Legistar No. 990731

MEMORANDUM

Office of the City Attorney

Phone: 334-5011/Fax 334-2229
Box 46

TO: Mayor and City Commission

DATE: January 24, 2000
FIRST READING

FROM: City Attorney

SUBJECT: **Ordinance No. 0-00-32; Petition No. 146CPA-99PB**
An ordinance of the City of Gainesville, Florida, amending the Potable Water/Wastewater Element of the City of Gainesville 1991-2001 Comprehensive Plan; amending policy 1.1.1 to more correctly reflect measurement of storage capacity; deleting the level of service standard for the University of Florida from policy 1.1.2; amending objective 1.2 to list the upgrades and expansions to be accomplished in the next 5 years; deleting policies 1.2.1 and 1.2.2 regarding deficiencies that have been corrected; amending policy 1.2.3 to show updated capacity plans; deleting policy 1.2.4 and 1.2.5 regarding upgrades that have been completed; amending policy 1.2.6 to show updated capacity plans; deleting policy 1.2.7 regarding an upgrade that has been completed; amending policy 1.3.1 to reflect Alachua County Comprehensive Plan policies governing extension of potable water and wastewater facilities; adding policy 1.4.6 to reflect a program established for installment payments of connection charges; amending policy 1.5.1 clarifying that a water conservation program is available to both residential and non-residential customers; amending policy 1.5.4 to reflect the availability of vegetation lists; amending policy 1.5.5 to reflect that water conservation techniques are included in the City's landscaping ordinance; adding policies 1.5.7 and 1.5.8 that encourage use of reclaimed water; providing directions to the city manager; providing directions to the codifier; providing a severability clause; providing a repealing clause; and providing an effective date.

Recommendation: The City Commission (1) approve Petition 146CPA-99 PB and (2) adopt the proposed ordinance.

STAFF REPORT

This petition amends the City of Gainesville 1991-2001 Comprehensive Plan to update the Potable Water/Wastewater Element. The revisions to the Plan reflect changes recommended in the Evaluation and Appraisal Report, adopted in 1998.

On September 16, 1999, the City Plan Board held a workshop on this element and there were no recommended changes to the goals, objectives, and policies as presented that evening. In addition, a presentation was made before the Water Management Advisory Committee on September 22, 1999. The Water Management Advisory Committee was supportive of the goals, objectives, and policies as presented.

Public notice was published in the Gainesville Sun on October 15, 1999. The Plan Board held a public hearing October 26, 1999. Planning Division staff recommended that the Plan Board approve the petition. The Plan Board recommended that the City Commission approve Petition 146CPA-99 PB. Plan Board vote 5-0.

Fiscal Impact: None.

CITY ATTORNEY'S MEMORANDUM

The proposed amendment to the Comprehensive Plan will be transmitted to the State Department of Community Affairs for written comment. Any comments, recommendations or objections of the State Department of Community Affairs must be considered at the second public hearing. The City Commission may then adopt or adopt with changes the proposed amendment to the Comprehensive Plan, or determine not to adopt a plan amendment.

Florida Statutes set forth the procedure for adoption of an amendment to the Comprehensive Plan. The second hearing will be held at the adoption stage of the ordinance and must be held approximately five days after the day that the second advertisement is published.

The Plan amendment will not become effective until the State Department of Community Affairs issues a final order determining the adopted amendment to be in compliance in accordance with the Local Government Comprehensive Planning and Land Development Regulation Act, or until the Administration Commission (Governor and Cabinet) issues a final order determining the adopted amendment to be in compliance.

Prepared by: Patricia M. Carter
Patricia M. Carter,
Sr. Assistant City Attorney

Approved and
Submitted by: Donald J. Lamb Jr.
Marion J. Radson,
City Attorney

MJR:PMC:sw

ORDINANCE NO. _____
0-00-32

An ordinance of the City of Gainesville, Florida, amending the Potable Water/Wastewater Element of the City of Gainesville 1991-2001 Comprehensive Plan; amending policy 1.1.1 to more correctly reflect measurement of storage capacity; deleting the level of service standard for the University of Florida from policy 1.1.2; amending objective 1.2 to list the upgrades and expansions to be accomplished in the next 5 years; deleting policies 1.2.1 and 1.2.2 regarding deficiencies that have been corrected; amending policy 1.2.3 to show updated capacity plans; deleting policy 1.2.4 and 1.2.5 regarding upgrades that have been completed; amending policy 1.2.6 to show updated capacity plans; deleting policy 1.2.7 regarding an upgrade that has been completed; amending policy 1.3.1 to reflect Alachua County Comprehensive Plan policies governing extension of potable water and wastewater facilities; adding policy 1.4.6 to reflect a program established for installment payments of connection charges; amending policy 1.5.1 clarifying that a water conservation program is available to both residential and non-residential customers; amending policy 1.5.4 to reflect the availability of vegetation lists; amending policy 1.5.5 to reflect that water conservation techniques are included in the City's landscaping ordinance; adding policies 1.5.7 and 1.5.8 that encourage use of reclaimed water; providing directions to the city manager; providing directions to the codifier; providing a severability clause; providing a repealing clause; and providing an effective date.

WHEREAS, the City Plan Board authorized the publication of notice of a Public Hearing that the text of the City of Gainesville 1991-2001 Comprehensive Plan be amended; and

WHEREAS, notice was given and publication made as required by law and a Public Hearing was then held by the City Plan Board on October 26, 1999; and

WHEREAS, notice was given and publication made of a Public Hearing which was then held by the City Commission on January 24, 2000; and

WHEREAS, pursuant to law, an advertisement no less than two columns wide by 10 inches long was placed in a newspaper of general circulation notifying the public of

this proposed ordinance and of the Public Hearing to be held at the transmittal stage, in the City Commission Auditorium, City Hall, City of Gainesville, at least 7 days after the day the first advertisement was published; and

WHEREAS, pursuant to law, after the public hearing at the transmittal stage the City of Gainesville transmitted copies of this proposed change to the State Land Planning Agency; and

WHEREAS, a second advertisement no less than two columns wide by 10 inches long was placed in the aforesaid newspaper notifying the public of the second Public Hearing to be held at least 5 days after the day the second advertisement was published; and

WHEREAS, the two Public Hearings were held pursuant to the published notices described at which hearings the parties in interest and all others had an opportunity to be and were, in fact, heard; and

WHEREAS, prior to adoption of this ordinance, the City Commission has considered the comments, recommendation and objections, if any, of the State Land Planning Agency;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COMMISSION OF THE CITY OF GAINESVILLE, FLORIDA:

Section 1. The Potable Water/Wastewater Element of the City of Gainesville 1991-2001 Comprehensive Plan is amended to read as follows:

GOAL 1. TO PROVIDE ADEQUATE, SAFE, ECONOMIC, RELIABLE AND ENVIRONMENTALLY SOUND WATER AND WASTEWATER UTILITY SERVICES.

Objective 1.1 Water and wastewater services shall be provided at adequate levels of service (LOS) to meet the needs of existing and future populations.

Policies.

1.1.1 The following LOS standards shall be adopted for potable water:

a. Maximum Day (Peak) Design Flow: 200 gallons daily demand per capita;

b. Storage Capacity: ½ of maximum daily ~~consumption volume~~ flow;

c. Pressure: The system shall be designed for a minimum pressure of 40 psig under forecasted peak hourly demands to assure 20 psig under extreme and unforeseen conditions;

d. The City shall reserve potable water capacity for the annual water demand projected by the City for the University of Florida and the power plants.

1.1.2 The following LOS standard shall be adopted for wastewater services:

~~a.~~ Average Day Standard: 113 gallons daily flow per capita. Peak Standard: 123 gallons daily flow per capita;

~~b. University of Florida standard: 40 gallons per capita average daily flow (this standard was provided by the University of Florida Physical Plant).~~

CODE: Words ~~stricken~~ are deletions; words underlined are additions.

1.1.3 The City shall maintain forecasts of plant flow requirements and provide for plant capacity and other facility expansions in GRU's annually-updated, five-year capital budget to meet the LOS standards.

1.1.4 The City shall perform ongoing evaluations and studies to determine the water and wastewater systems' needs to meet the requirements of existing and future customers, with the LOS standards to be employed as minimum criteria. The City shall provide financial resources in GRU's operating and annually-updated five-year capital budgets to renew, replace, improve and maintain the systems in accordance with prudent utility practice as defined in the Utilities System Revenue Bond Resolution (adopted June 6, 1983).

1.1.5 The City shall not commit to provide water or wastewater service if sufficient capacities or facilities to serve the proposed project cannot be made available at the time that the system impacts of the project will occur. The City shall maintain, as part of its Concurrency Management System, records of the expected amount of system demand from projects to which commitments are made and expected project lead and completion times in order to monitor capacity and facility requirements.

1.1.6 Every five years, the City shall hire independent and qualified consulting firms to evaluate the condition of the water and wastewater systems and the adequacy of the financial and facilities planning performed to maintain the system.

Objective 1.2 ~~**Upon Plan adoption, the City shall begin to correct existing potable water and wastewater facility deficiencies and make necessary expansions to those outlined in the policies below and as shown in the 5-year Schedule of Capital Improvements in the Capital Improvements Element to meet established LOS standards.**~~ **The City shall continue to upgrade and expand water/wastewater facilities, as shown in the policies below and in the 5-Year Schedule of Capital Improvements, to meet established LOS standards. The City shall give priority to correcting existing deficiencies in levels of service prior to expanding facilities to new, unserved areas.**

Policies

~~1.2.1 Potable water storage capacity deficiencies identified in the data and analysis report shall be corrected by the construction of a 5 mg storage tank in FY 1991/1992, as shown in the 5-Year Schedule of Capital Improvements.~~

~~1.2.2 By December 1991, the City shall have completed a study to identify areas with fire flow deficiencies.~~

1.2.1~~3~~ The Kanapaha Water Reclamation Facility capacity shall be increased to ~~12~~ 14 mgd by the end of FY 2001/2002 ~~1993/1994~~, as shown in the 5-Year Schedule of Capital Improvements.

~~1.2.4 The Main Street Wastewater Plant advanced secondary treatment upgrade shall be completed by August 1992, as shown in the 5-Year Schedule of Capital Improvements.~~

~~1.2.5 The City shall have completed the 2 mg ground storage tank addition in the northwest by the end of FY 1993/1994, as shown in the 5-Year Schedule of Capital Improvements.~~

1.2.2~~6~~ The City shall complete ~~expand~~ the Murphree Water Plant filter upgrade or install alternative facilities to expand capacity to ~~40~~ 51 mgd capacity by the end of FY 2002/2003 ~~1993/1994~~, as shown in the 5-Year Schedule of Capital Improvements.

~~1.2.7 The City shall complete the automated wastewater collection shunt system by the end of FY 1991/1992, as shown in the 5-Year Schedule of Capital Improvements.~~

Objective 1.3 The City shall provide potable water and wastewater services throughout the urban area in an efficient and economical manner, with the cost of service expansion being borne by those requiring such expansion. Upon Plan adoption, the City of Gainesville, as the urban area service provider of potable water and wastewater through Gainesville Regional Utilities, shall coordinate the extension and increases in capacity of potable water and wastewater facilities outside of city limits through policies established in the Alachua County Comprehensive Plan.

Policies

1.3.1. In order to discourage urban sprawl, Gainesville Regional Utilities shall extend potable water and wastewater facilities outside city limits in accordance with policies in the Alachua County Comprehensive Plan ~~the City, in cooperation~~

~~with Alachua County, shall establish a timing, staging and capacity program for the expansion of water and wastewater facilities within the service area by June 1992~~.

1.3.2 The City shall encourage development of property in close proximity to existing service areas through the continued use of appropriate economic incentives concerning the extension of water and wastewater services as listed below:

a. The City shall continue its policy of having all new water and wastewater service connections pay the fully allocated cost of the treatment facilities required to serve them in the form of plant connection fees, and the cost of distribution or collection facilities, unless the service is on a developer-installed system;

b. The City shall continue its policy of having development contribute the water and wastewater distribution and collection system internal to a development. Contributions in aid of construction are paid if the City does not project an adequate return on investment for water distribution or wastewater collection system extensions;

c. The City shall continue its policy that all facilities constructed and contributed to the utility system must be approved, inspected and built to City standards.

1.3.3 The City shall not reserve potable water or wastewater capacity outside of city limits without a determination that the development order is consistent with the Future Land Use Element of Alachua County.

Objective 1.4 The use of existing water and wastewater facilities shall be maximized by adopting the following policies:

Policies

1.4.1 All new developments at equivalent residential densities greater than 2 units per acre that require potable water, within the City of Gainesville, shall be required to connect to the centralized potable water system except as specified in Policy 1.4.5. Equivalent development densities shall be determined as estimated by Gainesville Regional Utilities.

1.4.2 All new developments at equivalent residential densities greater than 2 units per acre that require wastewater treatment, within the City of Gainesville, shall be required to connect to the centralized wastewater system except as specified in Policies 1.4.4 and 1.4.5. Equivalent development densities shall be determined by Gainesville Regional Utilities. Non-residential development proposed to be on septic tanks must demonstrate that it will not dispose of toxic, hazardous, or industrial waste in the septic tank.

1.4.3 Industrial pre-treatment plants shall be allowed.

1.4.4 New construction of package wastewater plants must meet the relevant standards established by the State of Florida and the Federal government and must

connect to central wastewater facilities within 5 years of central wastewater becoming available. New package plants shall be permitted only when:

a. The developer of such temporary package treatment plant is required to enter into a legally binding agreement that dedicates and assigns responsibility for the proper maintenance and operation of the plant to an appropriate agency of local government; and

b. Such agreement shall provide adequate compensation by the developer to the local government agency for the proper operation and maintenance of the plant; and

c. The package plant is approved by the appropriate government agency assigned plant operation and maintenance as meeting standards for design, operation and maintenance.

1.4.5 New development of existing lots in platted subdivisions and other existing legal lots of record shall be excluded from the requirements stated in Policies 1.4.1 and 1.4.2 unless there are existing distribution or collection facilities in the right-of-way or easements abutting the property.

1.4.6 The City shall continue its connection charge installment program, as outlined in the Code of Ordinances, to encourage users to abandon wells and/or package or on-site wastewater treatments systems and to connect to the centralized potable water and wastewater systems.

Objective 1.5 Recognizing the importance of potable water supplies, the City shall encourage water conservation through the programs and methods listed below:

Policies

1.5.1 The City shall continue to offer water conservation education and information to residential and non-residential customers through its ~~free Home~~ Energy/Water Survey Program.

1.5.2 The City shall continue to minimize water losses from unaccounted sources through its ongoing water loss reduction program.

1.5.3 The City shall continue its policy of inverted block rate residential water charges during the peak irrigation months of April through October, as an economic means of promoting water conservation.

1.5.4 The City shall continue its policy of providing ~~make~~ lists of vegetation classified by water demand ~~available~~ to public agencies, residents and developers.

1.5.5 ~~By June 1992, The~~ The City shall continue to include ~~incorporate~~ water conservation techniques, including xeriscaping, int~~o~~ the City's landscape ordinance.

1.5.6 The City shall continue to offer free water conservation information as part of at least one utility billing statement per year.

1.5.7 The City shall encourage the use of reclaimed water where it is economically feasible.

1.5.8 By September 2000, Gainesville Regional Utilities shall create a guide to reclaimed water use that includes information about how to plan and design for reclaimed water distribution systems.

Section 2. The City Manager is authorized and directed to make the necessary changes in

maps and other data in the City of Gainesville 1991-2001 Comprehensive Plan, or element, or portion thereof in order to fully implement this ordinance.

Section 3. If any section, sentence, clause or phrase of this ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way affect the validity of the remaining portions of this ordinance.

Section 4. All ordinances or parts of ordinances in conflict herewith are to the extent of such conflict hereby repealed.

Section 5. This ordinance shall become effective immediately upon final adoption; however, the amendment to the City of Gainesville 1991-2001 Comprehensive Plan shall not become effective until the state land planning agency issues a final order determining the adopted amendment to be in compliance in accordance with section 163.3184(9), or until the Administration Commission issues a final order determining the adopted amendment to be in compliance in accordance with section 163.3184(10).

PASSED AND ADOPTED this _____ day of _____, 2000.

_____
PAULA M. DeLANEY
MAYOR

ATTEST:

_____
KURT M. LANNON
CLERK OF THE COMMISSION

Approved as to form and legality

_____
MARION J. RADSON
CITY ATTORNEY

This Ordinance passed on first reading this _____ day of _____, 2000.

This Ordinance passed on second reading this _____ day of _____, 2000.

CITY
----------OF---------- INTER-OFFICE COMMUNICATION
GAINESVILLE

Item No.: 1

TO: City Plan Board **DATE: October 26, 1999**

FROM: Planning Division Staff

SUBJECT: **Petition 146CPA-99PB. City Plan Board. Update the Potable Water/Wastewater Element of the City of Gainesville 1991-2001 Comprehensive Plan for the proposed 2000-2010 Comprehensive Plan.**

Recommendation

Planning Division Staff recommends approval of Petition 146CPA-99PB.

Explanation

This petition amends the City of Gainesville 1991-2001 Comprehensive Plan to update the Potable Water/Wastewater Element. The revisions to the Plan reflect changes recommended in the Evaluation and Appraisal Report, adopted in 1998.

On September 16, 1999 the City Plan Board held a workshop on this element and there were no recommended changes to the goals, objectives, and policies as presented that evening. In addition, a presentation was made before the Water Management Advisory Committee on September 22, 1999. The Water Management Advisory Committee was supportive of the goals, objectives, and policies as presented.

