

ORDINANCE 91 - 4

AN ORDINANCE AMENDING, REVISING, AND REPLACING IN ITS ENTIRETY THE COMPREHENSIVE PLAN OF NASSAU COUNTY, WHICH WILL CONTROL FURTHER LAND USE, GUIDE PUBLIC FACILITIES, AND PROTECT NATURAL RESOURCES PURSUANT TO THE LOCAL GOVERNMENT COMPREHENSIVE PLANNING AND LAND DEVELOPMENT REGULATION ACT (CHAPTER 163, PART II, FLORIDA STATUTES), INCLUDING A FUTURE LAND USE ELEMENT; TRAFFIC CIRCULATION ELEMENT; HOUSING ELEMENT; SANITARY SEWER, SOLID WASTE, DRAINAGE, POTABLE WATER, AND NATURAL GROUNDWATER AQUIFER RECHARGE ELEMENT; COASTAL MANAGEMENT ELEMENT; CONSERVATION ELEMENT; RECREATION AND OPEN SPACE ELEMENT; INTERGOVERNMENTAL COORDINATION ELEMENT; AND CAPITAL IMPROVEMENT ELEMENT; PROVIDING SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, Chapter 125, Florida Statutes, empowers the Board of County Commissioners of Nassau County to prepare and enforce comprehensive plans for the development of the County; and

WHEREAS, Sections 163.3161 through 163.3215, Florida Statutes, the Local Government Comprehensive Planning and Land Development Regulation Act, empowers and requires the Board of County Commissioners of Nassau County to (a) plan for the County's future development and growth; (b) adopt and amend comprehensive plans, or elements or portions thereof, to guide the future growth and development of the County; (c) implement adopted or amended comprehensive plans by the adoption of appropriate land development regulations; and (d) establish, support, and maintain administrative instruments and procedures to carry out the provisions and purposes of the Act; and

WHEREAS, the Nassau County Planning Commission has been established pursuant to Nassau County Ordinance 74-33 ; and

WHEREAS, pursuant to Section 163.3174(1), Florida Statutes, the Board of County Commissioners of Nassau County by Ordinance 83-19, duly designated said Planning Commission as the Local Planning Agency for the unincorporated area of Nassau County; and

WHEREAS, the Nassau County Planning Commission has undertaken and prepared an Evaluation and Appraisal Report, as specified in Section 163.3191, Florida Statutes, setting forth an assessment and evaluation of the Nassau County Comprehensive Plan, adopted on the 3rd day of July, 1990, and subsequently amended and recommended the Evaluation and Appraisal Report of the Board of County Commissioners of Nassau County for adoption; and

WHEREAS, citizens and technical advisory committees assisted in formulating goals, objectives, and policies for the revised Comprehensive Plan; and

WHEREAS, supporting data and analysis documentation was prepared as background and justification for the revised Comprehensive Plan's goals, objectives, and policies; and

WHEREAS, the Nassau County Planning Commission, empowered by the above-cited laws and ordinances, and by Sections 163.3161 through 163.3215, Florida Statutes, prepared an amendment to the above-cited Nassau County Comprehensive Plan, altering in its entirety to address more adequately and prepare for Nassau County's future development and growth; and

WHEREAS, the Nassau County Board of County Commissions has, in the preparation of the amended version of the Nassau County Comprehensive Plan, caused the performance of necessary studies and

surveys; the collection of relevant and appropriate data; the holding of numerous public hearings, public workshops, and public meetings by the Nassau County Planning Commission and the Board of County Commissioners; and has effectively provided for full public participation, notice to real property owners, broad dissemination of proposals and alternatives, opportunity for written comments, open discussion, communication programs, information services, and consideration and response to public and official comments; and

WHEREAS, pursuant to Section 163.3174, Florida Statutes, the Nassau County Planning Commission as Local Planning Agency held several public hearings on the amended version of the Nassau County Comprehensive Plan with due public notice having been provided, and having reviewed and considered all comments received during the public hearings and having provided for necessary revisions, recommended the amended version of the Nassau County Comprehensive Plan to the Board of County Commissioners for approval; and

WHEREAS, pursuant to Section 163.3191, the Evaluation and Appraisal Report recommended by the Nassau County Planning Commission, was approved on the 16th day of July, 1990, by the Nassau County Board of County Commissioners; and

WHEREAS, pursuant to Section 163.3184, Florida Statutes, the Board of County Commissioners of Nassau County conducted numerous public work sessions and public meetings, and numerous public hearings on the amended version of the Comprehensive Plan, with due public notice having been provided, to obtain public comment, and having considered all written and oral comments received during

said work sessions and public hearings, including the data collection and analysis packages and recommendations of the Planning Commission, and having provided for necessary revisions, adopted and approved, on July 15, 1990, the Comprehensive Plan as amended in its entirety for transmittal to the State Land Planning Agency (Department of Community Affairs) for review and comment; and

WHEREAS, pursuant to Section 163.3184, Florida Statutes, on the 31st day of July, 1990, transmitted ten (10) copies of the amended version of the Comprehensive Plan to the Department of Community Affairs as the State Land Planning Agency for written comment, and transmitted one (1) copy to each of the local government or governmental agencies in the State of Florida having filed with the Board of County Commissioners a request for a copy of the amended version of the Comprehensive Plan; and

WHEREAS, the Department of Community Affairs, by letter dated the 28th day of November, 1990, transmitted objections, recommendations, and comments on the amended version of the Comprehensive Plan; and

WHEREAS, the amended version of the Comprehensive Plan was revised in view of objections, recommendations, and comments by the Department of Community Affairs; and

WHEREAS, pursuant to Section 163.3184, Florida Statutes, the Board of County Commissioners of Nassau County held public hearings with due public notice having been provided, on the amended version of the Comprehensive Plan, and with written advance notice of such

public hearings having been provided to the State Land Planning Agency; and

WHEREAS, the Board of County Commissioners of Nassau County further considered all oral and written comments received during public hearings, including the data collection and analyses packages, and objections, recommendations, and comments of the Department of Community Affairs; and

WHEREAS, in exercise of its authority, the Board of County Commissioners of Nassau County has determined it necessary to adopt the amended version of the Comprehensive Plan.

NOW, THEREFORE, BE IT ORDAINED this 28th day of January, 1991, by the Board of County Commissioners of Nassau County, Florida, as follows:

Section 1. Purpose and Intent.

This Ordinance is enacted to carry out the purpose and intent of, and exercise the authority set out in, the Local Government Comprehensive Planning and Land Development Regulation Act, Sections 163.3161 through 163.3215, Florida Statutes, and Chapter 125, Florida Statutes, as amended.

Section 2. Title of Comprehensive Plan.

The revised version of the Comprehensive Plan for Nassau County, Florida, shall be entitled "The Nassau County Comprehensive Plan".

Section 3. Nassau County Future Land Use Element.

The Nassau County Future Land Use Element of the Nassau County Comprehensive Plan is hereby adopted to include:

(a) The text attached hereto as Exhibit "A" and incorporated herein by reference:

(1) Goals, objectives, policies, including definitions, and any specifically incorporated appendixes, tables, or exhibits.

(2) Plan implementation requirements.

(b) Future Land Use Map.

Section 4. Traffic Circulation Element.

The Traffic Circulation element of the Nassau County Comprehensive Plan is hereby adopted to include:

(a) The text attached hereto as Exhibit "B" and incorporated herein:

Goals, objectives, and policies including definitions, and any specifically incorporated appendixes, tables, or exhibits.

(b) Future Traffic Circulation Map.

Section 5. Housing Element.

The Housing Element of the Nassau County Comprehensive Plan is hereby adopted to include:

(a) The text attached hereto as Exhibit "C" and incorporated herein:

Goals, objectives, and policies including definitions, and any specifically incorporated appendixes, tables, or exhibits.

Section 6. Public Facilities Element.

The Public Facilities Element of the Nassau County Comprehensive Plan is hereby adopted to include:

(a) The text attached hereto as Exhibit "D" and incorporated herein:

Goals, objectives, and policies including definitions, and any specifically incorporated appendixes, tables, or exhibits.

Section 7. Coastal Management Element.

The Coastal Management Element of the Nassau County Comprehensive Plan is hereby adopted to include:

(a) The text attached hereto as Exhibit "E" and incorporated herein:

Goals, objectives, and policies including definitions, and any specifically incorporated appendixes, tables, or exhibits.

Section 8. Conservation Element.

The Conservation Element of the Nassau County Comprehensive Plan is hereby adopted to include:

(a) The text attached hereto as Exhibit "F" and incorporated herein:

Goals, objectives, and policies including definitions, and any specifically incorporated appendixes, tables, or exhibits.

(b) Any maps incorporated by reference.

Section 9. Recreation and Open Space Element.

The Recreation and Open Space Element of the Nassau County Comprehensive Plan is hereby adopted to include the text attached hereto as Exhibit "G" and incorporated herein: Goals, objectives, and policies, including definitions, and any specifically incorporated appendixes, tables, maps, or exhibits.

Section 10. Intergovernmental Coordination Element.

The Intergovernmental Coordination Element of the Nassau County Comprehensive Plan is hereby adopted to include the text

attached hereto as Exhibit "H" and incorporated herein: Goals, objectives, and policies, including definitions, and any specifically incorporated appendixes, tables, or exhibits.

Section 11. Capital Improvement Element.

The Capital Improvements Element of the Nassau County Comprehensive Plan is hereby adopted to include:

(a) The text attached hereto as Exhibit "I" and incorporated herein: Goals, objectives, and policies, including definitions, and any specifically incorporated appendixes, tables, or exhibits.

(b) Schedule of capital improvements.

(c) Procedures for annual monitoring and evaluations.

Section 12. Monitoring and Evaluation Section.

The Monitoring and Evaluation Section of the Nassau County Comprehensive Plan is hereby adopted to include the text attached hereto as Exhibit "J" and incorporated herein.

Section 13. Applicability and Effect.

The applicability and effect of the Nassau County Comprehensive Plan shall be provided by the Local Government Comprehensive Planning and Land Development Regulation Act, Sections 163.3161 through 163.3215, Florida Statutes, and this Ordinance.

Section 14. Severability.

If any provision or portion of this Ordinance is declared by any court of competent jurisdiction to be void, unconstitutional, or unenforceable, then all remaining provisions and portions of



this Ordinance shall remain in full force and effect.

Section 15. Copy on File.

(a) A certified copy of the enacting ordinance, as well as certified copies of the Nassau County Comprehensive Plan and any amendments thereto, shall be filed with the Clerk of the Circuit Court.

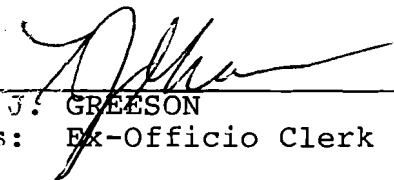
(b) To make the Nassau County Comprehensive Plan available to the public, a certified copy of the enacting ordinance, as well as certified copies of the Nassau County Comprehensive Plan and any amendments thereto, shall be located in the Planning and Zoning Department of Nassau County. The Planning Director shall also make copies available to the public for a reasonable publication charge.

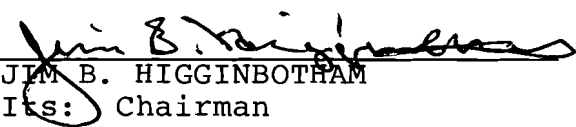
Section 16. Effective Date.

This Ordinances shall be filed with the Office of the Secretary of State of Florida and shall immediately take effect upon receipt of official acknowledgment from the Secretary of State that said Ordinance has been filed with that office.

PASSED and DULY ADOPTED, with a quorum present and voting, by the Board of County Commissioners of Nassau County, Florida, this 28th day of January, 1991.

BOARD OF COUNTY COMMISSIONERS  
NASSAU COUNTY, FLORIDA

ATTEST:   
T. J. GREESON  
Its: Ex-Officio Clerk

  
JIM B. HIGGINBOTHAM  
Its: Chairman

wp/3/b:comp-ord

FUTURE LAND USE ELEMENT  
NASSAU COUNTY COMPREHENSIVE PLAN

Adopted

January, 1991

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

## Table of Content

<u>Section</u>	<u>Page</u>
Forward.....	A-1
I. Data.....	A-3
A. Introduction.....	A-3
B. Population.....	A-4
C. Inventory.....	A-10
1. General Setting of Nassau County.....	A-10
2. Overview of Land Uses.....	A-11
3. The Planning Districts.....	A-14
II. Analysis.....	A-18
A. Analysis of the Availability of Facilities and Services.....	A-18
1. Traffic Circulation.....	A-18
2. Sanitary Sewer.....	A-18
3. Potable Water.....	A-19
4. Drainage.....	A-19
5. Solid Waste.....	A-20
B. Analysis of the Character and Magnitude of Existing and Vacant and Developable Land.....	A-22
1. Soils.....	A-22
2. Topography.....	A-24
3. Natural Resources.....	A-25
4. Historical Resources.....	A-25
5. Coastal Area.....	A-27
C. Analysis of Development and Redevelopment Issues.....	A-28
1. Renewal of Blighted Areas.....	A-28
2. Redevelopment of Flood Prone Areas.....	A-28
3. Siting Locally Undesirable Land Uses (LULUs).....	A-29
D. Analysis of Future Land Use Needs.....	A-29
1. Residential Land Use Needs.....	A-29
2. Commercial, Industrial & Institutional Land Use...	A-34
E. The Plan.....	A-38
1. Hilliard and Callahan Planning Districts.....	A-38
2. Yulee Planning District.....	A-39
3. Amelia Island Planning District.....	A-40

### List of Maps

<u>Section</u>	<u>Page</u>
Figure A-1 Nassau County Planning Districts.....	A-42
Figure A-2 Existing Land Use.....	A-43
Figure A-3 Conservation Land.....	A-44
Figure A-4 Historic Sites.....	A-45
Figure A-5 Soils Map.....	A-46
Figure A-6 Topography.....	A-47
Figure A-7 Storm Surge Map.....	A-48
Figure A-8 Future Land Use Map.....	A-49

### List of Tables

<u>Section</u>	<u>Page</u>
Table A-1 Historical Population, 1950-1989.....	A-5
Table A-2 Jacksonville MSA Medium Projections (BEBR).....	A-6
Table A-3 Population Projections, County and Unincorporated	A-6
Table A-4 Population Projections by Planning District.....	A-7
Table A-5 Seasonal Population Estimate and Projection.....	A-9
Table A-6 Summary of Existing Land Use.....	A-12
Table A-7 Historical Residential Structures.....	A-27
Table A-8 Population Projections, County and Unincorporated	A-30
Table A-9 Household Size, 1980.....	A-30
Table A-10 Projection of Housing Unit Needs 1990-2005.....	A-32
Table A-11 Projection of Unit Need by Type.....	A-33
Table A-12 Total Projected Units and Number of Acres.....	A-34
Table A-13 Existing Acreage for Non-Residential Land Uses...	A-35
Table A-14 Projected Acreage needs for Non-Residential Uses.	A-35
Table A-15 Summary of Future Land Uses.....	A-37

## FUTURE LAND USE ELEMENT

### FORWARD

This document has been prepared in accordance with Chapter 163, Florida Statutes and Rule 9J-5 of the Florida Administrative Code.

The Future Land Use Element is one of the nine elements required of Nassau County by Section 163.3177 of the "Local Government Comprehensive Planning and Land Development Regulation Act" also known as the Growth Management Act. This piece of legislation (Florida State Law) has been passed by the State Legislature to "preserve, promote, protect, and improve the public health, safety, comfort, good order, appearance, convenience, law enforcement and fire prevention, and general welfare" of Florida citizens.

Development, redevelopment and growth management oftentimes requires a change of land use and/or zoning. Such action may be accomplished by the County under the authority granted by Section 163.3167 Florida Statute, Scope of Act, which states in part:

- (1)(d) "The powers and authority set out in this act may be employed by municipalities or counties individually or jointly by mutual agreement in accord with the provisions of this act and in such combination as the common interests may dictate and require."

and, Chapter/Section 163.3171 Florida Statute, Areas of Authority under the Act, which states in part:

- (2) A county shall exercise authority under this act for the total unincorporated area under its jurisdiction or in such unincorporated areas as are not included in any joint agreement with municipalities..."

Section 163.3177(6)(a) specifically requires the County to prepare a Future Land Use Plan Element which designates the "proposed future general distribution, location, and extent of the uses of land for residential uses, commercial uses, industry, agriculture, recreation, conservation, education, public buildings and grounds, other public facilities and other categories of the public and private uses of land....The future land use plan shall be based upon surveys, studies, and data regarding the area, including the amount of land required to accommodate anticipated growth; the projected population of the area; the character of undeveloped land; the availability of public services; and the need for redevelopment; including the renewal of blighted areas and the elimination of nonconforming uses which are inconsistent with the character of the community...."

Section 163.3177(9) of the Growth Management Act gives the State Land Planning Agency {the Department of Community Affairs} the authority to "adopt by rule minimum criteria for the review and determination of compliance of the local government comprehensive plan elements required by this act." and further "the state land planning agency may adopt procedural rules that are consistent with this section and Chapter 120 for the review of local government comprehensive plan elements required under this section." The procedural rules specified in the latter statement have been adopted as Rule 9J-5, Florida Administrative Code as amended November 22, 1989.

In preparing this Future Land Use Element, it is the intention of Nassau County to meet the requirements of State Law regarding growth management while, at the same time, provide all the safeguards possible to protect the private property rights of County landowners.

## I. FUTURE LAND USE ELEMENT: DATA

### A. INTRODUCTION

The land use inventory and the existing land use map are the result of photo interpretation from photography dated December 31, 1985. The maps and calculations were prepared by the Remote Sensing Center, State Topographic Bureau, Florida Department of Transportation. The work was initiated under a contract between DOT and the Nassau County Building and Zoning Department and subject to field verification in June of 1988. Land use data originally prepared for the City of Fernandina Beach has been revised to conform to field verification.

Based on the existing data and growth projections, the Future Land Use Element will set forth densities and land use proposals as part of the overall strategy to manage future growth in the county. In order to facilitate the management of data and the development of the overall growth strategy, 4 planning districts have been delineated. They include the unincorporated Amelia Island, which is separated from the mainland by the intracoastal waterway, the Yulee urbanized area and its environs, and the Hilliard and Callahan urbanized areas and their environs. The planning districts are delineated on Figure A-1.

## B. POPULATION

Nassau County is the northern-most county in Florida, located within the Jacksonville Metropolitan Statistical Area (MSA). Nassau is bounded by Duval County to the south, Baker County to the west, Camden and Charlton County, Georgia to the north and the Atlantic Ocean to the east. According to the University of Florida, Bureau of Economic and Business Research, in 1989, Nassau County had an estimated population of 47,863 persons, an increase of 14,969 persons from the 1980 census population of 32,894. Most of this growth rate took place in the last four years. Historically, Nassau County has experienced moderate growth, especially during the period from 1950 through 1970 as shown in Table A-1. On the other hand, during the period from 1970 to 1980, Nassau's population increased by 12,268 persons or a 59 percent increase in population. Compared to the other 3 counties within the MSA, Nassau County shows tremendous potential in absorbing a major portion of the area's growth. The county's share of the MSA's population has increased from 4.55 in 1980 to 5.01 in 1987.

Nassau County's growth has been partially attributed to the pulp and paper mill industries, transportation and tourism activities. A major portion of the growth is the result of economic growth to the north and south. During the period from 1983 through 1987, the City of Jacksonville experienced a tremendous increase in economic activity, thus becoming a major financial and medical center for the southeastern United States. During this period, Jacksonville's population soared from 554,378 to 626,457 persons or a 13 percent increase in population. Much like Nassau County, Jacksonville's population growth during this period accounted for 82 percent of the county's population growth between 1980 and 1987. It is felt that a major portion of Nassau County's population growth as a result of Jacksonville's economic activity, is fueled by lower land values and large undeveloped parcels.

Unlike St. Johns and Clay Counties, which depend almost solely on the economic growth of Jacksonville, Nassau County is located only a few miles south of the Kings Bay Submarine Base in Camden County, Georgia. The Kings Bay Submarine Base is presently under construction and will be home port to the East Coast TRIDENT Submarine Squadron. As of 1987, the Base employed approximately 1,471 persons, of which 45 percent were military personnel and the remaining were civilian. The full Submarine Squadron should be in place by 1998. In 1998, the Base will employ approximately 11,890 employees of which 7,616 (64 percent) will be military and 4,274 (36 percent) will be civilian. Kings Bay military employees will reside primarily in Camden County with some moving into Nassau and Duval Counties, particularly the upper enlisted personnel. Navy personnel will tend to live closer to the base because of the availability of navy housing and support facilities. A larger percentage of the civilian employees will live in Nassau and Duval Counties as a result of higher income positions and dual income households. Several developments in Nassau County are presently in the planning stages anticipating this growth. In addition, there will be many secondary impacts caused by the build-up of Kings Bay which will result in additional employment and population.



TABLE A-1  
 NASSAU COUNTY, FLORIDA (INCORPORATED AND UNINCORPORATED)  
 1950 - 1989 HISTORICAL POPULATION GROWTH

Year	Population	Percent Change	Net Change
1950 (1)	12,811		
1960 (1)	17,189	34.17%	4,378
1970 (1)	20,626	20.00%	3,437
1980 (1)	32,894	59.48%	12,268
1989 (2)	47,863	45.51%	14,969

Sources: (1) U.S. Department of Commerce, 1950-1980 Census.  
 (2) University of Florida, BEBR, Florida Estimates of Population, April 1, 1989.

Kings Bay is undergoing the first phase of the installation's development with the potential to expand over the next 25 years. Projections for base loadings are only available through 1998. Navy policy promotes the expanded use of civilian and/or contract employees to take on support activities, resulting in a more stable population which will be attracted closer to Jacksonville.

### 1. County Population Projection

Table A-2 presents BEBR's medium projections for the Jacksonville MSA through year 2005 as published in BEBR Bulletin No. 83, January 1988. As shown, Nassau County's total population will grow from 43,994 persons in 1987 to 55,800 in 1995 and 66,800 in 2005. Statistically, BEBR's projections were tested by projecting the County's share of the MSA's population through the year 2005. Utilizing the historical share from 1960 through 1987, a time series regression was made and played back against BEBR's medium MSA projection. Statistically, the regression line had a close fit to the historical information and the projected share of the MSA's population resulted in a 6.22 percent share in the year 2005 rather than a 5.72 percent share derived by BEBR. The 6.22 percent share multiplied by BEBR's medium projection for the MSA results in a population of 72,637 compared to their projection of 66,800 or a difference of 5,837 persons.

The share technique takes into consideration the historical trend, with continued population increase as a result of natural population growth and historical trends in immigration. This technique does not account for future events which will have a tremendous impact on population growth. Such events include the known expansion of the Kings Bay Submarine Base through the year 1998 and the unknown expansion between 1998 and 2005, and the boom in the industrial development on Jacksonville's north side around the airport and on Blount Island. The opening of the long awaited Dame Point Bridge is pulling Nassau County even closer to Jacksonville. Since we are unable to quantify the impact of these events, Nassau County has agreed to accept BEBR's high projection shown in Table A-3. The 2005 high projection is 80,200 or 7,563 persons higher than the share projection.

TABLE A-2  
 JACKSONVILLE METROPOLITAN STATISTICAL AREA (MSA)  
 BUREAU OF ECONOMIC AND BUSINESS RESEARCH MEDIUM PROJECTIONS

County	Estimate	BEBR Projected Share of MSA			
	1987	1990	1995	2000	2005
Clay	95,325	109,400	129,900	147,300	164,500
Duval	664,132	707,300	750,200	783,400	809,500
Nassau	43,994	48,900	55,800	61,400	66,800
St. Johns	75,133	86,000	101,400	114,400	127,000
TOTAL	878,584	951,600	1,037,300	1,106,500	1,167,800

County	Estimate	BEBR Projected Share of MSA			
	1987	1990	1995	2000	2005
Clay	10.85%	11.50%	12.52%	13.31%	14.09%
Duval	75.59%	74.33%	72.32%	70.80%	69.32%
Nassau	5.01%	5.14%	5.38%	5.55%	5.72%
St. Johns	8.55%	9.04%	9.78%	10.34%	10.88%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%

(Percentages may not total 100 percent due to rounding.)

Sources:

- (1) University of Florida, Bureau of Economic & Business Research, Population Studies Bulletin No. 83, January 1988.
- (2) Prosser, Hallock & Kristoff, Inc., March 30, 1988

## 2. Planning District Population Projections

According to BEBR, the ratio of the unincorporated area of the County population increased its ratio of total County population from 69.7 percent in 1980 to 73.8 percent in 1989.

Although the unincorporated area of Nassau County is expected to increase its ratio of the total County population throughout the planning period, projections of population are developed assuming the unincorporated area's population will account for 75 percent of the total County population. BEBR high projections published in Bulletin No. 83, January 1988 for total Nassau County are used and presented in Table A-3.

TABLE A-3  
 POPULATION PROJECTIONS, NASSAU COUNTY AND THE UNINCORPORATED AREA

Year	High Projection, Total County	Unincorporated Area
1990	51,400	38,550 (75%)
1995	61,300	45,975 (75%)
2000	70,600	52,950 (75%)
2005	80,200	60,150 (75%)

Source: BEBR Bulletin No. 83, January 1988

As part of the comprehensive planning process, the County has been divided into planning districts which conform to the County's census tracts, as shown in Figure A-1. To enable planning at this level, the unincorporated County's population projections (Table A-3) have been distributed into each of the planning districts. Utilizing BEBR's methodology for small area projections, the historical trend during the period from 1980-1987 for each district and incorporated areas was projected using an average of the share, linear, shift and exponential projection techniques.

TABLE A-4  
POPULATION PROJECTIONS BY PLANNING DISTRICT

Planning District	1980 Census	1987 Estimate	POPULATION PROJECTIONS			
			1990	1995	2000	2005
Amelia Island	3,635	4,552	5,093	5,825	6,377	6,971
Yulee	7,605	11,236	14,228	17,581	20,816	24,114
Hilliard	3,499	4,562	5,347	6,133	6,858	7,622
Callahan	8,193	11,581	13,882	16,436	18,899	21,443
Total Unincorporated County:	22,932	31,931	38,550	45,975	52,950	60,150

Northeast Florida Regional Planning Council, 1990.

As shown in Table A-4, the Yulee Planning District will experience a 115 percent increase in population growth during the period from 1987 through 2005 or 46 percent of the unincorporated County's total population growth of 28,219 persons during the period. The Yulee Planning District is the most centrally located area of the County with excellent access to both Jacksonville and Camden County, Georgia. During the period from 1980 through 1987, the area's population increased by 48 percent and accounted for 40 percent of the County's total population growth. It is felt that a major portion of the growth is the result of economic activity to the north and south and will be impacted most from the Dame Point Bridge and Kings Bay Submarine Base. The district is predominantly large undeveloped lands which are presently being planned for large mixed use developments.

