, Economical and Environmentally Sound Solid Waste Management that Assures Public Health and Safety for the Current and Future Demands of the University.

Objective 4.1: Correct existing solid waste collection and disposal facility deficiencies and ensure the provision of adequate facility capacity to meet the future needs of the University.

Policy 4.1.1: The University shall establish and adopt a level of service for solid waste of 2.0 pounds per capita per day, based on total UF students, faculty, and staff population. Higher levels may be required for special use facilities.

Policy 4.1.2: The University shall ensure that the necessary solid waste facilities and services are in place and operational at the adopted level of service at the time of building occupancy.

Policy 4.1.3: The University shall continue to comply with the regulations and level of service requirements set forth in the Florida Administrative Code, Chapter 62-701.

Policy 4.1.4: The University shall provide solid waste collection and disposal facility service capacity to meet future demands.

Policy 4.1.5: The University shall identify and prioritize any solid waste collection and disposal facility deficiencies. These deficiencies shall be remedied as funding becomes available. Solid waste facility improvements shall be implemented based on the following general priorities:

1. Increase recycling;
2. Elimination of existing system deficiencies;
3. Maintaining the existing system; and
4. Expanding the system to accommodate new refuse/recycling needs.

Policy 4.1.6: Future development on the UF campus that increases the demand for waste collection and disposal shall be approved under the provision of a solid waste collection and disposal system that provides the level of service established and adopted in Policy 4.1.1 above.

Policy 4.1.7: The Environmental Health and Safety Office shall continue to provide hazardous and biomedical waste collection and disposal service to meet future demands on campus.

Objective 4.2: Continue to expand the recycling program to minimize the solid waste disposed of by means of a landfill.

Policy 4.2.1: The University shall continue to coordinate with applicable entities or persons on expanding the recycling programs for all new and/or expansion projects.

Policy 4.2.2: The University shall continue to provide recycling containers as specified in the University Design and Construction Standards and Landscape Master Plan at numerous convenient locations across the campus and look for opportunities to expand the current recycling program to include additional recycling bins and other recyclable materials.

Policy 4.2.3: The University shall promote recycling through increased educational efforts directed toward faculty, students and staff.

Policy 4.2.4: The University shall continue implementing and expanding recycling programs associated with major sporting, entertainment and other large events on campus.