Attachment 1 contains the strike-through and underline changes to the Potable Water/Wastewater Element. Attachment 2 is the updated Data and Analysis Report that contains the supporting information for the goals, objectives, and policies and proposed amendments.

Reasons for proposed changes

Several amendments and deletions are recommended as part of the update of this element. Listed below are the reasons for each proposed change.

1. Policy 1.1.1.b has a slight wording change to more correctly reflect that Gainesville Regional Utilities (GRU) measures storage capacity based on maximum daily flow and not maximum daily consumption.

2. Policy 1.1.2.b is being deleted because all level of service (LOS) standards for University of Florida (UF) facilities are set in the UF Campus Master Plan. Thus, it is no longer necessary for the City of Gainesville to adopt a LOS standard for the campus wastewater plant.

3. Objective 1.2 is being amended to reflect that the potable water and wastewater facility deficiencies that existed at the time of 1991 - 2001 Comprehensive Plan adoption have been corrected. Now the objective directs the City to upgrade and expand facilities as shown in the new policies and the 5-Year Schedule of Capital Improvements.

4. Policy 1.2.1 has been deleted because the storage capacity deficiencies have been corrected.

5. Policy 1.2.2 is being deleted because the fire flow deficiencies study has been completed and all problem areas have been identified and corrected.

6. Policy 1.2.3 is shown for re-numbering and is being amended to reflect the new 14 mgd capacity by the end of FY 2001/2002.

7. Policy 1.2.4 is being deleted because the Main Street Wastewater Plant has been upgraded to advanced secondary treatment.

8. Policy 1.2.5 is being deleted because the storage tank addition in the northwest has been installed.

9. Policy 1.2.6 has been re-numbered and amended to show that GRU plans to upgrade the Murphree Water Plant to 51 mgd by the end of FY 2002/2003.

10. Policy 1.2.7 was deleted because the automated shunt system has been completed.

11. Policy 1.3.1 has been amended to reflect that Alachua County has adopted policies in its Comprehensive Plan to govern when potable water and wastewater facilities should be extended.

12. Policy 1.4.6 has been added to reflect a program established by GRU for installment payments. Connection charges for potable water and/or wastewater can now be spread over a ten-year period. This program was created to make connection to the centralized system more economically feasible for customers (both residential and non-residential) on wells and/or septic tanks.

13. Policy 1.5.1 has been amended to clarify that the water conservation program is available to both residential and non-residential customers.

14. Policy 1.5.4 has been amended to reflect that the vegetation lists are available as a result of amendments to the City's landscaping code.

15. Policy 1.5.5. has been amended to indicate the City has included water conservation techniques as part of the landscape ordinance. These changes were adopted as a result of the Land Development Code updates in 1992.

16. Policies 1.5.7 and 1.5.8 are being added to encourage the use of reclaimed water and create a guide for how to plan and design a reclaimed water distribution system.

Impact on Affordable Housing

Not applicable

Respectfully submitted,

Ralph Hilliard

Ralph Hilliard
Planning Manager

RH:ORL

Attachment 1

POTABLE WATER/WASTEWATER ELEMENT

GOAL 1

TO PROVIDE ADEQUATE, SAFE, ECONOMIC, RELIABLE AND ENVIRONMENTALLY SOUND WATER AND WASTEWATER UTILITY SERVICES.

Objective 1.1

Water and wastewater services shall be provided at adequate Levels of Service (LOS) to meet the needs of existing and future populations.

Policies

1.1.1 The following LOS standards shall be adopted for potable water:

a. Maximum Day (Peak) Design Flow: 200 gallons daily demand per capita;

b. Storage Capacity: 1/2 of maximum daily ~~consumption volume~~ flow;

c. Pressure: The system shall be designed for a minimum pressure of 40 psig under forecasted peak hourly demands to assure 20 psig under extreme and unforeseen conditions;

d. The City shall reserve potable water capacity for the annual water demand projected by the City for the University of Florida and the power plants.

1.1.2 The following LOS standards shall be adopted for wastewater services:

a. Average Day Standard: 113 gallons daily flow per capita. Peak Standard: 123 gallons daily flow per capita;

~~b. University of Florida Standard: 40 gallons per capita average daily flow (this standard was provided by the University of Florida Physical Plant).~~

1.1.3 The City shall maintain forecasts of plant flow requirements and provide for plant capacity and other facility expansions in GRU's annually-updated, five-year capital budget to meet the LOS standards.

1.1.4 The City shall perform ongoing evaluations and studies to determine the water and wastewater systems' needs to meet the requirements of existing and future customers, with the LOS standards to be employed as minimum criteria. The City shall provide financial resources in GRU's operating and annually-updated, five-year capital budgets to renew, replace, improve and maintain the systems in accordance with prudent utility practice as defined in the Utilities System Revenue Bond Resolution (adopted June 6, 1983).

1.1.5 The City shall not commit to provide water or wastewater service if sufficient capacities or facilities to serve the proposed project cannot be made available at the time that the system impacts of the project will occur. The City shall maintain, as part of its Concurrency Management System, records of the expected amount of system demand from projects to which commitments are made and expected project lead and completion times in order to monitor capacity and facility requirements.

1.1.6 Every five years, the City shall hire independent and qualified consulting firms to evaluate the condition of the water and wastewater systems and the adequacy of the financial and facilities planning performed to maintain the system.

Objective 1.2

~~**Upon Plan adoption, the City shall begin to correct existing potable water and wastewater facility deficiencies and make necessary expansions to those outlined in the policies below and as shown in the 5-Year Schedule of Capital Improvements in the Capital Improvements Element to meet established LOS standards.**~~ **The City shall continue to upgrade and expand water/wastewater facilities, as shown in the policies below and in the 5-Year Schedule of Capital Improvements, to meet established LOS standards. The City shall give priority to correcting existing deficiencies in levels of service prior to expanding facilities to new, unserved areas.**

Policies

~~1.2.1 Potable water storage capacity deficiencies identified in the data and analysis report shall be corrected by the construction of a 5 mg storage tank in FY 1991/1992, as shown in the 5-Year Schedule of Capital Improvements.~~

~~1.2.2 By December 1991, the City shall have completed a study to identify areas with fire flow deficiencies.~~

1.2.~~3~~1 The Kanapaha Water Reclamation Facility capacity shall be increased to ~~12~~ 14 mgd by the end of FY ~~1993/1994~~ 2001/2002, as shown in the 5-Year Schedule of Capital Improvements.

~~1.2.4 The Main Street Wastewater Plant advanced secondary treatment upgrade shall be completed by August 1992, as shown in the 5-Year Schedule of Capital Improvements.~~

~~1.2.5 The City shall have completed the 2 mg ground storage tank addition in the northwest by the end of FY 1993/1994, as shown in the 5-Year Schedule of Capital Improvements.~~

1.2.~~6~~2 The City shall ~~expand~~ complete the Murphree Water Plant filter upgrade or install alternative facilities to expand capacity to ~~40~~ 51 mgd capacity by the end of FY ~~1993/1994~~ 2002/2003, as shown in the 5-Year Schedule of Capital Improvements.

~~1.2.7 The City shall complete the automated wastewater collection shunt system by the end of FY 1991/1992, as shown in the 5-Year Schedule of Capital Improvements.~~

Objective 1.3

The City shall provide potable water and wastewater services throughout the urban area in an efficient and economical manner, with the cost of service expansion being borne by those requiring such expansion. Upon Plan adoption, the City of Gainesville, as the urban area service provider of potable water and wastewater through Gainesville Regional Utilities, shall coordinate the extension and increases in capacity of potable water and wastewater facilities outside of city limits through policies established in the Alachua County Comprehensive Plan.

Policies

1.3.1 In order to discourage urban sprawl, ~~the City, in cooperation with Alachua County, shall establish a timing, staging and capacity program for the expansion of water and wastewater facilities within the service area by June 1992~~. Gainesville Regional Utilities shall extend potable water and wastewater facilities outside city limits in accordance with policies in the Alachua County Comprehensive Plan.

1.3.2 The City shall encourage development of property in close proximity to existing service areas through the continued use of appropriate economic incentives concerning the extension of water and wastewater services as listed below:

a. The City shall continue its policy of having all new water and wastewater service connections pay the fully allocated cost of the treatment facilities required to serve them in the form of plant connection fees, and the cost of distribution or collection facilities, unless the service is on a developer-installed system;

b. The City shall continue its policy of having development contribute the water and wastewater distribution and collection system internal to a development. Contributions in aid of construction are paid if the City does not project an adequate return on investment for water distribution or wastewater collection system extensions;

c. The City shall continue its policy that all facilities constructed and contributed to the utility system must be approved, inspected and built to City standards.

1.3.3 The City shall not reserve potable water or wastewater capacity outside of city limits without a determination that the development order is consistent with the Future Land Use Element of Alachua County.

Objective 1.4

The use of existing water and wastewater facilities shall be maximized by adopting the following policies:

Policies

1.4.1 All new developments at equivalent residential densities greater than 2 units per acre that require potable water, within the City of Gainesville, shall be required to connect to the centralized potable water system except as specified in Policy 1.4.5. Equivalent development densities shall be determined as estimated by Gainesville Regional Utilities.

1.4.2 All new developments at equivalent residential densities greater than 2 units per acre that require wastewater treatment, within the City of Gainesville, shall be required to connect to the centralized wastewater system except as specified in Policies 1.4.4 and 1.4.5. Equivalent development densities shall be determined as estimated by Gainesville Regional Utilities. Non-residential development proposed to be on septic tanks must demonstrate that it will not dispose of toxic, hazardous, or industrial waste in the septic tank.

1.4.3 Industrial pre-treatment plants shall be allowed.

1.4.4 New construction of package wastewater plants must meet the relevant standards established by the State of Florida and the Federal government and must connect to central wastewater treatment facilities within 5 years of central wastewater facilities becoming available. New package plants shall be permitted only when:

a. The developer of such temporary package treatment plant is required to enter into a legally binding agreement that dedicates and assigns responsibility for the proper maintenance and operation of the plant to an appropriate agency of local government; and

b. Such agreement shall provide adequate compensation by the developer to the local government agency for the proper operation and maintenance of the plant; and

c. The package plant is approved by the appropriate government agency assigned plant operation and maintenance as meeting standards for design, operation and maintenance.

1.4.5 New development of existing lots in platted subdivisions and other existing legal lots of record shall be excluded from the requirements stated in Policies 1.4.1 and 1.4.2 unless there are existing distribution or collection facilities in the right-of-way or easements abutting the property.

1.4.6 The City shall continue its connection charge installment program, as outlined in the Code of Ordinances, to encourage users to abandon wells and /or package or on-site wastewater treatments systems and to connect to the centralized potable water and wastewater systems.

Objective 1.5

Recognizing the importance of potable water supplies, the City shall encourage water conservation through the programs and methods listed below:

Policies

1.5.1 The City shall continue to offer water conservation education and information to residential and non-residential customers through its ~~free Home~~ Energy/Water Survey Program.

1.5.2 The City shall continue to minimize water losses from unaccounted sources through its ongoing water loss reduction program.

1.5.3 The City shall continue its policy of inverted block rate residential water charges during the peak irrigation months of April through October, as an economic means of promoting water conservation.

1.5.4 The City shall continue its policy of providing ~~make~~ lists of vegetation classified by water demand ~~available~~ to public agencies, residents and developers.

1.5.5 ~~By June 1992, the~~ The City shall continue to ~~incorporate~~ include water conservation techniques, including xeriscaping, ~~into~~ the City's landscape ordinance.

1.5.6 The City shall continue to offer free water conservation information as part of at least one utility billing statement per year.

1.5.7 The City shall encourage the use of reclaimed water where it is economically feasible.

1.5.8 By September 2000, Gainesville Regional Utilities shall create a guide to reclaimed water use which includes information about how to plan and design for reclaimed water distribution systems.

Attachment 2

Potable Water/Wastewater Data and Analysis Report

Potable Water and Wastewater Data and Analysis Report

Public and Private Potable Water Facilities

Service Area

The City of Gainesville, through Gainesville Regional Utilities (GRU), is the supplier of potable water for all areas within city limits ~~with two exceptions: Tacachale Community of Excellence (formerly Sunland Training Center) and St. Michael's Child Care Center (these private facilities are discussed separately at a later point in this document).~~ There are currently no private potable water systems in the city. Both Tachachale Community of Excellence (formerly Sunland Training Center) and St. Michael's Child Care Center have been hooked to the City's centralized system. Tachachale was hooked to the City's centralized water system in 1998 because significant quantities of pollution (benzene and other toxic chemicals) were found in their water wells. The water plant at Tachachale has been placed on inactive status according to the Florida Department of Environmental Protection. Tachachale is billed for 123,288 gallons per day, which is well within the limits of the Murphree Plant's capacity. The City's Murphree Water Plant also provides water to urban fringe areas surrounding the city. Map 1 illustrates the service area for the Murphree Water Plant. ~~It also indicates the locations of the non-public potable water systems. City limits shown on all maps have changed as a result of annexations. See Appendix D of the Future Land Use Element Data and Analysis Report for maps illustrating new city limits.~~

Proportional Capacity

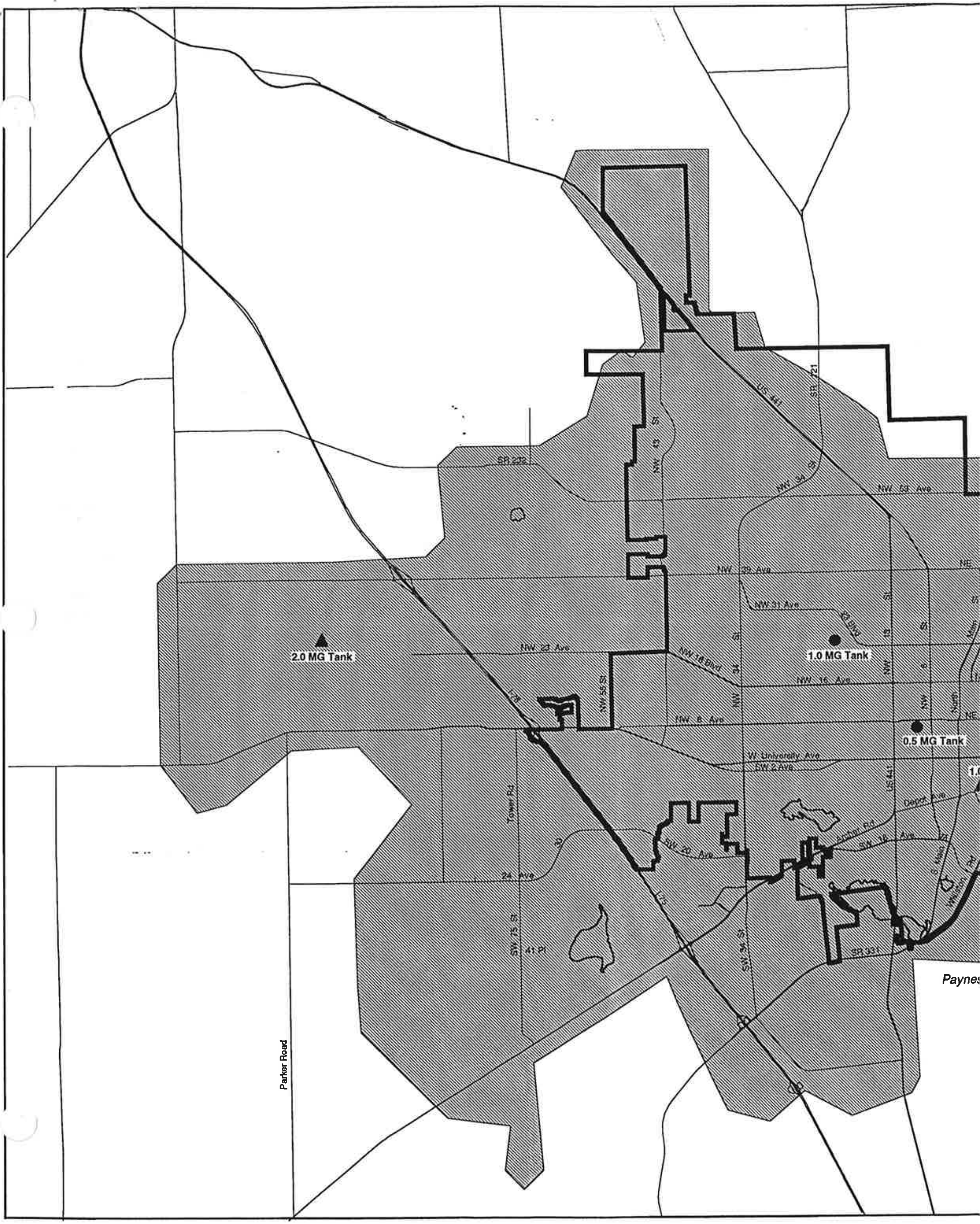
Proportional Capacity for the Murphree Water Plant

While the City does provide potable water for areas beyond its corporate limits, there are no formal or informal agreements allocating proportional capacity to any specific sub-areas. According to the Gainesville Code of Ordinances (see Appendix A, page A-1), service is provided on a "first come-first served" basis regardless of geographic or jurisdictional area.

Because there is a single water plant designed, operated and maintained to serve the urban area, it is not necessary to allocate proportional capacity. Plant capacity increases have historically been based on urban area level data and analyses since that is the population which is being served and will continue to be served.