The second fastest growing area of the County is the Callahan Planning District which is projected to increase from 11,581 persons in 1987 to 21,443 persons in 2005 resulting in a 85 percent increase in population. The Callahan Planning District will account for 35 percent of the total

unincorporated County population growth. As shown, the Callahan Planning District is located in the southwest portion of the County adjacent to the northwestern boundary of Duval County. Much like the Yulee Planning District, population growth has been primarily the result of economic growth to the south, particularly industrial development in Jacksonville's north and northwest quadrants. Large undeveloped tracts of land and easy accessibility to Jacksonville have been the major driving force to the area's growth.

The Hilliard Planning District is located in the northwest sector of the County. Between 1980 and 1987, the district's population increased from 3,499 to 4,562 persons or a 30 percent increase in population. Through the year 2005, the district's population will increase to 7,622, accounting for 10.8 percent of the county's total population growth.

The Amelia Island Planning District is projected to increase from a 1987 population of 4,552 to 6,971 persons in 2005 or a 53 percent change in population. This district is expected to attract approximately 8.6 percent of the County's total population growth. During the period from 1980 to 1987, the district's population increased from a population of 3,635 to 4,552 persons. The driving force behind population growth in this district has been the Amelia Island Plantation DRI and the area's attractiveness to those who desire to live on the intracoastal waterway and the Atlantic Ocean. Amelia Island has also experienced a major segment of the area's seasonal population growth which is discussed in the following section.

### **3. Seasonal Population**

Nassau County's seasonal population would be considered minor compared to other coastal counties in Florida. Based on sales tax revenues from Nassau County hotels and motels, peak season falls in April and May. According to records of the State Department of Business Regulation, Division of Hotels and Restaurants, the unincorporated area of Nassau County had 1,003 hotel and motel rooms, rental condominiums and romming houses in 1987. More than 80 percent of these units were located on Amelia Island and experienced low to moderate occupancy throughout the year and a peak 100 percent occupancy during the months of April and May.

Consultants Prosser, Hallock and Kristoff calculated an average of 2.3 persons per unit for the seasonal units in Nassau County and Table A-5 presents numbers of seasonal units and peak seasonal population. The 450-unit increase in seasonal units in 1995 reflects the addition of the Ritz Hotel on Amelia Island.

The seasonal population is anticipated to continue to increase along with the growing County population. To accommodate this seasonal population, Table A-5 shows an increase of 150 seasonal units during each of the planning periods, 1995 to 2000 and 2000 to 2005. The average household size is projected to remain at 2.3 persons resulting in a peak seasonal population for unincorporated Nassau County at 4,032 in year 2005.

TABLE A-5

## Seasonal Population Estimate and Projection

	1990	1995	2000	2005
Total Seasonal Units	1,003	1,453	1,603	1,753
Average Household Size	2.3	2.3	2.3	2.3
Peak Seasonal Population	2,307	3,342	3,687	4,032

Northeast Florida Regional Planning Council, 1990

## C. INVENTORY

### 1. General Setting of Nassau County

Nassau County is situated in the northeastern corner of the State of Florida. Its northern boundary, along the St. Marys River, is coterminous with the Florida-Georgia state line. It is bordered on the east by the Atlantic Ocean. The county seat, the City of Fernandina Beach, lies 51 miles north of the City of Jacksonville. It is also the most densely populated area. Amelia Island, on which the county seat is located, is separated from the mainland by the Intracoastal Waterway or the Amelia River.

The County is part of the Jacksonville Metropolitan Statistical Area (MSA) and State Planning District 4. It is ranked 39th among the state's 67 counties in terms of population. The County is comprised of roughly 650 square miles. Only some 7 percent of the unincorporated County is considered urban and built-up. The fastest developing areas in the County, in terms of population growth, are Yulee and Callahan, followed by Amelia Island.

Rangeland, silviculture and forest lands comprise about 68 percent of the total County area. Wetlands constitute another 12 percent of the total County area, whereas another 3 percent of the area is comprised of water. The two categories, wetlands and water, are considered undevelopable. Surprisingly, the areas which are closest in proximity to the ocean and the Intracoastal Waterway have only about 1/3 of the wetland inventory, i.e., the Amelia Island and Yulee planning districts. Hilliard and Callahan, which are fairly well removed from the waterway and the ocean, have about 11,200 acres of wetlands. In terms of discrete percentages, however, Yulee has the highest percentage of its total area classified as wetlands of any of the planning districts, i.e., 45 percent.

## 2. Overview of Land Uses

Table A-6 provides a summary of Existing Land Uses by Planning District. The distribution of these land uses throughout unincorporated Nassau County is depicted on Figure A-2.

### a. Residential

Of the 24,292 acres in residential use, the Callahan Planning District accounts for 42 percent of the total. Amelia Island, with its beaches and golf courses as well as the other amenities has only 11 percent of land in residential use in the County.

Yulee accounts for 27 percent of residential land in the County and ranks second among the planning districts in this respect. Hilliard, which ranks third in terms of residential land use, represents about 20 percent of the residential land in the County but only about 15 percent of the population.

### b. Commercial

Of all the 298 acres of retail and service activities in the unincorporated County, 37 percent is found on Amelia Island and 32 percent in Callahan Planning District. Hilliard ranks 3rd in this category with about 18 percent of the total followed by Yulee with 14 percent of all the commercial land use activities. Because of the fairly close proximity of Yulee to Amelia Island, there is less commercial land per capita in Yulee than in the other planning districts. The new development occurring along A1A in this district is likely to change the ranking of Yulee in the very near future. In each of the other 3 planning districts there is about 1 acre of commercial land use for every 26 residents, whereas in Yulee the ratio is 1 acre for every 57 residents. In the County, the average is 1 acre of commercial land use for every 30 residents.

### c. Industrial

There are approximately 112 acres in Industrial land use. Approximately .03 percent of the total County is classified as being used for industrial purposes. There are no industrial land uses reported in Hilliard and approximately 52 acres and 25 acres respectively in Yulee and Callahan, which represents 46 percent and 22 percent of the total.

### d. Agriculture

Agriculture land includes silviculture, crops, and rangeland. According to the 1990 Florida Statistical Abstract, Nassau County has 16,605 acres of cropland, 22,800 acres of pasture/rangeland, and 199,697 acres of silviculture.

The Callahan Planning District accounts for 64 percent of all cropland in the County with the Hilliard Planning District second at 3,321 acres or 20 percent.

TABLE A-6  
 EXISTING LAND USE SUMMARY  
 NASSAU COUNTY, FLORIDA - 1989  
 (Unincorporated Area Only)

Land use Category	Acreage	Percent of Total
<hr/>		
Agricultural		
Improved cropland	16,605	4.1%
Rangeland	22,800	5.6%
Silviculture	199,697	49.4%
Residential		
Low Density	23,342	5.8%
Medium Density	780	.2%
High Density	170	.04%
Commercial	298	.07%
Industrial	112	.03%
Public Buildings and Grounds	555	.1%
Other Public Facilities		
Transportation	2,345	.6%
Recreation (Built Facilities)	234	.06%
Historic Resources	58	.01%
Conservation		
Forest	55,862	13.8%
Wetlands	50,881	12.6%
Water	12,777	3.2%
Undeveloped Land/Vacant	18,069	4.5%
<hr/>		
TOTAL	404,585	100.0%

Source: 1990 Florida Statistical Abstract; the University presses of Florida, Gainesville, 1990.

---



#### e. Public Buildings and Grounds

Only 555 acres in the entire County, or 1 percent of the County's total area, is used for institutional purposes. These include educational, religious and medical facilities, as well as cemeteries and correctional facilities and other governmental facilities.

The Hilliard district contains the least land classified as Public Facilities - 128 acres or about 23 percent of the total. The amount of land in the other 3 districts ranges from 21 to 31 percent of the total, averaging about 28 percent. Most of the institutional land in the other districts comprises educational facilities and on Amelia Island the major governmental facilities.

#### f. Recreation

The distribution of recreational land use in Nassau County is shown in Table G-1 of the Recreation and Open Space Element. Of the 234 acres in the inventory, 92 percent is found on Amelia Island, approximately 1 percent in the Yulee planning district, 6 percent in the Callahan district and less than 1 percent in the Hilliard district. Carey State Park in the Callahan District is included in the recreational acres inventoried.

#### g. Conservation

Conservation land use is comprised of wetlands, water, and forestland (not included in the silviculture or vacant land categories). Conservation land includes the Nassau River, St. Johns Marshes, and Fort Clinch State Park Aquatic Preserves (9,125 acres) as water natural resources.

The Nassau River-St. Johns River Aquatic Preserve and the Fort Clinch State Park Aquatic Preserve are located in the northeastern region of the state along the Atlantic intracoastal waters of the St. Marys, the St. Johns and Nassau Rivers. These two aquatic preserves comprise both estuarine and marine waters of exceptional biological and aesthetic value to the state and comprise about 9,000 acres.

The Nassau River-St. Johns River Marshes Aquatic Preserve, located in eastern Nassau and Duval Counties, was designated an aquatic preserve on November 24, 1969 for the primary purpose of preserving the biological (estuarine) resources of the Nassau Sound area marshes and associated waters. This area consists of a vast salt marsh estuary with numerous interconnecting tidal creeks, rivers and channels and minor uplands (tree islands). The preserve is important in protecting critical habitat to an extensive array of fish and wildlife. Maintaining the continued health of this preserve will involve minimizing water pollution and losses of wetlands resulting from urban, residential and industrial development in the region.

The Fort Clinch State Park Aquatic Preserve located in northeastern Fernandina Beach on Amelia Island, was designated on March 4, 1970 for the primary purpose of establishing a protective aesthetic buffer for the state park and historic Fort Clinch. This preserve surrounds the state park and is comprised largely of open waters associated with St. Marys Inlet, the Amelia River and a three mile extension into the Atlantic Ocean off Amelia Island. The western boundary borders an extensive salt marsh system along Tiger Island; the northern boundary extends to the intracoastal waterway channel between the states of Florida and Georgia. Major threats to this preserve include proposed port developments along Amelia Island, water pollution associated with regional industrial and urban developments, and ship traffic along the Intracoastal Waterway.

The major objectives of the aquatic preserve management program are to ensure the maintenance of an essentially natural condition. Management will also be directed to ensure public recreational opportunities while assuring the continued propagation of fish and wildlife resources. This task will be guided by the identification and mapping of natural resources and habitat necessary to meet these objectives. An additional management objective is the review and comment on applications for the use of state-owned submerged lands. Meeting these objectives will require the state implementing the management program with on-site field personnel for the aquatic preserve which was prepared by the Department of Natural Resources in April of 1986.

#### **h. Vacant/Undeveloped Land**

This category relates only to undeveloped land within urban areas and as such is not especially relevant because of the way in which the urban areas are delineated. On Amelia Island, for example, the urban area is finite. In the other planning districts, the urban area could be expanded thereby increasing the development area.

All told, 18,069 acres or 4.5 percent of the County's total area is classified as open/undeveloped land.

#### **i. Historic Resources**

There are thirty-eight identified historic sites located on approximately 58 acres in unincorporated Nassau County. The majority of historic sites are located in the Callahan and Hilliard planning districts. (Figure A-4)

### **3. THE PLANNING DISTRICTS**

Amelia Island also has, proportionately, more land devoted to commercial, industrial and recreational land use than any of the other planning districts and the County as a whole. This is interpreted as meaning that the Amelia Island planning district is also much more urbanized than the rest of the County. The remaining land uses, i.e., industrial and open/undeveloped land, represent a very small percentage of the total of each planning district. In Hilliard urban land represents slightly more than 4 percent; on Amelia Island and in Yulee it represents a total of 35 percent; in Callahan 6.8 percent; and in the County as a whole, only 11.6 percent.

#### a. Callahan Planning District

Callahan is the largest of the 4 planning districts. Its 168,567 acres represent 41 percent of the County. It has the most acreage devoted to crop agriculture, 6,676 acres out of a total of 16,605 acres for the County or 40 percent. Agriculture in the planning district, however, represents only about 10 percent of the district itself which is slightly less than the urban/built-up area.

Fifty-one percent of the planning district is comprised of rangeland and forestland. Another 32 percent of the planning district is comprised of wetlands. Rangeland, forestland and wetlands land uses comprise about 82 percent of the planning district. These land uses and their scale in relationship to the overall size of the planning district pretty well establishes the character of the area. It is basically a rural environment.

The focal point of the urbanized or built-up area is the Town of Callahan, a small community in terms of area which is slightly in excess of one (1) square mile. The Callahan planning district has an estimated population of 11,581 persons. An estimated 6,250 persons live in the built-up Callahan area. In general, as far as the whole planning district is concerned, low density, less than 2 dwelling units per acre, is found along all the roads in the primary network with medium density development, 2 to 5 dwelling units per acre, concentrated on the outskirts of Callahan itself.

The 95 acres of commercial use, 32 percent of the total 298 acres, are concentrated in the Callahan area. Approximately 65 acres are located along US 1 between Callahan and Hilliard. Scattered commercial activity throughout the planning district accounts for the remaining 30 acres.

In summary, the focal point of the Callahan planning district is the town itself with all residential and commercial activity radiating from this hub along 7 different radial routes.

#### b. Hilliard Planning District

Hilliard is the second largest of the 4 planning districts. Its 126,378 acres represent 31 percent of the County. It has the second largest amount of acreage devoted to crop agriculture, 3,321 or 20 percent, of all the agriculture land in the County. The Hilliard and Callahan planning districts comprise about 84 percent of all agricultural crop land in the County.

The center of activity in the planning district is the Town of Hilliard, a small community of some 2,200 persons within a 5 square mile area. The built-up area immediately outside the town limits holds an estimated population of about 1,800 persons which are fairly evenly distributed along the roads radiating from the four-leg intersection in the center of Hilliard.

Some 70 acres of land used for commercial activity are found in the Boulougne area, northeast of the town on US 1 at the state line and immediately east of the town along County Road 108.

In summary, Hilliard and Callahan both have the attributes of sub-regional centers in terms of location and socio-economic make-up. Furthermore, they are in all respects except population comparable in terms of their overall physical make-up and characteristics.

### c. Yulee Planning District

Yulee is an area in transition. The area west of I-95 relates in terms of physical characteristics and population densities to Hilliard and Callahan. The area east of the interstate highway has considerable growth potential which, if realized, will change the character of the area from rural to urban.

Of the 3 sub areas which make up the planning district, Gross, which is located at the intersection of I-95 and on US 17, and for the most part west of I-95, is the largest and in character relates to Hilliard and Callahan, is the least developed urbanized segment. The commercial land, for the most part, is located at the I-95/US 17 interchange.

St. Marys and Hedges, which lie more or less north and south of A1A respectively, are the 2 most rapidly urbanizing areas in the county and indeed are undergoing a metamorphosis which will probably continue for the next 10 years.

The planning district comprises approximately 24 percent of the area of the county; 1/4 of the population; and 1/4 of the land classified as residential. The residential density of 1.68 persons per acre is comparable to the average, 1.70 persons per acre for the county. Its residential density is higher than Hilliard by 21 percent and higher than Callahan by 40 percent.

The Yulee planning district contains less than 1 percent of all the agricultural land and rangeland in the County.

Although there are more acres of water and wetlands in Hilliard and Callahan, the percent of these uses in Yulee are higher when compared to the other 2 areas. Almost 50 percent of the Yulee district consists of water and wetlands compared to only 32 percent on the average in Hilliard and Callahan. Only Amelia Island is higher in this respect. Yulee also has a higher percentage of urban and built-up land in the district than the other two districts.

The St. Marys and Hedges sub-areas can be best described as newly urbanizing areas with an erstwhile rural flavor in some development pockets. The quality of development is, and will be discontinuous. Some new subdivisions are served by paved street systems with rolled curbs, include landscaped entrances and focus as much of their development on waterfront views as possible. Others contain a mixture of mobile homes, pre-fabricated modular homes and standard frame buildings on concrete pads. Some areas such as Wilson Neck have both paved and unpaved streets.

This planning district may be characterized as presently being in transition from a rural to an urban or suburban area.

#### **d. Amelia Island Planning District**

This barrier island is the smallest of all the planning districts in the county. Amelia Island's 13,296 acres represent approximately 3.3 percent of the entire county. In terms of population its 5,093 persons represent about 13 percent of the population. The urban/built-up density factor for Amelia Island is 2.17 persons per acre which is almost twice that of Hilliard and Callahan and about 30 percent greater than Yulee.

All of the high density residential use in the county, 5 or more units to the acre, is located on Amelia Island where it comprises 24 percent of all residential land. Medium density residential use totals 55 percent of the total compared to 21 percent for low density residential use. Smaller lots, and medium rise apartment/condominium development, on or in close proximity to the beach, make for these higher densities.

Amelia Island also hosts more commercial, industrial and recreational land uses than the other planning areas. Most of the commercial activity is oriented to shrimping, port activities and tourism, while industry is predominantly forest related, i.e., the paper and pulp industry. The beach and golfing activity as well as the opportunities for fishing, camping and other activities in Fort Clinch State Park provide strong regional recreation attraction in the planning district.

Amelia Island is best characterized as an attractive suburban residential community which by virtue of its location supports a viable tourism and recreational industry.

#### **e. Port of Fernandina**

Amelia River, a part of the Intracoastal Waterway, forms the western boundary of the City of Fernandina Beach. The Waterway and the Seaboard Coast Line Railroad near the edge offers excellent port facilities. The Port of Fernandina has served N.E. Florida since French explorers discovered the harbor during the 16th century. Attracted to the area because of deep water, the port has enjoyed a reputation of being the deepest natural port on the United States east coast for centuries.

The Forest Products Terminal, located at the western terminus of Dade, Escambia and Front Streets, is owned by the Ocean Highway and Port Authority and operated by Nassau Terminals. From 1986 to 1989, the Authority constructed a cargo handling terminal of approximately 28 acres which includes a 1,000 foot marginal wharf, 120,000 square foot warehouse, a concrete container storage pad and equipped the terminal with cargo handling equipment and cranes. Liner services calling the port provide world-wide transportation. This is an asset for Nassau County and Northeast Florida. New industries which Nassau County is hoping to attract in the future will need the transportation facilities provided by the terminal. Already, the two local pulp and paper mills have found shipping locally through the port can save them considerable transportation dollars.

## II. ANALYSIS

### A. ANALYSIS OF THE AVAILABILITY OF FACILITIES AND SERVICES

#### 1. Traffic Circulation

According to the Traffic Circulation Element within this Comprehensive Plan, the completion of a paved major (arterial and collector) roadway network is the most important existing roadway improvement need in Nassau County. The effort will require the construction of paved roadways along approximately 45 miles of existing graded collector roadways.

The existing LOS analysis indicates that all of the major roadway segments are operating satisfactorily, except A1A/SR 200, from about CR 107 to the Fernandina Beach City Limits, which are at LOS "D".

The Level of Service (LOS) analysis in Nassau County indicates that virtually all of the major roadway segments in the City of Fernandina Beach and Amelia Island are operating at an acceptable LOS. The only roadway with an unacceptable LOS is 14th Street from Jasmine Street to Sadler Road. The improvement of 14th Street to a north-south arterial roadway is proposed in the Amelia Island Transportation Study and can be addressed in future planning proposals under the county's jurisdiction.

Traffic projections for the roads on which traffic counts were available are summarized in Table B-7 in the Traffic Circulation Element. Estimates through the year 2005 were calculated at the same rate of growth as the population projections of the University of Florida growth rates. There are no long-range improvements for any county roads on the mainland necessitated by increased traffic. The FDOT has plans to four-lane A1A between Callahan and Yulee. A corridor plan for A1A to limit and control access from commercial and industrial property is recommended from I-95 to the city limits of Fernandina Beach.

#### 2. Sanitary Sewer

Nassau County does not own or operate a public sanitary sewer system. Public systems are limited to the incorporated cities of Fernandina Beach, Hilliard and Callahan in Nassau County. Portions of the unincorporated areas on Amelia Island are served by private utility companies. The remainder of the county is served by septic tanks or package treatment plants.

Figure D-1 of the Public Facilities Element provides the specific areas of the County in which public and private utility companies provide central sanitary sewer service within the unincorporated areas.

The City of Fernandina has preliminary plans to extend sewerage service to some areas adjacent to its city limits. In 1989, the city was granted an expansion permit for its treatment plant which will allow service for a population of 25,000 persons. Currently, the plant serves an estimated population of less than 10,000 persons and therefore, has ample capacity to serve its projected population as well as surrounding areas through the year 2005.

Southern States Utilities provides service to developments on Amelia Island. Its franchise area is from the southern city limits of Fernandina Beach on Fletcher Avenue to the south end of the Island. This area includes Amelia Island Plantation, the Summer Beach DRI, as well as an old platted subdivision, American Beach.

Southern States plant can treat up to 600,000 gallons per day and currently treats approximately 400,000 gallons per day. No sewer service is currently provided to the American Beach area. The area has some sewer lines but the lines have never been used and most are in a deteriorated condition. Extensive rehabilitation would be required to provide sanitary sewer service to this area.

Sunray Utilities, Inc., is a subsidiary of ITT Rayonier. In 1987, Sun Ray Utilities began construction of a 500,000 gallon per day treatment plant to serve a housing development being constructed by the owners of Amelia Island Plantation, the Marsh Lakes and Otter's Run developments. It is estimated that these developments will have a combined demand of 150,000 to 200,000 gallons per day. Currently, there are no commercial connections and only 20 active users. By 1994, Sun Ray expects to have a total of 1,800 Equivalent Residential Connections (ERCs) or approximately 6,300 persons.

### **3. Potable Water**

Like sanitary sewer, Nassau County does not own or operate a potable water facility. There are three private utility companies, Florida Public Utilities (FPU), Southern States and Sun Ray, which serve various areas in the County. Figure D-4 of the Public Facilities Element provides the specific areas of the County in which public and private utility companies provide central potable water service within the unincorporated area of the County.

FPU primarily serves the City of Fernandina Beach and the unincorporated portion of the island north of the airport. FPU has a treatment capacity of 8.0 million gallons per day and a demand of 2.7 million gallons per day.

Sun Ray has filed an application with DER to increase/expand its water plant to a capacity of 820,000 gallons per day which would one day serve a population of up to 6,682 persons or 429 ERCs. Currently the plant serves 130 persons in residential developments in the Yulee planning district.

### **4. Drainage**

The drainage features in Nassau County consist of many short tributaries which flow into the three major streams: the St. Marys River, the Nassau River, and the Intracoastal Waterway. These rivers drain approximately 48, 38, and 14 percent of the total planning areas, respectively. Along the divides between the major drainage basins, erosion has not been nearly as pronounced as further down the slopes and, as a result, relatively wide and flat swampy areas remain along the divides. These conditions are typical in western Nassau County along the north to south drainage divide between the St. Marys and Nassau River Basins. The swampy areas here are so flat that delineation of some drainage areas is difficult if not impossible.

Runoff in the planning area is rapid despite the storage afforded by numerous swamps; most of the swamps go dry after fairly short periods of deficient rainfall. Recently, the United States Geological Survey conducted an investigation to determine runoff characteristics in the planning area. Gauging stations at the Little St. Marys River and Thomas Creek were operated for this purpose. The average runoff at these stations is considered representative of the area, although average runoff varies considerably from basin to basin. The average runoff from these basins during the investigation was 21.45 inches, which is 50 percent greater than the average for the state as a whole. The high yield is probably caused by two factors:

1. Little of the rain seeps to the Floridan aquifer, and
2. The rain that does not enter the shallow surficial aquifer runs off before much of it has time to evaporate or transpire.

In Nassau County, very localized flooding results from strong convective storms, common in springs and summers, and general flooding results from tropical storms in summer and fall or strong frontal activity in the winter. There are two problem areas in Nassau County: Callahan and Amelia City. The Callahan area is subject to frequent flooding which is due in part to the low elevation and a gumbo clay soil which retards percolation of standing water. Its flat terrain does not augment runoff which, in turn, leads to the flooding problems during heavy rainfall periods. The Amelia City flooding problems are not related to soils but are caused by a circuitous drainage pattern. Runoff on the west side of A1A from as far south as Old Bluff Road, is channeled north through a FDOT drainage ditch to Forest Drive where it flows east under A1A and is combined with other runoff from the east side of A1A creating the flooding problems in the portion of Amelia City. The only flow out of this area is in a southerly direction through Amelia City and back under A1A, south of Orange Avenue.

Current drainage data available for the County will be compiled and analyzed and the results thereof formulated into a Master Drainage Plan for the County. The Master Drainage Plan will provide estimates of runoff flows and identify specific areas which experience flooding problems from surface water runoff. The Plan, also, will establish a priority for drainage projects within the County with an estimate of costs required to resolve specific drainage problems.

Once developed, the Master Drainage Plan shall be reviewed by the County Board of County Commissioner and upon approval be adopted as a component of the County's Public Facilities Element with an implementation schedule and associated costs appended to the County five-year Capital Improvement Plan.

## 5. Solid Waste

Like many counties in Florida, Nassau County has a problem with solid waste disposal. Its current West Nassau landfill has almost been filled and the siting and permitting of a new landfill is still being negotiated.

In December 1990, the County received permits from the Florida DER to continue use of the West Nassau land fill while "closing" the Bryceville and Lofton Creek sites and preparing plans for construction of a new land fill



at the site of the present West Nassau land fill site. The funding to accomplish these activities are shown on Table J-7 of the Capital Improvement Element.

A full discussion of the Nassau County landfill including rate of solid waste being deposited into the land fill, percent of land fill capacity reserved for incorporated areas of the County and projected "life" of the land fill site is presented in the Solid Waste Sub Element, Public Facilities Element.

## B. ANALYSIS OF THE CHARACTER & MAGNITUDE OF POTENTIALLY DEVELOPABLE LAND

This section of the Future Land Use Element analyzes the constraints to new growth in the County. This analysis will help in identifying land development issues and problems which need to be addressed in the development of a plan for the future growth and development in the County.

### 1. Soils

According to the Interim Soil Survey Report of Nassau County, Florida, 1988, published by the USDA, Soil Conservation Service, the following soils (identified by location in Figure A-5) and their characteristics are found in Nassau County:

#### SOILS OF THE SAND RIDGES AND COASTAL DUNES

1. Kureb-Fripp-Newhan - Nearly level to rolling, excessively drained sandy soils. They are parallel to the Atlantic coast and extend inland for about 1 to 2 miles in the northern and southern part of the county.
2. Mandarin-Echaw - Nearly level, somewhat poorly and moderately well drained soils with dark colored subsoils within depths of 30 inches; some have dark subsoils at depths of 30 to 50 inches.
3. Ridgewood-Hurricane-Pottsburg - Nearly level to gently sloping somewhat poorly and poorly drained soils that are sandy throughout; some have dark colored subsoils below depths of 50 inches.
4. Albany-Blanton-Penny - Nearly level to moderately steep somewhat poorly, moderately well and excessively drained soils that have loamy subsoils below depths of 40 inches some have lamella below depths of 50 inches.