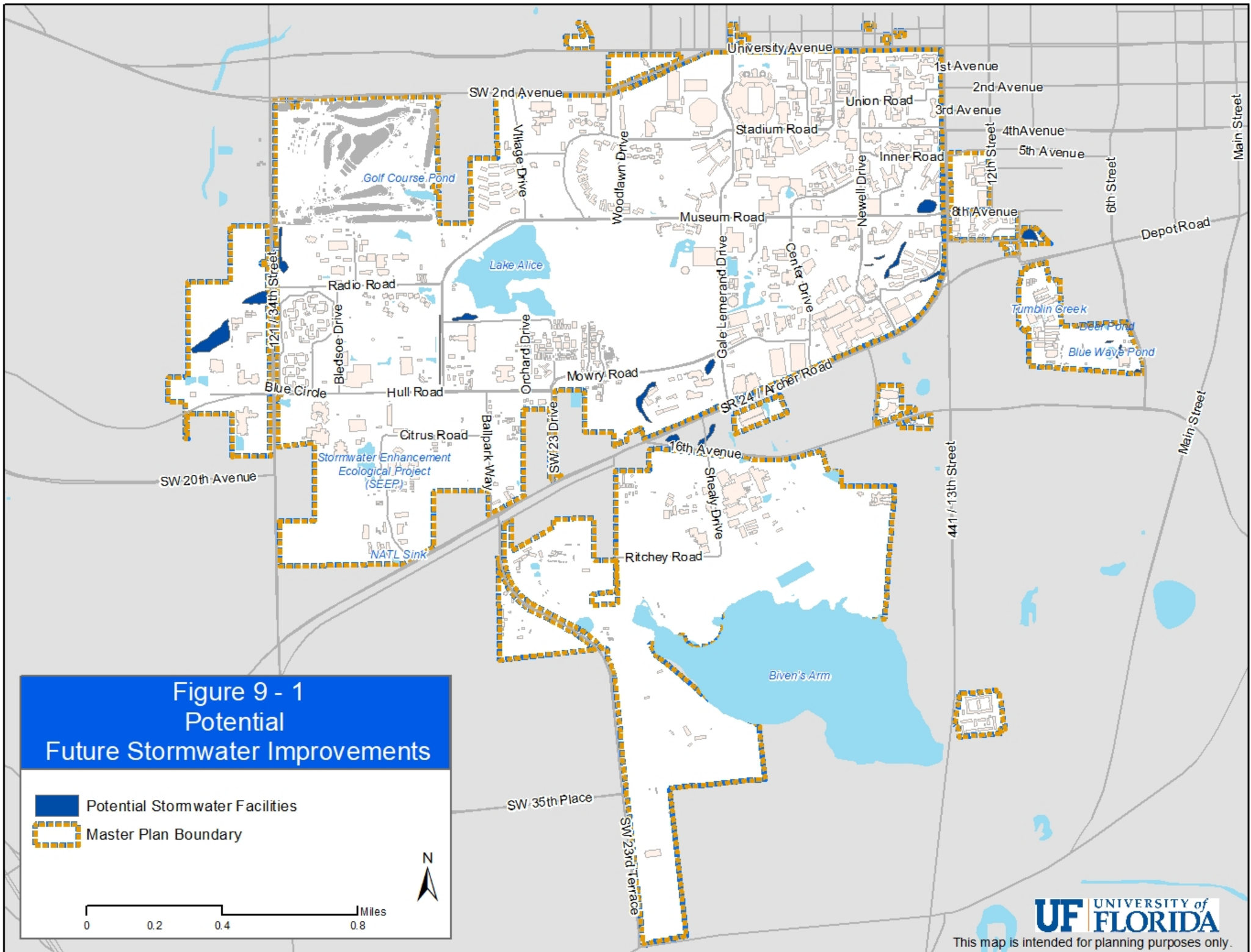
Policy 4.2.5: The University shall continue to explore expanding the types of materials that are recycled.

Policy 4.2.6: The University shall strive to reduce the total volume of solid waste requiring disposal and increase landfill diversion (i.e. reuse, repurpose, recycling, composting) of the remainder by at least 90% in pursuit of a zero-waste goal.

Objective 4.3: Coordination with Alachua County to ensure that proper service and capacity will be available for future demands.

Policy 4.3.1: The University shall coordinate with Alachua County annually to ensure proper solid waste collection and disposal service for future growth. The University shall pursue any memoranda of understanding or interlocal agreements necessary to ensure that solid waste service and capacity will be supplied to meet the future needs of the University.

Policy 4.3.2: Proposed increases in solid waste generating uses shall be approved only upon a finding by the University that existing solid waste disposal capacity is already on-line to accommodate the increased need, or that additional capacity will be funded and on-line at the forecast future time of need. The Facilities Services Division shall be responsible for the review of all development proposals and perform the appropriate coordination efforts with Alachua County to determine that solid waste disposal capacity is available.