There is adequate capacity (with a surplus) projected for both the City of Gainesville and the urban fringe in the two planning years, ~~1996~~ 2005 and ~~2001~~ 2010. In ~~1996~~ 2005 a ~~7.0~~ 10.2 mgd surplus is projected; in ~~2001~~ 2010 a ~~14.3~~ 5.9 mgd surplus is projected (see page ~~19~~ 14). It should be especially noted that those surpluses are based on the maximum daily demand and not on average daily demand.

Based on the housing unit projections found in the Housing Element Data and Analysis Report, there will be more than enough capacity available to service the potable water



2.0 MG Tank
1.0 MG Tank
0.5 MG Tank
SR 232
NW 53 Ave
NW 39 Ave
NW 31 Ave
NW 23 Ave
NW 16 Ave
NW 8 Ave
W. University Ave
SW 2 Ave
SW 20 Ave
24 Ave
Archer Rd
Depot Ave
SR 331
US 441
SR 121
NW 43 St
NW 34 St
NW 55 St
Tower Rd
SW 75 St
41 Pl
SW 34 St
I-75
Parker Road
Paynes

needs within city limits. The Housing Data and Analysis Report ~~(see page 24, Table 16)~~ indicates that ~~2,066~~ 1,977 households (off-campus housing units only) will be added between ~~1991 and 1996 (33,480 - 31,414)~~ 2000 and 2005. That is an average addition of ~~413~~ 395 units per year. There will be ~~1,909 (35,389 - 33480)~~ 3,038 housing units (off-campus housing units only) added between ~~1996 and 2001~~ 2005 and 2010 (or approximately an average of ~~382~~ 607 units per year). The projections are calculated using the UF Shimberg Center Affordable Housing Needs Assessment model, with the inclusion of the City's population projections. ~~These housing unit projections are derived from the population projections found in the Comprehensive Plan.~~

Examining GRU's historical data for the period ~~1985-1990~~ 1992-1996, it was found that the average number of connections to residential units per year (both inside and outside city limits) was ~~1,080~~ 1,420 ~~(range 936 to 1,359)~~. The average number of commercial connections in the same period was ~~100~~ 115 ~~(range 80 to 140)~~. The number of residential and commercial connections has increased slowly and with little variance. Projections (~~1990 to 1995~~ 1997-2002) indicate a similar slow and low variance pattern (average of ~~1,074~~ 1,175 residential units and ~~102~~ 116 commercial units per year). Given the city's projected low population and housing unit growth rate, it is expected that GRU could service every anticipated housing and commercial unit to be built in the city within the planning horizon. Additionally, the anticipated ~~7.0~~ 10.2 mgd surplus in ~~1996~~ 2005 allows for considerable projection error should the growth rate change radically in the first 5 years of the planning horizon. Thus, it is considered unnecessary to indicate a proportional capacity for the two jurisdictions since excess capacity exists for the projected needs of both areas.

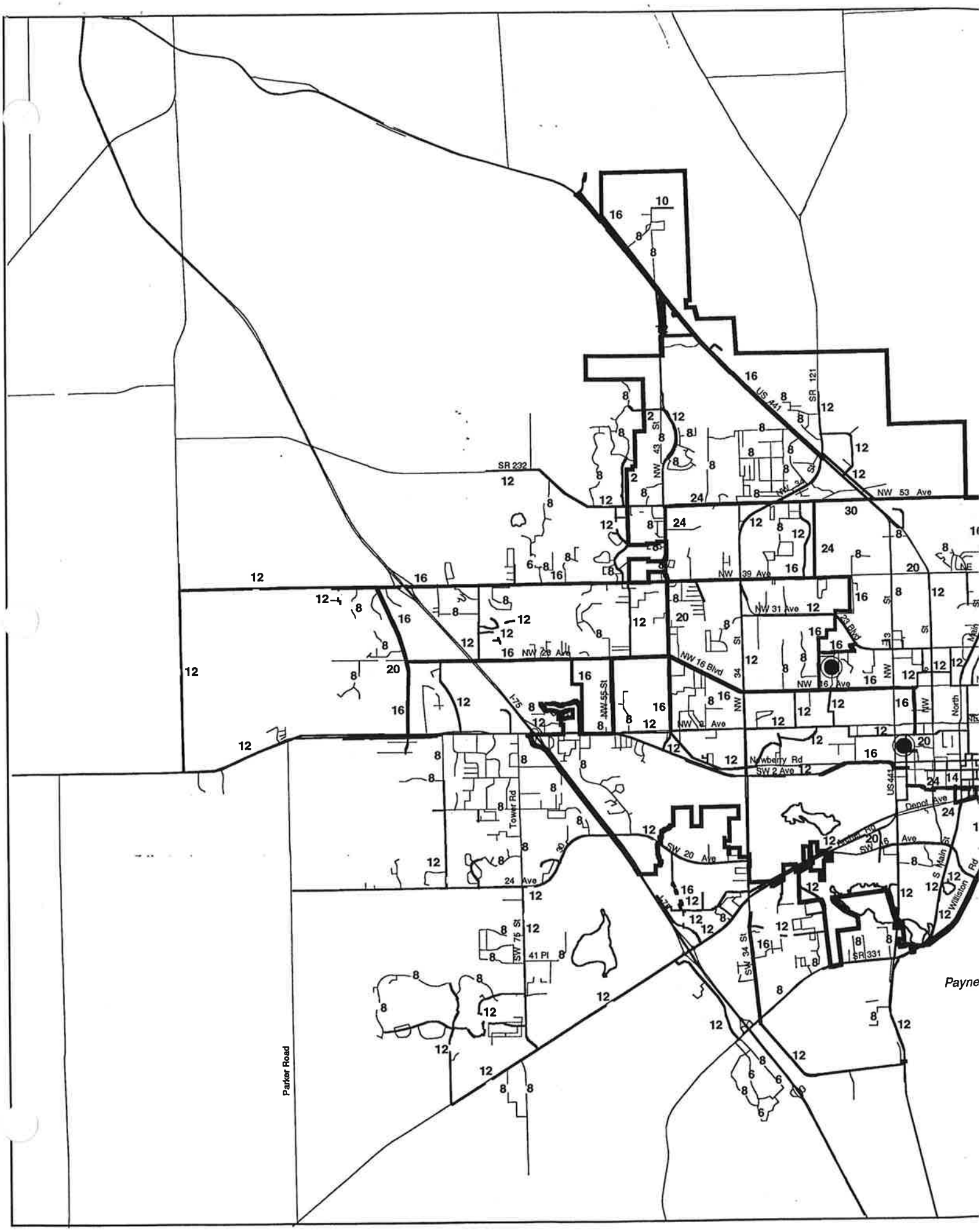
The ~~1996~~ 2005 potable water maximum flow needed within the city to service the ~~2,066~~ 1,977 projected housing units is ~~.97~~ .93 mgd (200 gallons per capita x (~~2,066~~ 1,977 units x ~~2.343~~ 2.354 persons per household (~~1994~~ 1999 figure obtained from the Bureau of Economic and Business Research)). The additional ~~1,909~~ 3,038 residential units projected for the period ~~1996 - 2001~~ 2005-2010 will require about ~~.89~~ 1.43 mgd of capacity (200 gallons per capita x (~~1,909~~ 3,038 units x ~~2.323~~ 2.354). In both projection years, excess capacity exists to service the potable water needs of the city.

~~Proportional Capacity for non-municipal water systems~~

~~The Tacachale potable water facilities service residents who live and work at the residential treatment facility. All these residents live within city limits. Tacachale allocates capacity to service only its population. Since Tacachale is not a GRU potable water customer, they are not included in any estimates of existing or future demands on the City's potable water system. There are no proposals for adding Tacachale to the City's centralized system. As indicated on page 17 the residential population at Tacachale is expected to continue its decline over the next ten years as residents are moved into alternative, non-institutionalized residential settings.~~

Public Facilities

Map 2 illustrates public potable water facilities: the Murphree Water Plant (which includes the water production wells, water treatment facilities, water storage and high service pumping equipment), elevated storage tanks and the distribution mains. The


SR 232
US 441
SR 121
NW 53 Ave
NW 39 Ave
NW 31 Ave
NW 16 Blvd
NW 16 Ave
NW 8 Ave
NW 55 St
I-75
Newberry Rd
SW 2 Ave
Depot Ave
SW 20 Ave
SW 16 Ave
SW 75 St
41 Pl
SW 34 St
SR 331
Williston Rd
Parker Road
Payne

Murphree Plant is classified as a Community Water System (~~17~~ 62-550.200 Florida Administrative Code (F.A.C.)).

The University of Florida's (UF) water supply comes from the Murphree Plant. However, UF owns and maintains its own water distribution mains. ~~Map 3 delineates~~ The UF Campus Master Plan contains maps showing those mains and the connection points to the City's water supply.

~~Private Facilities~~

~~Tacachale Community of Excellence (a residential treatment facility for the mentally handicapped) (see Map 4) and St. Michael's Child Care (a church school) each own and operate their own potable water systems. The Tacachale System is classified as a Community Water System (17-550.200 F.A.C.) because it serves a population of more than 25 year-round residents. St. Michael's Child Care Center is classified as a Special Non-Community Water System because it serves a non-resident school population of 50 or more persons (17-550.200 F.A.C.).~~

~~Map 4 displays the Tacachale facilities. Three wells and a pumping station distribute water among the various buildings at the site. Unfortunately, maps indicating the exact locations of water mains were not available. However, the mains generally follow along roadway right-of-way lines according to the plant supervisor, Stephen Gaffney. No maps were available for the system at St. Michael's Child Care Center.~~

~~The Wimberly Estates Subdivision private potable water system was abandoned November 12, 1991. The residents in this subdivision (which is fully within city limits) are serviced by the City's Murphree Water Plant. These residents were added to the centralized system through a special assessment which financed the construction of the new water lines.~~

Operational Responsibility

~~The following table lists each facility and the entity having operational responsibility.~~

~~**TABLE 1: Operational Responsibility for Potable Water Facilities**~~

~~Potable Water Facility~~	~~Owner~~	~~Operator~~
~~Murphree Water Plant~~	~~City of Gainesville~~	~~Gainesville Regional Utilities~~
~~Tacachale~~	~~State of Florida~~	~~Tacachale, Rick Tisdale or Gary Clemons~~
~~St. Michael's Child Care~~	~~St. Michael's Episcopal Church~~	~~Hazel Martineau~~

~~SOURCE: Florida Department of Environmental Regulation, 1989.~~

The Murphree Water Plant is owned by the City of Gainesville and operated by Gainesville Regional Utilities.

Predominant Types of Land Uses Served by Potable Water Facilities

In order to document the predominant land uses served by the potable water facilities, it is necessary to break down the areas into ~~three~~ two categories: existing land uses within the City of Gainesville and existing land uses outside of city limits which are controlled by Alachua County~~, and the land uses served by the private facilities~~.

Category 1: Existing Land Uses within City Limits

Map 1 in the Future Land Use Element shows the existing land uses in the City of Gainesville and the contiguous urbanized area. Using that map, in conjunction with Map 1 of this Report, the predominant land uses within city limits associated with the Murphree Water Plant can be noted.

Table 1 in the Future Land Use Element ~~and Table 2 in Appendix D of the Future Land Use Element Data and Analysis Report~~ summarizes the various land uses and indicates percentages of each land use type. Table 1 from the Future Land Use Element Data and Analysis Report is replicated (in part) below as Table ~~2~~ 1. ~~Acreage and land uses associated with the private facilities have been subtracted out of this table because they are not served by the Murphree Plant.~~

~~**TABLE 2: Existing Land Uses within the City of Gainesville (Served by the Murphree Water Plant)**~~

~~Land Use~~	~~Acreage~~	~~Percent of Total~~	~~Percent of Improved~~
~~**Residential**~~			
~~Residential/Low Density~~	~~6621.16~~	~~34.15%~~	~~41.31%~~
~~Residential/High Density~~	~~1159.61~~	~~5.98%~~	~~7.23%~~
~~**Business**~~			
~~Office~~	~~263.90~~	~~1.36%~~	~~1.65%~~
~~Commercial~~	~~705.53~~	~~3.64%~~	~~4.40%~~
~~Industrial~~	~~522.73~~	~~2.70%~~	~~3.26%~~
~~**Other**~~			
~~Mixed Use~~	~~127.84~~	~~0.66%~~	~~.80%~~
~~Education~~	~~1194.49~~	~~6.16%~~	~~7.45%~~
~~Recreation~~	~~669.54~~	~~3.45%~~	~~4.18%~~
~~Public Service~~	~~3489.11~~	~~18.00%~~	~~21.77%~~
~~Conservation~~	~~1104.69~~	~~5.70%~~	~~6.89%~~
~~Agriculture~~	~~171.16~~	~~0.88%~~	~~1.07%~~

~~Unimproved Land~~	~~3,356.21~~	~~17.31%~~	
~~TOTAL[1]~~	~~19,385.97~~	~~100.00%~~	~~16029.76 imp~~

~~[1]NOTE: This total does not include circulation, rights-of-way or acreage for areas served by private potable water facilities Tacachale and St. Michael's Child Care Center). The table also does not include areas annexed in 1992. See Table 2 in Appendix D of the Future Land Use Element Data and Analysis Report for Newly Annexed Areas for existing land use information about the annexed areas.~~

~~SOURCE: Future Land Use Element, November 1991 and Appendix D, August 1994.~~

TABLE 1: Existing Land Uses within the City of Gainesville (Served by the Murphree Water Plant)

Land Use	Acreage	Percent of Total	Percent of Improved
Residential			
Single Family	6,456.72	23.48%	37.54%
Residential (Low)	1,077	3.92%	6.26
Residential (Medium)	780	2.83%	4.54%
Residential (High)	263	.96%	1.53%
Mixed Use Residential	35	.13%	.20%
Business			
Office	366.72	1.33%	2.13%
Commercial	416	1.51%	2.42%
Industrial	1,069	3.89%	6.21%
Mixed Use			
Mixed Use Low	376	1.37%	2.19%
Mixed Use Medium	319	1.16%	1.85%
Mixed Use High	119	.43%	.69%
Other			
Agriculture	1,495.91	5.44%	NA
Conservation	2,578.86	9.38%	NA
Education	2,205	8.02%	12.82%
Planned Use District	136	.49%	.79%
Public Facilities	3,387	12.32%	19.69%
Recreation	194	.71%	1.13%
Unimproved Land	6,226	22.64%	NA
TOTAL:	27,500.21		
TOTAL IMPROVED:	17,199.44		

Source: City of Gainesville Master Property System database, 1999.

As can be noted from the table, the predominant land uses served by the water plant are Residential and Public ~~Service~~ Facilities (accounting for approximately 70% of all improved land uses).

Category 2: Existing Land Uses outside City Limits

The Murphree Water Plant serves areas outside of city limits. ~~Alachua County is currently compiling data for its Future Land Use Element.~~ Based on ~~preliminary~~ information from ~~the~~ Alachua County, the predominant developed land uses in the urban fringe area are Residential and ~~Education/Public Buildings/~~Institutional (including education, public buildings, and other public facilities).

Category 3: Existing Land Uses served by Private Facilities

~~Table 3 lists the private facilities and the predominant types of land uses they serve.~~

~~**TABLE 3: Land Uses served by Private Facilities**~~

~~Facility~~	~~Predominant Land Use~~
~~Tacachale Water System~~	~~Public Service~~
~~St. Michael's Episcopal Church System~~	~~Church school and church[1]~~

~~[1]Designated Conservation and Residential/Low Density on the Existing Land Use Map.~~

~~SOURCE: Map 1, Existing Land Use Map, Future Land Use Element, November 1991.~~

Design Capacity and Current Demand

The design capacity and current demand levels for ~~each~~ the water plant are listed in Table 4 2. Demand levels are given in ~~either~~ millions of gallons per day (mgd) ~~or thousands of gallons per day (tgd)~~. The demand figures for the Murphree Plant include demand from the entire service area (inside and outside of city limits).

TABLE 4 2:Design Capacity and Current Demand for ~~Water Treatment~~ the Murphree Plants

Water Plant	Design Capacity	Current Demand[1]
Murphree Water Plant	~~34.0~~ 40.0 mgd	~~20.8~~ 22.2 mgd
~~Tacachale Water System~~	~~2.1 mgd~~	~~.25 mgd~~
St. Michael's Child Care Center	5.0 tgd	2.0 tgd

[1]Figures for the Murphree Plant are for ~~1993~~ 1996; ~~others are for 1988~~. Demand is measured as average daily demand as delivered to the water distribution system.

~~No flow meter exists at the St. Michael's facility, therefore, the average daily demand figures are estimates made by church personnel.~~

Source: GRU Strategic Planning Department, ~~1994~~ 1997
~~Tacachale, 1989~~
~~St. Michael's Episcopal Church, 1989~~
~~Florida Dept. of Environmental Regulation, 1989~~

Existing Levels of Service

Public Facilities

Four existing level of service (LOS) indicators have been examined for the Murphree Water Plant facility. These are:

1. Minimum design flow (measured as average daily per capita consumption in gallons)
2. Peak flow design capacity (measured as maximum daily demand)
3. Pressure
4. Storage tank capacity

LOS 1: Minimum Design Flow

The ~~1993~~ 1996 per capita daily consumption was calculated for the Murphree Plant. The contributions to this total consumption rate include average daily base consumption, commercial and other consumption. Other consumption includes unaccounted water uses such as fire hydrant tests, fire flows, theft, leaks, treatment uses, etc. However, sales to the University of Florida (~~916.72~~ 927.83 mg) and power plants (~~61.54~~ 59.63 mg) are excluded.