#### SOILS OF THE FLATWOODS

5. Leon-Boulogne-Kingsferry - Nearly level poorly and very poorly drained sandy soils with dark colored subsoil within depths of 30 inches; some have dark colored subsoils below depths of 30 inches.
6. Sapelo-Leon-Goldhead - Nearly level poorly drained sandy soils with dark colored subsoils within depths of 30 inches underlain with pockets of loamy material; some have loamy subsoils at depths of 20 to 40 inches.
7. Goldhead-Chaires-Meadowbrook - Nearly level poorly drained sandy soils with loamy subsoils at depths of 20 to 40 inches; some have dark colored subsoils within depths of 30 inches and some have loamy subsoils below depths of 40 inches.

8. Meggett-Goldhead - Nearly level, poorly drained sandy soils with clayey subsoils within depths of 20 inches; some have loamy subsoils below depths of 40 inches.

#### SOILS ON THE SWAMPS AND FLOOD PLAINS

9. Kingsland-Maurepaus - Level to nearly level very poorly drained organic soils that are more than 51 inches deep.
10. Buccaneer-Ellabelle - Nearly level very poorly drained soils that have clayey subsoils within depths of 20 inches; some are sandy with loamy subsoils at depths of 20 to 40 inches.
11. Osier-Ousley-Mandarin - Nearly level poorly and somewhat poorly drained sandy soils; some have dark colored subsoils.

#### SOILS OF THE TIDAL MARSH

12. Tisonia - Level and nearly level, very poorly drained, saline, organic soils underlain by clayey materials.

The report indicates that all but one soil unit, Kureb-Fripp-Newhan, have limitations for septic tank absorption fields. Kureb-Fripp-Newhan was indicated to have only slight limitations for septic tank absorption fields. This soil is predominantly located on Amelia Island where much of the development is taking place at the southern end of the Island.

Figure A-5, Soils Map, identifies areas of the County which have "severe, moderate and good" soil properties for the functional operation of septic tanks as the means of sanitary waste disposal. In many of the soils that have moderate or severe limitations for septic tank absorption fields, it often is possible to provide suitable absorption for septic tank operation by raising the level of the drainfield above the seasonal water table or increasing the size of the drainfield. Since no building permit may be issued without approval by the County Health Department for septic tank performance, there are sufficient controls to ensure that the use of septic tanks will not contaminate ground waters.

## 2. Topography

The topography of Nassau County is controlled by a series of ancient marine terraces formed by the intermittent and eastward recession of the sea level during the Pleistocene Age. As the sea dropped to a lower level, the former sea floor emerged as a level plain or terrace and the landward edge of each terrace became an abandoned shoreline, which is generally marked by a low, eastward-facing scarp.

From the physiographic perspective, Nassau County is located within the Coastal Lowlands landform region. This Coastal Lowlands region covers the entire Florida coastline and at some points, reaches inland as much as 60 miles. Also, its edge generally lies at the 100 foot contour line, and as far as Nassau County is concerned, the entire county lies within this lowlands physiographic region.

Five marine terraces are recognizable in Nassau County (Figure A-6). The original terraces and the level plains of the terraces have been modified by stream erosion and only remnants of the original terraces can be seen. The resulting landscape is characterized by a modest undulating topography composed of north to south paralleling ridges interspersed with poorly drained areas and sizable swamps. From the highest elevation of approximately 100 feet above sea level in the western portion of the county, the elevation lowers gently in a somewhat stepwise fashion until it reaches the Atlantic Ocean.

The most extensive occurrence of uplands in the county is located in the western section where an irregular flat plain (known as the Duval Uplands) has been formed 70 to 100 feet above mean sea level. The land surfaces in this higher area extend southeastward into Duval County and northwestward into Georgia. In the remainder of Nassau County, in its central and eastern sections, topographic relief is not as great, partly because these areas are more recently developed and have not been as greatly modified by the streams that drain the higher and older terraces. The terraces that form a low coastal plain throughout most of the central and eastern part of Nassau County range in altitude from slightly above sea level to 25 feet; however, some dunes along the present coast line on Amelia Island are more than 60 feet above mean sea level.

The lack of topographic relief (most of the land experiences a slope ranging from 0 to 5.0 percent) is the predominant characteristic facing land development interests in Nassau County. This condition of a lack of slope along with an abundance of soils that are poorly drained due to a high content of relatively impermeable materials, including clay and muck, dictate the serious application of planning and engineering techniques dealing with drainage problems in the development of most areas of the county.

### 3. Natural Resources

The county has a variety of natural resources which include freshwater swamps, tidal marshlands, wetlands, flood plains, minerals, vegetation, animal wildlife, forests, surface waters, beach dunes and air, to name a few.

These resources perform vital functions for maintaining an ecological balance in the environment. The above mentioned resources are identified and discussed in the Conservation Element of this plan. The Element details their location, occurrence (where appropriate) as well as their functions and appropriate uses.

Considering the fact that some 34 percent of the county area has been classified as wetlands, it can certainly be stated that lands so classified are a definite constraint to the overall development of the county. An overview of the existing land use map points up the fact that developable areas may not necessarily be contiguous. As a consequence, there are areas in which development will as a result of the discontinuity of suitable development areas leap frog from one area to another. However, while on the one hand it may escalate development costs, on the other hand the wetlands provide for buffering and open space between development areas.

Drainage in some areas is poor and where large planned developments are proposed, master drainage plans will be required. Special care should be required in developing those areas close to or abutting surface waters especially if there are a high degree of impermeable surfaces proposed.

### 4. Historical Resources

Table A-7 and Figure A-4 list the structures and their location within unincorporated Nassau County as identified from the Florida Master Site File and National Register of Historic Places.

The 39 structures can be found in the areas near Callahan, Crawford, Kings Ferry, Evergreen and Bryceville.

Nassau County does not have an historical preservation association. This is due to the few number of structures located in the unincorporated county. Nassau County does, however, ensure that land development regulations protect known historical resources from encroachment and/or destruction by future development.

TABLE A-7  
Housing of Historical Significance

#	Site Name	Location	Use
1.	Deep Creek School	CR 121 2.5 Mi N. of CR 119	Pvt. Residence
2.	Wade Hicks House	CR 121 4 Mi N. of CR 119	Pvt. Residence
3.	Log House #1	CR 121 4 Mi N. of CR 119	Pvt. Residence
4.	W.M. Canupp Log Cabin	CR 121 4 Mi N. of CR 119	Pvt. Residence
5.	Allen House	CR 121 4.5 Mi N. of CR 119	Vacant
6.	Green House	CR 121 5 Mi N. of CR 119	Vacant
7.	St. George House	SR 1, 1 Mi W. of CR 121	Vacant
8.	William Rowe Farm Furnace House	3.75 Mi N. of SR 2 on 121	Mill
9.	James M. Henderson House	.25 Mi S. of CR 115/CR 121	Pvt. Residence
10.	Roy Sikes House	Roy Sikes Road, Hilliard area	Pvt. Residence
11.	Tompkins Road House	Tompkins Road, Hilliard area	Pvt. Residence
12.	Conner Cutoff House	1 Mi S. of Conner Cutoff	Pvt. Residence
13.	Hilliard House	CR 108 2.5 Mi S Hilliard	Vacant
14.	Noah Carroll House	CR 121 .25 Mi N CR 108	Pvt. Residence
15.	Roger Crews House	CR 108 1.1 Mi N. of CR 121	Vacant
16.	Carroll/Smith Cabin	CR 108 1.1 Mi NE of 121	Pvt. Residence
17.	Daniel Benjamin Sykes House	CR 108 1.9 Mi SE of 121	Pvt. Residence
18.	Ralph Hurst House	CR 108 2.9 Mi E. of CR 121	Pvt. Residence
19.	Hurst House #2	CR 108 2.9 Mi E. of CR 121	Pvt. Residence
20.	Old Jones House	CR 108 1.3 Mi W. of Callahan	Pvt. Residence
21.	James Wesley Keen House	SR 2 2.5 Mi SE, Crawford	Pvt. Residence
22.	D. W. Keen House	SR 2 2.5 Mi SE, Crawford	Pvt. Residence
23.	House #4	CR 115 2 Mi N. of Callahan	Pvt. Residence
24.	Braddock Road House	Roy Braddock Rd, Callahan area	Pvt. Residence
25.	Claude Sikes House	U.S. 301 2 MI SE, Hilliard	Pvt. Residence
26.	Musselwhite Turpentine Co. House	Middle Rd., Callahan area	Pvt. Residence
27.	Middle Road 'I' House	Middle Rd., Callahan area	Pvt. Residence
28.	Haddock House	CR 121A N 1.25 Mi, Hilliard	Pvt. Residence
29.	King's Ferry House	CR 115A 2.5 Mi SW, Hilliard	Pvt. Residence
30.	Connors/Haddock House	King's Ferry Crossing	Pvt. Residence
31.	Clarence Rerrine House	Lessie Rd., King's Ferry	Pvt. Residence
32.	Lingon L. Owens Slaughter House	Owens Cutoff, Evergreen	Vacant
33.	Thomas Jefferson Wingate House	Owens Cutoff, Evergreen	Pvt. Residence
34.	Callahan House	A1A 1 Mi NE, Callahan	Pvt. Residence
35.	Alonzo Joyce House	A1A 1.7 Mi NE, Callahan	Pvt. Residence
36.	S. Bennett Farmstead House	CR 121 1.75 Mi N. of US 90 Bryceville	Pvt. Residence
37.	William Pringle House	CR 121 N. of Brandy Branch	Pvt. Residence
38.	Henry J. Stokes House	Stokes Rd., Bryceville	Pvt. Residence

Source: Florida master Site File: Inventory dated August 9, 1990.

## 5. Coastal Area

Of primary concern to development in the County's coastal area is the problem of evacuating residents during the threat of a hurricane. The Northeast Florida Hurricane Evacuation Study published by the Northeast Florida Regional Planning Council gives Nassau County residents from 6 to 15.5 hours of notice of a hurricane landfall (hurricane moving landward at 40 MPH) based upon the category of the storm event. The major vulnerable roadway in the County for evacuation purposes is State Road A1A on Amelia Island.

Figure A-7 shows the land area projected to be inundated for various levels of storm surge based upon the five categories of hurricane intensity. Future development in areas of Category 1 and 2 hurricane storm surge threat must proceed with concern for evacuation of residents and protection of property.

The March 1, 1986 Coastal Zone Protection Act establishes the Coastal Construction Code and the Coastal Building Zone. The Coastal Building Zone on Amelia Island covers the area from the seasonal high water line to 5,000 feet landward of the Coastal Construction Control Line (CCCL).

Though not a measure of concurrency as established by 9J-5.0055, the County Building Official should establish evacuation time thresholds for evacuating residents of Amelia Island and relate the approval of building permits to the time required to evacuate the barrier island based upon various storm category and road condition scenarios as presented in the region's 1988 Hurricane Evacuation Study.

## C. ANALYSIS OF DEVELOPMENT AND REDEVELOPMENT ISSUES

### 1. Renewal of Blighted Areas

Blighted areas are considered to be areas where sound growth is substantially impaired by unsafe conditions, irregular lot layout, inadequate/irregular street network, inadequate infrastructure or services, inadequate parking facilities, or any conflicts between incompatible land uses. Blighted areas are economic and social liabilities to the community. Structures are left unmaintained and deteriorate as reinvestment does not occur.

It is estimated that approximately 139 units are in substandard condition in Nassau County. Areas with concentrations of substandard housing include American Beach which primarily consists of duplexes and multi-family units. Other areas include the older sporadically occurring single-family units in the greater O'Neill area, an old and small subdivision in the Yulee area along Highway 200-A1A just east of its intersection with Highway 17, and two small pockets of poor quality low-income housing located in the greater Callahan area. One area is located just northwest of the town limits of Callahan along the northside of Highway 200-A1A, and the other is located along State Road 115 in the vicinity of Callahan Junior High School.

The Department of Community Affairs operates a housing assistance program in Nassau County. Many of the Department's programs provide grants or loans to local governments, housing authorities and non-profit organizations for rural residents and farmers. Nassau County does not have a Housing Authority or Agency with which to work through in order to implement housing programs. The County should continue to evaluate housing conditions. Housing units which are borderline substandard should be identified and residents then advised of corrective actions to take.

The County also should continue to apply for any federal and state grants (especially Federal Community Development Block Grants) which may be available in order to financially assist homeowners in repairs.

### 2. Redevelopment in Flood Prone Areas

Development in floodprone areas produce many problems. Additional encroachment on floodplains can be expected to further reduce the flood-carrying capacity of associated creeks and streams. See Figure F-2 of the Conservation Element.

Prior to the Federal Emergency Management Agency (FEMA) Flood Insurance Program, many residential neighborhoods were built in floodprone areas. The FEMA program and regulations have reduced the problem.

There is still potential for great loss to property and even to life. Future development in floodprone areas should be limited to very low density



residential development and all non-conforming existing uses should be amortized over a period of time. Development in these areas should be allowed only after all required permits are obtained from the appropriate regulating agencies.

### **3. Siting Locally Undesirable Land Uses (LULUs)**

Land uses that may be considered in the future include the siting of landfills, wastewater treatment plants, prisons, and other such facilities that may incur opposition from adjacent communities. The Northeast Florida Regional Planning Council (NEFRPC) has recently added policies to its Comprehensive Regional Policy Plan (CRPP) which require local governments within the region to establish "Memorandums of Agreement" to formally notify and hold meetings/workshops with an adjacent local government at the early planning stages of site identification for "locally Undesirable Land Uses: should the potential sites be within two miles of the adjacent local government's boundaries.

## **D. ANALYSIS OF FUTURE LAND USE NEEDS**

### **1. Residential Land Use Needs**

The methodology for projecting future residential land use needs is as follows:

1. Project the number of new residents in the County for the year 2005.
2. Project the number of persons per dwelling unit to year 2005.
3. Calculate the total number of additional dwelling units required for the year 2005.
4. Project the number of percentage of dwelling units that are single-family, multi-family and mobile homes to the year 2005.
5. Assign expected proportion of the dwelling types that are expected to be components of low-density; medium density; and high-density residential use.
6. Determine the number of dwelling units per density category from the percentage by category determined in step 5 above.
7. Determine the applicable density ranges of each category; determine the mean of each density range by unit type for each residential category.
8. This yields total additional acreage needed for residential landuse.

a. Population Projection

In determining population as a basis for projecting future housing needs for Nassau County, it is essential that population of the incorporated areas of the County be removed from the analysis. This is accomplished by determining a ratio of unincorporated population to the entire County population and then basing unincorporated population projections on that ratio.

Table A-8 provides an estimate of population projections to the year 2005 based upon the unincorporated area maintaining a ratio of 75 percent of the total County population.

TABLE A-8  
POPULATION PROJECTIONS, NASSAU COUNTY AND THE UNINCORPORATED AREA

Year	High Projection, Total County	Unincorporated Area
1990	51,400	38,550 (75%)
1995	61,300	45,975 (75%)
2000	70,600	52,950 (75%)
2005	80,200	60,150 (75%)

Source: BEBR Bulletin No. 83, January 1988.

b. Household Size

As indicated in Table A-9, household sizes decreased in total Nassau County during the period 1970 to 1980. The number of one- and two-person households increased from 40 percent of all households in 1970 to 46 percent in 1980; and the number of households with 4 or more persons decreased from 42 percent in 1970 to 35 percent in 1980.

TABLE A-9  
Household Size, Total Nassau County, 1980

Persons in Units	1970		1980		1970 - 1980 Change	
	No.	Pct.	No.	Pct.	No.	Pct.
Occupied Units	6018	100	10829	100	4811	80
1 Person	859	14	1860	17	1001	116
2 Persons	1551	26	3105	29	1554	100
3 Persons	1062	18	2114	19	1052	99
4 Persons	1005	17	2032	19	1027	102
5 Persons	683	11	1046	10	363	53
6 Persons or more	858	14	672	6	-186	-22
Avg. Household Size	3.42		2.98			

Source: U.S. Census, 1970; U.S. Census 1980, Summary Tape File 3A.

According to the 1980 Census counts, the unincorporated areas of the County experienced slightly higher average households than the County as a whole which included municipalities. BEBR estimated the total County experienced an average household size of 2.80 in 1989. In projecting the number of households through year 2005, an average household size of 2.90 is estimated for unincorporated Nassau County for year 1990, and the average household size is projected to decrease by 0.05 persons each 5-year period throughout the plan.

c. Projected Number of Housing Units

An estimate of the number of households needed to meet the future demand for housing is derived by combining the projected population for the planning period with the projected household size plus accounting for vacancy rates and seasonal population.

(1) Vacancy Rates

In 1980, the unincorporated area reportedly experienced a housing vacancy rate of 15.7 percent; the 1980 Census shows that total Nassau County also experienced that vacancy rate. County officials and realtors estimate that a more current vacancy is closer to 10 percent since the population is growing and dwelling unit starts have slowed. Also, the 1970 Census count reflected a 9.87 vacancy rate. Table A-10 presents projections of housing units needed to house the projected population and accommodate a vacancy rate of 10 percent.

(2) Seasonal Population

According to records of the State Department of Business Regulation, Division of Hotels and Restaurants, the unincorporated area of Nassau County had 1,003 hotel and motel rooms, rental condominiums and rooming houses in 1987. More than 80 percent of these units were located on Amelia Island and experienced low to moderate occupancy throughout the year and a peak 100 percent occupancy during the months of April and May.

Prosser, Hallock & Kristoff calculated an average of 2.3 persons per unit for the seasonal units in the draft Future Land Use Element. This seasonal occupancy rate is used to develop housing unit needs in Table A-10.

TABLE A-10  
Projection of Housing Unit Needs 1990-2005

	1990	1995	2000	2005
Total Population (Permanent residents)	38,550	45,975	52,950	60,150
Average Household Size	2.90	2.85	2.80	2.75
Number of Households (Permanent residents)	13,293	16,131	18,910	21,873
Vacancy Rate (10%)	1,481	1,792	2,101	2,430
Peak Seasonal Population	2,307	3,342	3,687	4,032
Average Household Size	2.3	2.3	2.3	2.3
Number of Households	1,003	1,453	1,603	1,753
<b>TOTAL HOUSING UNITS</b>	<b>15,777</b>	<b>19,376</b>	<b>22,614</b>	<b>26,056</b>

d. Projected Number of Housing Units by Type

Projections of the type of dwelling units needed throughout the planning period are based upon the historical distribution of housing and the consideration of current housing trends.

The conventional built single family dwelling unit was the predominant dwelling unit type in 1970 (79.6 percent) and in 1980 (54.8 percent). The number of mobile homes, however, increased from 733 in 1970 to 2,772 in 1980, almost doubling their ratio of all units in the County (17.5% in 1970 and 31.3% in 1980). Residential building permits since 1980 indicate that over half of all units permitted are mobile homes. This indicates that mobile homes had become the predominant type of dwelling unit by the end of the 1980s. Table A-11 presents an estimate of the number of units needed through the year 2005 by type.

TABLE A-11  
 Projected New Dwelling Unit Need by Type, 1990-2005  
 (Includes Permanent and Seasonal Housing and Vacancies)

Unit Type	Percent of Total	Projection Period			Total
		1990-1995	1995-2000	2000-2005	
New Units Required*	100	3,572	3,298	3,409	10,279
Single Family (conv.)	30	1,072	989	1,023	3,084
Single Family (MH)	43	1,536	1,418	1,466	4,420
Multi-Family	20	504	759	793	2,056
Hotel-Motel	7	460	132	127	719

\*Based on Table A-11, Total Units Needed

Northeast Florida regional Planning Council, 1990.

e. Estimated Rural and Farm Worker Households

Rural Nassau County contains approximately 400 farms of various sizes, all privately run and requiring no migrant or transient workers. Officials of the County do not anticipate any future need for the development of farm worker households in the County throughout the planning period.

f. Projected Amount of Residential Acreage Needs by Densities

The total amount of land that will be required to support residential development is limited to the number of housing units required (as shown in Table A-10) times the amount of land occupied by each housing unit. The number of residential units is then distributed in Table A-12 among both agricultural land uses (parcels greater than 5 acres) and residential land uses (parcels under 5 acres).

Based upon past trends, it is found that conventional built single family homes have occupied an average land area of 1 unit per acre on the mainland and up to 5 units per acre on Amelia Island. Mobile homes have averaged 1 unit per 2 acres on the mainland; because of high land costs, are seldom located on Amelia Island. The County has had few multi-family homes constructed in the unincorporated area; however, the construction of multi-family housing will be encouraged in the future.

Table A-12 provides the County's best estimate of land requirements to support new residential construction during the planning period 1990-2005.

TABLE A-12  
Total Projected Number of Dwelling Units and  
Number of Acres Required: Year 2005

Land Use Designation	Maximum Density	Projected Number of Dwelling Units	Number of Acres Required
Agriculture:			
I	1 unit/20 acres	612	12,240
II	1 unit/10 acres	1,837	18,370
III	1 unit/5 acres	2,022	10,110
Residential:			
Low	up to 2 units/acre	15,643	7,822
Medium	1-5 units/acre	4,118	1,373
High	above 5 units/acre	1,824	364
	TOTAL	26,056	50,279

**2. Commercial, Industrial and Institutional Land Use**

To serve the increased population, more acreage will be required for commercial uses. The following steps were taken to project future required acreage.

1. Determine the ratio of persons per commercial acreage.
2. Assume the ratio of persons per commercial acreage remains constant throughout the planning period.
3. Multiply the projected number of new residents by the ratio determined in step 1.

Step 1 is shown in Table A-13. Steps 2 and 3 are shown in Table A-14.

a. Commercial/Services Land Use

As shown in Table A-14, an additional 851 acres of commercial land use will be required to serve the needs of population growth through year 2005.

Existing concentrations of commercial activity are expected to continue in the Hilliard and Callahan development areas. Those areas along US Highways 23/301, A1A and 17 are, for the most part, already in existence. Further growth of the present highway development should be channeled into areas designated for commercial activity on the Future Land Use Map.

The Plan recognizes the need for neighborhood and light intensity commercial development. The location of this type of development should be identified as "Mixed Development Zones where appropriate for each of the planning districts.

TABLE A-13  
EXISTING ACREAGE FOR NON-RESIDENTIAL LAND USES, 1987

Type of Land Use	Population	Number of Acres	Persons Per Acre
Commercial/Services	31,931	972	33
Industrial	31,931	77	415
Public Buildings and Grounds	31,931	555	58

Source: Prosser, Hallock & Kristoff

TABLE A-14  
PROJECTED ACREAGE NEEDS FOR NON-RESIDENTIAL LAND USES, 1990-2005

Type of Land Use Acres	Existing Acreage	Additional Acreage Required			
		1990 Pop.	1995 Pop.	2000 Pop.	2005 Pop.
		38,550	45,975	52,950	60,150
Commercial/Services	972	1,168	1,393	1,604	1,823
Industrial Acres	77	92	111	128	145
Public Buildings & Grounds	555	665	793	913	1,037

Prosser, Hallock & Kristoff, 1990

b. Industrial Land Use

It is very difficult to project the amount of land that will be required in the future to support industry. Nassau County, like most jurisdictions, encourages industry to locate within the County as a means of improving its tax base and providing employment for its residents. This active recruiting of industry could, at any time, result in a major firm(s) locating or relocating to the County, thereby greatly expanding on the current need for industrial land use; however, for the sake of conservative land use plan-

ning, future demand for industrial land is projected as a direct ratio of population growth to additional land requirements.

As shown in Table A-14, an additional demand of 68 acres of industrial land is projected for the planning period. This very low figure is expected to be doubled, if not tripled, should the promotional activities of the County's Economic Development Group prove to be successful. The addition of any industrial land to the Future Land Use Map beyond that shown will require an amendment to the Plan in accordance with Chapter 163.3187, F.S.

While industrial land use is an important economic consideration in any land use plan, industrial activity weighs heavily on the quality of life in the community and consequently must be located with more consideration and sensitivity.

A new and large industrial development is being undertaken by the port authority. That parcel is on US A1A. The Plan delineates large active sites as the logical extension of areas for industrial development and includes the port authority's proposal.

#### c. Public Buildings and Grounds

Public buildings and grounds land uses include such categories as schools, churches, medical and healthcare, governmental and correctional facilities. Again, applying the ratio methodology, it is projected that an additional 482 acres will be required by the year 2005 to support the projected population growth.

### 3. Summary of Future Land Uses

Table A-15 presents a summary of all land use requirements projected to the year 2005. The projected acreage requirements have, then, been transferred to specific geographic locations on the Future Land Use Map (Figure A-8). Because of the scale at which the Future Land Use Map is drawn, it should be noted that boundaries of land uses presented on the FLUM are not precise. Some analysis will be required at the time of Building Permit approval or other development approval to relate the Future Land Use Map to Property Appraiser or Zoning maps.

Projections fifteen (15) years to the future are very difficult to make with complete accuracy. It is expected that Table A-14 will be revised as market forces direct additional residential/commercial/industrial activity to Nassau County. These revisions (or amendments) to the plan will be accomplished following the Evaluation Appraisal Report Amendment process required by state law.



TABLE A-15  
 FUTURE LAND USE SUMMARY  
 2005  
 NASSAU COUNTY, FLORIDA  
 (Unincorporated Area Only)

Land Use Category	Existing Acreage	Future Acreage	Percent Change
<hr/>			
Agricultural			
Improved cropland	16,605	16,605	0%
Rangeland	22,800	22,800	0%
Silviculture	199,697	189,801	( 5.0%)
Residential			
Low Density	23,342	48,542	108.0%
Medium Density	780	1,373	76.0%
High Density	170	364	114.1%
Commercial	298	465	56.0%
Industrial	112	175	56.2%
Public Buildings and Grounds	555	866	56.0%
Other Public Facilities			
Transportation	2,345	3,651	55.7%
Recreation (Built Facilities)	234	365	56.0%
Historic Resources	58	58	0%
Conservation			
Forest	55,862	55,862	0%
Wetlands	50,881	50,881	0%
Water	12,777	12,777	0%
Undeveloped Land/Vacant	18,069	-0-	-
<hr/>			
TOTAL	404,585	404,585	0%

Source: 1990 Florida Statistical Abstract; the University presses of Florida, Gainesville, 1990.

---

## E. THE PLAN

The 4 planning districts into which the County has been divided follow the boundaries of the census tracts established in the 1980 U.S. Census. They are different in character except for Callahan and Hilliard, which are comparable except for the fact that urbanization has been more dynamic in Callahan due to its proximity to the Duval County line.

### 1. Hilliard and Callahan Planning Districts

With the towns of Hilliard and Callahan as focal points, most of the urbanization in the western part of Nassau County will radiate from the core of these small towns. Contiguous development in the Callahan District, however, will not necessarily occur due to the presence of wetlands which are more or less ubiquitous in this part of the County. While there are larger more concentrated areas of wetlands in the eastern half of the County, small wetland areas are scattered and proliferate in the western half of the County.

The plan for each of these areas is structured on the premise that most development will occur along the radial highway network which converges in each of the two towns. The radial development pattern will be augmented by isolated residential development nodes which are in their embryonic state in most of this area and which are outside of the development areas. Many of these development nodes are found between CR 121 and the lower reaches of the St. Marys River. These developments also occur at minor highway junctions as well as along some of the more heavily trafficked highways which is common development pattern. These areas are expected to develop at one dwelling unit per acre.