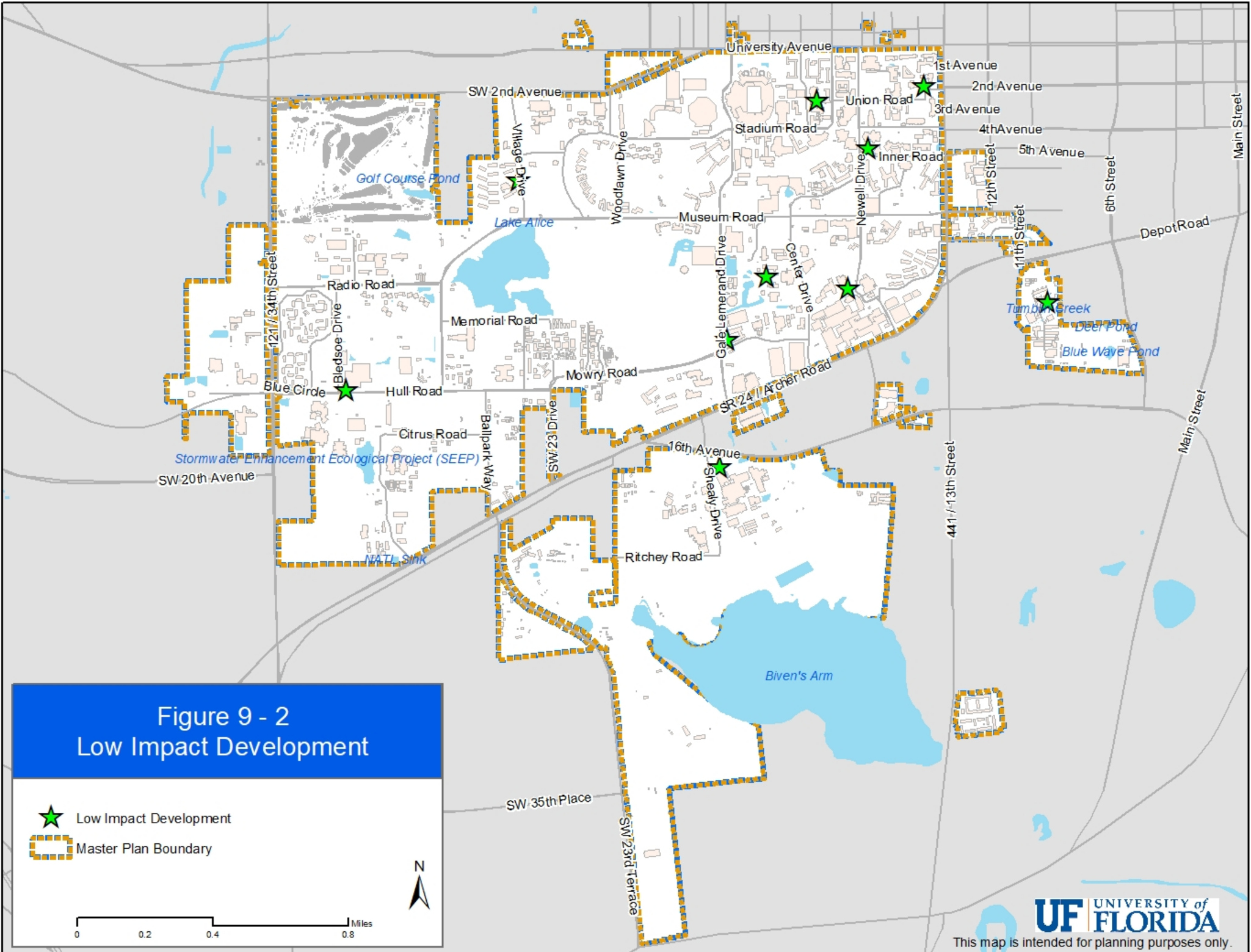


**Figure 9 - 1
Potential
Future Stormwater Improvements**



- Potential Stormwater Facilities
- Master Plan Boundary


N

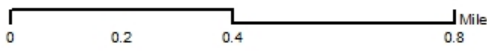
0 0.2 0.4 0.8 Miles



**Figure 9 - 2
Low Impact Development**