Water usage by UF is projected to range from approximately ~~917~~ 939 mg in ~~1993~~ 1997 to ~~1,020~~ 1,015 mg in ~~2001~~ 2005. Projections for the intermediate years can be found in GRU's Budget Year ~~1995~~ 1998 Forecast of Customer Sales and Revenues (~~May 6, 1994~~ May 1997). Water usage by the power plant is projected to be an average of 60 mg yearly during the period ~~1994~~ 1997 through ~~2001~~ 2005. The projected annual water usage for UF and the power plants will be reserved annually for them and will not be included within the available capacity for future development. The projections will be monitored annually to determine whether the annual reserved capacity should be changed.

The ~~1993~~ 1998 data indicate that ~~60%~~ 56% of GRU's potable water customers live inside city limits. The remaining ~~40%~~ 44% are customers living outside city limits.

Total ~~1993~~ 1996 water consumption was ~~6,345.53~~ 6,997.39 mg (~~5,721.846~~ 6,309.64 mg in sales increased by 10.9% for unaccounted water use, this excludes sales to UF and power plants). There were ~~41,333~~ 45,594 residential connections

and ~~3,898~~ 4,257 non-residential connections in ~~1993~~ 1996 (GRU, ~~1995~~ 1997, Strategic Planning Dept.). Master metering in some multi-family units necessitates the use of a units per connection factor. Based on information from GRU, the ~~1989~~ 1996 number of units per connection was 1.37. Calculation of the existing ~~1993~~ 1996 level of potable water service is shown as follows.

Residential Connections x Units per Connection = Total Residential Units

~~41,333~~ 45,594 x 1.37 = ~~53,733~~ 62,464

Multiplying the total number of units by the persons per household (pph) yields an estimate of the population served by the water facility. A ~~1993~~ 1998 estimate of pph was obtained from the Bureau of Economic and Business Research (BEBR) at UF. Averaging the ~~1993~~ 1998 Alachua County pph (~~2.38~~ 2.4) and the City of Gainesville pph (~~2.337~~ 2.354) results in an estimate of ~~2.36~~ 2.38 pph for the urban area served by the Murphree Plant. The pph is used in conjunction with total residential units to produce an estimate of population served.

Residential Units	x	pph	=	Population served
~~53,733~~ 62,464	x	~~2.36~~ 2.38	=	~~126,810~~ 148,664

The per capita consumption rate is obtained by dividing total water consumption (excluding UF and power plant consumption) by total population served (~~6,345.53~~ 6,997.39 mg/ ~~126,810~~ 148,664). The ~~1993~~ 1996 per capita consumption was ~~50,039.7~~ 47,068.5 gallons. Dividing by 365 to obtain the average daily per capita consumption, the result is ~~137.1~~ 129 gallons.

~~1993~~ 1996 average daily per capita consumption: ~~137.1~~ 129 gallons

The same methodology can be employed to calculate the overall per capita use which will be used to set the flow rate level of service standard. The standard is set using all flows (residential, non-residential, and unaccounted uses, but excludinges flows to UF and the power plants).

Potable water demand is highly related to weather conditions. In order to set a level of service standard that reflects the impact of weather, a five-year average daily flow per capita was calculated using data for ~~1990~~ 1992 through ~~1994~~ 1996. The dwelling units per residential connection, persons per household figures and 10.9% unaccounted use factor discussed above were used in combination with the average daily demand to calculate the LOS.

Using the five-year average daily flow of ~~16.89~~ 17.96 mgd divided by the five-year average size of the service population --~~123,373~~ 139,505, the result is ~~137~~ 129 gallons average flow per capita per day (identical to the 1996 average flow per capita per day). Given the very slight variation (8 gallons less) found between the LOS average standard set in 1995 (137 gallons) and the current figure of 129 gallons, the City has decided to maintain the existing standard of 137 gallons. Given the uncertainty cause by weather conditions (intervening El Nino and La Nina years have occurred), the City finds the 137 gallons average daily demand per capita standard to be reasonable.

LOS Average Standard: **137 gallons average daily demand per capita** (retains 1995-adopted standard)

LOS 2: Peak flow design capacity

Peak flow design capacity is measured as maximum daily demand. This is the basis for ~~FDER's~~ FDEP's permitting of GRU's water facilities.

Peak demand is estimated using the maximum daily demand to average day demand ratio from historical GRU operating records (1976 ~~1992~~ to 1996) . To determine peak daily demand the average daily demand is multiplied by 1.46 (represents the average of 1976-199~~2~~6 peak to average day ratios).

Using the data from the previous section and applying the peak factor ratio (1.46), the peak per capita daily demand is estimated to be ~~200~~ 188.3 gallons (~~137~~ 129 gallons x 1.46). ~~This figure is used as the peak level of service standard.~~ The previously adopted (1995) LOS peak standard of 200 gallons daily flow per capita is not significantly different from the 188.3 gallons (less than 12 gallons per day) found during the Evaluation and Appraisal Report (EAR) process for the element. The final EAR for the Potable Water Element determined that the latest usage information did not exceed the adopted LOS standard. And, since the new figure is insignificantly different from the 1995-adopted standard, the City decided to maintain the existing standard.

LOS Maximum Day (Peak) Standard:

200 gallons daily flow per capita (maintains the 1995-adopted LOS standard).

LOS 3: Pressure

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.

The State of Florida has set a minimum pressure standard of 20 psig for potable water systems (~~17 22.620(6)~~ 62-555.320(7) F.A.C.). In the Gainesville service area the minimum system pressure in ~~1988~~ 1999 was approximately 50 psig (GRU, ~~1989b: 35~~ 1999). GRU's internal planning criteria is 40 psig, which is used to evaluate facilities under peak hour conditions assuming normal system operation. This criteria provides a necessary margin of safety to accommodate main breaks and fire flows while assuring at least 20 psig in GRU's facilities.

LOS standard: 20 psig for the overall water system

LOS 4: Storage Tank Capacity

Storage is required to meet distribution equalization, repump needs, fire and operational reserves. ~~The State standard for storage tank capacity is 1/2 of maximum day consumption volume (17-555.320 (6) F.A.C.).~~ GRU's internally adopted standard is to provide storage capacity equal to 1/2 the maximum daily flow.

The ~~1993~~ 1996 maximum day consumption was ~~29.6~~ 32.4 mgd. Thus, a storage tank capacity of ~~14.8~~ 16.2 mg is the existing standard. Currently, there is ~~17.5~~ 18.3 mg of storage available (1.5 mg in elevated storage tanks and ground storage of ~~16~~ 16.8 mg), representing a surplus over the adopted LOS standard.

LOS standard: 1/2 of maximum day consumption volume

~~**Private Facilities**~~

~~Two private potable water facilities exist. Levels of service are not set for any of these facilities based upon phone conversations with DCA personnel. There are no expansion plans at Tacachale or St. Michael's. Staff at Tacachale have indicated that the residential population is projected to drop over time as more patients are moved into alternative living arrangements.~~

Needs Analysis

Facility capacity analysis based on existing conditions

The Murphree Water Plant has excess capacity available based on existing average daily demand. Table ~~5~~ 3 contains data for the plant and shows the amount of surplus capacity. The capacity and demand figures are for the entire potable water service area, both inside and outside of city limits.

TABLE ~~5~~ 3: Existing surpluses at the Murphree Water Plant

Facility	Design Capacity	Existing Average Demand[1]	Existing Peak Demand[1]	Surplus Based on Peak
Murphree Plant	~~34~~ 40 mgd	~~20.8~~ 22.2 mgd	~~29.6~~ 31.8 mgd	~~4.4~~ 8.2 mgd

[1]Based on ~~1993~~ 1996 data. Average and peak demand are measured as delivered to the water distribution system.

SOURCE: GRU Monthly Operating Records, Strategic Planning Dept., 1993~~7~~

As can be noted from the table, an existing surplus capacity of ~~4.4~~ 8.2 mgd exists and can be used for future development. However, GRU has indicated that it has commitments to serve ~~3,927~~ 2,400 unbuilt residential units (this includes residential units located inside and outside of city limits). Including these future units in analyzing potable water capacity, GRU estimates that the peak demand from these units would add about ~~1.56~~ 1.14 mgd to the total demand (~~3,297~~ 2,400 x ~~2.3665~~ 2.38 (~~1994~~ 1998 city/county average persons per household)) x 200 gallons per capita per day). Table ~~6~~ 4 accounts for the mgd already committed and shows the results. A surplus of ~~2.54~~ 7.06 mgd remains even after the committed, but unbuilt units are taken into account.

TABLE ~~6~~ 4: Total existing Potable Water Surplus

Facility	Design Capacity	Peak Plus Committed Demand	Surplus
Murphree Plant	~~34~~ 40 mgd	~~31.46~~ 32.94 mgd	~~2.54~~ 7.06 mgd

Projected Needs Analysis

Projected needs are based on a GRU econometric model which calculates future water sales and connections for the entire service area (both inside and outside of city limits).[1] One component of this model is BEBR medium level population projections. The model predicts total sales (residential and non-residential). GRU's facility planning is based on the results of this model. The model assumes the absorption of the unbuilt, but committed units previously discussed. This alternative method of determining needs was used because the potable water service area does not correspond to a specific area for which population projections are available. Thus, it was decided that the best available information for projections would be from GRU's models.

The model projects total water sales through Fiscal Year ~~2003~~ 2018. It should be noted that these total sales projections include use by UF and the power plants. Water sales were multiplied by 1.109 to add a factor for unaccounted use. The resulting total was divided by 365 to provide a projection of average daily demand in the future.

~~1996~~ 2005 Facility capacity analysis

~~Planned expansion of the plant will increase the design capacity of the Murphree Plant to 40 mgd capacity by the end of Fiscal Year 1994/1995. This expansion from 34 mgd to 40 mgd is for operational purposes.~~

Table ~~7~~ 5 contains data for the plant and indicates a projected ~~7.0~~ 10.2 mgd surplus capacity in ~~1996~~ 2005. Since the demand column includes sales to UF and the power plants, the surplus capacity represents the total amount of capacity projected to be available to serve new development.

TABLE ~~7~~ 5: Projected ~~1996~~ 2005 Capacity Analysis at Water Plant

Facility	Design Capacity[1]	~~1996~~ 2005 Demand[2]	Surplus
Murphree Plant	~~40~~ 51 mgd	33.0 mgd	~~7.0~~ 10.2 mgd

1 Capacity represents planned plant expansion by end of FY ~~94/95~~ 2002/2003.

2 Demand based on projections by GRU (GRU, ~~1994~~ 1996, Strategic Planning Department) ~~plus~~ which includes a 10.9% factor for unaccounted use. Demand represents maximum daily demand.

SOURCE: GRU, ~~1994~~ 1996, Strategic Planning Dept.

~~2001~~ 2010 Facility capacity analysis

The Murphree Plant's design capacity in ~~2001~~ 2010 will ~~increase to~~ remain at 51 mgd based on a FY ~~2000~~ 2002/2003 projected expansion. Table ~~8~~ 6 contains data for the plant and projects an excess capacity of 5.9 mgd in ~~2001~~ 2010.

TABLE ~~8~~ 6: Projected ~~2001~~ 2010 Capacity Analysis at Water Plant

Facility	Design Capacity	~~2001~~ 2010 Demand[1]	Surplus
Murphree Plant	51 mgd	~~36.7~~ 45.1 mgd	~~14.3~~ 5.9 mgd

1 Demand based on projections by GRU (GRU, ~~1994~~ 1996, Strategic Planning Dept.) ~~plus~~ which includes a 10.9% factor for unaccounted use. Demand represents maximum daily demand.

SOURCE: GRU, ~~1994~~ 1996, Strategic Planning Dept.

General Performance of Existing Facilities

Adequacy of Current LOS provided by the Murphree Facility

LOS 1 and 2: Minimum and Peak Design Capacity

The Murphree Plant is currently meeting average and peak daily demand for the entire service area with an available surplus. In ~~1993~~ 1996, the maximum daily demand was ~~29.6~~ 31.8 mgd. The maximum daily flow ~~(through the end of 1990)~~ that has been experienced at the Murphree Water Treatment Plant was ~~30.54~~ 36.6 mgd (this occurred in June ~~1989~~ 1998). This amount is ~~still~~ within the plant's rated capacity.

As mentioned earlier, an ~~plant~~ expansion has already been scheduled for completion by the end of FY 2002/2003 for the Murphree Plant. ~~A wellfield~~

~~expansion is already under construction and completion is expected before the end of FY 91/92. The entire plant expansion will be completed by the end of FY 94/95. This expansion is for operational reasons and does not relate to capacity deficiencies.~~ The expansion will increase the plant capacity to ~~40~~ 51 mgd.

~~It should also be noted that the Murphree Plant can already supply up to 40 mgd. The plant, however, is currently permitted for 34 mgd, which is a firm rated capacity assuming the largest supply well is out of service. Peak demand is also weather dependent and varies from year to year. Thus, available capacity at the plant should be viewed in terms of system averages and not based on a particular year's data.~~

LOS 3: Pressure

The water distribution system currently operates on an average day at pressures higher than the State-required 20 psig level of service. ~~GRU and the Gainesville Fire Department are currently studying a few areas which may have fire flow problems. When that study is completed, it will be incorporated into updates of this Data and Analysis Report.~~ All fire flow deficiencies have been corrected.

LOS 4: Storage Capacity

As noted earlier, the existing storage capacity represents a surplus in the level of service standard which was set. ~~A 5 mg ground storage tank at the Murphree Water Plant was completed during FY 91/92. A 2 mg ground storage addition in the NW quadrant is planned for completion by the end of fiscal year 95/96. Funding for the 2 ground storage additions comes from utility revenues and utility bond proceeds.~~

Other Measures of Potable Water System Performance

Well Capacity

The ~~FDER~~ FDEP suggested standard for well capacity is average day use rate plus an excess equal to the capacity of the largest well. The largest well at the Murphree Plant is rated at 8 mgd. The average day use rate (based on ~~1988~~ 1996 data) is ~~20.1~~ 22.2 mgd (based on raw water pumping). Combining these figures, the standard for the Murphree Plant would be ~~28.1~~ 30.2 mgd. Currently, the well capacity is at ~~40~~ 55 mgd. This capacity exceeds the ~~FDER~~ FDEP standard.

High Service Pumping Capacity

~~FDER~~ FDEP recommends maximum day use rate as a standard for high service pumping capacity. In ~~1989~~ 1990 the maximum day use rate was 31.3 mgd of treated water. The existing high service pumping capacity at the Murphree Plant is 64 mgd. Thus, the plant exceeds the standard for high service pumping capacity.

Water Quality

The Federal Environmental Protection Agency (EPA) and the Florida Department of Environmental ~~Regulation~~ Protection (~~FDER~~ FDEP) set standards for water quality which are used for evaluating water quality from the Murphree Plant. Currently, the Murphree Plant meets all EPA and ~~FDER~~ FDEP water quality standards. GRU also softens, filters, fluoridates and stabilizes its water. These actions exceed minimum State requirements for a groundwater source of potable water.

General Condition and Expected Life of Facilities

A ~~recent~~ 1998 study undertaken by Black & Veatch (Five Year Report for the Period October 1, 1993 to September 30, 1998) to satisfy bonding requirements evaluated the potable water facilities and presented the following ~~summary~~ findings ~~(GRU, et al., 1989: 3-1)~~:

1. ~~The water system facilities are in excellent condition, efficiently operated, and well maintained relative to and in accordance with prudent utility practice and meet all current permit requirements~~. The general condition of water facilities observed during the inspections was found to be good. All of the wells and treatment process units, storage reservoirs and high service pumping facilities observed at the Murphree Plan were in satisfactory operating condition.

2. ~~The transmission and distribution systems are adequate.~~ Both the Water Distribution and Water Treatment Departments maintain current standard operating procedures which ensure that the operations staff have proper information and directions to have the facilities perform in an efficient and effective manner.

3. ~~The present water system and its planned expansion are projected to adequately serve the present and future needs of its customers beyond 2000.~~ The water treatment plant meets all FDEP standards. High service pumping facilities are sufficient to meet the demands of the system, and the pumping facilities meet FDEP standards for standby power for 50 percent of design capacity. The GRU water system is considered to be in compliance with all applicable regulatory requirements.

4. GRU procedures for maintaining the water system conform to accepted industry standards regulatory requirements.

5. The capital improvements program is indicative of a well administered utility, with planning for future system expansions to meet community needs, programming of improvements as they are required to sustain or expand service, and budgeting of the projects to manage cost. The projected ability of the water system to meet debt service coverage requirements and to meet its financial obligations under the existing

rates for utility service is considered by Black & Veatch as reasonable and attainable.

Based on these findings, the potable water system is deemed to be in very good condition and ~~that~~ the life of facilities extends beyond the ~~2001~~ 2010 planning horizon of the Comprehensive Plan.

Impact of the Facilities on Adjacent Natural Resources

There are no known negative impacts on adjacent natural resources from the Murphree Water Plant. The only documented effect of the Murphree Plant has been drawdown in the potentiometric surface of the underlying Floridan Aquifer due to withdrawals (GRU, 1989a and GRU, 1987c).[2] No ill effects have been noted from this drawdown because the confined nature of the Floridan Aquifer produces artesian conditions which preserve system pressure.

Opportunities for Facility Replacement, Expansion and New Facility Siting

Improvements or expansions to the current public potable water system include the following (GRU, et al., ~~1994~~ 1997, Strategic Planning Dept.):

1. An 11.0 expansion of the Murphree Water Treatment Plant is scheduled for completion by the end of FY ~~94/95~~ 2002/2003.