The plan's concept is based on encouraging growth in development areas around these town centers. The objective is to minimize sprawl; contain commercial development within town limits or as close to existing commercial facilities as possible; and ultimately to extend available services such as water and sewer to as much new development as deemed to be feasible in an effort to contain the proliferation of septic tanks and wells for potable water. These areas are recommended to develop at a minimum of 2 dwelling units per acre.

## 2. Yulee Planning District

In the Yulee planning district, most of the anticipated growth will occur between the Intracoastal Waterway and US 17 with some spillover west of US 17 and south of A1A. The western portion of the Yulee district, i.e., west of I-95 which contains the Nassau Wildlife Management area, is expected to remain largely undeveloped during the next 5 years. However, with the widening of A1A to a 4-lane divided highway by Florida DOT between I-95 and Callahan in the next few years, the character of this area could change dramatically. This is already occurring on A1A, especially between US 17 and the Intracoastal Waterway. There is dire need for immediate plans to control the access to properties fronting on this segment of A1A. Proper planning will preclude a proliferation of curb cuts which will facilitate ingress to and egress from these properties but impede the free flow of traffic on this arterial road. The new remote port facility will generate considerably more truck traffic in this area and, if patterns hold true, the impending development of a second automobile sales lot will most likely stimulate a geometric progression of still more automobile sales lots and similar uses.

The County was unsuccessful in its bid to the DCA for contingency funds to undertake the planning and design of controlled access for A1A. However, it would appear to be reasonable to earmark a certain portion of the funds generated by the new gasoline sales tax to support this recommended planning and design exercise.

The plan for Yulee, which is centered on 2 development areas and an MSTU, envisions commercial activity nodes where I-95 intersects with A1A and US 17. A somewhat less intensive commercial node is seen at the intersection of A1A and US 17 at Yulee "proper". The former, because of I-95, will maintain the character of a commercial highway interchange whereas the latter, at Yulee, functions as a crossroads "convenience shopping center." As the Hedges and St. Marys sub-areas grow, it is reasonable to anticipate more commercial growth at the Yulee crossroads but it would still be envisioned as a convenience shopping area due to the proliferation of a wider selection of shopping options for local consumers that are already located on Amelia Island. However, as stated earlier, commercial development will continue to encroach on the A1A frontage between US 17 and the Intracoastal Waterway but the plan recommends limiting and controlling access to the extent possible.

West of the Intracoastal Waterway, two areas bisected by A1A, St. Marys/Chester and the Hedges/Nassauville/Yulee Heights areas, will host the most growth over the next 18 years. Most of the population in Yulee is already concentrated in these areas. However, growth will be newly stimulated by plans of the Rayland organization which call for the development of 5,300 acres of residential land and about 800 acres of commercial and industrial land. As noted earlier, land requirements will draw on available rangeland and upland forests. A further stimulus for growth in the area can be attributed to the establishment of the Sunray Utilities service area which will provide water and sanitary sewer facilities. The enterprise, to be operated by the private sector, will, at a minimum, eventually have the capacity to serve the built-out residential community of 11,000 dwelling units which extend beyond the forecast year of 2005. Although the

bulk of the existing residential development is outside the utilities district, the plan recommends, where feasible, the eventual inclusion of these areas into the district.

While the plan diagram suggests 2 conurbations, separated by a strand of wetlands, in point of fact, it is one large urbanizing area. Rayland is projecting densities of 2.5 and 1.75 DU's to the acre.

To date, Yulee is characterized as a crossroads community ringed by isolated satellite settlements. The plan also envisions the longer range prospect of extending CR 108 to the lands owned by Rayland. This proposal affords not only quicker access to the primary arterials north and to Kings Bay, but will also provide direct access for Hilliard residents to this area and the island.

### 3. The Amelia Island Planning District

The development pattern is fairly well established on the Island - both in and out of the city. While there are several large undeveloped parcels on or in close proximity to the ocean or wetlands, these large parcels will be developed as planned unit developments. One large parcel, Crane Island located in the marshlands between the airport and Intracoastal Waterway, requires bridging from the airport for access by land. Proposed development has stirred controversy because of its location and the plan recommends that it be conserved as open space. Any future development should be low intensity with careful conservation of access and the introduction of impermeable surfaces whose runoff could have a detrimental affect on the marshlands.

The plan focuses on maintaining the pristine ecological character of the marshlands which abut the Intracoastal Waterway as well as those of Egan's Creek which separate the north beach from the city proper; encouraging the development of a state park at the southern end of the Island and maintain existing recreation areas at least to their present levels of service. Fernandina Beach and Amelia Island epitomize a community whose orientation is primarily recreation. With 15 miles of beachfront and the north and south ends of the Island anchored by state parks, it is easy to understand this orientation.

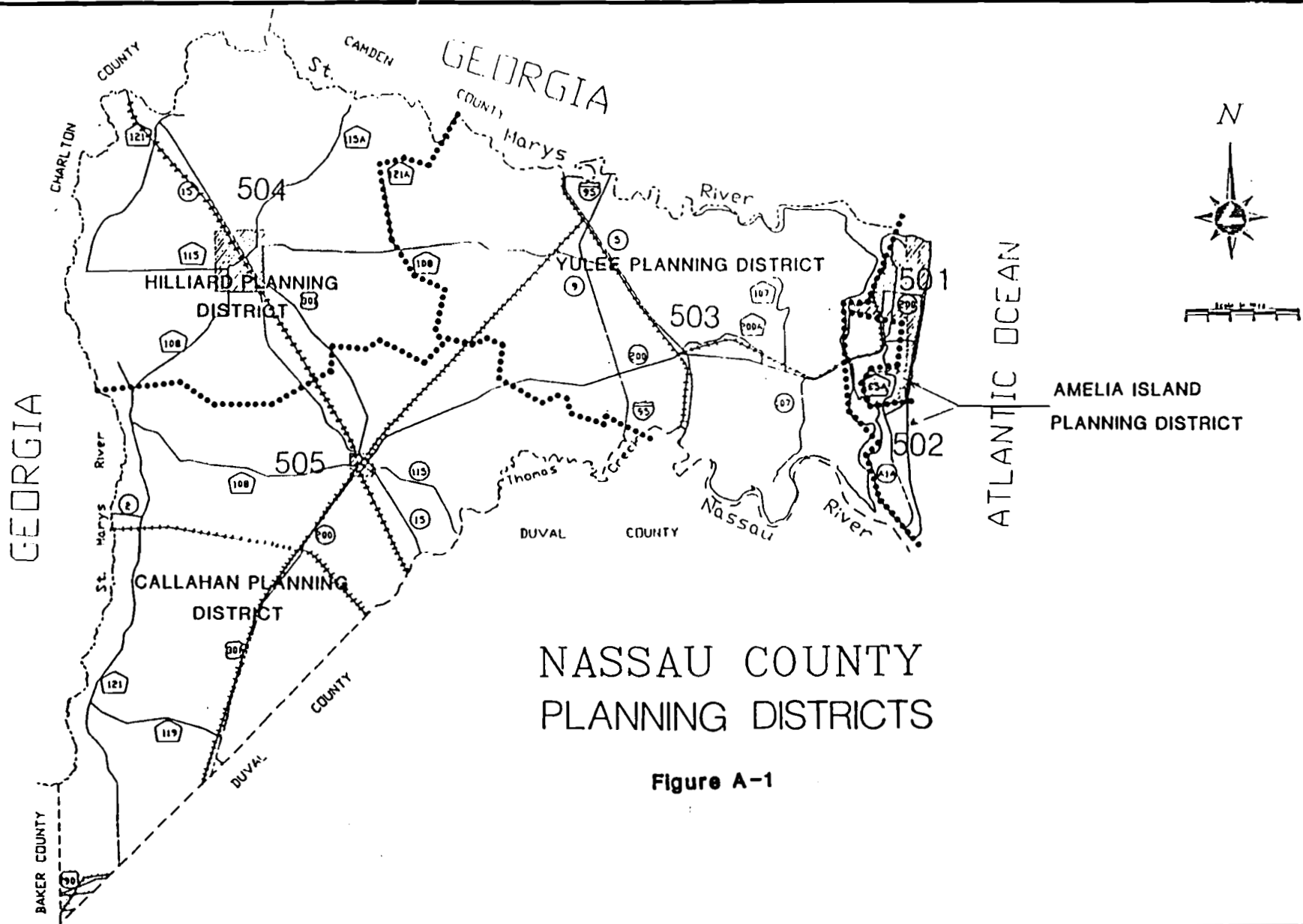
The characteristics of the City of Fernandina Beach due to native land cover and spatial distribution are such that heavy industry, an historic district and a combination of standard and festival-oriented commercial activities, intermingled with residential neighborhoods, thrive without intrusion of one or the other within relatively short distances of each other.

High and medium density residential nodes have been recommended in areas which have, or plan to have, direct access to major streets to reduce traffic through low density areas.

One of the most important potential areas for development to Fernandina Beach and the entire island is that area outside the City limits around Five Points. Without good planning and land development controls, this

main entrance to the city will become congested with vehicular traffic and incompatible land uses and create an undesirable image of the island. Although this trend has started, it can be controlled and the large amount of vacant land can be developed to enhance the beauty of the island through cooperative effort between the City and County.

The remainder of the island south of the airport is generally recommended for residential use. Medium densities are recommended, for the most part, along the ocean front interspersed with some low density single-family pockets. Growth will be based on planned unit developments. Some commercial clusters are recommended east of A1A. West of A1A is low density residential interspersed with medium density clusters.









# NASSAU COUNTY PLANNING DISTRICTS

Figure A-1

# TOPOGRAPHY

Figure A-6

## LEGEND

-  TOPO ELEVATION  
(25' increments)
-  MUNICIPALITIES
-  MAJOR HIGHWAYS
-  MUNICIPAL BOUNDARY
-  RAILROAD
-  STATE-COUNTY BOUNDARY

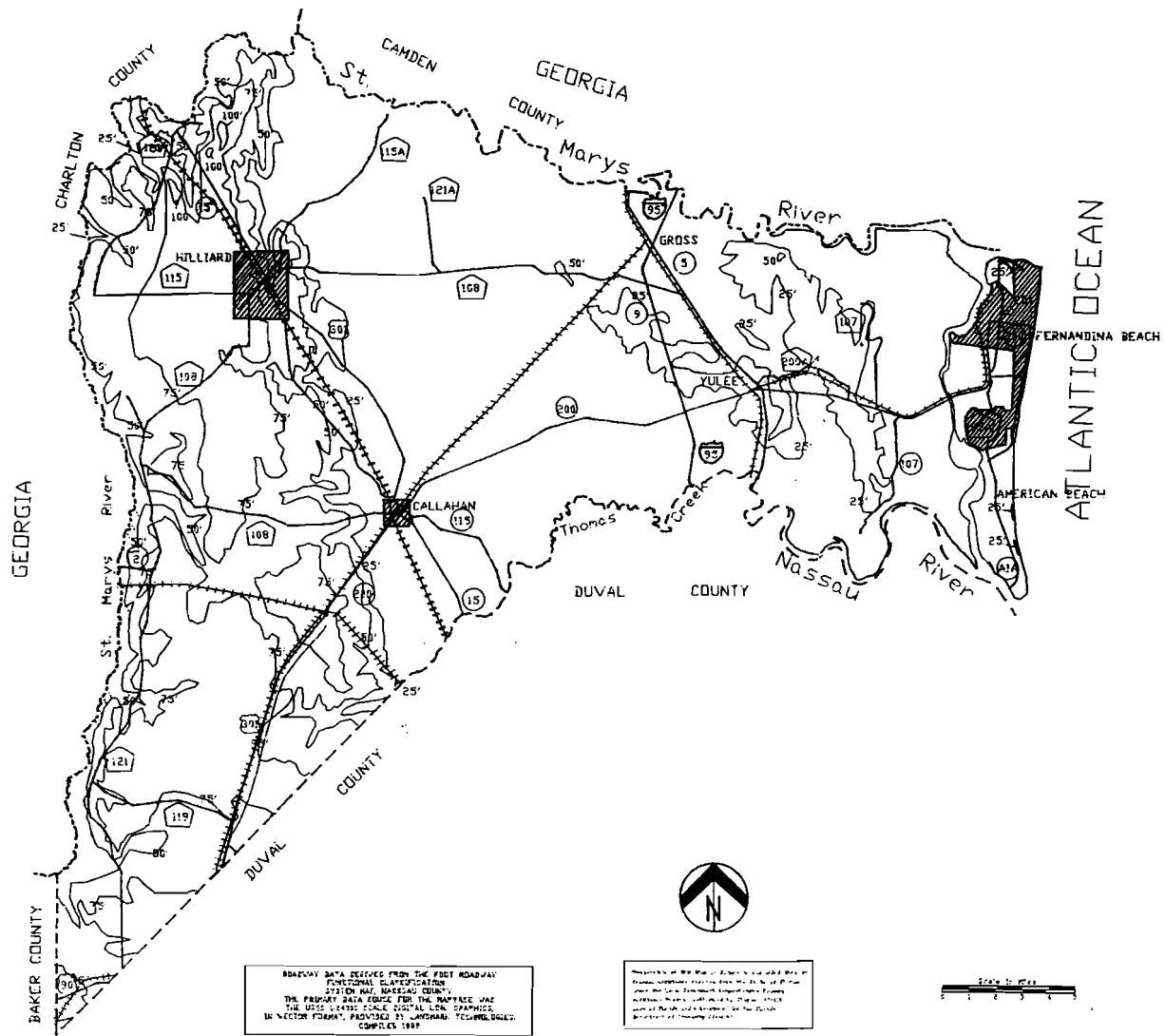
ISSUE DATE:	PREPARED BY: AW/WF/S:
PRINT DATE: 1-8-9:	STATUS:
REVISION DATE:	FILE NAME: HASTOPO.DWG

# COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:

NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

1990



ROADWAY DATA DERIVED FROM THE FRET ROADWAY  
FUNCTIONAL CLASSIFICATION  
SYSTEM HAS, NASSAU COUNTY'S  
THE PRIMARY DATA SOURCE FOR THE MAPPAGE WAS  
THE USGS DEPT. OF COMMERCE DIGITAL DATA GRAPHICS,  
IN VECTOR FORM, PROVIDED BY ANDRAN, TECHNOLOGIES,  
COMPLEY 1989








PROPERTY OF THE STATE OF FLORIDA. THIS MAP IS  
HEREBY HEREBY PROVIDED TO THE PUBLIC BY THE  
STATE OF FLORIDA. THE STATE OF FLORIDA  
RESERVES THE RIGHT TO REPRODUCE, COPY, OR  
DISTRIBUTE THIS MAP IN ANY FORM OR BY ANY  
MEANS, WITHOUT PERMISSION OF THE STATE OF  
FLORIDA.

SOURCE: U.S.G.S. 1954, 1957 (PARTIALLY REVISED 1966)

# COASTAL HURRICANE IMPACT STORM SURGE — CATEGORY 3

Figure A-7

## LEGEND

-  MAXIMUM EXPECTED AREA OF INUNDATION BY HURRICANE CATEGORY 3
-  MUNICIPAL AIRPORT
-  PORT
-  MAJOR HIGHWAYS
-  MUNICIPAL BOUNDARY
-  RAILROAD
-  STATE-COUNTY BOUNDARY

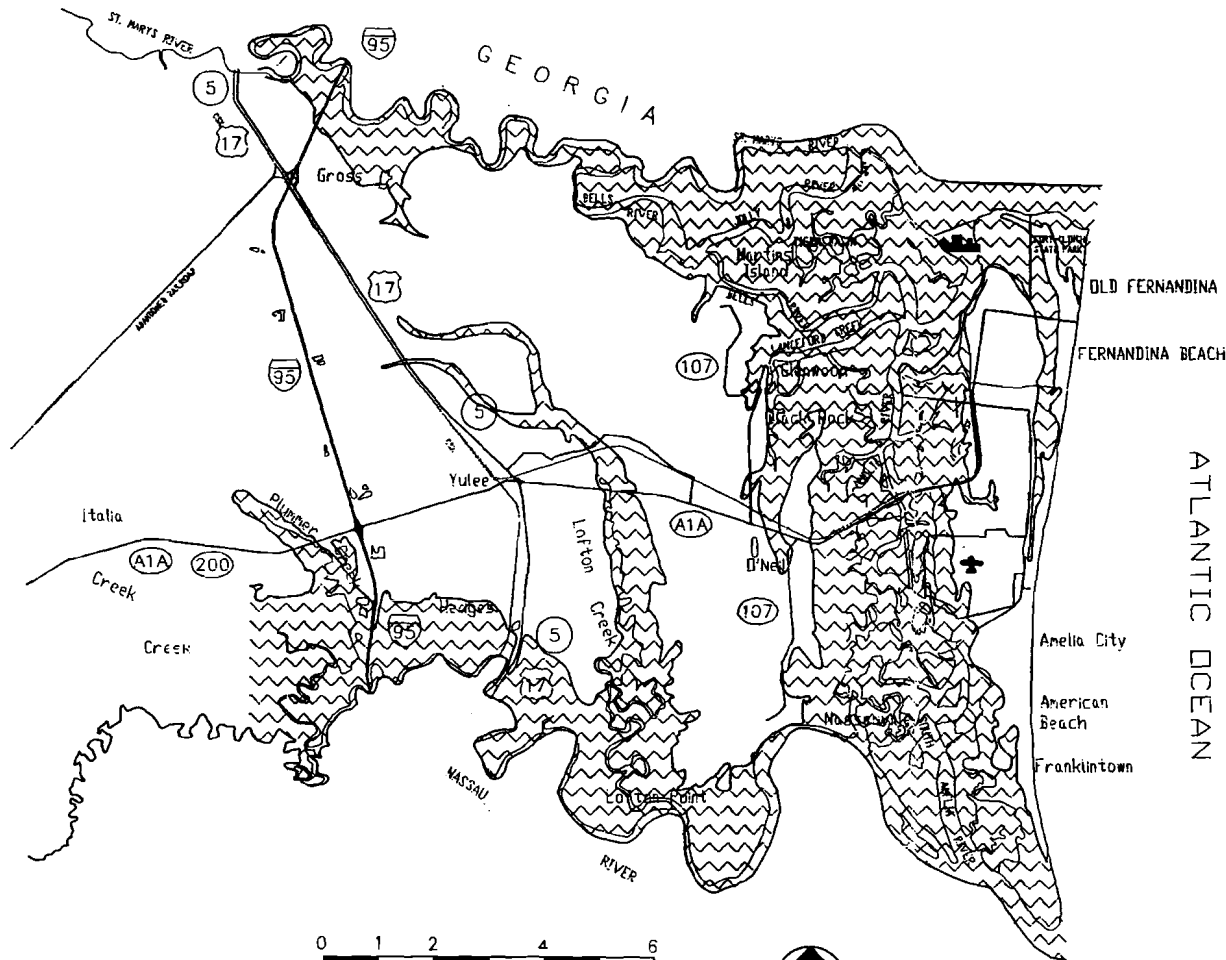
ISSUE DATE:	PREPARED BY:	RF
PRINT DATE:	STATUS:	
REVISION DATE:	FILE NAME:	NASSSTORM.DWG

# COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:

NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

1990



APPROXIMATE  
SCALE IN MILES



ROADWAY DATA DERIVED FROM THE FOOT-ROADWAY  
FUNCTIONAL CLASSIFICATION  
SYSTEM MAP, NASSAU COUNTY  
THE PRIMARY DATA SOURCE FOR THE MAPPAGE WAS  
THE SOURCE ROAD SCHEMATIC SYSTEM MAP, NASSAU COUNTY  
IN VECTOR FORMAT, PROVIDED BY LANHAM/TECHNOLOGIES  
CORPORATION, 1988

THE INFORMATION ON THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TO BE USED FOR ANY OTHER PURPOSE. THE USER OF THIS MAP ASSUMES ALL LIABILITY FOR ANY DAMAGE OR LOSS OF PROPERTY THAT MAY BE CAUSED BY THE USE OF THIS MAP.



# GENERAL SOILS MAP NASSAU COUNTY, FLORIDA

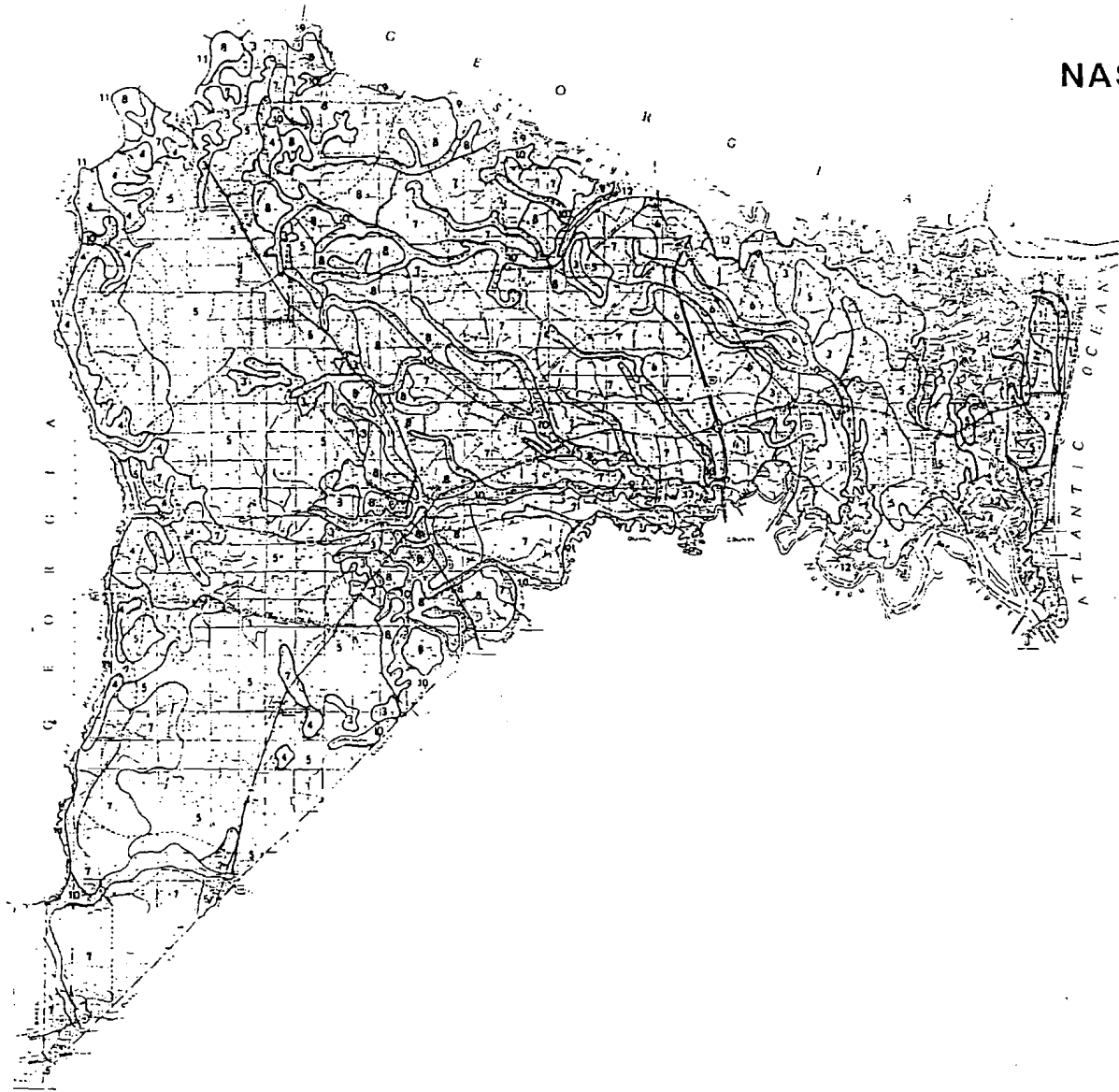
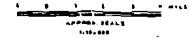


Figure A-5



## SOIL ASSOCIATION

1. Kureb - Fripp - Newhan
2. Mandarin - Echaw
3. Ridgewood - Hurricane - Pottsburg
4. Albany - Blanton - Penny
5. Leor - Boulogne - Kingsferry
6. Sapelo - Leon - Goldhead
7. Goldhead - Haires - Meadowbrook
8. Megget - Goldhead
9. Kingsland - Maurepaus
10. Buccaneer - Ellabelle
11. Osier - Ousley - Mandarin
12. Tjiscnia

## SOURCE:

Soil Conservation Service,  
Interim Soil Study,  
Report of Nassau County, Florida 1988




# HISTORICAL HOUSING

Figure A-4

## LEGEND

● 36 HISTORICAL SITE  
(see Table C-6 of HOUSING ELEMENT)

✚ MUNICIPAL AIRPORT  
 PORT

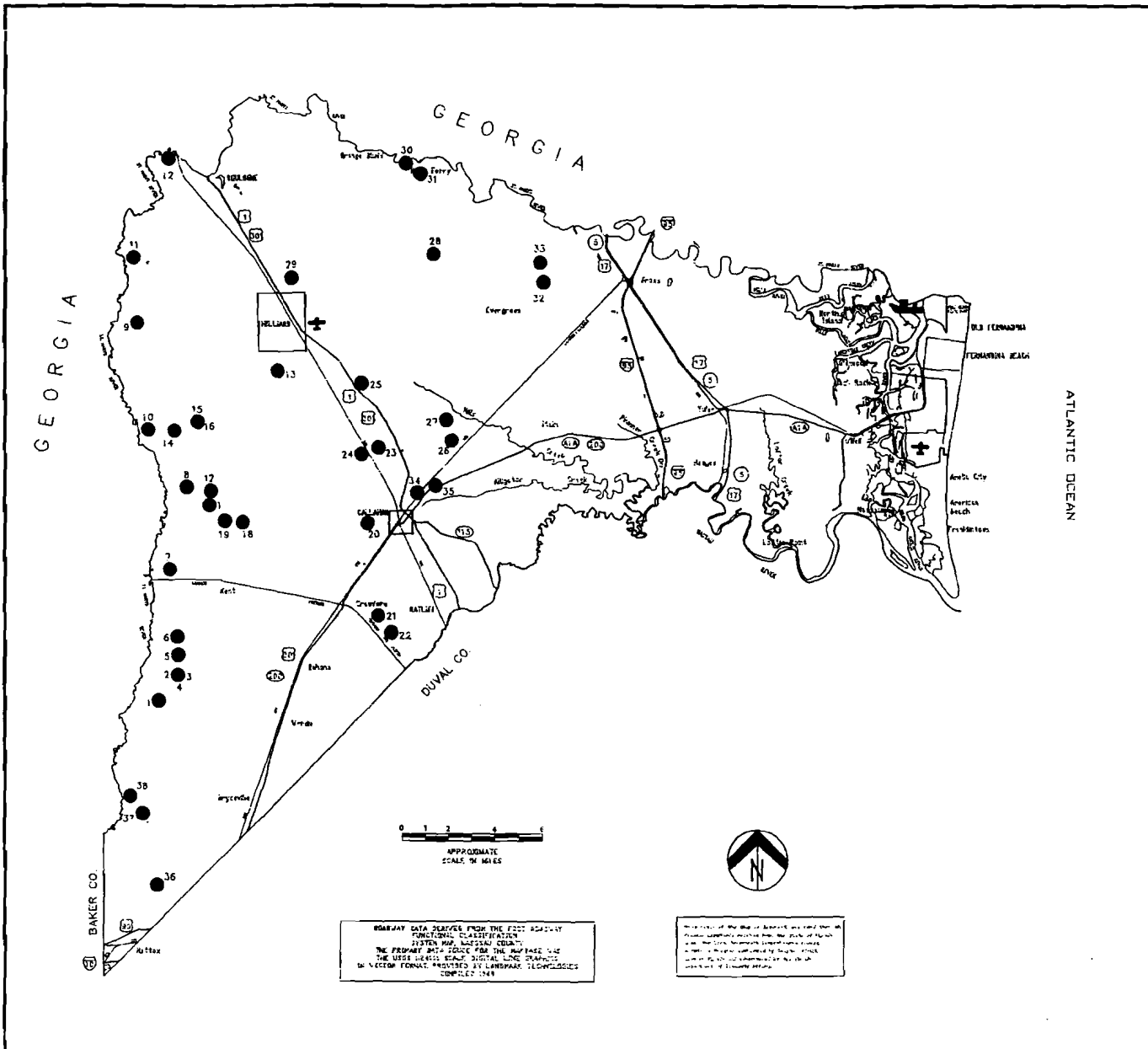
— MAJOR HIGHWAYS  
 — MUNICIPAL BOUNDARY  
 — RAILROAD  
 — STATE-COUNTY BOUNDARY