 Low Impact Development
 Master Plan Boundary

 N

 Miles
 0 0.2 0.4 0.8

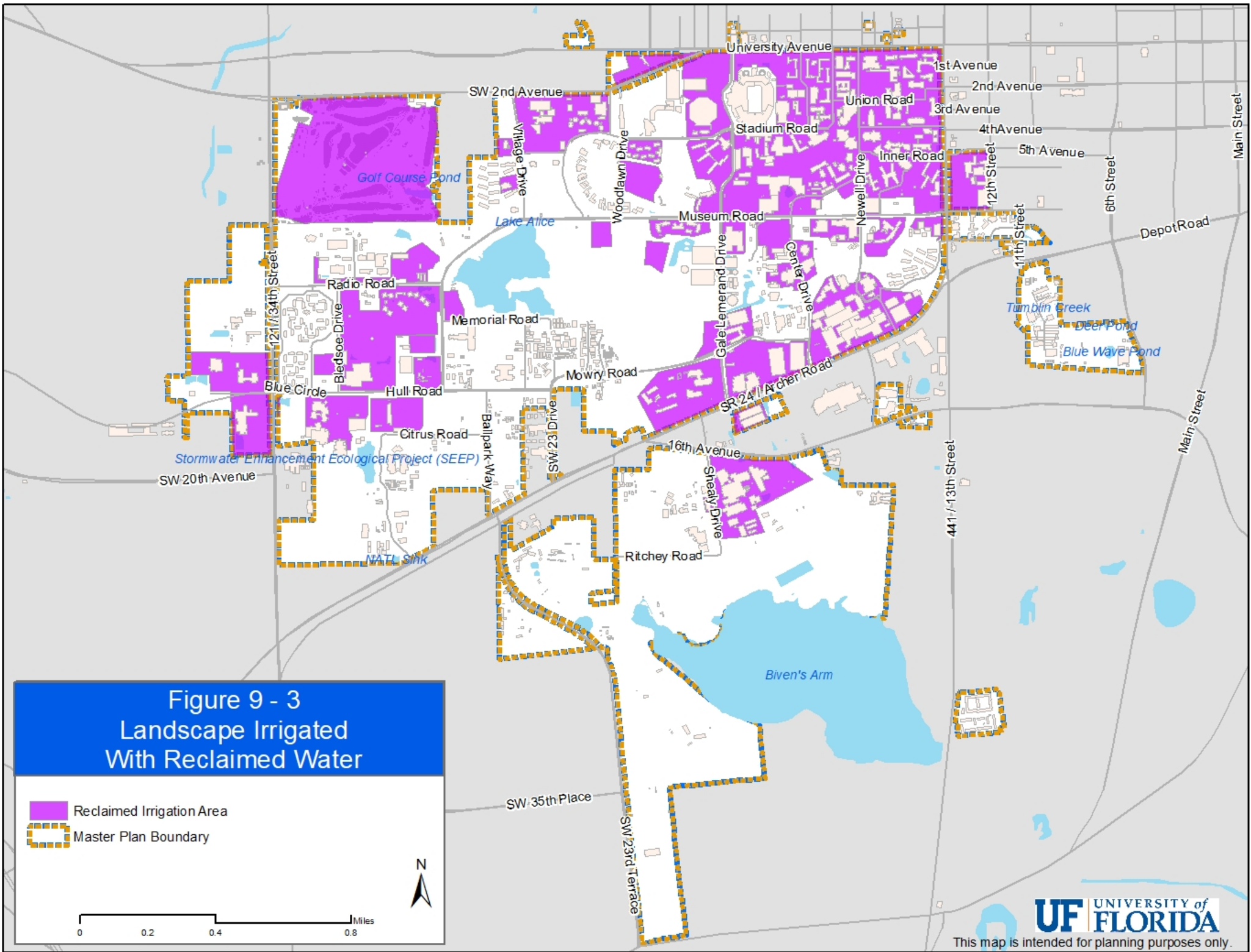


Figure 9 - 3
Landscape Irrigated
With Reclaimed Water

- Reclaimed Irrigation Area
- Master Plan Boundary



0 0.2 0.4 0.8 Miles