2. A 2 mg expansion of storage facilities ~~(in the NW quadrant, completion by the end of FY 95/96).~~ was completed in FY 97/98.

Improvements scheduled through the end of FY ~~91/92~~ 2003/2004 have funding for the capital improvements secured from internally generated funds and external funds generated from revenue bonds ~~(GRU, et al., 1989: 3-16)~~ (GRU, Strategic Planning, 1996). Utility bond proceeds will be used to fund the remaining capital improvements. GRU has established a schedule of rates to assure its ability to secure and service anticipated debt to fund programmed improvements.

Public and Private Wastewater Facilities

Service Area

Gainesville Regional Utilities (GRU), owned by the City of Gainesville, provides wastewater services for areas within the city limits and the surrounding unincorporated urbanized fringe (Alachua County's jurisdiction). The University of Florida (UF) provides wastewater services on its campus. Information about the UF Wastewater System has been deleted from this report because that is included in the UF Campus Master Plan, per State law. Map ~~5~~ 3 illustrates the existing GRU geographic service area. ~~City limits shown on all maps have changed as a result of annexations. See Appendix D of the Future Land Use Element Data and Analysis Report for maps illustrating new city limits~~. As indicated on the map, the University of Florida (UF) has its own wastewater facilities which provide service to university property.

Proportional Capacity

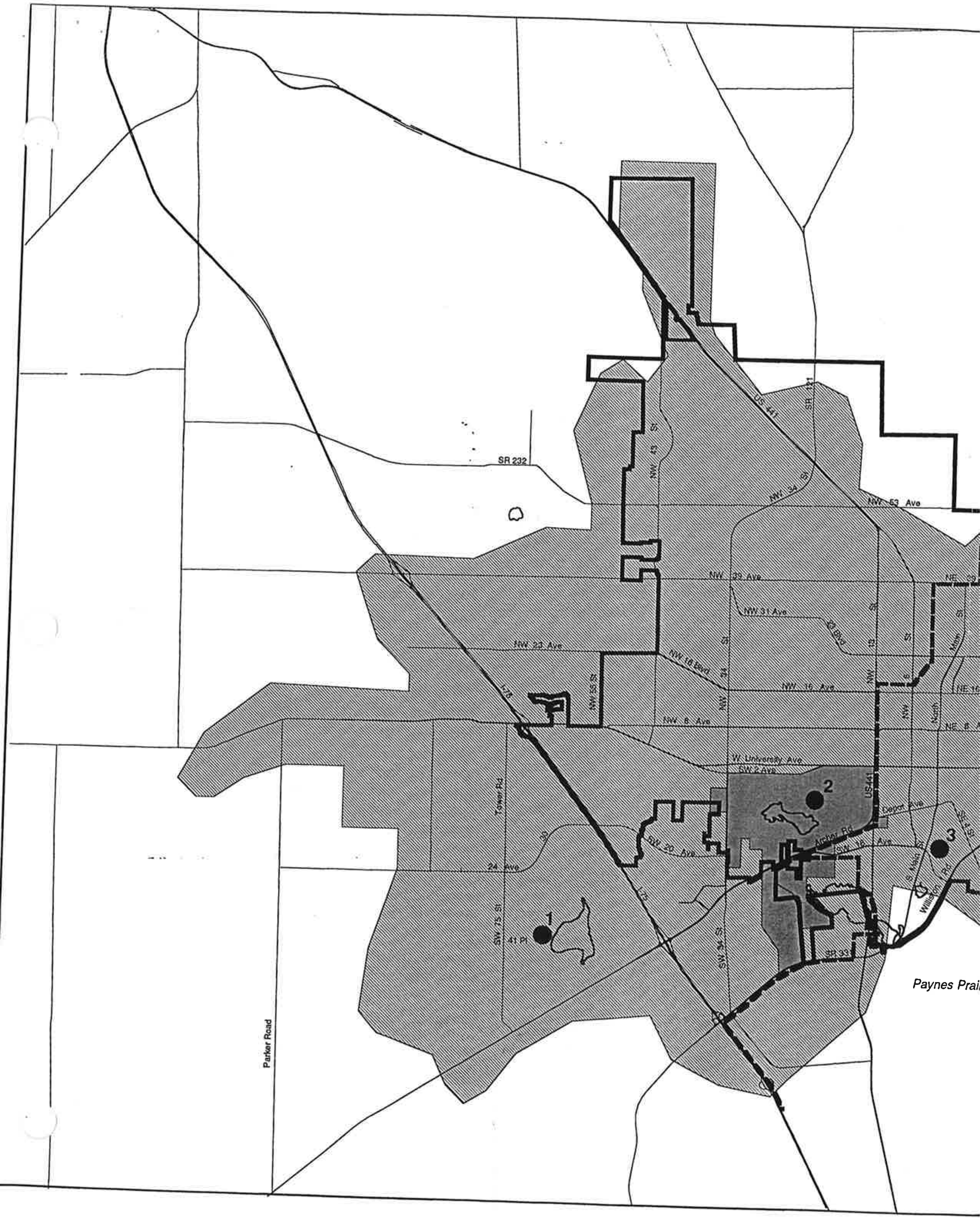
Proportional Capacity for the City-owned Wastewater Plants

While the City does provide wastewater services for areas beyond its corporate limits, there are no formal or informal agreements allocating proportional capacity to any specific sub-areas. According to the Gainesville Code of Ordinances (see Appendix A, page A-1), service is provided on a "first come-first served" basis regardless of geographic or jurisdictional area.

Because the wastewater plants are designed, operated and maintained to serve the urban area, it is not necessary to allocate proportional capacity. During FY 1991/1992 an automated shunt system was constructed which increased the capacity to shift flows between the plants to 3.5 mgd. Plant capacity increases have historically been based on urban area level data and analyses since that is the population which is being served and will continue to be served.

There is adequate capacity (with a surplus) projected for both the City of Gainesville and the urban fringe in the two planning years, ~~1996~~ 2005 and ~~2001~~ 2010. In ~~1996~~ 2005 a ~~2.57~~ 3.71 mgd surplus is projected; in ~~2001~~ 2010 a ~~5.07~~ 1.96 mgd surplus is projected (see page ~~39~~ 30). It should be especially noted that those surpluses are based on the average daily flow since that is how the plants are rated for flow limitation capacity by the Florida Department of Environmental Protection.

Based on the housing unit projections found in the Housing Element Data and Analysis Report, there will be more than enough capacity available to service the wastewater needs within city limits. The Housing Report ~~(see page 24, Table 16)~~ indicates that ~~2,066~~ 1,977 households will be added between ~~1991~~ 2000 and ~~1996~~ 2005 (~~33,480 – 31,414~~). That is an average addition of ~~413~~ 395 units per year. There will be ~~1,909~~ (~~35,389 – 33,480~~) 3,038 housing units added between ~~1996~~ 2005 and ~~2001~~ 2010 (or approximately an average of ~~382~~ 607 units per year). The projections are calculated using the UF



SR 232
US 441
SR 121
NW 43 St
NW 34 St
NW 53 Ave
NW 39 Ave
NW 31 Ave
NW 23 Ave
NW 16 Ave
NW 8 Ave
NW 55 St
NW 13 St
W. University Ave
SW 2 Ave
US441
Depot Ave
Archer Rd
SW 16 Ave
SW 20 Ave
Tower Rd
24 Ave
SW 75 St
41 Pl
SW 34 St
SR 331
Williston Rd
S. Main
Parker Road
1
2
3

Shimberg Center Affordable Housing Needs Assessment model, with the inclusion of the City's population projections. ~~These housing unit projections are derived from the population projections found in the Comprehensive Plan.~~

Examining GRU's historical data for the period ~~1985-1990~~ 1993-1996, it was found that the average number of residential connections per year (both inside and outside city limits) was ~~988~~ 1,216 ~~(range 813 to 1,155)~~. The average number of non-residential connections in the same period was ~~77~~ 70 ~~(range 41 to 136)~~. The number of residential and non-residential connections has increased slowly. Projections (~~1990 to 1995~~ 1996 to 2001) indicate a similar slow growth pattern (average of ~~1,001~~ 1,465 residential connections and ~~80~~ 83 non-residential connections per year). Given the city's projected low population and housing unit growth rate, it is expected that GRU could service every anticipated housing and commercial unit to be built in the city within the planning horizon. Additionally, the anticipated ~~2.57~~ 3.71 mgd surplus in ~~1996~~ 2005 (see Table ~~14~~ 12, p. ~~39~~ 30) allows for considerable projection error should the growth rate change radically in the first 5 years of the planning horizon. Thus, it is considered unnecessary to indicate a proportional capacity for the two jurisdictions since excess capacity exists for the projected needs of both areas.

The ~~1996~~ 2005 wastewater flow needed within the city to service the ~~2,066~~ 1,977 projected housing units is ~~.55~~ .53 mgd (113 gallons per capita x (~~2,066~~ 1,977 units x ~~2.343~~ 2.354 pph)). The additional ~~1,909~~ 1,909 residential units projected for the period ~~1996 - 2001~~ 2005-2010 will require about ~~.51~~ .81 mgd of capacity (113 gallons x (~~1,909~~ 3,038 units x ~~2.343~~ 2.354 pph)). In both projection years, excess capacity exists to service the wastewater needs of the city.

~~Proportional Capacity for the UF wastewater system~~

~~The University of Florida wastewater system services a small area of campus outside of city limits. These areas are all part of the university campus and are contiguous to it. The areas served outside of city limits include the vet school, lab and research building area, Performing Arts Center Complex, Entomology and Nematology building, and medical animal research area. No information is available about the proportion of the wastewater plant required to service these areas. The University has no records which could indicate the proportion.~~

~~At this point there are no known plans to expand the sewer system lines outside of the existing area being served. Thus, the issue of proportional capacity is of minimal importance for the University.~~

Public Sanitary Sewer Facilities

GRU operates two sewage treatment plants, Kanapaha and Main Street, which provide service to the Gainesville urban area. Map ~~5~~ 3 shows the location of these treatment plants and the regions which they serve.

Map ~~6~~ 4 displays the sanitary sewer facility system. The treatment plants, trunk mains, interceptors and lift stations are delineated on this map. The Kanapaha Plant uses deep well injection into the aquifer on site and water re-use as the disposal system. The Main Street Plant discharges into the Sweetwater Branch ~~Creek~~.

The Kanapaha Plant currently operates as a tertiary treatment plant. The Main Street Plant is classified as an advanced secondary treatment plant.

~~University of Florida Sanitary Sewer Facilities~~

~~As indicated previously, UF owns and operates a wastewater facility which handles the needs of the main campus and university-owned property. Map 7 shows the details of the UF sanitary sewer system. UF's sewage plant disposes into Lake Alice on campus.~~

Private Facilities

Aside from individually-owned septic tank systems, there are no private wastewater facilities (package plants) operating within city limits (Florida Dept. of Environmental ~~Regulation~~ Protection, ~~1989~~ 1996). There are several package plants in the existing wastewater service area; however, they fall outside city limits.

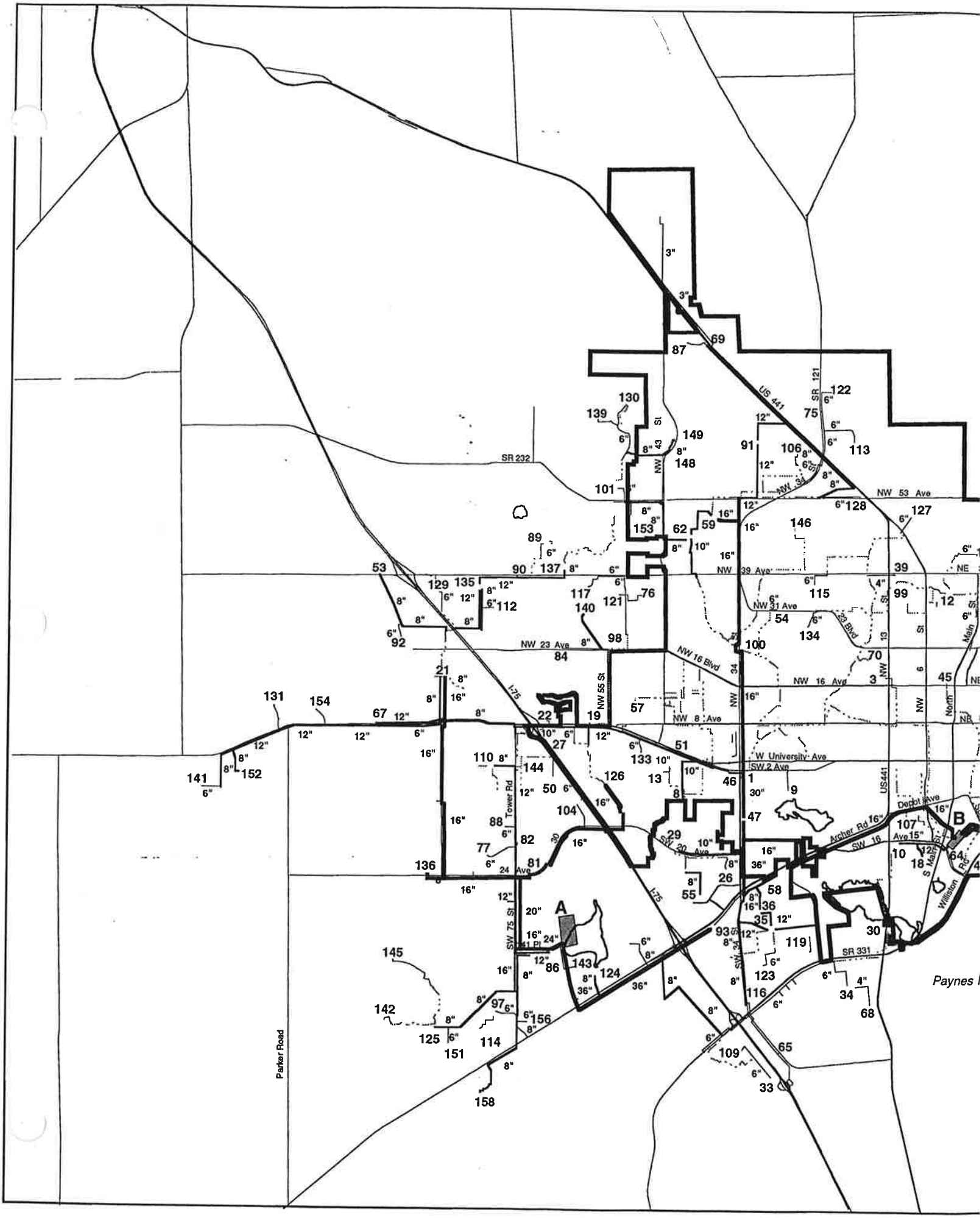
Operational Responsibility

Table ~~9~~ 7 lists the entity having operational responsibility for each facility.

TABLE ~~9~~ 7: Operational Responsibility for Sanitary Sewer Facilities

Sanitary Sewer Facility	Operational Responsibility
Kanapaha ~~Wastewater Treatment Plant~~ Water Reclamation Facility	Gainesville Regional Utilities (City of Gainesville)
Main Street Wastewater Treatment Plant	Gainesville Regional Utilities (City of Gainesville)
~~University of Florida Wastewater Treatment Plant~~	~~University of Florida (State of Florida)~~

SOURCE: ~~Florida Department of Environmental Regulation, 1989~~. Gainesville Regional Utilities, 1998.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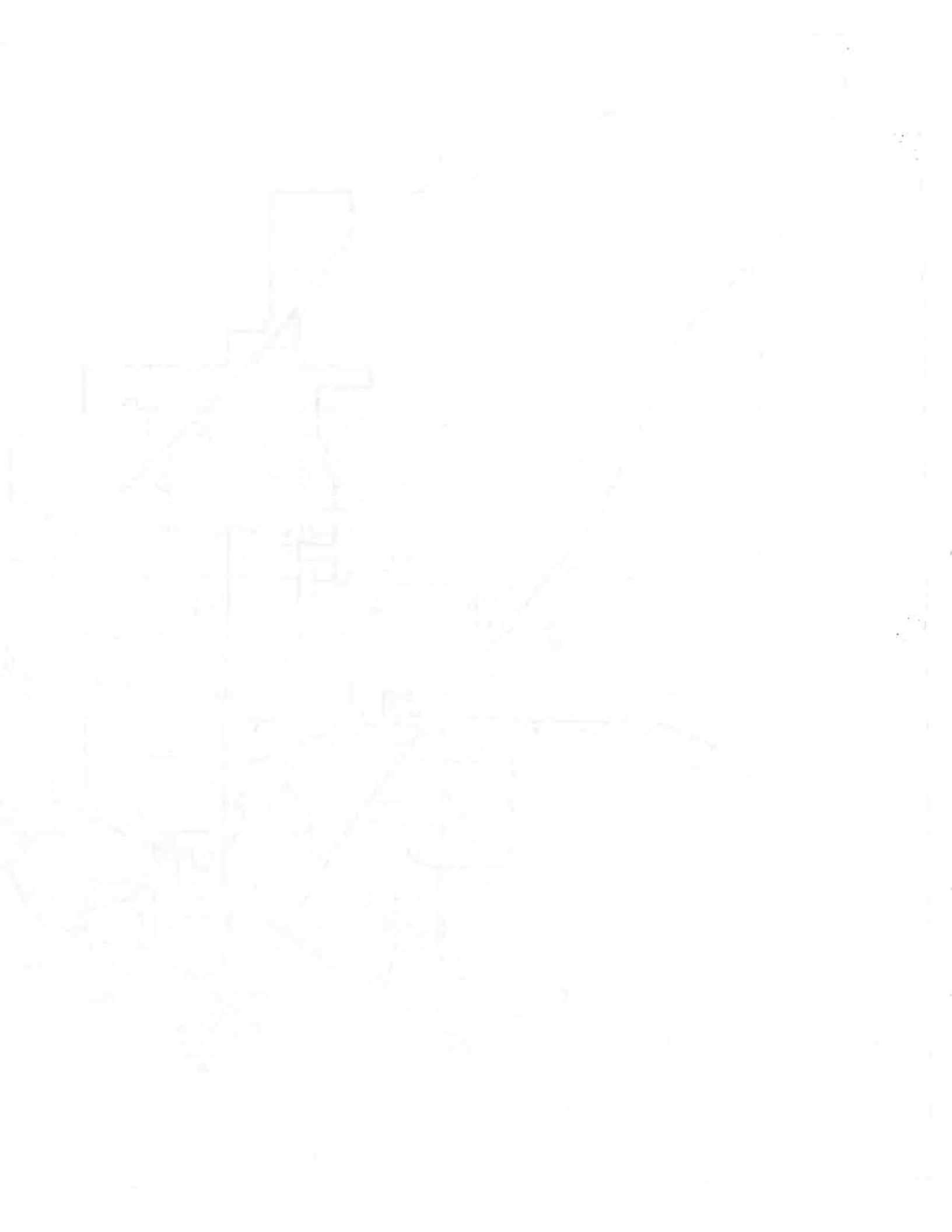
SR 121
SR 232
NW 43 St
NW 53 Ave
NW 39 Ave
NW 31 Ave
NW 23 Ave
NW 16 Blvd
NW 16 Ave
NW 8 Ave
NW 55 St
I-75
W University Ave
SW 2 Ave
Depot Ave
Archer Rd
SW 16 Ave
SW 20 Ave
SW 24 Ave
SW 75 St
SW 41 Pl
SW 34 St
Tower Rd
S Main St
Williston Rd
SR 331
Parker Road
Paynes



Predominant Types of Land Uses Served by Sanitary Sewer Facilities

In order to document the predominant land uses served by the ~~three~~ two ~~sanitary sewer~~ wastewater treatment facilities, it is helpful to break down the areas into ~~three~~ two categories: existing land uses within the City of Gainesville and existing land uses outside of city limits which are controlled by Alachua County~~, and the land uses on the University of Florida campus~~.