ISSUE DATE:	PREPARED BY: AM/WF/ST
PRINT DATE: 1-8-91	STATUS:
REVISION DATE:	FILE NAME: NASSAU.dwg

# COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

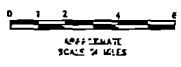
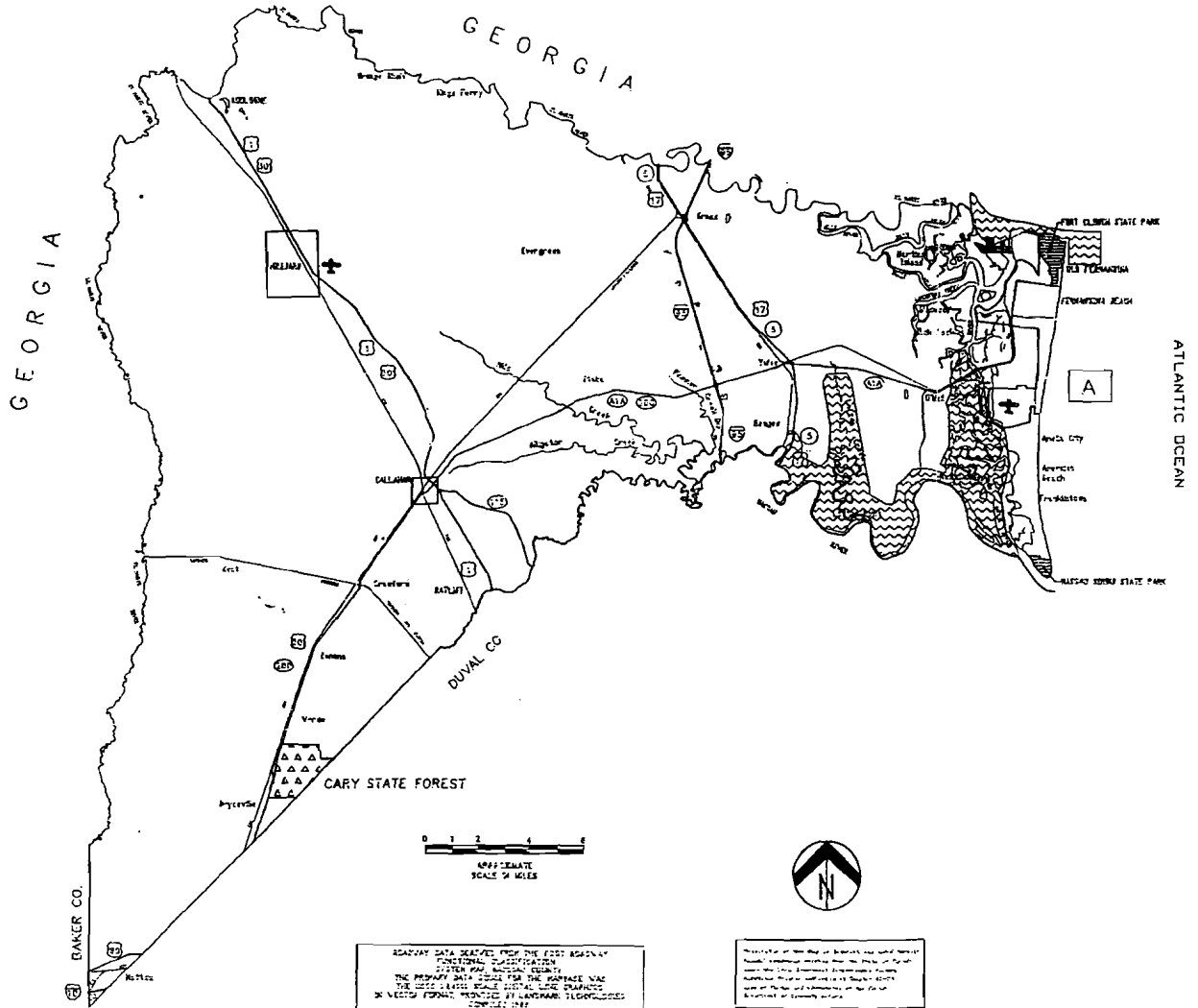
PREPARED BY:  
NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

1990



ROADWAY DATA DERIVED FROM THE FOOT COUNCIL FUNCTIONAL CLASSIFICATION SYSTEM FOR NASSAU COUNTY. THE PROPERTY DATA FOR THE MAP WAS THE ASSOCIATED MAPS DIGITAL LINE GRAPHIC IN VECTOR FORMAT PROVIDED BY LANDMARK TECHNOLOGIES COMPANY 1989.

This map is the property of the Northeast Florida Regional Planning Council and is loaned to you for informational purposes only. It is not to be used for any other purpose without the express written consent of the Council. The Council is not responsible for any errors or omissions on this map.












ROADWAY DATA DERIVED FROM THE FDOT REGIONAL  
FUNCTIONAL CLASSIFICATION  
SYSTEM FOR NASSAU COUNTY.  
THE PROPERTY DATA FOR THE PORTAGE WAS  
THE 1982 1:25000 SCALE DIGITAL LOG DRAWINGS  
IN VECTOR FORMAT PROVIDED BY LANDMARK TECHNOLOGIES  
CORPORATION.

This map is an approximation of the actual land use and is not intended to be used for legal purposes. The information on this map is for informational purposes only and should not be used for any other purpose without the express written consent of the Northeast Florida Regional Planning Council.

# CONSERVATION

Figure A-3  
LEGEND

-  AQUATIC PRESERVES
-  STATE PARK
-  AMELIA ISLAND (ACQUISITION SAVE OUR COAST PROGRAM - 1985)
-  CARY STATE FOREST
-  MUNICIPAL AIRPORT
-  PORT
-  MAJOR HIGHWAYS
-  MUNICIPAL BOUNDARY
-  RAILROAD

ISSUE DATE:	PREPARED BY: KW/MF/ST
PRINT DATE: 1-8-91	STATUS:
REVISION DATE:	FILE NAME: NASSBASE.dwg

## COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:  
NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

1990

**NASSAU COUNTY**  
**FUTURE LAND USE ELEMENT**

**GOAL 1.0**

**TO EFFECTIVELY MANAGE GROWTH AND DEVELOPMENT BY DESIGNATING AREAS FOR ANTICIPATED FUTURE DEVELOPMENT WHICH SATISFY MARKET DEMAND IN A COST-EFFICIENT AND ENVIRONMENTALLY ACCEPTABLE MANNER. ENCOURAGE/ACCOMMODATE LAND USES WHICH MAKE NASSAU COUNTY A VIABLE COMMUNITY, CREATING A SOUND REVENUE BASE AND OFFERING DIVERSE OPPORTUNITIES FOR A WIDE VARIETY OF LIVING, WORKING, SHOPPING, AND LEISURE ACTIVITIES, WITH MINIMUM ADVERSE IMPACT ON THE NATURAL ENVIRONMENT.**

**OBJECTIVE 1.01**  
**COORDINATE FUTURE LAND USES**

Upon Plan adoption, the County will correlate future land uses with the appropriate environmental conditions and the availability of supporting infrastructure through implementing the following policies:

**Policies**

- 1.01.01 Protect estuaries by prohibiting sanitary sewer wastewater and stormwater discharge into Class II waters and establishing criteria for reuse as cited in Policy 1.04A.07.
- 1.01.02 Criteria shall be included in the Land Development Regulations to include requirements to preserve/replace the natural/native vegetation along county waterways to maintain the natural beauty of the area, to control erosion, and to retard runoff. (Policy 1.04A.02)
- 1.01.03 Protect natural resources by working closely with various local, state, and federal agencies in collecting information, coordinating development permitting and reporting violations of laws and regulations which would have a negative impact on the environment.
- 1.01.04 Require that consideration of amendments to the Future Land Use Map address issues pertaining to the availability of supporting infrastructure in accordance with Chapter 9J-5.0055(2)(a),(b), and (c) F.A.C.
- 1.01.05 Ensure through the Zoning Code and Subdivision Regulations that future land uses provide for drainage and stormwater management, open space, and safe and convenient on-site traffic flow, considering needed vehicle parking.
- 1.01.06 Require that post-development conditions for stormwater run-off shall equal or be less than pre-development run-off conditions.

- 1.01.07 Nassau County shall include controls in its Land Development Regulations based upon the latest version of the model "Flood Damage Prevention Ordinance" promulgated by FEMA to establish the location of the 100-year floodplain and floodprone areas in Nassau County. The LDRs, then, shall require new construction in these areas to meet FEMA regulations regarding the height of floor level above flood level and County regulations of density based upon the Comprehensive Plan and Future Land Use Map.

**OBJECTIVE 1.02  
REDEVELOPMENT/RENEWAL/COMPATIBILITY**

Upon Plan adoption, the County will locate future land uses where they appear most compatible with surrounding land uses and will establish the following policies to implement the redevelopment and renewal of blighted areas.

**Policies**

- 1.02.01 Future industrial development shall be located in planned industrial parks, in areas with compatible surrounding land uses or elsewhere when buffered by physical barriers (walls), spatial separation or vegetative shielding sufficient to overcome the undesirable characteristics of incompatible land uses.
- 1.02.02 The Land Development Regulations will include criteria to reduce the intrusion of incompatible commercial, industrial and other land uses into residential areas.
- 1.02.03 Permit future development to proceed only in accordance with land uses designated on the Future Land Use Map.
- 1.02.04 Promote the clustering of planned commercial land uses through incentives and regulations such as density bonuses and improved access.
- 1.02.05 Establish the following criteria for land use development:

A. Agriculture

1. Agriculture (Agriculture/Silviculture)

Agriculture land, in a parcel 320 acres or more, used primarily for the cultivation of silviculture crops and other active agricultural uses. Agriculture designated land may be developed at a density not to exceed 1 unit per 20 acres. Agriculture land, in a parcel of 320 acres or less, may be developed at a density not to exceed one unit per acre.

## 2. Exceptions

Notwithstanding the density or land use assigned for Agriculture designated lands on the Future Land Use Map, the following exceptions apply:

- a. Parcels of property twenty (20) acres or less which are not shown on the Future Land Use Map and are single lots of record which were established by deed of record on or before the adoption date of the Plan may be developed at the density provided for the parcel on current zoning maps.
- b. Parcels of property located within Agricultural land use may be subdivided into a minimum of one (1) acre parcel and developed as residential property when occupied by members of the owner's immediate family (includes parents, siblings, children, step children, and grandchildren of the owner or the owner's spouse);
- c. Parcels of Agriculture land under individual ownership that have been held by the current owner for a minimum of 5 years and upon which the Homestead Exemption is current may be sold at a maximum of two (2) 1-acre parcels per year subject to subdivision regulations.
- d. Any other application to subdivide Agricultural I or II designated land shall be considered favorably so long as the proposed subdivision of land furthers:
  - (1) a concentration of development that will enhance the potential for implementing central/regional water/sewer systems; or
  - (2) contributing to the development of mixed-use communities that provide for integrated live/work/recreation population centers; and
  - (3) the clustering of permitted development within agricultural designated lands so as to minimize potential impact on the agricultural productivity of the areas.

NOTE: 1. The exceptions noted above relate to density only; any development must (a) be consistent with the other provisions of the Plan, including but not limited to, concurrency and (b) the total number of residential units located within agricultural

designated land use does not exceed the number of units permitted in NOTE 3 below.

2. Agricultural land uses provide for a variety of agricultural activities and shall be protected from the intrusion of land uses that are incompatible with the conduct of agriculture.
3. Agricultural land use may be developed only to a maximum of 4471 dwelling units.

B. Residential

Residential land use category provides for a variety of land use densities and housing types. Residential land use permits single family detached (including mobile homes), single family attached, duplex, and multi-family housing. Parcels of land designated for residential land use are intended to be used predominately for housing and should be protected from intrusion of land uses that are incompatible with residential density of from 1 unit per acre to 12 units per acre.

Residential land use is divided into four categories of density:

Rural Residential	Up to 1 dwelling unit per acre
Low Density	Up to 2 dwelling units per acre
Medium Density	Up to 5 dwelling units per acre
High Density	Up to 12 dwelling units per acre

Homogeneous residential developments of more than forty (40) acres with a density of less than 3 dwelling units per acre will not be permitted, except upon application approval as a PUD.

While there is a limit to the number of housing units that may be located in agricultural land uses, there is no limit placed upon development permitted in residential land use. This is to facilitate the maximum in-fill development that can be accomplished within residential land use. A density greater than two (2) dwelling units per acre must provide, at a minimum, a central water system. A density of five (5) dwelling units or more per acre requires central water and sanitary sewer.

Residential development within the 100-year floodplain shall be required to meet FEMA regulations regarding height of floor level above flood plain level and County Department of Health regulations regarding the installation of septic tanks.

Mobile homes will be permitted in accordance with F.S. 320.8285(5); manufactured homes will be permitted in accordance with F.S. 553.38(2) and Community Residential homes shall be permitted in accordance with F.S. 419.001(2) and (3).

C. Commercial

Land designated for commercial use is intended for activities that are predominately associated with the sale, rental, and distribution of products or the performance of service. Commercial land uses shall be physically (wall, vegetative screen) or spatially (distance) buffered from adjacent land uses of lesser density or intensity of use.

The intensity of commercial land use is controlled by the Zoning Code (Land Development Regulation) which specifies Floor Area Ratios, parking area requirements for various types of commercial activity, height restrictions, signage, etc. Commercial land use shall be developed at an intensity of use that permits no more than 80 percent of the commercial site be covered by construction (including parking surfaces).

D. Industrial

Land designated for industrial use is intended for activities that are predominately associated with the manufacturing, assembly, processing, or storage of products. Industrial land uses provides for a variety of intensities of use including heavy industry, light industry, and industrial park operations. Such uses shall be physically (wall, vegetation, etc.) or spatially (distance) buffered from adjacent land uses of lesser density or intensity of use.

The intensity of industrial land use is controlled by the County's Zoning Code (Land Development Regulations) which specifies permitted uses on industrial lands designated as industrial or light industrial. The Zoning Code also controls amount of parking area required, Floor Area Ratios, height restrictions, signage, etc.

Industrial land use shall be developed at an intensity of use that permits no more than 85 percent of the industrial site be covered by construction (including parking surfaces).

E. Recreation

Land designated for recreation is intended for a variety of leisure time activities. Included in this land use classification are both resource-based and activity-based sites and facilities. Resource-based sites and facilities are oriented toward natural resources; activity-based sites and facilities are those that require major development for the enjoyment of a particular activity. Activity-based site and facilities include ball fields, golf courses, tennis courts, etc.; resource-based facilities include lakes, hiking trails, wilderness campsites, etc.

The use of land for recreational purposes shall follow performance standard guidelines which control noise, pollution, etc., to ensure compatibility with adjacent land uses.



F. Public Building and Grounds

Lands designated in this category of use are intended for the construction of schools, churches, governmental buildings.

The siting of public buildings and grounds shall be controlled by Zoning Regulations which include public participation in the permitting process for community input regarding compatibility.

G. Public Facilities

Lands designated as Public Facilities are intended for use as potable water, sanitary sewer treatment facilities, stormwater/drainage control structures.

The siting of public facilities shall be controlled by Zoning Regulations which include public participation in the permitting process.

H. Conservation

The Conservation Land Use shall designate land areas of ecological or historical value within the County on which development must proceed with restrictions. These are areas which may be altered by development and so must be protected. Conservation lands under private ownership may be placed under a Limited Development Overlay. Conservation lands under public ownership may be placed under a Preservation Overlay.

I. Overlays

1. Planned Unit Development

Planned Development may be applied as an optional overlay district over any underlying land use when application is made by the developer under the Zoning Code (Land Development Regulations) and when the County Planning Board approves such application as being an improvement in land use utilization over that permitted by Zoning Code categories.

The PUD land use overlay will not require a Future Land Use Element amendment so long as the proposed use does not increase the intensity \* or density of use specified on the Future Land Use Map for the underlying land use or qualifies for additional density bonuses to the underlying land use

\* Intensity of use is based upon the mix of land use activities requiring no greater demand for traffic, water, sewer and solid waste than the designated underlying land use.

The PUD overlay can allow mixed uses and can disregard traditional zoning requirements, such as set back line and lot coverage requirements in order to achieve better site design. The PUD designation allows the developer and County to negotiate elements of site designated density in order to achieve individual goals.

The PUD overlay is granted upon application of the developer; hence, it is not a designation that can be shown in advance on the Future Land Use Map.

2. Mixed-Use Development (Floating District)

Sections within the County may be designated for Mixed-Use Development. This type of development differs from the PUD in that components to the Mixed-Use development may be sponsored at various times by owners of individual properties within the designated mixed-use district. Development within the mixed-use district is controlled by performance standards which ensure compatibility among land uses and a numerical cap which limits the intensity/density of land use within the district.

Mixed use districts shall require a minimum of sixty (60) percent residential land use. Commercial and Industrial land uses as well as recreational land use shall be regulated by performance standards that ensure compatibility.

Like the PUD, Mixed-Use Districts are granted upon application by land owners within the proposed district and so cannot be shown in advance on the Future Land Use Map. Also like the PUD, the Mixed-Use District will not require a land use amendment so long as the proposed uses do not increase the overall density or intensity\* of use shown for the aggregate property on the Future Land Use Map proposed for mixed use.

\* See definition of intensity of use under PUD.

3. Limited Development

The Limited Development overlay may be placed on conservation lands in public or private ownership. Development of these lands must take place only in such a manner that will ensure the long term function of natural hydrologic or ecological systems. Historic properties may also be included in the category of Limited Development.

Conservation lands placed under the Limited Development Overlay may not be developed at a density greater than 1 unit per five acres unless underlying land use designates a lesser density; in which case the density of the underlying land use shall prevail.

4. Preservation

This overlay will be placed on publicly owned lands that are of significant ecological or historical value. Preservation lands include wildlife and/or vegetative habitats that are designated as endangered or threatened. No new development or expansion of existing development shall be permitted within areas designated as preservation. The Preservation Overlay may be placed only on lands that are publicly owned.

**OBJECTIVE 1.03**

**ELIMINATION OR REDUCTION OF INCONSISTENT LAND USES**

Upon Plan adoption, the County shall implement the following policies to eliminate or reduce land uses inconsistent with the County's character and the Future Land Use Map.

**Policies**

- 1.03.01 Land Development Regulations shall be adopted which set standards for buffering and separation between land uses of different densities or intensity of use so as to minimize interference between uses.
- 1.03.02 The County Building Official annually shall review the condition of structures that are suspected to be substandard and when found to be deficient, require that they be brought into compliance with adopted building codes.
- 1.03.03 The County Building Official shall continue to enforce the County Zoning Regulations which limit the level of permitted construction on structures of non-conforming use.
- 1.03.04 Land Development Regulations shall provide density bonus incentives to direct commercial and multi-family into "cluster" development patterns, thereby, eliminating or reducing strip or ribbon development which follows major County or state roads.

- 1.03.05 The County shall adopt and implement land use controls such as minimum set-back and property access points adjacent to major roadways in order to minimize hazardous traffic conditions and maximize traffic flow.
- 1.03.06 The County shall adopt an ordinance that requires that a "Memorandum of Agreement" be established between the County and any adjacent local government that may be affected by siting of an undesirable land use (LULU) within two miles of the County's jurisdictional border with that government. The agreement shall include the conduct of meetings, workshops with the affected local government as well as a plan for mitigating the conflict.

**OBJECTIVE 1.04A  
PROTECTION OF NATURAL RESOURCES**

Upon Plan adoption, the county shall take positive action to protect natural resources through implementation of the following policies:

**Policies**

- 1.04A.01 Nassau County shall assume an active role in protecting the integrity of agricultural land by enforcing Future Land Use Element Policies regarding agricultural land use densities and establishing agricultural land as "sending" areas for transfer of development rights.
- 1.04A.02 The County shall restrict development in conservation areas to the maximum extent possible short of a "taking." Development that must be permitted will proceed at a density no greater than 1 unit per 5 acres unless underlying land use requires less density. In such cases, density of conservation areas will satisfy underlying land use density.

A buffer of natural vegetation as required under Chapter 373 and 403, F.S., implementing regulations and permits granted thereunder, shall be provided where wetlands occur.

- 1.04A.03 County adopted Land Development Regulations shall require agricultural operations to use "Best Management Practices" to minimize soil erosion, and minimize impact on wetlands.

Management practices shall follow "Management Guidelines for Forested Wetlands in Florida", Florida Division of Forestry, 1988, which includes recommendations for "Harvesting Systems by Wetland Site Type; Access Systems; and the establishment of Streamside Management Zones".

- 1.04A.04 The County shall adopt an interim Stormwater Management Ordinance which requires that the quantity of stormwater runoff after development be equal or less than that which occurred prior to development.

1.04A.05 In order to protect the St. Johns Marsh and Fort Clinch State Park Aquatic Preserves, the County Commission shall adopt Policy 9.2.2.5 of the Northeast Florida Comprehensive Regional Policy Plan, which states: Developments adjacent to Class II Waters, Aquatic Preserves, and Outstanding Florida Waters should be required to provide retention or detention with filtration of the first three-quarters of an inch of runoff or the runoff from the first 1-1/2 inches of rainfall, should provide offline retention or offline detention with filtration of the first 1/2 inch of runoff of the total amount required to be treated; and should be required to demonstrate that the project will not result in the degradation of the water quality in Outstanding Florida Waters, Class II Waters, and Aquatic Preserves.

1.04A.06 A Wellfield Protection Ordinance shall be adopted which provides for the setback of potentially polluting sources from the well-head "cone of influence" using accepted SJRWMD standards as presented in Volume II, Guide to Local Groundwater Protection in Florida, October 1990.

Since the Water Management District is unable, at this time, to provide the County Engineer with soil porosity (Time-of-Travel -- TOT) data for soils in Nassau County, the County shall establish a "Reasonable Radius" of 200 feet around the well head as a well head protection zone. Within this zone, only non-polluting land uses shall be permitted.

1.04A.07 The County shall require that wastewater be reused where practical. New wastewater treatment plants shall be required to provide for the reuse and/or disposal of wastewater by best available technology, including agricultural or landscaping irrigation, percolation, or other permitted measures unless data are presented to support claims that such reuse will impact an unreasonable economic or engineering demand on the plant ownership.

1.04A.08 The County shall control the number of septic tanks sited in environmentally sensitive areas through permitting only the units approved by the County Health Department based upon their determination of the soils' ability to function as an acceptable drain field.

1.04A.09 The County shall regulate mining operations as follows. No mining operations including petroleum, natural gas, and liquid natural gas drilling shall be permitted within 100 feet of a residential dwelling. No mining operations greater than 10 acres of surface area through LDRs to restrict the extent of borrow pits and dredge and fill activities to within 200 feet of property lines or wetland boundaries and to a depth not to exceed the top layer of overlying strata protecting potable water aquifers.

1.04A.10 The County shall expand its zoning code to identify specific locations for TDR "sending" and "receiving" districts.

## OBJECTIVE 1.04B

### PROTECTION OF HISTORICAL & ARCHAEOLOGICAL RESOURCES

Upon Plan implementation, the County will coordinate with the Department of State, Division of Historical Resources in the protection of historic and archaeological resources within the County. The Building Official shall review available materials prior to issuing a building permit or other development order to determine whether the proposed development will impact an identified historical/archaeologic site.

#### Policies

- 1.04B.01 The County Building Department shall maintain an inventory of historic and archaeological resources within the County.
- 1.04B.02 The County shall protect and preserve known significant archaeological and historic sites through (1) pursuing state funds for the purchase of specific sites in eminent danger of destruction by the encroachment of development and (2) requiring a restraint period in building permits to allow for scientific examination of the site before potential damage can occur from development activity.
- 1.04B.03 The County shall provide incentives such as TDRs or bonus density incentives where possible to the private sector to preserve the nature of historic areas.
- 1.04B.04 Through site plan review, the Building Official shall restrain development of projects that would infringe on significant historic and archaeological sites.
- 1.04B.05 The County shall request that the Department of State, Division of Historic Resources, make determination of significant archaeological sites.

## OBJECTIVE 1.05

### COORDINATE COASTAL AREAS WITH REGIONAL HURRICANE EVACUATION PLAN

Upon Plan adoption, the County will coordinate future land uses of the coastal areas to the ability to evacuate coastal areas in a major hurricane event.

#### Policies

- 1.05.01 The Nassau County Office of Emergency Management will coordinate with the Northeast Florida Regional Planning Council to maintain updates of the Northeast Florida Hurricane Evacuation Study, 1988, as it pertains to population versus evacuation times.

The Office of Emergency Management will ensure that population projections and road conditions used to project evacuation times correspond to current conditions.

- 1.05.02 The County Office of Emergency Management will maintain hurricane evacuation preparedness through simulation drills based upon "Clearance Times" for the County as defined in Table 8 of the Northeast Florida Hurricane Evacuation Study.
- 1.05.03 The County Planning and Building Department will ensure that the County's Concurrency Management System addresses "Evacuation Clearance Times" as a component in the determination of concurrency for the purpose of issuing a "Certificate of Concurrency" prior to any permitting action for Building Permits or Development Orders.
- 1.05.04 Evacuation routes will be given special consideration in the 5-year Capital Improvement Plan for improvement over other transportation facilities (i.e., S.R. 107).
- 1.05.05 Update its hurricane evacuation plan and disaster preparedness plan every five years and also re-evaluate its effectiveness immediately after a major disaster event to recommend appropriate improvements.