Category 1: Existing Land Uses within City Limits

Map 1 in the Future Land Use Element shows the existing land uses in the City of Gainesville and the contiguous urbanized area. Using that map, in conjunction with Map ~~5~~ 3 of this Data and Analysis Report, the predominant land uses within city limits associated with the Kanapaha and Main Street Plants can be noted.

Table 1 in the Future Land Use Element ~~and Table 2 in Appendix D of the Future Land Use Element~~ Data and Analysis Report summarizes the various land uses and indicates percentages of each land use type. Table 1 is replicated (in part) as Table ~~10~~ 8 below. Acreage and land uses associated with the University of Florida have been subtracted out of this table because they are served by the UF sewage treatment facility.

~~**TABLE 10: Existing Land Uses Within the City of Gainesville Served by City-owned Wastewater Facilities**~~

~~Land Use~~	~~Acreage~~	~~Percent of Total~~	~~Percent of Improved~~
~~Residential~~			
~~Residential/Low Density~~	~~6,624.45~~	~~35.56%~~	~~43.38%~~
~~Residential/High Density~~	~~1,159.61~~	~~6.22%~~	~~7.59%~~
~~Business~~			
~~Office~~	~~263.90~~	~~1.42%~~	~~1.73%~~
~~Commercial~~	~~705.53~~	~~3.79%~~	~~4.62%~~
~~Industrial~~	~~522.73~~	~~2.81%~~	~~3.42%~~
~~Other~~			
~~Mixed Use~~	~~127.84~~	~~.69%~~	~~.84%~~
~~Education~~	~~433.24~~	~~2.33%~~	~~2.84%~~
~~Recreation~~	~~435.04~~	~~2.34%~~	~~2.85%~~
~~Public Service~~	~~3,821.95~~	~~20.52%~~	~~25.03%~~
~~Conservation~~	~~1,006.86~~	~~5.40%~~	~~6.59%~~
~~Agriculture~~	~~171.16~~	~~.92%~~	~~1.12%~~

~~Unimproved Land~~	~~3,356.21~~	~~18.02%~~	
~~TOTAL[1]~~	~~18,628.52~~		~~15,272.31 improved~~

TABLE 8: Existing Land Uses Within the City of Gainesville Served by City-owned Wastewater Facilities

Land Use	Acreage	Percent of Total	Percent of Improved
Residential			
Single Family	6,456.72	25.16%	41.88%
Residential (Low)	1,077	4.20%	6.98%
Residential (Medium)	780	3.03%	5.06%
Residential (High)	263	1.02%	1.71%
Mixed Use Residential	35	.14%	.23%
Business			
Office	366.72	1.43%	2.38%
Commercial	416	1.62%	2.70%
Industrial	1,069	4.17%	6.93%
Mixed Use			
Mixed Use Low	376	1.46%	2.44%
Mixed Use Medium	319	1.24%	2.07%
Mixed Use High	119	.46%	.77%
Other			
Agriculture	1,495.91	5.83%	NA
Conservation	2,578.86	10.05%	NA
Education	422.98	1.65%	2.74%
Planned Use District	136	.53%	.88%
Public Facilities	3,387	13.20%	21.97%
Recreation	194	.76%	1.26%
Unimproved Land	6,170.87	24.05%	NA
TOTAL:	25,663.06		
IMPROVED TOTAL:	15,417.42		

[1]NOTE: This total does not include circulation, right-of-way or UF acreage served by the UF Wastewater Plant. ~~This table also does not include areas annexed in 1992. See Table 2 in Appendix D of the Future Land Use Element Data and Analysis Report for Newly Annexed Areas for existing land use information about the annexed areas.~~

SOURCE: ~~Future Land Use Element, November 1991 and Appendix D, August 1994.~~ Department of Community Development, April 1999.

As can be noted from the table, the predominant developed land uses served by both wastewater plants are Residential and Public Service (accounting for ~~76%~~ 77.8% of all improved land uses).

Category 2: Existing Land Uses outside City Limits

Both the Kanapaha and Main Street Plants serve areas outside of city limits. ~~Alachua County is currently compiling data for its Land Use Element.~~ Based on ~~preliminary~~ information from ~~the~~ Alachua County Plan, the predominant land uses in the urban fringe area are Residential and ~~Education/Public Buildings/~~Institutional (including education, public buildings, and other public facilities).

~~**Category 3: Existing Land Uses on the UF Campus**~~

~~The University of Florida Wastewater Plant serves campus areas inside and outside of city limits. The area within city limits covers approximately 1,098 acres and is predominantly designated as Education land use (69.3%). Other campus land use designations include: Recreation (21.3%), Conservation (9.3%) and Public Service (<1%). The predominant land use for campus areas outside of city limits is Education/Public Buildings/Institutional.~~

Design Capacity and Current Demand

The design capacity and current average and peak daily flow levels for each wastewater plant are listed below in Table ~~11~~ 9. Demand levels are indicated in millions of gallons per day (mgd). The design capacity and demand figures for Main Street and Kanapaha include demand from the entire service area (inside and outside of city limits).

Table ~~11~~ 9: Design Capacity and Current Demand for Wastewater Plants

Wastewater Plant	Design Capacity	Current Demand	Current Peak Demand[2]
Kanapaha Wastewater Plant[1]	10.0 mgd	~~8.1~~ 8.2 mgd	~~9.06~~ 9.9 mgd
Main Street Plant[1]	7.5 mgd	~~5.71~~ 6.5 mgd	~~6.46~~ 8.0 mgd
~~University of Florida Plant[3]~~	~~3.1 mgd~~	~~1.805 mgd~~	~~2.5 mgd~~

[1]Figures are averages for ~~1993~~ 1996. Demand is measured as average daily flow.

[2]Peak demand is measured as maximum 3-month average daily flow.

~~[3]UF information was provided by the Physical Plant Division, July 1990. Data are for 1990.~~

SOURCE: GRU Monthly Operating Records, Strategic Planning Dept., ~~1994~~ 1996; ~~UF Physical Plant, 1990~~.

Existing Levels of Service

Public Facilities

Two existing level of service (LOS) indicators have been examined for wastewater facilities. These are:

1. Average flow design capacity (measured as average daily per capita flow)
2. Peak flow design capacity (measured as a ratio of maximum 3-month average daily flow to annual average daily flow)

It should be noted that all discussions of flows and associated levels of service are for the entire wastewater service area, both inside and outside of city limits.

LOS 1: Average flow design capacity

The daily per capita flow was calculated from the combined flows to the Main Street and Kanapaha plants because flows can be shunted between the plants. The contributions to this total flow rate include average daily base flow, infiltration/inflow, commercial and industrial flows.

The ~~1993~~ 1998 data indicate that ~~61%~~ 59% of the billed wastewater flow is for customers inside city limits (percentage based on a total which excludes flows due to infiltration/inflow). The remaining ~~39%~~ 41% is for customers outside city limits.

Total ~~1993~~ 1996 sewage flow was ~~4,770.55~~ 5,267 mg (reflects plant flow data which includes infiltration/inflow). There were ~~37,953~~ 41,602 residential connections and ~~2,977~~ 3,198 non-residential connections (GRU, ~~1994~~ 1997, Strategic Planning Department). Because master metering is common in multi-family units, it is necessary to multiply the number of connections by a units/connection factor to determine total residential units served. GRU estimates that the units per wastewater connection are ~~1.32~~ 1.41. Calculation of the existing ~~1993~~ 1996 level of wastewater service is shown below.

Residential Connections x Units per Connection = Total Residential Units

~~37,953~~ 41,602 x ~~1.32~~ 1.41 = ~~50,098~~ 58,659

Multiplying the total number of units by the persons per household (pph) yields an estimate of the population served by the wastewater facilities. A ~~1993~~ 1998 estimate of pph was obtained from the Bureau of Economic and Business Research at UF. Averaging the ~~1993~~ 1998 Alachua County pph (~~2.38~~ 2.4) and the City of Gainesville pph (~~2.337~~ 2.354) results in an estimate of ~~2.36~~ 2.38 pph for the urban area served by the

wastewater plants. The calculation of estimated population served is illustrated as follows.

Residential Units	x	pph	=	Population served
~~50,098~~ 58,657	x	~~2.36~~ 2.38	=	~~118,231~~ 139,603

The per capita ~~consumption~~ wastewater discharge rate is obtained by dividing total wastewater flow by population (~~4,770.55~~ 5,267 mg/~~118,231~~ 139,603). The ~~1993~~ 1996 per capita flow was ~~40,349~~ 37,728.4 gallons. Dividing by 365 to obtain the average daily per capita flow, the result is ~~110.5~~ 103.3 gallons for the system as a whole.

~~1993~~ 1996 average daily flow per capita: ~~110.5~~ 103.3 gallons

The same methodology can be employed to calculate the overall per capita flow which will be used to set the flow rate level of service standard. The standard is set using all flows (residential, non-residential, and infiltration/inflow). A five year average daily flow per capita was calculated using wastewater plant flow data for ~~1990~~ 1992 through ~~1994~~ 1996 (GRU, ~~1995~~ 1997). The dwelling units per residential connection and persons per household figures discussed above were used in combination with the average flow to calculate the LOS.

Using the five-year average annual daily flow of ~~12.98~~ 13.54 mgd divided by the five-year average size of the service population--~~115,031~~ 136,031, the result is ~~113~~ 100 gallons average flow per capita per day. The previously adopted (1995) LOS standard of 113 gallons average daily flow per capita is not significantly different from the 100 gallons (13 gallons per day) found during the Evaluation and Appraisal Report (EAR) process for the element. The final EAR did not identify a need to change the 1995-adopted standard. During the EAR process, it was determined that the latest usage information did not exceed the adopted 1995-adopted LOS standard. Thus, the City decided to maintain the 1995-adopted standard.

LOS Average Standard:	**113 gallons average daily flow per capita** (maintains the 1995-adopted LOS standard)

LOS 2: Peak flow design capacity

Peak flow design capacity is measured as maximum 3-month average daily flow. However, it should be noted that the Florida Department of Environmental Protection (FDEP) uses average daily flow as the basis for permitting of GRU's wastewater facilities. This permitting sets the standard for the maximum effluent limitation which can be handled by the wastewater plants. Thus, that is why the average daily flow is used to set the wastewater level of service standard.

Peak flow is estimated using ~~the~~ a maximum 3-month average daily flow to average day flow ratio from historical GRU wastewater records (GRU, ~~1994~~ 1996, Strategic Planning Department). To determine peak daily flow, the average daily flow is multiplied by ~~1.0887~~ 1.092 (represents the average of the years ~~1990—1994~~ 1992-1996 of maximum 3-month average daily flow data to annual average day ratios). Multiplying ~~1.0887~~ 1.092 times the average daily flow of ~~113~~ 100 results in a figure of ~~123~~ 109 gallons peak flow per capita. As with the average flow LOS standard, the City has decided to maintain the 1995-adopted standard since the differences are minor.

LOS Peak Standard: **123 gallons daily flow per capita** (maintains the 1995-adopted LOS standard)

~~**University of Florida Facilities**~~

~~The UF Wastewater Treatment Plant is the only non-municipal wastewater facility within city limits. According to the University's Physical Plant division (July 1990), the current level of service is 40 gallons per capita per day (gpcd). This is derived using the average daily flow (1.805 mgd) divided by the service population of 45,000 (most of this is non-resident population) which equals 40 gpcd.~~

Needs Analysis

Facility capacity analysis based on existing conditions: city-owned systems

Both the Kanapaha and Main Street plants have capacity surpluses based on existing average daily flows. Table ~~12~~ 10 contains data for each plant and shows the amount of surplus capacity at each plant. The capacity and demand figures are for the entire wastewater service area, both inside and outside of city limits.

TABLE ~~12~~ 10: Existing surpluses at Wastewater Plants

Facility	Design Capacity	Current Average Flow	Surplus Based on Average Flow
Kanapaha Plant	10.0 mgd	~~8.1~~ 8.2 mgd	~~1.9~~ 1.8 mgd
Main Street	7.5 mgd	~~5.71~~ 6.5 mgd	~~1.79~~ 1.0 mgd
TOTAL	17.5 mgd	~~13.81~~ 14.7 mgd	~~3.69~~ 2.8 mgd

As indicated in the table, a surplus capacity of ~~3.69~~ 2.8 mgd, based on average daily flow, currently exists which can be used for future development. However, GRU has indicated

that it has commitments to serve ~~3,348~~ 2,121 unbuilt residential units (this includes residential units located inside and outside of city limits). Sewage capacity to serve these future units must be considered in calculating available surpluses. GRU estimates that the average sewage flow from these units would add about ~~.895~~ .57 mgd to the total demand. Table ~~13~~ 11, below, accounts for the mgd associated with commitments to serve and reflects the results of including those units.

TABLE ~~13~~ 11: Total existing Wastewater Plant Surplus

Facility	Design Capacity	Average Daily and Committed Flow	Surplus Based on Average Flow
TOTAL	17.5 mgd	~~14.71~~ 15.27 mgd	~~2.79~~ 2.23 mgd

~~Facility capacity analysis based on existing conditions: UF system~~

~~The UF wastewater plant has a capacity surplus based on existing peak daily flows. As was noted in Table 11, the existing peak demand at the plant is 2.5 mgd with a design capacity of 3.1 mgd. This leaves a surplus capacity of .6 mgd. The capacity and demand figures are for UF's entire wastewater service area, both inside and outside of city limits.~~

Projected Needs Analysis: ~~City-owned Systems~~

Projected needs are based on a GRU econometric model which calculates future wastewater sales and connections for the entire service area using BEBR medium population projections as one factor in the model.[3] Historical trends (connections resulting from population growth) are also a factor in the model. The model predicts total sales (residential and non-residential). GRU's facility planning is based on the results of this model. The model includes absorption of the unbuilt, but committed units. This alternative method of determining needs was used because the wastewater service area does not correspond to a specific area for which population projections are available. Thus, it was decided that the best available information for projections would be from GRU's models.

GRU's policy (in City ordinances) is that development (inside or outside of city limits) pays the fully allocated cost of treatment facilities required to serve it. GRU also has a policy that requires developers to contribute the water and wastewater distribution or collection systems internal to a development. Because development pays its way in providing water and wastewater facilities, a built-in mechanism for provision of projected facility needs is already in existence.

The model projects total wastewater ~~sales~~ connections for the entire service area (both inside and outside of city limits) through FY ~~2003~~ 2018. ~~Projected wastewater sales were multiplied by 1.1 to add a factor for new construction infiltration/inflow. The resulting total was divided by 365 to provide a projection of average daily flow in the future. A~~

~~base figure 1.0 mgd of infiltration/inflow (I/I) was finally added to that total to account for the existing I/I conditions.~~ Projected wastewater connections were multiplied by 323.6 gallons per day/connection, the median wastewater generation per customer for the years 1989 through 1996. Projections of peak flows were made by multiplying average daily flows by ~~1.099~~ 1.066 (the ratio of maximum 3-month average daily flow to annual average day flow for the years ~~1982 to 1993~~ 1992-1996). A 1.0 mgd base infiltration/inflow factor was also added to the peak flow projections.

~~1996~~ 2005 Facility capacity analysis

Flow projections are for the combined plants because currently up to 3.5 mgd of wastewater flows can be shifted between the plants using an automated shunt system. Table ~~14~~ 12 contains data which project the total ~~1996~~ 2005 average daily flow and peak flow to both plants.

TABLE ~~14~~ 12: Projected ~~1996~~ 2005 Capacity Analysis for Wastewater Plants

Facility	Design[1] Capacity	~~1996~~ 2005 Average Daily Flow	~~1996~~ 2005 Peak Flow	Surplus Based on Average Daily Flow
TOTAL	~~17.5~~ 21.5 mgd	~~14.93~~ 17.79 mgd	~~16.41~~ 14.6 mgd	~~2.57~~ 3.71 mgd

[1]This reflects an expansion of 4.0 mgd at Kanapaha in FY 2001.

SOURCE: GRU, ~~1994~~ 1997, Strategic Planning Department.

~~2001~~ 2010 Facility capacity analysis

Table ~~15~~ 13 contains projections for ~~2001~~ 2010 average and peak day total flows. The overall system capacity still shows a surplus through the year ~~2001~~ 2010.

TABLE ~~15~~ 13: Projected ~~2001~~ 2010 Capacity Analysis for Wastewater Plants

Facility	Design Capacity[1]	~~2001~~ 2010 Average Daily Flow	~~2001~~ 2010 Peak Flow	Surplus Based on Average Daily Flow
TOTAL	~~21.7~~ 21.5 mgd	~~16.63~~ 19.54 mgd	~~18.28~~ 21.49 mgd	~~5.07~~ 1.96 mgd

[1]This reflects an expansion of 4.0 mgd at Kanapaha in FY 2001.

SOURCE: GRU, ~~1994~~ 1997, Strategic Planning Department.

~~**Projected Needs Analysis: UF System**~~

~~The only information which is available about projected demand at the UF campus is for the year 1997. This information is contained in a Reynolds, Smith and Hill publication, Utilities Condition Assessment Report, January 1988. The projected maximum daily flow in 1997 is 3.5 mgd. The University has indicated that no information is available for the year 2001.~~

~~In order to provide 1996 and 2001 projections for the University of Florida, interpolations were made between the data for the 2 years for which data were available (1990 and 1997). The 1990 peak daily flow was given as 2.5 mgd. Interpolating in a linear fashion between 2.5 and 3.5 mgd., the 1996 projected peak daily flow is 3.358 mgd. Adding forward with the .143 mgd which was the linear interpolation, the 2001 projection is 4.072 mgd.~~

~~At its current capacity rating, the UF wastewater plant will have a .258 mgd capacity deficiency in 1996. The year 2001 projection shows a .972 plant capacity deficiency. However, since these projections are based on a straight line forecast, a slow growth rate at UF could mean there would be no capacity shortage.~~

General Performance of Existing Facilities

Adequacy of Current level of service provided by the City-owned Facilities

LOS 1: Average daily flow design capacity

The Kanapaha and Main Street plants are currently meeting the existing average daily demand with surplus capacity available at both plants. A planned expansion of the Kanapaha Water Reclamation Facility ~~Plant~~ should assure adequate average daily flow capacity through the planning time-frame.

LOS 2: Peak flow design capacity

Both ~~sewage~~ wastewater treatment plants are currently meeting peak flow demands with excess capacity. A ~~4.2~~ 4.0 mgd expansion for Kanapaha has ~~already~~ been scheduled for completion during FY 2001 (included in the capital budget to be complete by the end of FY 2000/2001).

General Condition and Expected Life of City-owned Facilities

A ~~recent~~ 1998 study undertaken by Black & Veatch (Five Year Report for the Period October 1, 1993 to September 30, 1998) to satisfy bonding requirements evaluated the ~~sanitary sewer~~ wastewater facilities and presented the following ~~summary~~ findings ~~(GRU, et al., 1989: 3-1)~~:

1. ~~The wastewater system facilities are in excellent condition, efficiently operated, and well maintained relative to and, in accordance with prudent utility practice and with the upgrade of the Main Street treatment facility, will meet all current permit requirements.~~ The general condition of the GRU wastewater collection and treatment facilities observed during the inspections was found to be good. All of the pump stations and the treatment process units observed at the Kanapaha and Main Street Plants were in satisfactory operating condition.

2. ~~The wastewater system, with the upgrades contemplated, is projected to meet all of the needs of the present and future into the late 1990s.~~ The best indication of the general state of the wastewater system was found to be the record of compliance with wastewater treatment plant effluent limits. Both of the treatment plants are required to meet extremely high standards of performance, and the record of compliance was found to be outstanding.

3. The two wastewater treatment plants regularly meet the effluent quality requirements established by their operating permits.

4. GRU has an active commercial and industrial waste pretreatment program in conformance with the EPA requirements and as contained in state regulations. The program provides assurance that wastewater discharged to the collection system from commercial and industrial sources is of acceptable quality and will not be harmful to the wastewater system.

5. GRU procedures for maintaining the wastewater system conform to industry standards and regulatory requirements.

6. Based on a review of the Water/Wastewater Systems FY 1998-2005 Capital Budget Request report, it is evident that GRU has a satisfactory system for planning , programming, and financing capital improvements required to maintain the condition of the existing wastewater system as well as provide for expansion of the system to meet projected demands. The capital improvements program is indicative of a well administered utility, with planning for future system expansions to meet community needs, programming of improvements as they are required to sustain or expand service, and budgeting of the projects to manage costs.

Based on these findings and the GRU Strategic Planning Department's assessment, the wastewater system is deemed to be in very good condition and the life of facilities extends beyond the ~~2001~~ 2010 planning horizon of the Comprehensive Plan.

~~Adequacy of current level of service and General Condition and Expected Life of UF Facilities~~

~~The University of Florida wastewater plant is currently able to meet average day and peak day flow demands. However, a CH2M Hill Report (October 1988) indicates that much of~~

~~the equipment in the plant is nearing the end of its service life. A letter from the University of Florida Physical Plant indicates the following:~~

~~1. Contact stabilization plant is in good condition.~~

~~2. The collection and transmission systems are in average condition. Their expected life is 20 to 40 years.~~

~~3. The trickling filter plant is in poor condition and past expected life.~~

Impact of the City-owned Facilities on Adjacent Natural Resources

In 1989 the Main Street Wastewater Plant was listed by the US Environmental Protection Agency (EPA) as having levels of lindane and silver higher than currently permissible for Class III surface waters (the effluent is being disposed into Sweetwater Branch Creek). A major upgrade was completed in 1992 which now allows the plant to meet the current effluent limits. GRU has also instituted an Industrial Pre-treatment Program to reduce lindane and silver levels.

The Kanapaha Plant's major impact on the environment is an alteration of the groundwater quality at a depth of 450 - 1020 feet below ground level in the Floridan Aquifer. However, extensive monitoring and analysis have found that water is at background conditions for nutrients, organic chemicals and microbiological constituents within 2,300 feet of the plant due to absorption, adsorption, filtration, precipitation and bacterial breakdown below the surface (GRU, 1987).

The re-use of reclaimed water from the Kanapaha Water Reclamation Facility (KWRF) for the creation of water features and landscape irrigation was initiated in 1993. Expansions are planned near the KWRF that will eventually provide 4.2 mgd of reclaimed water for beneficial use.

A large holding pond at the plant is used for by-pass should the effluent not meet drinking water standards prior to aquifer recharge. This pond has suffered water loss in the past due to sinkhole formation and is now lined to prevent the re-occurrence of such events. As a precautionary measure, all private wells adjacent to the plant have been replaced by central potable water.

Odors have been significantly reduced at the plant by the installation of a biofilter for odor control. Monitoring of this system by UF has found it to remove 99.9% of the hydrogen sulfide from the waste air stream (Allen, 1989).

Sludge from the wastewater plants is land applied by GRU at various farming sites which request the sludge. The sludge is sampled monthly and reports are sent to ~~FDER~~ FDEP. GRU's sludge is rated as Grade ~~1~~ B under the ~~FDER~~ FDEP criteria for land application or disposal of domestic wastewater treated sludge (~~17-7.540~~ 62-640 F.A.C.). ~~Grade 1 sludge is the best quality level based on FDER criteria~~. GRU submits for ~~FDER~~ FDEP review a new Land Application Field Package for Grade ~~1~~ B Sludges (~~FDER~~ FDEP Form

~~17-1.206(4)~~ 62-640.210(2)(a)) for each site where land application will occur. Given the grading level of the sludge and ~~FDER~~ FDEP oversight, no adverse environmental impacts are expected.

~~Impact of the UF Facilities on Adjacent Natural Resources~~

~~Currently the UF wastewater plant is operating under a temporary permit from the Florida Department of Environmental Regulation. The plant currently is not meeting effluent disposal standards required in the permit. The treatment limits for BOD, TSS, Nitrate and total Nitrogen are beyond the capabilities of the existing system. The effluent is currently discharged into Lake Alice on the campus.~~

~~The sludge produced by the plant has a Grade 1 rating, the best quality level based on FDER criteria for land application or disposal of domestic wastewater treated sludge. The sludge is disposed of in agricultural land application.~~

Opportunities for City-owned Facility Replacement, Expansion and New Facility Siting

Improvements or expansions to the current public wastewater system include the following (~~GRU, et al., 1989: 4-9 - 4-20 and~~ GRU Strategic Planning, ~~1994~~ 1997):

1. The Main Street Treatment Plant has been upgraded to provide advanced secondary treatment. This upgrade includes replacing the existing trickling filter process train with an activated sludge process train; upgrading the clarifiers; and providing grit removal, chemical treatment, filtration, and gravity belt thickeners. (Improvement begun FY 1989 and completed in 1992).

2. A ~~4.2~~ 4.0 mgd expansion of wastewater treatment capacity at the Kanapaha ~~Plant~~ Water Reclamation Facility is planned to be complete by the end of Fiscal Year 2001. ~~to increase design capacity to 14.2 mgd (Improvement scheduled for completion by the end of fiscal year 2001).~~

3. ~~The addition of sludge treatment facilities at the Kanapaha Plant has been completed. An additional sludge project is scheduled for May 1997 in order to meet new US EPA 503 sludge rules.~~

4. ~~The construction of an automated shunt system to shift additional flows between the wastewater plants has been completed.~~

Improvements scheduled through the end of FY ~~91/92~~ 01/02 have funding for the capital improvements secured from external funds generated from revenue bonds (GRU, ~~et al., 1989: 3-16~~ Strategic Planning Dept., 1997) ~~and EPA grants~~. Utility bond proceeds ~~and EPA grant funding~~ will be used to fund the remaining capital improvements. GRU has established a schedule of rates to assure its ability to secure and service anticipated debt to fund programmed improvements.

Opportunities for expanding centralized wastewater facilities to septic tank areas

Records from the Alachua County ~~Public~~ Health ~~Unit~~ Department (1998-1999) indicate that septic tank problems are minimal within the City of Gainesville. According to Mark Lander with the Health Department (phone conversation 10/20/99), less than ten percent of the complaints received by the Health Department are for septic tanks within city limits. Drainfield problems (often caused by lack of owner maintenance) is the most common problem. All problems (20-25 cases) have been resolved by system repairs or by encouraging property owners to hook to the centralized system, where available. ~~Most problems were easily corrected through engineering techniques.~~ Thus, to date, expansion of wastewater facilities to service those areas currently being served by septic tanks which seem to be in good operating order has not been a priority.

It should be noted that the City ~~recently made a change in~~ amended its connection policy ordinance (change adopted September 30, 1991) which ~~may~~ provides an economic incentive for owners of septic tanks to hook up to the centralized system. Ordinance 3740, which amended the utilities section of the City's Code of Ordinances, included a provision for the elimination of frontage charges. In an analysis of those charges (GRU, "Water and Wastewater Connection and Extension Charges Policy Review", July 16, 1991), GRU found that there were frequent requests for hook up information from existing structures adjacent to existing wastewater facilities. However, the frontage fee charges were seen as a serious impediment to this type of system infill. ~~It is hoped that the~~ The elimination of the frontage fees ~~will~~ encourages those adjacent to existing wastewater facilities to voluntarily hook up.

The City also has existing mechanisms for property owners to hook into the centralized sewer system, if they so desire. Property owners can pay the costs of expansion to them directly or through a special assessment procedure. The special assessment method allows property owners to pay the costs of hook up over a fixed time period as part of their annual property tax bill. The City also passed an ordinance which makes available an installment payment plan for connection charges so that property owners served by septic tanks or package treatment plants are encouraged to hook to the centralized system by spreading payments over a ten-year period.

In the case of a septic tank problem causing a sanitary nuisance or endangering a water supply, an existing section of City code (Section 27-~~170~~ 168.2) (see copy of text in Appendix B), requires connection to the public sanitary sewer, within 30 days of notice, if the property is abutting on any street, alley or right-of-way in which a public sanitary sewer is installed, or within 200 feet of the nearest available public sanitary sewer. Chapter ~~10D-6 or~~ 64E-6 F.A.C of the State of Florida regulates how abandoned septic tanks must be handled.

~~Opportunities for UF Facility Replacement, Expansion and New Facility Siting~~

~~As indicated earlier, the UF wastewater plant is currently operating under a temporary FDER operational permit because the treatment process is unable to produce effluent at~~

~~the quality standards listed in the discharge permit. UF plans to construct a new 3.1 mgd wastewater plant and modify its disposal system. Construction will begin in the spring of 1992. Plant completion is expected in the winter of 1993. The new plant will be located approximately 300 yards south of the current plant. The disposal system will be primarily water re-use. The re-use will provide the capability of irrigating the UF Golf Course and provide water for the heating plant and the new cogeneration plant. Excess water will go directly to discharge wells, bypassing Lake Alice. The funding for the project is as follows: $5.555 million in FY 1991/1992 and $5.645 million in FY 1992/1993.~~

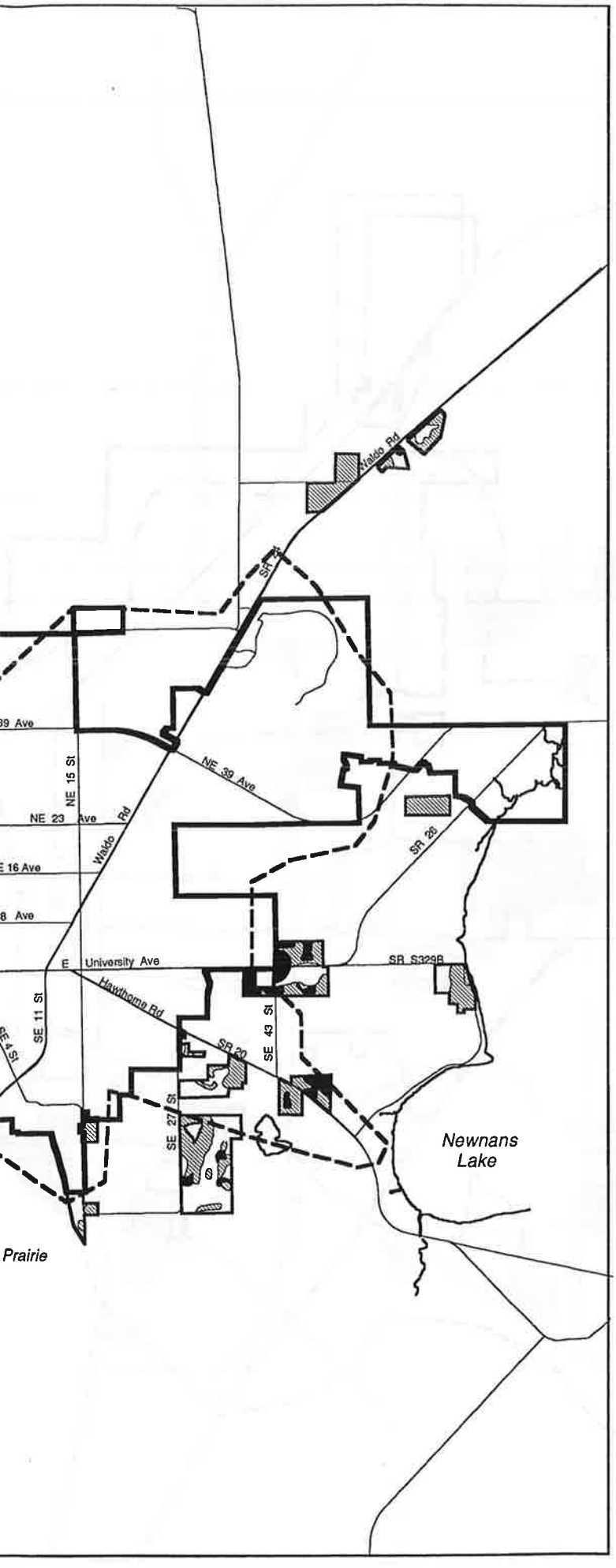
Soil Suitability for Septic Tanks

Subdivisions served by septic tanks are indicated on Map ~~8~~ 5. Soil suitability for these septic tanks in these subdivisions is superimposed on the septic tank areas and is illustrated in Map ~~9~~ 6. The soil limitations for septic tanks are rated as slight, moderate or severe as shown on the map. The soils constituting each level of limitation can be found in Appendix B Table B 2. As can be noted, there are several areas of septic tank concentration with soils which are either moderately or highly unsuitable for septic tanks. The small scale of the Soil Conservation Service maps ~~cannot be used to evaluate~~ precludes their use for specific sites. Thus, Map ~~9~~ 5 should only be used for generalized purposes.