Public expenditures that subsidize development permitted in Coastal High-Hazard areas will be limited except for restoration or enhancement of natural resources.

- 1.05.06 Update its hurricane guide showing evacuation routes, hurricane hazards, safety procedures, shelters, and other pertinent information for its citizens.

**OBJECTIVE 1.06  
DISCOURAGE URBAN SPRAWL**

Upon Plan adoption, the County shall implement the following policies in order to direct development into patterns which will avoid the proliferation of urban sprawl.

**Policies**

- 1.06.01 Ensure that development orders are conditioned on the concurrency with the provision of public facilities as identified in the plan.
- 1.06.02 Through interlocal agreements, the County shall strive to replace and/or consolidate public facilities and services in order to most efficiently establish and maintain established levels of service.
- 1.06.03 Promote compact growth within urban development areas by encouraging the use of facility extension policies, whereby the cost of providing public facilities and services that benefit new development is borne by those individuals that receive direct benefit.

- 1.06.04 Establish priority areas for development wherein a proposed development may receive special incentives such as density bonuses or up to 12 months' extensions in meeting the concurrency rule for recreation.

**OBJECTIVE 1.07  
AVAILABILITY OF LAND FOR INFRASTRUCTURE FACILITIES**

Upon Plan adoption, the County shall implement policies to ensure that adequate land is available in the future to support components of infrastructure required for projected population growth.

**Policies**

- 1.07.01 An "Access" Land Development Regulation shall be adopted which establishes criteria for:
- a) Specific numbers of parking spaces and feet of buffering required to support various commercial/industrial/recreational activities;
  - b) Road right-of-way protection for major and minor arterials and collector roads (Right-of-Way Map);
  - c) Right-of-way protection around the entrances to highway and interstate exchanges; and
  - d) On-site circulation requirements to relieve congestion on major roadways.
- 1.07.02 Land suitable for utility facilities to support future development needs shall be identified by the county Public Works Department and, by amendment, designated on the Future Land Use Map for private or public acquisition.

The exact number of acres required for future infrastructure facilities shall be established on a population/facility ratio basis as related to those facilities currently available to County residents at the County's current population. (Reference Future Land Use Element Tables A-6 and A-16 adopted with the Element's Goals, Objectives and Policies by reference).

**OBJECTIVE 1.08  
INNOVATIVE LAND DEVELOPMENT REGULATIONS**

The County shall develop innovative land development regulations which assures that development is consistent with the future land use element.

**Policies**

- 1.08.01 A land clearing ordinance shall be adopted to regulate the clearing of trees and vegetation from environmentally sensitive ar-



eas. Agriculture and silviculture operations using "Best Management Practices" in the conduct of their operations shall be exempt from this ordinance.

- 1.08.02 The County shall regulate mining operations as follows. No mining operations including petroleum, natural gas, and liquid natural gas drilling shall be permitted within 100 feet of a residential dwelling. No mining operations greater than 10 acres of surface area through LDRs to restrict the extent of borrow pits and dredge and fill activities to within 200 feet of property lines or wetland boundaries and to a depth not to exceed the top layer of overlying strata protecting potable water aquifers.
- 1.08.03 The County shall include a landscape section in the Sub Division Regulations that will establish a level for using native vegetation in landscape design for future developments.
- 1.08.04 Requirements shall be incorporated in the Land Development Regulations which limit outdoor signage to design specifications that are appropriate to its message without size, height, or information excessive to its location.
- 1.08.05 Review existing zoning ordinances and subdivision regulations and revise as necessary in order to implement the Future Land Use Plan.
- 1.08.06 Review current ordinances, codes, and regulations and update code enforcement procedures to ensure compliance.
- 1.08.07 Provide incentives such as density bonuses and extension of "Certificates of Concurrency" to promote construction of "master planned and mixed use development."
- 1.08.08 Investigate the use of "density bonus program" to promote "in-fill" development in order to reduce urban sprawl.
- 1.08.09 Review development plans to ensure that open space is provided for both passive and active recreation for all proposed development projects in accordance with the established level of service.

#### **OBJECTIVE 1.09 PROTECTION OF PROPERTY RIGHTS**

Upon Plan adoption, the County shall ensure the protection of private property rights and recognize the existence of private interests in land use.

#### **Policies**

- 1.09.01 Nassau County will regulate the use of land only for valid public purposes and in a reasonable manner, in accordance with due process.
- 1.09.02 Nassau County shall consider favorably any request for land use

change that is consistent with the County's Comprehensive Plan. The County shall support the case of any Nassau County land owner whose right of change of land use is denied by state determination.

1.09.03 Areas identified on the FLUM as wetlands are generally defined. A landowner may provide more detailed data to the County to clarify jurisdictional wetland areas. Those areas determined by the County to not be jurisdictional wetlands will be allowed to be developed at the adjacent land use densities and intensities, as determined by the County.

1.09.04 The County will foster the use of land for agricultural purposes by allowing non-nuisance agricultural operations in any land use category. It is the intent of the County that the Future Land Use Map will not affect any existing or future Greenbelt Exemptions when the use of the property is agricultural. Regardless of the designation indicated for land on the Future Land Use Map, no lands in the County which have been classified as agricultural for ad valorem property taxes shall be granted a development order for any purpose more intensive than agricultural use unless the property owner agrees to remove the agricultural classification of such land for ad valorem property taxes.

1.09.03 Areas identified on the FLUM as wetlands are generally defined. A landowner may provide more detailed data to the County to clarify jurisdictional wetland areas. Those areas determined by the County to not be jurisdictional wetlands will be allowed to be developed at the adjacent land use densities and intensities, as determined by the County.

1.09.04 The County will foster the use of land for agricultural purposes by allowing non-nuisance agricultural operations in any land use category. It is the intent of the County that the Future Land Use Map will not affect any existing or future greenbelt exemptions when the use of the property is agricultural. Regardless of the designation indicated for land on the Future Land Use Map, no lands in the County which have been classified as agriculture for ad valorem property taxes shall be granted a development order for any purpose more intensive than the agricultural uses unless the property-owner agrees to remove the agricultural classification of such land for ad valorem property taxes.

TRAFFIC CIRCULATION ELEMENT

NASSAU COUNTY COMPREHENSIVE PLAN

Adopted January, 1991

Prepared by:  
Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida 32256

Revised by:  
Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida 32256

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs.

NASSAU COUNTY, FLORIDA  
COMPREHENSIVE PLAN - TRAFFIC CIRCULATION ELEMENT

Table of Contents

	<u>Page</u>
INTRODUCTION	B-1
TRANSPORTATION SYSTEM INVENTORY	B-1
Roadway System Classification	B-1
Roadway Physical Characteristics	B-3
Roadway Operation Characteristics	B-3
Transit Services and Facilities	B-3
Bicycle and Pedestrian Facilities	B-4
AMELIA ISLAND - ANALYSIS OF EXISTING DEFICIENCIES	B-5
Framework for Existing Deficiencies Analysis	B-5
Level of Service Criteria	B-6
Fernandina Beach/Amelia Island	B-7
Traffic Operation Analysis	B-7
1987 Analysis of Existing Deficiencies	B-7
1989 Traffic Operation Analysis	B-7
NASSAU COUNTY MAINLAND - ANALYSIS OF EXISTING DEFICIENCIES	
Purpose and Scope of Analysis	B-11
Evaluation Criteria and Scoring	B-12
Evaluation Results and Recommendations	B-13
Accident Analysis	B-14
Constrained Facilities	B-14
Bonding Program Improvement Schedule	B-19
Existing Deficiencies - Nassau County Mainland	B-21
1989 Traffic Operations Analysis	B-21
FUTURE CONDITIONS ANALYSIS	
Future Conditions Analysis -	B-24
Fernandina Beach/Amelia Island	B-24
Nassau County Mainland	B-24
Future Systems Needs and Priorities	B-24
State Improvement Projects	B-26
PORT	
Port of Fernandina	B-32

## Table of Contents

### LIST OF TABLES

Table B-1 - 1987 Volume/Capacity Analysis	B-9
Table B-1A - 1989 Volume/Capacity Analysis	B-10
Table B-2 - Reported Motor Vehicle Accidents	B-14
Table B-3 - Roadway Evaluation	B-16
Table B-4 - Roadway Bonding Program	B-20
Table B-5 - Selected Capacity Analysis, 1986	B-22
Table B-5A - Selected Capacity Analysis, 1989	B-23
Table B-6 - Volume to Capacity Ratios for 1990-2005	B-27
Table B-7 - Improvement Required for Amelia Island	B-28
Table B-8 - FDOT Five-Year Work Program	B-29
Table B-9 - Traffic Forecasts for 1990-2005	B-30
Table B-10 - Future Roadway Needs	B-31

### APPENDICES

Appendix 1- Road Classification	B-33
Appendix 2- Road Physical Characteristics	B-37
Appendix 3- 1986 Average Daily Traffic Volumes	B-41
Appendix 4- Level of Service Maximum Volumes	B-45

### FIGURES

Figure 1- Nassau Co. Traffic Circulation (Existing)	B-I
Figure 2- Nassau Co. Traffic Circulation (Future)	B-II
Figure 3- Amelia Island Existing Traffic Circulation	B-III

# NASSAU COUNTY COMPREHENSIVE PLAN

## TRAFFIC CIRCULATION ELEMENT

### INTRODUCTION

Nassau County is a predominantly rural county with developed areas concentrated along the major transportation routes, the Atlantic Ocean, and the Intracoastal Waterway. The 1990 unincorporated County population estimate is 38,550. The urbanized areas in the county are Amelia Island, which includes the City of Fernandina Beach, the incorporated towns of Hilliard and Callahan, and the unincorporated area of Yulee. They are connected by the S.R. A1A corridor and U.S. 1.

Fernandina Beach has a long and colorful history, having first been settled in 1562. The city today has a mix of land uses, including industrial, commercial, and medium density residential (both year-round and seasonal units). The thirty-block Fernandina Beach Historic District occupies much of the downtown. The paper and allied product manufacturing industry, which dominates the Nassau County economic base, is centered in Fernandina Beach. Two large pulp mills and a port are located within the city. North of Fernandina Beach along the St. Marys River is Fort Clinch State Park.

### TRANSPORTATION SYSTEM INVENTORY

#### **Roadway System Classification:**

All activities related to the total roadway network in Nassau County (activities ranging from planning through design and construction to operation and maintenance) are generally governed by a classification system used to categorize these roadways. This classification system generally used has three primary elements: jurisdiction, environment, and function. Jurisdiction simply defines the agency or governmental unit which has responsibility for construction and maintenance of the roadway; environment describes the general land use character of the land surrounding the road; and finally, function defines the traffic movement/land access function which the roadway serves. These elements of classification are displayed for each segment of the major roadway network of Nassau County in Appendix 1.

There are three agencies having jurisdictional responsibility for major roadways in Nassau County: the Florida Department of Transportation (FDOT), Nassau County through the Nassau County Road Department, and the City of Fernandina Beach. These are abbreviated in Appendix 1 for each roadway segment as State, County, or City, respectively.

Environment has been defined for the purposes of this analysis as either urban or rural. Urban areas are built-up areas where the number of businesses, houses, driveways, etc. are high. Urban areas are generally defined as places with a population greater than 5,000. Within Nassau County roadways on Amelia Island have been described as urban and all others as rural. In larger urban areas, a secondary environment descriptor (CBD, suburban, etc.) is often used. This additional level is inappropriate for use in Nassau County. Rural areas are also often additionally described by general terrain characteristics (level, hilly, mountainous). However, Nassau County, like most of Florida, would all be described as level.

The County's roadways are identified according to the FDOT Roadway Functional Classification System (as required by Chapter 9J-5, FAC). Based on this classification system, the County contains state highway system arterials and county system collectors. Further, the "State Highway System Access Management Act" creates a definition of controlled access facility for the determination of direct access to the facility as determined by the governmental entity having jurisdiction over the facility. Based on this classification system, the Existing Traffic Circulation Map, Figure 1, shows the functional classification and number of roadway lanes.

The functional classification recognizes that roadways serve two primary functions: traffic movement and property access. These two functions, however, do not compliment each other. A roadway which has many property access points and intersections with other roadways does not provide for smooth and safe traffic movement. As a result, a hierarchy of roadway functional classifications has been adopted depending on which of these two primary functions is emphasized in the design and operation of the roadway. The functional classifications used to organize Nassau County roads - principal arterials, minor arterials, collectors, and local roads - are the ones utilized by the Florida Department of Transportation.

The arterial roads, both principal and minor, are designed and maintained to serve the traffic movement function. The principal arterials provide for interstate and statewide travel, while minor arterials provide for inter-county mobility and routes between urban centers within counties. Principal arterials include all interstate system freeways and most U.S. numbered routes. Minor arterials include all state numbered routes and some county numbered routes.

Collector roadways serve a balance of both the traffic movement and land access functions. Collectors, as the name implies, collect traffic from local streets and residential, commercial, or industrial areas and channel it into the arterial roadways.

The roadways which serve the traffic movement function - principal arterials, minor arterials, and collectors - are collectively referred to as "major" roads. They carry the majority of the vehicle miles of travel within the County. All other roads are the local road network which emphasizes property access. Because local roads and streets do not serve the function of traffic movement and circulation, they are not considered in planning for traffic circulation. Therefore, Appendix 1 and the tables

which follow will include only roadway segments that make up the major roadway network.

#### **Roadway Physical Characteristics:**

A description of basic physical characteristics of each major roadway segment is summarized in Appendix 2. The description includes length of segment, number of travel lanes, median, drainage, right-of-way width, surface condition, and pavement width. The information has been prepared from field inventory. The right-of-way width was determined from Nassau County records.

#### **Roadway Operation Characteristics:**

Information summarizing 1986 traffic utilization and operation characteristics on the major roadway segments is contained in Appendix 3. The first column described the facility maximum acceptable service volume. This value was defined from a matrix of service volumes based on physical characteristics and Level of Service (LOS). The acceptable service volume shown in Appendix 3 assumed that LOS "C" was the lowest acceptable Level of Service. The 1986 Annual Average Daily Traffic (AADT) values have been provided by the District Two office of the Florida Department of Transportation.

Peak-hour factor (k) is the fraction of the AADT occurring during the highest volume one-hour period during the day. Based on average values for K, a value of 10% has been assumed for rural areas and a value of 9% for urbanized areas. Further evaluation of k values, which will take place during the existing conditions analysis phase of this effort, would confirm or change these values.

Peak-hour traffic volumes present the highest number of vehicles found to be passing over a section of a roadway during one hour. Peak-hour volumes for roadway segments were estimated from AADT volume counts. The estimated values were calculated as the product of AADT volume counts multiplied by peak-hour factor (k). This technique is considered by FDOT to be an acceptable method of peak-hour traffic volume estimation.

#### **Transit Services and Facilities:**

Mass transit services are provided in Nassau County only through special purpose or demand responsive type services. Special purpose and/or demand responsive mass transit services are provided as follows:

- Nassau County Council on Aging, Inc. Care-A-Van: Care-A-Van serves as the designated "coordinator/provider" of all social service transportation services in Nassau County, as mandated by F.S. 427. The project also provides the only form of public transportation within the County's rural area. Present subscription routes include, but are not limited to: transportation of mentally handicapped and developmentally disabled students to and from school and employment; transportation of elderly to and from nutrition sites; transportation to and from adult day care; shopper shuttles; and non-sponsored transportation disadvantaged trips.



- Taxi Service: Taxi service is available within the City of Fernandina Beach and on Amelia Island.
- Airport Limousine Service: Limousine service to/from Jacksonville International Airport is available on call.
- School Transportation: The Nassau County School District and the Fernandina Beach School District both offer school bus service.
- Resort Transit Service: Larger resort establishments on Amelia Island offer jitney services within their complexes, and van service to other local destinations for their tenants/patrons.

### **Bicycle and Pedestrian Facilities**

The use of bicycles for recreation, sport, health-fitness and transportation in the United States and Florida has increased dramatically over the past two decades. A U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Bureau of Census 1982 recreational survey indicated that population participation in bicycling has more than tripled since a similar survey in 1960, thus making bicycling one of the most popular participation sports and a significant form of transportation as well. Encouraging the use of bicycles as a transportation alternative assumes an increased modal split to bicycle use for short work commuter trips and other short trip purposes. To make this a viable alternative, the designation of street bicycle lanes and/or bicycle paths for exclusive bicycle use must be based on approved, recognized and coordinated design and location criteria.

Under the 1984 Florida Bicycle Law, bicycles and pedestrians must be given full consideration in the planning and development of local, regional, and state transportation plans and programs. Currently the Florida Department of Transportation is coordinating efforts to make bicycle use safer and a more desirable mode of travel. As part of this effort, wide curb lanes and paved shoulder additions are now being considered for application during resurfacing and reconstruction projects on state roads for maintenance cost and safety enhancement benefits, while also serving as bikeways. Application of a similar policy on selected urban collectors and arterials would result in a better bicycling environment for work and other trips.

The development of a Bikeway Improvement Policy requires a degree of pre-planning and coordination with both public and private interests. A citizen participation element should be developed, and an advisory committee formed to guide the planning process. The Florida Department of Transportation, Division of Planning, has prepared a Bicycle Facilities Planning and Design Manual to assist local governments in establishing preferred bicycle system plans. For Nassau County, there may ultimately be a variety of plans ranging from the use of uninterrupted sidewalks as bikepaths to the continued development of the Amelia Island Bicycle Trail, as areas of Amelia Island continue to be developed.

## AMELIA ISLAND - ANALYSIS OF EXISTING DEFICIENCIES

### **Framework for Existing Deficiencies Analysis:**

The density and character of existing development in Nassau County differs considerably between the Fernandina Beach/Amelia Island area and the balance of the County west of the Intracoastal Waterway. As described in previous sections, Amelia Island is very much oriented toward business, industrial, tourism, and resort activities. Compared with the rest of the County, Amelia Island is urban in character. Land use densities are higher and traffic volumes are heavier. Nassau County proper on the other hand is rural in character with very few population concentrations. The predominant land use is agriculture/silviculture and its related business activities. Population densities are generally very sparse and traffic volumes are low. The differences between the two areas call for a different approach to analysis of existing conditions in each.

The most prevalent need in Nassau County proper relates to roadway physical conditions. Traffic volumes on all roads within the County's jurisdiction in this area are very low and therefore traffic operation problems are non-existent. Physical conditions, on the other hand, pose a more immediate problem. A number of roadways which are part of the major road network, serving minor arterial or collector functions, are unpaved. In addition, some of the paved major roads have narrow pavement widths, or have pavement surfaces which are in poor condition. Therefore, the analysis of existing deficiencies in the Nassau County area concentrates on an evaluation of the most critical physical condition improvements which are needed for the major roadways under the County's jurisdiction.

Arterial and collector roadways in the Fernandina Beach/Amelia Island area are generally in good physical condition. Traffic operation conditions, on the other hand, are starting to show the effects of recent commercial and resort activity, and population growth. Although traffic operation conditions on the island are generally good today, future growth could rapidly change this situation.

### **Level of Service Criteria**

To examine the existing roadway deficiencies it is necessary to determine the Level of Service (LOS) for every road segment. Level of Service is a good summary of traffic operation conditions. The LOS of a roadway is often defined as the ability of a maximum number of vehicles to pass over a given section of roadway or through an intersection during a specified time period, while maintaining a given operating condition. The existing LOS for roadways is calculated using the ratio of "peak hourly demand volume" to "peak hourly capacity."

The standardized descriptions of service levels used in transportation planning are as follows:

1. LOS A: Highest LOS which describes primarily free-flow traffic operations at average travel speeds. Vehicles are completely unimped-

ed in their ability to maneuver within the traffic stream. Stopped delay at intersections is minimal. (A < .3)

2. LOS B: Represents reasonably unimpeded traffic flow operations at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tensions. (B < .5)
3. LOS C: Represents stable traffic flow operations. However, ability to maneuver and change lanes may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds. Motorists will experience an appreciable tension while driving. (C < .75)
4. LOS D: Borders on a range in which small increases in traffic flow may cause substantial increases in approach delay and, hence, decreases in speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combinations of these. (D < .9)
5. LOS E: This represents traffic flow characterized by significant delays and lower operating speeds. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing. (E < 1)
6. LOS F: This represents traffic flow characterized at extremely low speeds. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse signal progression is frequently a contributor to this condition.

#### **Fernandina Beach/Amelia Island:**

The purpose of this analysis is to assess the existing roadway needs within the City of Fernandina Beach and the balance of Amelia Island. The roads on Amelia Island, including the City of Fernandina Beach, are grouped and analyzed as a unit because the entire island is urban in character, and the roadway system functions as a unit. Roads located on Amelia Island include those which are the responsibilities of the Florida Department of Transportation (State Highway System), Nassau County (county roads), and the City of Fernandina Beach.

#### **Traffic Operation Analysis:**

The roadway peak hour demand volumes for base year 1987 were calculated from average daily traffic volume counts. These counts were obtained from two sources: 1) the Amelia Transportation Study prepared by Barton-Aschman Associates; and 2) the Florida Department of Transportation (FDOT) District Office.

Since the counts in the Amelia Island Study were taken in 1985, a growth rate of 6 percent has been applied to the 1985 Average Annual Daily Traffic

(AADT) to estimate the 1987 AADT. This growth factor is based on traffic growth between 1985 and 1987 at FDOT count stations on Amelia Island.

Because peak hour counts were not available, an estimation technique was used. The AADT volume counts were multiplied by a k value (ratio of design hour traffic to annual average daily traffic) and the resultant figure was used to estimate peak hourly demand. The k value of 9% for Amelia Island and 10% for the remainder of the County has been assumed for all roadways based on FDOT continuous count stations throughout the state. This technique is considered by FDOT to be an acceptable estimate of peak hour traffic volumes for planning purposes.

The roadway capacity, or maximum hourly rate at which vehicles can reasonably be expected to traverse a point of roadway during an hour under unrestricted flow and prevailing roadway and traffic conditions while maintaining a Level of Service "E", is expressed as vehicles per hour. Roadway functional classification and number of lanes have been used to select the appropriate roadway capacity. The peak hour capacities recommended by FDOT as appropriate for planning analysis of this type are illustrated below.

Once the roadway capacities are determined, the peak hourly demand volume to peak hourly capacity (V/C) ratios can be calculated. The existing LOS for the roadway segment is obtained by comparing the calculated V/C ratio to the V/C ranges adopted by FDOT indicated below.

The LOS for roadway segments are listed in Table B-1. If LOS C at peak hour is considered to be the acceptable LOS standard for all collector and arterial roadways, then the roadways operating at LOS D, E, and F are not acceptable and they need improvement.

#### **1987 Analysis Existing Deficiencies - Amelia Island:**

The LOS analysis indicates that virtually all of the major roadway segments in the City of Fernandina Beach and on Amelia Island are operating at acceptable LOS. Table B-1 presents the estimated LOS for every road segment with existing conditions. The only roadway with unacceptable LOS based on 1987 data was 14th Street from Jasmine Street to Sadler Road. It should be understood that roadway class type has a large impact on V/C ratio since the capacity is based on functional classification. For instance, if the class type for this particular roadway changes from "collector" to "arterial", the hourly maximum volume would change to a higher value. Therefore, the ratio of V/C drops to a lower value and, as a result, the roadway LOS would fall in an acceptable LOS category.

The improvement of 14th Street to a north-south arterial roadway is proposed in the Amelia Island Transportation Study. Consequently, this deficiency can be addressed in future planning proposals under the County's jurisdiction.

#### **1989 Traffic Operation Analysis:**

The roadway peak hour demand volumes for the year 1989 were calculated from average daily traffic volume counts. These counts were obtained from the Florida Department of Transportation (FDOT) District Office.

Because peak hour counts were not available, an estimation technique was used. The AADT volume counts were multiplied by a k value (ratio of design hour traffic to annual average daily traffic) and the resultant figure was used to estimate peak hourly demand. The k value of 9% for Amelia Island and 10% for the remainder of the county has been assumed for all roadways based on FDOT continuous count stations throughout the state. This technique is considered by FDOT to be an acceptable estimate of peak hour traffic volumes for planning purposes.

Measurement criteria to establish traffic circulation efficiency goals is often expressed in terms of average speed for many types of facilities, such as rural two-lane highways, arterials and others. Because of the difficulty in measuring actual average speeds, traffic flow or level of service (LOS) comparison is used to show a measure of efficiency along the roadway. Computational procedures for estimating capacities and LOS are complex due to the number of roadway characteristics affecting efficient mobility.

The capacity of a roadway is defined as the maximum number of vehicles that can be reasonably expected to pass over a given section of roadway during a given time period at a specified level of service. To determine whether or not the roadway links meet the minimum acceptable level of service, each roadway segment was analyzed by comparing the peak hour volume to the link capacity determined by the operational maximum volumes provided in the FDOT Florida's Level of Service Standards and Guidelines Manual For Planning, 1989. The peak hour link capacities, utilized to determine if a link operates below the designated level of service, and Operating Level of Service Standards for the State Highway System are identified in Appendix 4.

The LOS analysis indicates that all of the major roadway segments in the City of Fernandina Beach and on Amelia Island are operating at an acceptable LOS. Table B-1A presents the estimated LOS for every road segment with 1989 existing conditions. As in the earlier 1987 analysis, the only roadway which exhibits a potential volume to capacity deficiency is 14th Street from Jasmine Street to Sadler Road. The minimum acceptable Level of Service for peak hour, per Traffic Circulation Element Policy 2.01.01, is D for County Collectors. As depicted in Table B-1A, 14th Street operates at LOS D.