Map ~~10~~ 7 illustrates the approximate locations of existing septic tanks in the Gainesville urban area. As can be noted from the map, septic tanks are scattered over various areas within city limits. Table B2 in Appendix B (based on the US Department of Agriculture Soil Conservation Service (USDASCS) ratings) shows the soil types corresponding to moderate and severe limitations for septic tanks. The mapped soil type information from the USDASCS is very generalized and not at a scale which can be used to determine suitability for a particular location. Terry Shipley of the Alachua County Public Health Unit has indicated that soil profiles on a particular parcel can change within 10-20 feet. The State of Florida has granted statutory authority (FS 381 and Chapter ~~10D-6~~ 64E-6 of F.A.C.) for permitting septic tanks to public health ~~units~~ departments (a division of the Florida Department of Health ~~Health and Rehabilitative Services (HRS)~~). The Alachua County ~~Public~~ Health ~~Unit (ACPHU)~~ Department uses soil suitability as only one criteria in determining whether a septic tank permit will be granted. Site evaluations are made for each permit granted and mounding or other engineering methods can be used as mitigation techniques for some soils which are unsuitable. The City believes that the permitting criteria established by the ~~ACPHU~~ Alachua County Health Department and the State are adequate to prevent problems associated with septic tanks.

Analyzing the information on Map ~~10~~ 6 and the information in the USDASCS atlas, it can be noted that septic tanks do exist in areas with both moderate and severe limitations for septic tanks. Despite this, the number of septic tank complaints received by the Public Health ~~Unit~~ Department is very low. ~~Table B3 in Appendix B lists the reported problems from 1986 through 1988.~~ Given this low reporting of problems and an indication from the ~~Public~~ Health ~~Unit~~ Department that corrections could easily be made with repairs, septic tanks do not appear to pose a major problem in the City of Gainesville. Thus, while it is possible to note where unsuitable soils for septic tanks exist

US 441
SR 121
SR 232
NW 43 St
NW 34 St
NW 53 Ave
NW 39 Ave
NW 31 Ave
NW 23 Ave
NW 16 Blvd
NW 16 Ave
NW 8 Ave
W University Ave
SW 2 Ave
Tower Rd
SW 20 Ave
SW 24 Ave
SW 75 St
41 Pl
I-75
SW 34 St
Archer Rd
SW 16 Ave
Depot Ave
US441
SR 331
Parker Road



SOIL LIMITATIONS IN SEPTIC TANK AREAS

Legend

- GRU Wastewater Service Area boundary
- Slight soil limitations
- Moderate soil limitations
- Severe soil limitations

Sources:

Onsite Systems for Wastewater Treatment in the Gainesville Urban Area,Figure G-3 Page G- 23 July 2,1985

Soil Survey of Alachua County Florida, US Department of Agriculture Soil Conservation Service, Table 11, August 1985

Note:

Soil limitations refer only to subdivisions with septic tanks. Refer to Map 5 for exact boundaries of septic tank areas.

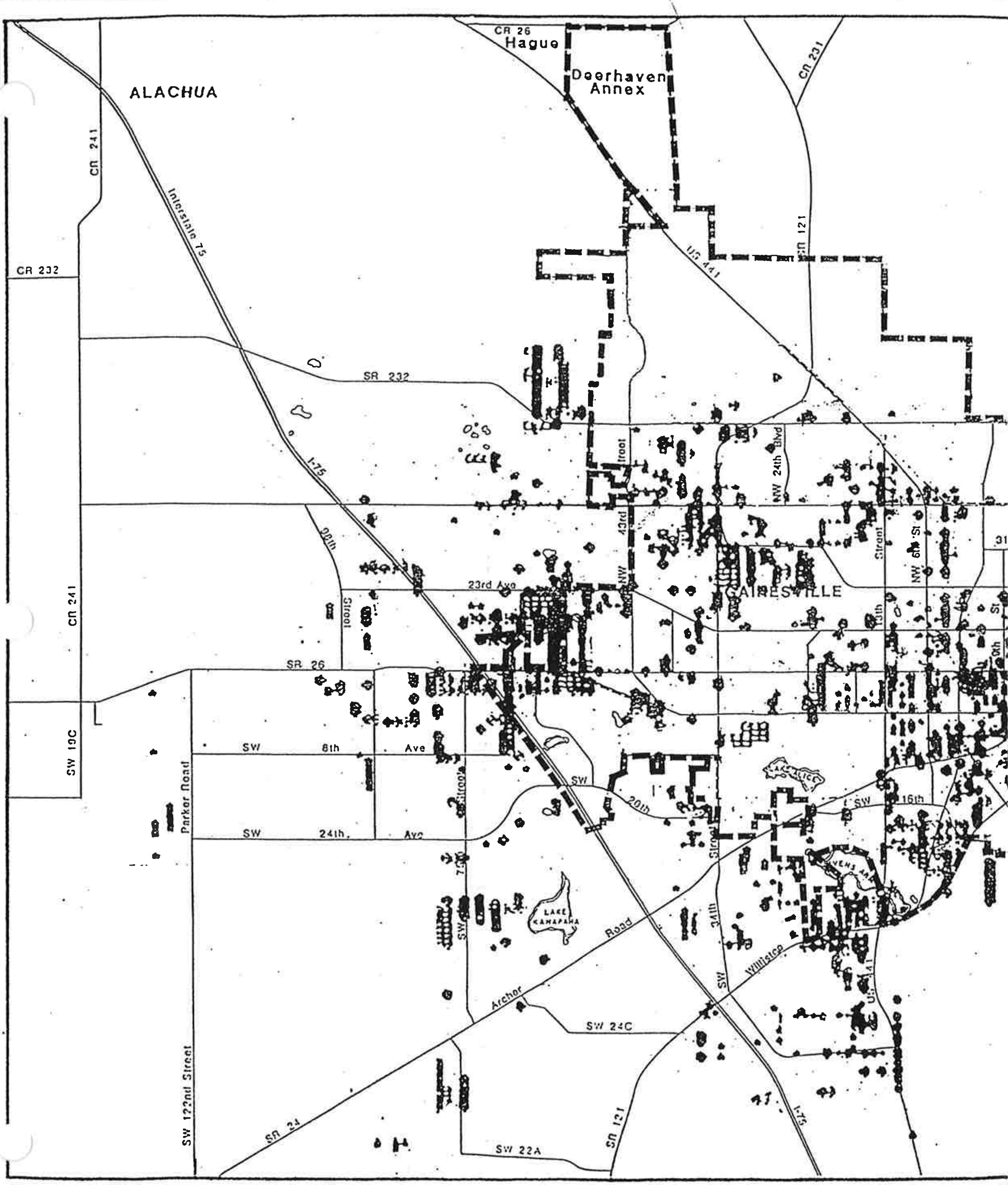
City of Gainesville
Gainesville, Florida

Prepared by the
Department of Community Development
October, 1999

0 8000 16000

1"=8000'

N


CR 26
Hague
Deerhaven
Annex
CR 231
ALACHUA
CR 241
Interstate 75
CR 232
US 441
CR 121
SR 232
I-75
NW 24th Blvd
98th
Street
23rd Ave
NW
43rd
Street
GAINESVILLE
Street
13th
NW 6th St
31
SR 26
SW
8th
Ave
SW 19C
Parker Road
SW
20th
SW
24th
Ave
SW
16th
LAKE
KANAPAHA
Road
Archer
SW 24C
SW 34th Street
Williston
US 441
SW 122nd Street
SR 24
SW 22A
SR 121
I-75

in Gainesville, given the scale of the soil maps, it is not a useful predictor of septic tank problems or acceptability.

It should also be noted that the use of septic tanks for new development is uncommon in the city. City Building ~~Division~~ Inspections Department personnel have indicated that over the last few years (1994-1999) very few new construction building permits have been issued for buildings using septic tanks (averaging about two per year). ~~In the past year only 2 or 3 new buildings were constructed with septic tanks.~~ Most new construction hooks to existing wastewater lines (recall that Gainesville is about ~~83~~ 80~~%~~ percent built out and that much of the new construction is infill type) or pays the cost of line extension from a proximate location.

FOOTNOTES

[1] For a detailed explanation of this model see GRU, 1989c.

[2] In the Murphree Plant area the Floridan Aquifer is overlain with roughly 200 feet of clay known as the Hawthorne Formation. The integrity and degree of confinement afforded by the Hawthorne Formation at the Murphree Plant is such that withdrawals have not resulted in any known surface water table effects.

The drawdown which was mentioned in the text is evident in the Floridan Aquifer. At Lake Alice and Alachua Sink, both of which receive treated wastewater effluent, the direction of groundwater flow in the Floridan appears to be towards the Murphree Wellfield based upon the regional potentiometric surface. These water bodies discharge into intermediate zones of the Hawthorne Formation and GRU does not anticipate movement of these waters into the wellfield in the foreseeable future.

[3] For a detailed explanation of this model, see GRU, 1989a.

Appendix A

Potable Water Information

GRU

INTER-OFFICE COMMUNICATION

LEGAL SERVICES

DATE: January 4, 1991

TO: Norman Bowman
Community Development Director

FROM: Raymond Manasco
Utilities Attorney

SUBJECT: Allocation of Water and Wastewater Capacity

Rule 9J-5.011(1)(C), FAC, promulgated under the Florida Growth Management Act requires each local government that shares facilities to indicate "proportional capacity of the system allocated to serve its jurisdiction". Since GRU serves both the City of Gainesville and unincorporated Alachua County, capacity in GRU's facilities is shared between the City and County. I have been asked to articulate GRU's policy on the allocation of water and wastewater capacity between the City of Gainesville and the unincorporated area of Alachua County that receives service from GRU. The following is my interpretation of the City of Gainesville's ordinances concerning capacity allocation.

Chapter 27, Article IV of the Gainesville Code of Ordinances contains ordinances pertaining to GRU's Water and Wastewater System. These ordinances deal in detail with matters such as specifications for connection to GRU's system, fees for various services rendered in connection with water or wastewater service, water and wastewater treatment plant connections, and off-site extensions of water or wastewater facilities. The ordinances do not differentiate between requests for service in the City or in the County. Extension ordinances and plant connection ordinances treat extension requests or capacity requests the same regardless of whether or not they are in the City. As such, capacity is available to all customers on a first come-first served basis, and is not allocated on a geographical or jurisdictional basis. This applies to capacity in collection or distribution facilities as well as treatment plant capacity. It is our understanding that capacity allocation on a first come - first served basis is consistent with the requirements of 9J-5, FAC. If I may be of any further assistance, please feel free to contact me.

M/s

cc: Ralph Hilliard, Chief of Comprehensive Planning
Mike Kurtz
Bob Moye
Bob McVay
Ed Regan
David Richardson

Appendix B

Wastewater Information

and other applicable federal and state laws and regulations;

(6) Improve the opportunity to recycle and reclaim wastewaters and sludges from the wastewater treatment system.

(c) This section shall apply to the city and to persons outside the city who are, by contract or agreement with the city, users of the municipal wastewater treatment system. Except as otherwise provided in this division, the general manager for utilities or his/her designee shall administer, implement, and enforce the provisions set forth in this division.
(Code 1960, § 28-56; Ord. No. 3696, § 16, 2-18-91)

Sec. 27-167. Permit fee for plumbing and sewerage installation.

Before a permit is issued for any plumbing, sewer or drainage work or installation for which a permit is required, a fee therefor shall be paid to the plumbing inspector in accordance with the schedule set out in Appendix A.
(Code 1960, § 28-57)

Sec. 27-168. Sewer connection—New buildings.

No building permit for the construction of any building or structure located on property abutting any street, alley or right-of-way in which there is located a public sanitary sewer shall be issued, unless all waste disposal from the sanitary facilities in the buildings or structures shall be directly connected with a public sanitary sewer or to a graywater disposal system approved pursuant to section 27-182(b). However, if there is no available sanitary sewer located within 200 feet of the nearest property line whereon the building or structure is to be constructed, the terms of this section shall not apply.
(Code 1960, § 28-58)

Sec. 27-168.1. Same—Existing buildings generally.

The owner of any house, building, or other improvement on any property used, or to be used, for human occupancy, employment, recreation, business, or other purpose which is or shall be served by a sewerage disposal system other than a direct connection to the city's public sanitary sewer system and located on property abutting on any street, alley, right-of-way, or easement on which a public sanitary sewer line is installed, and located within 200 feet of such sewer line, shall, within two years after the completed construction of such sewer line in operative condition, connect, or cause to be connected, all sanitary sewerage disposal facilities from the property and improvement to the public sanitary sewer line or to a graywater disposal system approved pursuant to section 27-182(b).
(Code 1960, §§ 28-56.1(a), 28-59.1(a); Ord. No. 3754, § 80, 1-27-92)

Sec. 27-168.2. Same—Existing buildings with inadequate, unsatisfactory, etc., individual sewage disposal system.

The owner of any existing house, building or property used, or to be used, for human occupancy, employment, recreation, business or other purpose now served by an individual sewage disposal system other than a direct connection to a public sanitary sewer, and located on property abutting on any street, alley or right-of-way in which a public sanitary sewer is installed, or within 200 feet of the nearest available public sanitary sewer, shall be required, within 30 days after date of notice that the individual sewage disposal system is inadequate, unsatisfactory, causing a sanitary nuisance or endangering the water supply, to abandon the existing individual sewage disposal system and fill the same with suitable materials approved by the city health officer, and connect all waste from sanitary fixtures used by him/her directly with the public sanitary sewer or to a graywater disposal system approved pursuant to section 27-182(b).
(Code 1960, § 28-59; Ord. No. 3754, § 80, 1-27-92)

Sec. 27-169. Rates and charges.

(a) *Rates.* There is hereby established a schedule of monthly rates and charges for the use of or availability for the use of wastewater collection, treatment and disposal services to read as set out in the schedule in Appendix A, which in part is based on the amount of water used from the city's water system. Wastewater service charges shall

~~APPENDIX TABLE B2: Soil Types associated with Limitations for Septic Tanks~~

~~Slight~~	~~Moderate~~	~~Severe~~
~~2B, 2C Candler~~	~~8B, 8C Millhoppper~~	~~7B Kanapaha~~
~~3B, 3C Arredondo~~	~~9B Millhopper~~	~~11 Riviera~~
~~4B Arredondo~~	~~20B Tavares~~	~~13 Pelham~~
~~5B Fort Meade~~	~~33B, 33C Norfolk~~	~~14 Pomona~~
~~6B, 6C Apopka~~	~~39B Bonneau~~	~~15 Pompano~~
~~30B, 30C Kendrick~~	~~45 Millhopper~~	~~16 Surrency~~
~~35B, 35C Gainesville~~	~~46B Bonneau~~	~~17 Wauchula~~
~~46B Cadillac~~		~~18 Wauchula~~
~~47B Candler~~		~~19 Monteocha~~
~~48 Apopka~~		~~21 Newnan~~
~~55B Lake~~		~~22 Floridana~~
~~58B Lake~~		~~23 Mulat~~
		~~25 Pomona~~
		~~26 Samsula~~
		~~28 Chipley~~
		~~29B, 29C Lochloosa~~
		~~31A Blichton~~
		~~31B, 31C Blichton~~
		~~32 B, 32C Bivans~~
		~~32D Bivans~~
		~~34 Placid~~
		~~37 Zolfo~~
		~~41B Pedro~~
		~~42B Pedro~~
		~~42B Jonesville~~
		~~44B Blichton~~
		~~46B Jonesville~~
		~~48 Myakka~~
		~~49A Lochloosa~~
		~~50 Sparr~~
		~~51 Plummer~~
		~~52 Ledwith~~
		~~53 Shenks~~
		~~54 Emeralda~~
		~~56 Wauberg~~
		~~57B Micanopy~~
		~~59 Pottsburg~~
		~~60 Udorthents~~
		~~61 Oleno~~
		~~62C Boardman~~
		~~63 Terra Ceia~~
		~~64 Okeechobee~~
		~~65 Martel~~
		~~66 Lynne~~
		~~67C Wacahoota~~

Appendix C

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1. **Petition 146CPA-99 PB** City Plan Board. Update the Potable Water/Wastewater Element of the City of Gainesville 1991-2001 Comprehensive Plan for the proposed 2000-2010 Comprehensive Plan.

Ms. Onelia Lazzari was recognized. Ms. Lazzari noted that the board had heard presentations regarding the Potable Water/Wastewater Element in previous meetings. She presented updates to the Data and Analysis Report from the original Comprehensive Plan. She noted that she had provided, at the request of the Chair, a copy of the Potable Water and Sanitary Sewer Elements of the University of Florida Master Plan. Ms. Lazzari stated that, at the last meeting, it had been noted that non-residential customers had been excluded from the installment payment plan. She indicated that the language had been clarified to include non-residential customers. She explained that staff was not proposing to amend any of the adopted level-of-service standards of the original plan. Ms. Lazzari offered to answer any questions from the board.

Chair Guy asked about distinctions between residential and all other uses.

Ms. Lazzari indicated that the per capita standards were based upon population and it was impossible to set a different standard for residential and other uses. She explained that the per capita standard covered all of the uses. She noted that the standard listed was the peak standard and usual use was much lower.

There was no public comment on the petition.

Motion By: Mr. Carter	Seconded By: Mr. McGill
Moved to: Approve Petition 146CPA-99 PB.	Upon Vote: Motion Carried 5-0 Ayes: Carter, McGill, Myers, Polshek, Guy