TABLE B-1  
 VOLUME/CAPACITY ANALYSIS - FERNANDINA BEACH/AMELIA ISLAND  
 NASSAU COUNTY, FLORIDA 1987

STREET	FROM	TO	FUNCT CLASS	LANES	LOS "E"	1987 EST POP	1987	1987	1987	
					URLY MAX VOL(C)	13,943	EST PEAK HR VOL	V/C RATIO	EXIST LOS	
SR A-1-A (SR 200)	INTERCOASTAL WATERWAY	AMELIA ISLAND PKWY.	H/ART	4	2,950	20,860	9	1,880	0.64	C
8th. ST. (SR A1A/200) (b)	ATLANTIC AVE. (SR A1A/200)	JASHINE STREET	H/ART	2	1,460	9,500	9	860	0.59	C
8th. ST. (SR A1A/200)	JASHINE STREET	SADLER ROAD (CR 108)	H/ART	4	2,950	15,950	9	1,440	0.19	B
ATLANTIC AVE. (b)	8th. ST. (SR A1A/200)	14th STREET	H/ART	2	1,460	7,500	9	680	0.47	B
ATLANTIC AVE.	14th STREET (CR 105A)	FLETCHER AVE. (SR A1A/105)	H/ART	2	1,460	8,635	9	780	0.53	C
FLETCHER AVE. (b)	ATLANTIC AVE. (SR A1A/200)	JASHINE STREET	H/ART	2	1,460	4,090	9	370	0.25	A
FLETCHER AVE. (b)	JASHINE STREET	SADLER ROAD (CR 108)	H/ART	2	1,460	4,150	9	370	0.25	A
FLETCHER AVE.	SADLER ROAD (CR 108)	AMELIA ISLAND PARKWAY	H/ART	2	1,460	3,035	9	270	0.18	A
FLETCHER AVE.	AMELIA ISLAND PARKWAY	AMELIA RD. (CR 105A)	H/ART	2	1,460	2,370	9	210	0.14	A
14th STREET (b)	ATLANTIC AVE. (SR A1A/200)	JASHINE STREET	CLTOR	2	1,000	7,560	9	680	0.68	C
14th STREET	JASHINE STREET	SADLER ROAD (CR 108)	CLTOR	2	1,000	11,310	9	1,020	1.02	F
AMELIA ISLAND PARKWAY (b)	SR A1A (SR 200)	14th ST. EXTENSION	CLTOR	2	1,000	3,560	9	320	0.32	B
AMELIA RD. (CR 105A)	AMELIA ISLAND PARKWAY	FLETCHER AVE. (SR A1A/105)	CLTOR	2	1,000	5,090	9	460	0.46	B
SR A1A (SR 105A) (b)	FLETCHER AVE. (SR A1A/105)	AMELIA ISLAND PKWY.	H/ART	2	1,460	9,110	9	820	0.56	C
SR A1A (SR 105A)	AMELIA ISLAND PKWY/JULIA ST.	BEACHWOOD ROAD	H/ART	2	1,460	7,210	9	650	0.45	B
SR A1A (SR 105A)	BEACHWOOD ROAD	BRIDGE ACROSS NASSAU SOUND	CLTOR	2	1,460	1,780	9	160	0.11	A
SADLER RD. (CR 108)	8th. STREET (SR A1A/200)	14th STREET	CLTOR	2	1,000	7,265	9	650	0.65	C
SADLER RD. (CR 108)	14th STREET	FLETCHER AVE. (SR A1A/105)	CLTOR	2	1,000	4,885	9	440	0.44	B
INDIGO STREET	8th. STREET (SR A1A/200)	14th STREET	CLTOR	2	1,000	NA	9			
JASHINE STREET	14th STREET	FLETCHER AVE. (SR A1A/105)	CLTOR	2	1,000	NA	9			
FRANKLIN RD.	8th. STREET (SR A1A/200)	14th STREET	CLTOR	2	1,000	NA	9			
ESCAMBIA STREET	2nd. STREET	8th. STREET	CLTOR	2	1,000	NA	9			
2nd. STREET	ESCAMBIA STREET	ATLANTIC AVE.	CLTOR	2	1,000	NA	9			
DATE ST.	8th. STREET (SR A1A/200)	14th STREET	CLTOR	2		NA	9			
CITRONA ST.	ATLANTIC AVE. (SR A1A)	JASHINE STREET	CLTOR	2	1,000	NA	9			
CITRONA ST. EXTENSION	JASHINE STREET	SADLER RD.	CLTOR	2	1,000	NA	9			
CITRONA ST. EXTENSION	SADLER RD.	SIMMONS RD.	CLTOR	2	1,000	NA	9			

SOURCE: (a) FDOT Generalized Level Of Service Maximum Volumes For Florida, 1988.  
 (b) Estimated AADT. Amelia Island Transportation Study, 1986.

TABLE B-1A

## VOLUME/CAPACITY ANALYSIS 1989 - FERNANDINA BEACH/AMELIA ISLAND

STREET	FROM	TO	FUNCT CLASS	LANES	HRLY LOS OPERATIONAL MAX VOL	1989 AADT	1989 EST PEAK HR VOL	1989 EXISTING LOS
SR A1A (SR 200)	INTERCOASTAL WATERWAY	AMELIA ISLAND PARKWAY	M/ART	4	3,350	21,204	1,908	A
8th ST. (SR A1A/200)	ATLANTIC AVE. (SR A1A/200)	JASMINE STREET	M/ART	2	1,470	9,560	860	A
8th ST. (SR A1A/200)	JASMINE STREET	SADLER ROAD (CR 108)	M/ART	4	3,350	18,074	1,447	A
ATLANTIC AVE.	8th ST (SR A1A/200)	14th STREET	M/ART	2	1,470	7,268	654	A
ATLANTIC AVE.	14th STREET (CR 105A)	FLETCHER AVE. (SR A1A/105)	M/ART	2	1,470	6,814	613	A
FLETCHER AVE.	DOLPHIN STREET	ATLANTIC AVE.	M/ART	2	1,580	2,401	216	A
FLETCHER AVE.	ATLANTIC AVE. (SR A1A/200)	JASMINE STREET	M/ART	2	1,580	3,286	296	A
FLETCHER AVE.	JASMINE STREET	SADLER ROAD (CR 108)	M/ART	2	1,580	3,517	317	A
FLETCHER AVE.	SADLER ROAD (CR 108)	AMELIA ISLAND PARKWAY	M/ART	2	1,580	2,713	244	A
FLETCHER AVE.	AMELIA ISLAND PARKWAY	AMELIA ROAD (CR 105A)	M/ART	2	1,580	2,418	218	A
14th STREET	FRANKLIN STREET	ATLANTIC AVE.	CLTOR	2	1,110	4,424	300	C
14th STREET	ATLANTIC AVE. (SR A1A/200)	JASMINE STREET	CLTOR	2	1,110	6,672	600	C
14th STREET	JASMINE STREET	SADLER ROAD (CR 108)	CLTOR	2	1,110	9,932	894	D
AMELIA ROAD (CR 105A)	AMELIA ISLAND PARKWAY	FLETCHER AVE. (SR A1A/105)	CLTOR	2	1,110	5,545	499	C
SR A1A (SR 105A)	AMELIA ISLAND PKWY/JULIA ST.	BEACHWOOD ROAD	M/ART	2	1,580	6,473	583	A
SR A1A (SR 105A)	BEACHWOOD ROAD	BDG. ACROSS NASSAU SOUND	CLTOR	2	1,110	1,317	119	C
SADLER ROAD (CR 108)	8th ST. (SR A1A/200)	14th STREET	CLTOR	2	1,110	7,661	689	C
SADLER ROAD (CR 108)	14th STREET	FLETCHER AVE. (SR A1A/105)	CLTOR	2	1,110	5,194	467	C

SOURCE: FDOT FLORIDA'S LEVEL OF SERVICE STANDARDS AND GUIDELINES MANUAL FOR PLANNING, 1989.  
NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL, 1989.

## NASSAU COUNTY MAINLAND - ANALYSIS OF EXISTING DEFICIENCIES

### **Purpose and Scope of Analysis:**

The Nassau County citizens have approved an additional optional gasoline tax to provide for roadway improvements. A roadway improvement bond issue has been authorized, supported by the optional gas tax, as a means to provide immediate funds for roadway improvements. The primary purpose of this analysis is to assess the existing roadway needs within Nassau County, and provide a proposed schedule of improvements appropriate for utilization of the bond proceeds.

The information which follows outlines the methods and evaluation criteria used to develop a priority list of roadway improvement needs within the County. The method emphasizes roadways which have an important function within the overall roadway network which serve the residential and employment centers throughout the County, and which are most physically deficient. This analysis is intended to create a proposed ranking of project needs from which the most important projects can be selected for implementation. The resulting priority list is not intended to be a rigid list of improvements which must be constructed in the recommended sequence. Many factors which have not been taken into consideration in this analysis can and will have a bearing on the actual roadway segments selected for improvement under the bonding program.

The purpose of this analysis is to establish a list of road improvements which the County will construct. Therefore, only roadways which are under the County's jurisdiction (ownership and maintenance responsibility) have been considered in this analysis. Additionally, two other criteria were used to limit the road segments which would be considered for this analysis:

1. All roadways classified as collector or higher were included for analysis. This criterion was established after discussion with County staff for the purpose of putting emphasis on those roadways which served higher traffic movement function. Provision has been made to include local roads in the evaluation scheme, if desired. However, local roads will receive a lower score for functional classification than either collectors or arterials.
2. County roadways on Amelia Island have not been included in this analysis.

Therefore, the universe of roadway segments analyzed for existing needs includes all County roadways classified as collector or arterial, west of the Intracoastal Waterway.



## Evaluation Criteria and Scoring:

Five different evaluation criteria have been analyzed to determine the relative need for improvements on any roadway segment. These criteria are:

- o Functional Classification
- o Pavement Width
- o Pavement Surface Conditions
- o Right-of-Way Width
- o Land Use Access

A more thorough description of each criteria and the scoring used with each follows. The roadway segments defined for analysis are displayed in Table B-3. Segments are generally defined as links between major intersections. However, a major change in some road characteristic can result in the link being broken into two or more segments. The link of the middle road between CR 115 and Kings Ferry Road, for example, has been divided into two segments because it changes from a paved roadway to a graded roadway.

Functional classification of the roadway has been used as evaluation criteria because roads which serve a higher transportation function should receive a higher score. In this way, if all other conditions are equal, the roadway segment with the higher functional classification will receive the higher ranking than one with a lower classification. Arterial roadways, both primary arterials and minor arterials, are scored with three points, collector roadways are scored with two points, and local roadways are scored with one point. The roadway segments evaluated in this analysis are all described previously. Local roads have not been evaluated in this analysis, although they could be ranked by the same methodology. All the roadways which are classified as principle arterials or minor arterials within Nassau County are under the jurisdictional responsibility of the Florida Department of Transportation and, therefore, are not included in this analysis.

The existing pavement width in all roadway segments has been gathered by means of field observation and measurement. The pavement width, shown to the nearest foot, generally represents the average conditions over the entire roadway segment. Pavement width is the actual paved travel surface or, in the case of graded roadways, is the approximate graded width. Roadways with very narrow pavement width, 18 ft. or less, have been scored with three points. Roadways with only slightly substandard width, between 18 ft. and 22 ft., have been scored with two points. Roadways greater than 23 ft. in width have been scored with one point.

Pavement surface conditions have been evaluated by observation and subjective judgment of surface and subsurface conditions. The judgment was based on the amount of patchwork, rutting, cracking, and rough surface conditions. Roadways with poor pavement conditions were rated as paved, paved-poor, and scored with two points. Roadways with good pavement conditions were scored with one point. Graded roadways are so indicated and are scored with three points, resulting in the highest need for improvement. Surface condition was considered to be the most important of the evaluation

criteria and, therefore, was weighted at twice the value of the other criteria.

Existing right-of-way width for each roadway segment is as indicated on Table B-3. These values have been gathered by means of review of the County Assessor's maps and field measurement and observation. Right-of-way has been used as an evaluation criteria to allow for a higher scoring of roadways with wider rights-of-way. This will result in road segments with no right-of-way constraints receiving a higher overall score and, therefore, a higher ranking or early construction or improvement. Roadways with right-of-way width greater than 60 ft. have been scored with three points, exactly 60 ft. with two points, and less than 60 ft. with one point.

Land use access has been used as an evaluation criteria to allow for roadway segments which serve more important land uses, such as industrial centers and commercial centers, to receive a higher score and, therefore, ranking for improvement. Roadways which serve these more important land uses would receive a higher rating for improvement if all other conditions are equal. Roadway segments which serve industrial and commercial centers receive a score of three points, those which serve residential subdivisions or neighborhoods receive a score of two points, and those which serve agricultural and forested areas receive a score of one point.

#### **Evaluation Results and Recommendations:**

The evaluation and scoring of each roadway segment are summarized in Table B-3. All evaluation criteria, with the exception of pavement surface condition, have received an equal weighting. Pavement surface condition has been weighted twice that of all the other evaluation criteria because it is considered to be the single most important determinant of need in this analysis. A total rating of need for each roadway segment has been calculated by summing for all criteria, the product of the score times the weight of each criterion. This rating indicates the relative need for improvement on any one segment in relation to all the other segments.

## Accident Analysis

Accident data can often be used as a measure of traffic operations performance in that accident location data can often show spot problems while accident rates can be useful in evaluating overall highway system performance. Safety measurement criteria are often expressed in terms of accident and fatality reduction per intersection or per segment of roadway; safety goals may also be measured in terms of reducing accidents and fatalities in relation to traffic volumes or vehicle miles of travel.

Table B-2 depicts traffic accident rates and general accident location for the Nassau County roadway system.

TABLE B-2  
REPORTED MOTOR VEHICLE ACCIDENTS

YEAR	ACCIDENTS TOTAL	ACCIDENTS Rural	ACCIDENTS Urban	#FATAL AC'TS	% of TOT	PER'S KILL'D	PER'S INJR'D	DEATH RATE
1987	722	588	134	11	1.5	12	626	NA
1986	667	552	115	12	1.8	12	545	3.4
1985	640	510	130	12	1.9	13	550	3.5
1984	570	422	148	12	2.1	12	483	3.3
1983	NA	NA	NA	NA	NA	NA	NA	NA
1982	772	584	188	9	1.2	11	433	3.4
1981	724	537	187	11	1.5	12	413	4.0
1980	633	450	183	10	1.6	13	319	4.2
1979	660	459	201	11	1.7	16	338	5.0

SOURCE: Department of Highway Safety & Motor Vehicles, Florida Traffic Accident Facts.  
Northeast Florida Regional Planning Council, 1990.

Between 1979 and 1987, there was a 9 percent overall increase in accidents investigated and reported in Nassau County. Nassau County has an average mileage death rate for the period of 3.8 fatalities per 100 million vehicle miles of travel. This figure is 0.5 higher than the 3.3 mileage death rate for the State of Florida. However, the average mileage death rate as a safety measurement goal indicates reduction from 5.0 in 1979 to 3.4 in 1987.

While accident data can often be used as a measure of traffic operations performance, additional detail must be added to the accident analysis, because accidents may have more than one contributing cause. Without additional locational information and accident detail it is difficult to use Reported Motor Vehicle Accidents as a measurement for roadway deficiencies.

### Constrained Facilities

The Florida Highway System Plan defines a constrained facility as "a roadway, regardless of transportation needs, which is constrained from adding at least two additional through lanes." The FDOT identifies that construc-

tion constrained facilities may be designated as such based on physical barriers or policy barriers. Physical barriers or constraints primarily occur "when intensive land use development is immediately adjacent to highways making roadway expansion cost prohibitive, or a facility has reached the Maximum Through Lane Standards acceptable to the Department." Policy barriers or constraints "are artificial barriers to roadway expansions based on environmental or political realities within a community. Unlike physical constraints, however, these barriers to roadway expansion can change over time, as needs and community goals change."

Several roadway segments in Nassau County have been identified as having physical barriers which constrain the facility from being expanded. However, none are located in unincorporated Nassau County and, therefore, no constrained facilities are identified in this Plan. The issue of constrained facilities shall be revisited by the County Commission as necessary, with the Plan amended to indicate the roadways which may be classified as constrained in the future, based on traffic projections and policy decision-making. In no circumstance shall a roadway on the State Highway system be classified as constrained unless such a designation has received approval by FDOT.

TABLE B-3  
 NASSAU COUNTY  
 ROAD EVALUATION  
 GRADED ROADS

ROADWAY	SEGMENT LIMITS		PUNCTUAL CLASS. WEIGHT = 1	PAVEMENT WIDTH SURFACE COND.			R/W WIDTH		LAND USE WEIGHT = 1	RATING			
	FROM	TO		WEIGHT = 1	WEIGHT = 2	WEIGHT = 1	WEIGHT = 1						
C.R.121	C.R.108	C.R.115	COLLECTOR	2	24	3	GRADED	3	50	3	RURAL	1	15
ROWE CUTOFF	C.R.121	C.R.108	COLLECTOR	2	24	3	GRADED	3		3	RURAL	1	15
CRAWFORD RD.	C.R.121	U.S.301/S.R.200	COLLECTOR	2	24	3	GRADED	3		3	RURAL	1	15
CRAWFORD RD.	U.S.301/S.R.200	RATLIFF RD.	COLLECTOR	2	24	3	GRADED	3	30-60	3	RURAL	1	15
KING'S FERRY RD.	E.O.P.	C.R.115A	COLLECTOR	2	24	3	GRADED	3	60	2	RURAL	1	14
HORSESHOE CIRCLE	E.O.P.	C.R.121	COLLECTOR	2	24	2	GRADED	3	40	3	RURAL	1	14
THOMAS CREEK DR.	RATLIFF RD.	DUVAL COUNTY LINE	COLLECTOR	2	24	3	GRADED	3	60	2	RURAL	1	14
TOMMY FORD RD.	U.S.301/S.R.200	E.O.P.	COLLECTOR	2	24	3	GRADED	3		1	RURAL	1	13
LESSIE RD.	C.R.108	MIDDLE RD.	COLLECTOR	2	24	1	GRADED	3	50	3	RURAL	1	13
MURRHEE RD.	E.O.P.	KING'S FERRY RD.	COLLECTOR	2	24	1	GRADED	3	50	3	RURAL	1	13
OWENS CUTOFF	C.R.108	U.S.17/S.R.5	COLLECTOR	2	24	1	GRADED	3		3	RURAL	1	13
RATLIFF RD.	CRAWFORD RD.	E.O.P.	COLLECTOR	2	24	3	GRADED	3	80	1	RURAL	1	13
GRIFFIN RD.	S.R.11A/200	E.O.P.	COLLECTOR	2	19	2	GRADED	3	60	2	RURAL	1	13
MIDDLE RD.	C.R.108	MUSSEL WHITE RD.	COLLECTOR	2	24	1	GRADED	3	50	3	RURAL	1	13
MIDDLE RD.	E.O.P.	C.R.115A	COLLECTOR	2	24	1	GRADED	3	66-100	1	RURAL	1	11

TABLE B- 3  
 NASSAU COUNTY  
 ROAD EVALUATION  
 PAVED ROADS

ROADWAY	SEGMENT LIMITS		FUNCTIONAL CLASS. WEIGHT = 1	PAVEMENT WIDTH		SURFACE COND.		R/W WIDTH		LAND USE		RATING	
	FROM	TO		WEIGHT = 1	WEIGHT = 2	WEIGHT = 1	WEIGHT = 2	WEIGHT = 1	WEIGHT = 1				
C.R.121A/MIDDLE RD.	C.R.108	E.O.P.	COLLECTOR	2	18	3	PAVED	2	100	1	RURAL	1	11
BLACKROCK RD. (C.R.107)	S.R.A1A/200	CHESTER RD.	COLLECTOR	2	18	3	PAVED	2	100	1	RURAL	1	11
C.R.107A	S.R.107	E.O.P.	COLLECTOR	2	18	3	PAVED	1		2	RURAL	2	11
CHESTER RD. (C.R. 200A)	S.R.A1A/200	C.R.200A	COLLECTOR	2	18	3	PAVED	2	100	1	RURAL	1	11
BARNWELL RD.	S.R.A1A/200	E.O.P.	COLLECTOR	2	20	2	PAVED	2	60	2	RURAL	1	11
C.R.107	S.R.107	E.O.P.	COLLECTOR	2	18	3	PAVED	1		2	RURAL	2	11
HARTS RD.	U.S.17/S.R.5	HADDOCK RD.	COLLECTOR	2	24	1	PAVED	2		2	RURAL	2	11
C.R.200A	U.S.17/S.R.5	CHESTER RD.	COLLECTOR	2	18	3	PAVED	2	100	1	RURAL	1	11
MURREE RD.	U.S.1/U.S.23/S.R.15	E.O.P.	COLLECTOR	2	20	2	PAVED	2	80	1	RURAL	1	10
C.R.108	C.R.115	U.S.1/U.S.23/S.R.15	COLLECTOR	2	20	2	PAVED	1	60	2	RURAL	2	10
CHESTER RD.	GREEN PINE CEMETERY RD.	C.R.107	COLLECTOR	2	20	2	PAVED	2	66	1	RURAL	1	10
EASTWOOD RD.	U.S.1/U.S.23/S.R.15	C.R.108	COLLECTOR	2	20	2	PAVED	2	66	1	RURAL	1	10
C.R.15A	U.S.1/U.S.23/S.R.15	U.S.301/S.R.200	COLLECTOR	2	18	1	PAVED	1	50	3	RURAL	2	10
C.R.108	C.R.121A/MIDDLE RD.	OWENS CUTOFF	COLLECTOR	2	20	2	PAVED	2	100	1	RURAL	1	10
C.R.108	OWENS CUTOFF	1-95/S.R. 9	COLLECTOR	2	20	2	PAVED	2	100	1	RURAL	1	10
CHESTER RD.	C.R.200A	GREEN PINE CEMETERY RD.	COLLECTOR	2	20	2	PAVED	2	66	1	RURAL	1	10
GRIFFIN RD.	E.O.P.	MIDDLE RD.	COLLECTOR	2	24	1	PAVED	2	60	2	RURAL	1	10
C.R.108	EASTWOOD RD.	C.R.121A/MIDDLE RD.	COLLECTOR	2	20	2	PAVED	2	66-100	1	RURAL	1	10
HADDOCK RD.	HARTS RD.	MINER RD.	COLLECTOR	2	20	2	PAVED	1	60	2	RURAL	2	10
MINER RD.	HADDOCK RD.	S.R.A1A/200	COLLECTOR	2	20	2	PAVED	1	60	2	RURAL	2	10
C.R.108	1-95/S.R. 9	U.S.17/S.R.5	COLLECTOR	2	18	3	PAVED	1	80	1	RURAL	1	9
HENRY SMITH EXTENSION	U.S.1/U.S.23/S.R.15	C.R.108	COLLECTOR	2	18	1	PAVED	2	80	1	RURAL	1	9
CHURCH RD.	U.S.1/U.S.23/S.R.15	S.R.115	COLLECTOR	2	20	2	PAVED	1	60	2	RURAL	1	9
HORSESHOE CIRCLE	C.R.121	E.O.P.	COLLECTOR	2	20	2	PAVED	1	60	2	RURAL	1	9
RATLIFF RD.	E.O.P.	U.S.1/U.S.23/S.R.15	COLLECTOR	2	20	3	PAVED	1	66-80	1	RURAL	1	9
C.R.108	U.S.1/U.S.23/S.R.15	EASTWOOD RD.	COLLECTOR	2	18	1	PAVED	1	66	1	RURAL	3	9
C.R.2	GEORGIA STATE LINE	C.R.121	COLLECTOR	2	24	3	PAVED	1		1	RURAL	1	9
GREEN PINE CEMETERY RD.	C.R.107	CHESTER RD.	COLLECTOR	2	20	2	PAVED	1	60	2	RURAL	1	9
C.R.121	C.R.2	C.R.108	COLLECTOR	2	20	2	PAVED	1	100	1	RURAL	1	8
MUSSEL WHITE RD.	U.S.1/U.S.23/S.R.15	MIDDLE RD.	COLLECTOR	2	20	2	PAVED	1		1	RURAL	1	8
C.R.121	C.R.119	C.R.2	COLLECTOR	2	20	2	PAVED	1	100	1	RURAL	1	8

TABLE B-3  
 MASSAU COUNTY  
 ROAD EVALUATION  
 PAVED ROADS

ROADWAY	SEGMENT LIMITS		FUNCTIONAL CLASS. WEIGHT = 1	PAYEMENT WIDTH SURFACE COND.			R/W WIDTH		LAND USE		RATING		
	FROM	TO		WEIGHT = 1	WEIGHT = 2	WEIGHT = 1	WEIGHT = 1	WEIGHT = 1					
C.R.115	C.R.108	C.R.121	COLLECTOR	2	20	2	PAVED	1	100	1	RURAL	1	8
C.R.115A	C.R.108	MIDDLE RD.	COLLECTOR	2	20	2	PAVED	1	100	1	RURAL	1	8
C.R.121	C.R.115	U.S.1/U.S.23/S.R.15	COLLECTOR	2	20	2	PAVED	1	100	1	RURAL	1	8
C.R.119	C.R.121	U.S.301/S.R.200	COLLECTOR	2	18	2	PAVED	1	100	1	RURAL	1	8
KING'S PERRY RD.	U.S.1/U.S.23/S.R.15	E.O.P.	COLLECTOR	2	20	2	PAVED	1	80	1	RURAL	1	8
C.R.121	DUVAL COUNTY LINE	C.R.119	COLLECTOR	2	20	2	PAVED	1	100	1	RURAL	1	8
C.R.119	U.S.301/S.R.200	DUVAL COUNTY LINE	COLLECTOR	2	18	2	PAVED	1		1	RURAL	1	8
TOMMY FORD RD.	E.O.P.	DUVAL COUNTY LINE	COLLECTOR	2	20	2	PAVED	1	80	1	RURAL	1	8
C.R.108	C.R.121	C.R.115	COLLECTOR	2	18	1	PAVED	1	100	1	RURAL	1	7
C.R.108	U.S.1/U.S.23/S.R.15	C.R.121	COLLECTOR	2	18	1	PAVED	1	100	1	RURAL	1	7
C.R.115	U.S.1/U.S.23/S.R.15	HENRY SMITH EXTENSION	COLLECTOR	2	18	1	PAVED	1	80	1	RURAL	1	7

The roadway segments have been ranked by their total rating score and organized into two broad groups. The first broad group, which shows the highest need for improvement, includes all roadways which are currently graded. Within this group, roadway segments with wider surface width and wider right-of-way width generally receive a higher ranking. The second broad group of roadway segments includes all paved segments. Within this group, roadways with narrower pavement width, wider right-of-way which provide access to more important land uses receive a higher overall rating.

It is recommended that funds from the bonding program be directed to the first group of roadway segments. Nassau County will then have a completed network of paved major roadways, if the funding is sufficient to pave all these segments. A network of paved major (arterial and collector) roadways is an important objective which will aid overall transportation operations. This objective should be achieved before bonding funds are diverted to resurfacing already paved major road segments or any segments classified as local roads. It may not be desirable, however, to pave the two roadway segments with less than 60 ft. of right-of-way if sufficient additional right-of-way cannot be purchased at a reasonable cost. This is especially true of Horseshoe Circle which provides only a marginal network function.

Roadway segments in the second group should be improved only if bond funds remain after completion of the first group. As indicated by the ranking, roadways with narrow pavement width and poor surface conditions should receive the higher priority for improvement. If funds do remain for improvement of some roadways within the second group, it may be prudent to evaluate the relative need for improvements on some local roadways which serve important land use access functions in lieu of roadways within this group.

#### **Bonding Program Improvement Schedule:**

The completion of a paved major (arterial and collector) roadway network is the most important existing roadway improvement need in Nassau County. This effort will require the construction of paved roadways along approximately 45 miles of existing graded collector roadways.

A ranking of roadway segments based on their scores in five evaluation criteria indicates that the graded collector roads as a group show the highest need for improvement. The evaluation criteria include functional jurisdiction, pavement width, pavement surface condition, right-of-way width, and land use access. It is recommended that the roadway bond funds be used to complete paving on all segments within this group.

An economical typical cross-section providing for 24 ft. of pavement, 4 ft. sod shoulders, if possible, and gentle swales on each side of the roadway should be utilized in the paving program. The cost for this roadway construction should be approximately \$225,000 per mile in 1987 dollars. Considering design fees, soils work, and surveying work, the bond proceeds of \$10 million should be sufficient to construct approximately 35 to 40 miles of roadway. The roadway Bonding Improvements are listed in Table B-4.



**TABLE B-4  
NASSAU COUNTY  
ROADWAY BONDING PROGRAM IMPROVEMENTS**

<b>Roadway</b>	<b>Segment Limits</b>	<b>Length</b>
Lessie Road	CR 108-Middle Rd.	8.0
Crawford/Ratliff Rd.	U.S. 301-Duval Co. Line	5.4
Freddie Geiger Rd.	CR 108 - CR 115	4.3
Crawford Rd. (West)	U.S. 301 to RR Tracks	1.0
Middle/Haddock Rd.	Middle Rd.-C.R. 115A	5.5
Middle/Griffin Rd.	CR 108 - Griffin Rd.	6.3
Tommy Ford Rd.	Tommy Ford Rd.-Duval Co. Line	2.0
Bismark/Craig Marsh Rd.	Hodges Rd. - SR 115	1.8
Sandy Ford Rd.	U.S. 301 West	1.0
Murrhee Road	Conner Rd.-Hampton Lake Rd.	1.6
Hampton Lake Rd.	Hampton Lake-Murrhee Rd.	2.1
Sadler Rd.	8th St. to Fletcher Rd.	1.3
14th Street	Sadler Rd. to Atlantic Ave.	2.0
S.R. 107	S.R. A1A/200 to Santa Juana Dr	3.5

Source: Nassau County Engineer, January, 1991.

**1986 Existing Deficiencies - Nassau County Mainland:**

The existing LOS analysis indicates that all of the major roadway segments are operating satisfactorily, except A1A/SR 200, from about CR 107 to the Fernandina Beach City Limits, which is at LOS "D." Table B-5 presents the estimated LOS for every road segment with existing conditions for which traffic counts were available.

**1989 Traffic Operations Analysis - Nassau County Mainland:**

The LOS analysis using 1989 data indicates that all of the major roadway segments are operating satisfactorily. As in the previous 1986 analysis, A1A/SR 200, from about CR 107 to the Fernandina Beach City Limits, which operates at an acceptable LOS "C". While this segment of roadway may exhibit the potential for dropping to a "D" level of service, one must note that since the road actually is classified in the state system as a minor arterial, the minimum acceptable operating level of service standard is "D". Table B-5A presents the estimated LOS for every road segment with 1989 existing conditions for which traffic counts were available.

TABLE B-5  
CAPACITY ANALYSIS-SELECTED HIGHWAY SEGMENTS  
NASSAU COUNTY, FLORIDA 1986

ROADWAY	FROM	TO	ENVIRONMENT	CLASS	LANES	ROWY CPCTY LOS "B"	AADT'86	K[%]	EST PEAK HR VOL	HRLY LOS MAX VOL	V/C RATIO	EXIS LOS	
US 17	DOT	DUVAL C/L	SR A1A	RURAL	P/ART	2	16,100	8,180	10%	818	1,610	0.51	C
US 17	DOT	SR A1A	CR 108	RURAL	P/ART	2	16,100	5,110	10%	511	1,610	0.32	B
US 17	DOT	CR 108	GA. S/L	RURAL	P/ART	2	16,100	2,340	10%	234	1,610	0.15	A
US 1	DOT	DUVAL C/L	SR 200/A1A	RURAL	P/ART	4	24,000	11,180	10%	1,118	2,400	0.47	B
US 1	DOT	SR 200/A1A	CR 115	RURAL	P/ART	4	24,000	14,950	10%	1,495	2,400	0.62	C
US 1	DOT	CR 115	CR 108	RURAL	P/ART	4	24,000	9,900	10%	990	2,400	0.41	B
US 1	DOT	CR 108	GA. S/L	RURAL	P/ART	4	24,000	8,150	10%	815	2,400	0.34	B
US 301	DOT	DUVAL C/L	CR 119	RURAL	P/ART	2	16,100	3,905	10%	391	1,610	0.24	A
US 301	DOT	CR 2	SR 15	RURAL	P/ART	2	16,100	4,450	10%	445	1,610	0.28	A
SR 200	DOT	SR 15	SR 9	RURAL	M/ART	2	16,100	5,730	10%	573	1,610	0.36	B
SR 200	DOT	SR 9	SR 5	RURAL	M/ART	4	24,000	7,930	10%	793	2,400	0.33	B
SR 200	DOT	SR 5	CR 107	RURAL	M/ART	4	24,000	15,230	10%	1,523	2,400	0.63	C
SR 200	DOT	CR 107	FBCH/L	RURAL	M/ART	4	24,000	18,290	10%	1,829	2,400	0.76	D
SR 115	DOT	DUVAL C/L	SR 15	RURAL	M/ART	2	16,100	4,275	10%	428	1,610	0.27	A
I-95	DOT	SR A1A	CR 108	RURAL	P/ART	4	52,100	29,300	10%	2,930	5,210	0.56	C
I-95	DOT	CR 108	GA. S/L	RURAL	P/ART	4	52,100	28,360	10%	2,836	5,210	0.54	C
CR 2	CTY	GA. S/L	CR 121	RURAL	CLTOR	2	10,000	1,160	10%	116	1,000	0.12	A
CR 108	CTY	CR 121	SR 200	RURAL	CLTOR	2	10,000	2,465	10%	247	1,000	0.25	A
CR 108	CTY	CR 121	CR 115	RURAL	CLTOR	2	10,000	980	10%	98	1,000	0.10	A
CR 108	CTY	CR 115	SR 15	RURAL	CLTOR	2	10,000	1,720	10%	172	1,000	0.17	A
CR 108	CTY	SR 15	CR 115A	RURAL	CLTOR	2	10,000	1,310	10%	131	1,000	0.13	A
CHESTER	RDCTY	SR 200	N. OLD CHS.	RURAL	CLTOR	2	10,000	2,700	10%	270	1,000	0.27	A
CR 115	CTY	CR 121	CR 108	RURAL	CLTOR	2	10,000	805	10%	81	1,000	0.08	A
CR 115	CTY	CR 108	CR 121 A	RURAL	CLTOR	2	10,000	1,005	10%	101	1,000	0.10	A

AADT=ANNUAL AVERAGE DAILY TRAFFIC  
K=PERCENT OF AADT OCCURRING DURING PEAK HOUR  
V/C=VOLUME TO CAPACITY RATIO  
LOS=LEVEL OF SERVICE BASED ON V/C

P/ART=PRINCIPAL ARTERIAL  
M/ART=MINOR ARTERIAL  
CLTOR=COLLECTOR

TABLE B-5A  
CAPACITY ANALYSIS - SELECTED HIGHWAY SEGMENTS  
NASSAU COUNTY, FLORIDA 1989

ROADWAY	FROM	TO	ENVIRONMENT	CLASS	LANES	DAILY LOS		1989 EST PEAK HR VOL	1989 HR LOS OPERAT'AL MAX VOL	1989 EXISTING LOS
						OPERAT'	1989 AADT			
US 17 DOT	DUVAL C/L	SR A1A	RURAL	P/ART	2	9,400	8,842	884	960	C
US 17 DOT	SR A1A	CR 108	RURAL	P/ART	2	9,400	5,603	560	960	B
US 17 DOT	CR 108	GA. S/L	RURAL	P/ART	2	9,400	2,089	209	960	A
US 1 DOT	DUVAL C/L	SR 200/A1A	RURAL	P/ART	4	26,400	11,858	1,186	2,690	C
US 1 DOT	SR 200/A1A	CR 115	RURAL	P/ART	4	26,400	12,916	1,292	2,690	C
US 1 DOT	CR 115	CR108	RURAL	P/ART	4	26,400	9,144	914	2,690	C
US 1 DOT	CR 108	GA. S/L	RURAL	P/ART	4	26,400	8,482	848	2,690	C
US 301 DOT	DUVAL C/L	CR 119	RURAL	P/ART	2	7,500	5,123	512	760	C
US 301 DOT	CR 2	SR 15	RURAL	P/ART	2	7,500	4,317	432	760	C
SR 200 DOT	SR 15	SR 9	RURAL	M/ART	2	11,300	6,425	643	1,150	B
SR 200 DOT	SR 9	SR 5	RURAL	M/ART	4	28,800	9,673	967	2,940	C
SR 200 DOT	SR 5	CR 107	RURAL	M/ART	4	28,800	18,976	1,898	2,940	C
SR 200 DOT	CR 107	FBCH/L	RURAL	M/ART	4	28,800	21,204	2,120	2,940	C
SR 115 DOT	DUVAL C/L	SR 15	RURAL	M/ART	2	11,300	4,661	466	1,150	C
I-95 DOT	SR A1A	CR 108	RURAL	P/ART	4	37,600	30,449	3,045	4,920	B
I-95 DOT	CR 108	GA. S/L	RURAL	P/ART	4	37,600	NA	NA	4,920	NA
CR 2 CTY	GA. S/L	CR 121	RURAL	CLTOR	2	9,500	1,326	133	970	C
CR 108 CTY	CR 121	SR 200	RURAL	CLTOR	2	9,500	3,090	309	970	C
CR 108 CTY	CR 121	CR 115	RURAL	CLTOR	2	9,500	1,486	149	970	C
CR 108 CTY	SR 15	CR 121A	RURAL	CLTOR	2	9,500	1,438	144	970	C
CR 115 DOT	CR 121	CR 108	RURAL	CLTOR	2	9,500	1,019	102	970	C
CR 115A DOT	CR 108	CR 121	RURAL	CLTOR	2	9,500	924	92	970	C

AADT=ANNUAL AVERAGE DAILY TRAFFIC  
K=10% OF AADT OCCURRING DURING PEAK HOUR  
LOS=LEVEL OF SERVICE BASED ON MINIMUM OPERATING STANDARDS

P/ART=PRINCIPAL ARTERIAL  
M/ART=MINOR ARTERIAL  
CLTOR=COLLECTOR

SOURCE: FDOT FLORIDA'S LEVEL OF SERVICE STANDARDS AND GUIDELINES MANUAL FOR PLANNING, 1989.  
NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL, 1990.

## FUTURE CONDITIONS ANALYSIS

### **Future Conditions Analysis - Fernandina Beach/Amelia Island:**

Volume to capacity (V/C) ratios for the roads on which traffic counts were available are shown on Table B-6. Estimates for 1990, 1995, 2000, and 2005 were calculated at the same rate of growth as the population projections which were based on the University of Florida growth rates. Once this was accomplished, the volume to capacity ratios and forecasted levels of service were also extrapolated.

Assuming no improvements and maintaining an LOS "E" on Amelia Island, improvements required by target years are as indicated in Table B-7 - Improvements Required for Amelia Island.

The bulk of the improvements required, based on the volume to capacity ratios and LOS, are on FDOT roads. The County will, however, need to consider the 14th Street widening and addition of turn lanes; and the Sadler Road widening.

### **Future Conditions Analysis - Nassau County Mainland:**

Traffic projections for the roads on which traffic counts were available are summarized in Table B-8, and shown in detail in Appendix 6. Estimates for 1990, 1995, 2000, and 2005 were calculated at the same rate of growth as the population projections which were based on the University of Florida growth rates. Once this was accomplished the volume to capacity ratios and forecasted levels of service were also extrapolated.

There are no long-range improvements envisioned for any County roads on the mainland necessitated by increased traffic.

### Future System Needs and Priorities

Because the facility capacities used for level of service analysis are generalized estimates, the system performance summarized for the Traffic Circulation Element provide a level of accuracy adequate for planning purposes. If a location is tentatively identified as deficient it should be subjected to further study before capital funds are committed to its improvement.

### **Planning Period 1991 - 1995**

Given a policy of maintaining a level of service C for principal arterials and D for minor arterials, the analysis indicated that adequate capacity exists for most primary and secondary facilities in the unincorporated areas of Nassau County. However, present congestion experienced in and around the urban service area of Fernandina Beach will get worse unless improvements are implemented in a timely manner to the potentially deficient facility segment S.R. 200 from C.R. 107 to Fernandina Beach identified under existing conditions.

Given a policy of maintaining a principal arterial level of service C and based upon projected traffic volumes, the roadway segment on SR 5 (US 17) from the Duval County line to A1A/SR 200 is projected to experience capacity deficiencies in the 1995 planning period. Recognizing the need to sustain a reasonable local government system, if and when this principal arterial segment functions below the acceptable level of service (C), the County shall cooperate with the FDOT in identifying programmed improvements or designation as a constrained/backlogged facility.

S.R. 200/A1A from S.R. 15 to S.R. 9, classified as a minor arterial, will be operating at a LOS D, which is the minimum acceptable operating standard pursuant to the policies in this plan and minimum standards contained in the FDOT State Highway System Plan.

Given a policy of maintaining a principal arterial level of service C and based upon projected traffic volumes, the roadway segments of I-95 from the Duval County line to the Georgia State line will experience capacity deficiencies by the year 1995. It should be noted, that the designated roadway LOS environment(urban/rural) has a large impact on the capacity. Based on the projected 1995 population estimate, the roadway environment designation could be changed from rural to the Urbanized Group 2 category providing for a LOS C maximum volume of 47,100. A change in environment would cause the roadway to fall into an acceptable LOS category.

#### Planning Period 1996- 2005

Tables B-6 and B-9 identify those roadway segments derived from the LOS evaluation of 1995 thru 2005 conditions and resulting capacity deficiencies based upon 1986 growth factors. It is important to note that the strict use of annual growth rates in predicting future traffic volumes on the roadways beyond the base year 1987 assumes that what has happened in the immediate past will continue at the same rate indefinitely into the future. For several reasons this assumption is unreasonable:

- \* the transportation-land use cycle modifies accessibility of an area; this in turn, leads to land use intensity changes, alternative travel patterns, and varying capacities;
- \* significant new travel patterns emerge because of the availability of alternative trip satisfactions; and
- \* geometric time series extrapolation requires a growth increment decline ratio or dampening factor to provide asymmetric control to the numeric curve.

It is important to keep in mind that when considering improvements that may be required a decade from now, that adjustments are to be expected and taken into consideration. The projects mentioned should be viewed as needs; however, monitoring is critical to the determination of the appropriate improvement.

The Plan "needs" recommendations are not identified to take the place of on-going land use monitoring and traffic count summaries appropriate for

operational improvements. Rather, it provides, in relatively general terms the likely needs for the 1995 and 2005 planning horizons, assuming certain growth assumptions. With this Plan information, additional studies, plan alternatives and financial resources may be pursued in a coordinated fashion to assure facilities accommodate the impacts of growth and new development.

Assuming no improvements and maintaining an acceptable level of service, improvements which may be needed by the 1996 and 2005 planning horizons are indicated in Table B-10. Again, the projects mentioned should be viewed as needs; monitoring is critical to the determination of the appropriate improvement.

### State Improvement Projects

The Florida Department of Transportation administers various state transportation programs including funding of transportation programs provided under federal law. The FDOT has undertaken new direction in both their short-term and long-range planning activities. A number of projects have been included in the Florida Department of Transportation Five-Year Construction Plan for Nassau County. Further, in accordance with Section 339.155, F.S., the Florida Department of Transportation has developed the Florida Transportation Plan which addresses state highway direction setting and technical issues. Table B-8 lists the projects currently included in the FDOT Five-Year Work Program. The general location of the work program projects are shown by a project identification (PID) letter on the Future Transportation Circulation Map, Figure B-2 .

TABLE B-6  
 TRAFFIC FORECASTS 1990-2005  
 NASSAU COUNTY-FERNANDINA BEACH/AMELIA ISLAND

STREET	FROM	TO	1990	1995	2000	2005	1990	1995	2000	2005
			V/C RATIO	V/C RATIO	V/C RATIO	V/C RATIO	ESTMTO LOS	ESTMTO LOS	ESTMTO LOS	ESTMTO LOS
SR A-1-A (SR 200)	INTERCOASTAL WATERWAY	AMELIA ISLAND PKWY.	0.69	0.78	0.89	1.01	C	D	D	F
8th. ST.(SR A1A/200) (b)	ATLANTIC AVE.(SR A1A/200)	JASHINE STREET	0.64	0.73	0.82	0.93	C	C	D	E
8th. ST.(SR A1A/200)	JASHINE STREET	SADLER ROAD(CR 108)	0.53	0.60	0.68	0.77	C	C	C	D
ATLANTIC AVE. (b)	8th. ST.(SR A1A/200)	14th STREET	0.51	0.57	0.65	0.74	C	C	C	C
ATLANTIC AVE.	14th STREET (CR 105A)	FLETCHER AVE.(SR A1A/105)	0.58	0.66	0.75	0.84	C	C	C	D
FLETCHER AVE. (b)	ATLANTIC AVE.(SR A1A/200)	JASHINE STREET	0.28	0.31	0.35	0.40	A	B	B	B
FLETCHER AVE. (b)	JASHINE STREET	SADLER ROAD (CR 108)	0.28	0.31	0.35	0.40	A	D	B	B
FLETCHER AVE.	SADLER ROAD (CR 108)	AMELIA ISLAND PARKWAY	0.20	0.23	0.26	0.29	A	A	A	A
FLETCHER AVE.	AMELIA ISLAND PARKWAY	AMELIA RD.(CR 105A)	0.16	0.18	0.20	0.23	A	A	A	A
14th STREET (b)	ATLANTIC AVE.(SR A1A/200)	JASHINE STREET	0.74	0.84	0.95	1.07	C	D	E	F
14th STREET	JASHINE STREET	SADLER ROAD (CR 108)	1.11	1.26	1.42	1.61	F	F	F	F
AMELIA ISLAND PARKWAY (b)	SR A1A (SR 200)	14th ST. EXTENSION	0.35	0.39	0.45	0.51	B	B	B	C
AMELIA RD.(CR 105A)	AMELIA ISLAND PARKWAY	FLETCHER AVE.(SR A1A/105)	0.50	0.57	0.64	0.73	C	C	C	C
SR A1A (SR 105A) (b)	FLETCHER AVE.(SR A1A/105)	AMELIA ISLAND PKWY.	0.61	0.69	0.78	0.89	C	C	D	D
SR A1A (SR 105A)	AMELIA ISLAND PKWY/JULIA ST.	BEACHWOOD ROAD	0.48	0.55	0.62	0.70	B	C	C	C
SR A1A (SR 105A)	BEACHWOOD ROAD	BRIDGE ACROSS NASSAU SOUND	0.12	0.13	0.15	0.17	A	A	A	A
SADLER RD.(CR 108)	8th. STREET(SR A1A/200)	14th STREET	0.71	0.80	0.91	1.03	C	D	E	F
SADLER RD.(CR 108)	14th STREET	FLETCHER AVE.(SR A1A/105)	0.48	0.54	0.61	0.70	B	C	C	C

B-27



**TABLE B-7  
IMPROVEMENT REQUIRED FOR AMELIA ISLAND**

<u>1990</u>	<u>FROM</u>	<u>TO</u>	<u>JURISDICTION</u>
1. 14th Street	Jasmine St.	Sadler Road	County
2. Sadler Road	8th Street	14th Street	County
<u>1995</u>			
3. A1A/SR 200	Intracoastal Waterway	Amelia Island Parkway	State
4. 14th Street	Atlantic Ave.	Jasmine Street	County
5. Sadler Rd.	14th Street	Fletcher Ave	County
<u>2000</u>			
6. A1A/SR 105A	Fletcher Ave.	Amelia Island Pkwy.	State
7. 8th Street (A1A/SR 200)	Atlantic Ave.	Jasmine Street	State
<u>2005</u>			
8. 8th Street (A1A/SR 200)	Jasmine St.	Sadler Road	State
9. Atlantic Ave.	14th Street	Fletcher Ave.	State

TABLE B-8  
FDOT Five-Year Work Program  
Nassau County

Pid Location	Project Description	Cost (in thou.)	Const. Year
State Hwy System Primary Component (Construction):			
A.	SR 200 at Southern Coastline RR crossing	\$2,927	94/95
B.	SR 200 from Mickler to east of US 1	\$1,148	92/93
C.	A1A at Nassau Sound	\$8,446	95/96
D.	SR A1A and SR 200 @ Amelia Island	\$ 89	92/93
E.	US 90 from Baker Co. Line to Duval Co. line	\$ 846	93/94
F.	SR 107 from the beginning of FDOT maintenance to SR 200	\$1,596	92/93
G.	SR 200/A1A from East of US 1 to I-95	\$4,259	93/94
H.	US 17 @ SR A1A	\$ 38	92/93
I.	SR A1A @ Piney Is. Drive	\$ 88	92/93
J.	US 17 from Duval Co. to I-95	\$5,234	95/96
K.	US 17 at St. Marys River	\$3,757	95/96
L.	SR A1A from 8th St. to Fletcher Ave.	\$ 728	93/94
M.	SR A1A from CR 105A to SR 200	\$ 312	91/92
N.	SR A1A from Amelia River to S of Lime St	\$1,227	94/95

SOURCE: FDOT Five Year Work Program 1991-92 Thru 1995-96, 10/17/90.  
Northeast Florida Regional Planning Council, 1990.

ESCAMBIA ST.

FRANKLIN ST.

PORT of  
FERNANDINA BEACH

2ND ST.

8TH ST.

14TH ST.

S.R. 200

AMELIA ISLAND PKWY

AIRPORT

AMELIA RD.

2 LANE

2 LANE

2 LANE

4 LANE

2 LANE

2 LANE

2 LANE

DADE ST.

ATLANTIC AVE.

BEECH ST.

JASMINE ST.

CITRONA ST.

SADLER RD.

FLETCHER AVE.

SIMMONS ST.

ATLANTIC OCEAN

A-1-A

AMELIA ISLAND PKWY

# AMELIA ISLAND

## EXISTING (1990) TRAFFIC CIRCULATION











----- COLLECTORS  
————— MINOR ARTERIALS

Note: This map includes traffic circulation conditions for both the City of Fernandina Beach and the remainder of Amelia Island due to a joint planning agreement.



# TRAFFIC CIRCULATION (FUTURE)

## LEGEND

-  PRINCIPAL ARTERIAL
-  MINOR ARTERIAL
-  RURAL MAJOR COLLECTOR
-  RURAL MINOR COLLECTOR
- A-N  
POST BY WORK PROGRAM PID  
(see PID table)
- (2) NUMBER OF LANES
-  GENERAL AVIATION
-  PORT
-  MAJOR HIGHWAYS
-  MUNICIPAL BOUNDARY
-  RAILROAD
-  STATE-COUNTY BOUNDARY

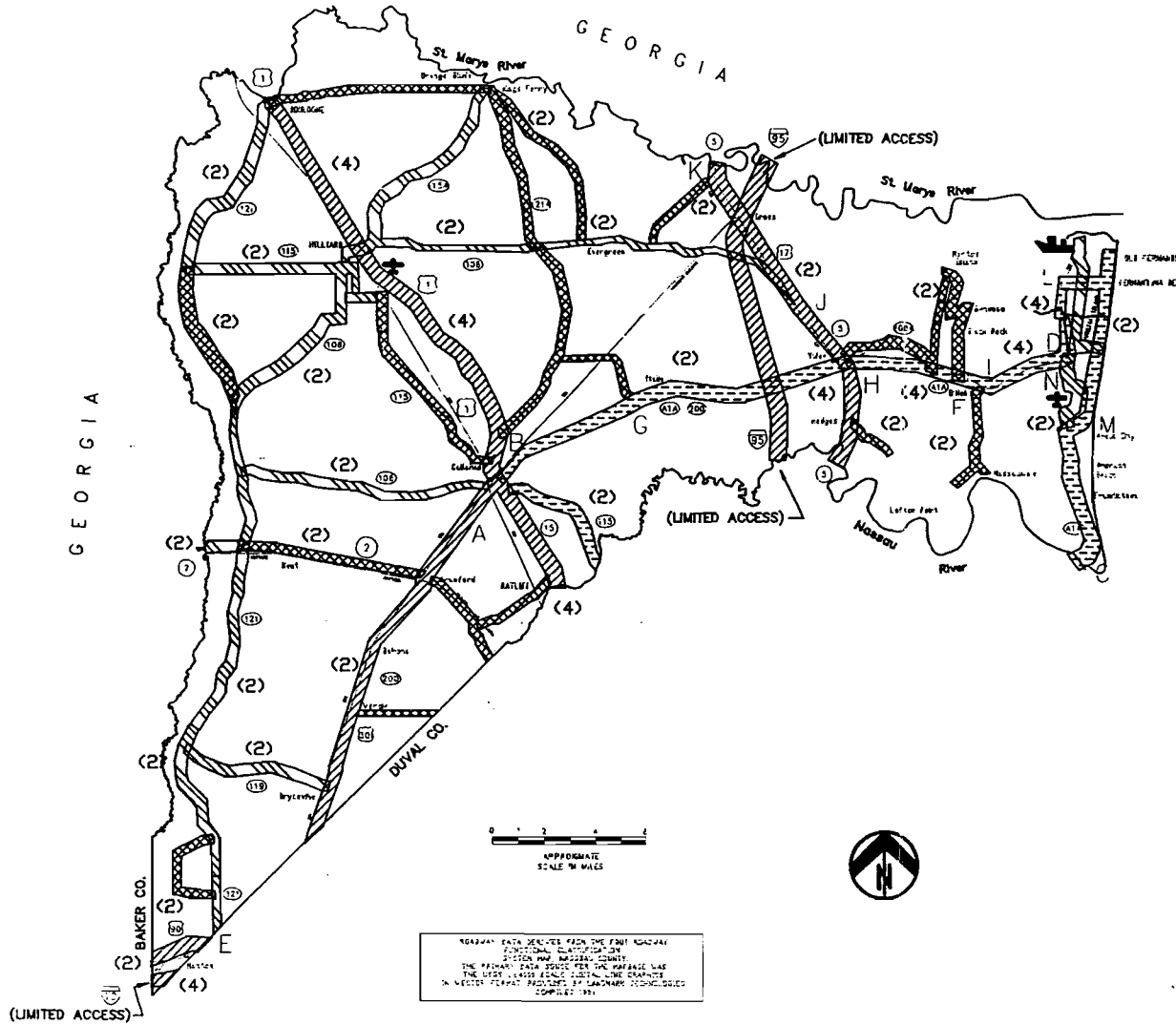
ISSUE DATE:	PREPARED BY: AW/WF/SJ
PRINT DATE: 1-12-90	STATUS
REVISION DATE:	FILE NAME: NASSTRAF.dwg

# COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:





NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL







1990



# TRAFFIC CIRCULATION (EXISTING)

## LEGEND

-  PRINCIPAL ARTERIAL
-  MINOR ARTERIAL
-  RURAL MAJOR COLLECTOR
-  RURAL MINOR COLLECTOR

- (2) NUMBER OF LANES
-  GENERAL AVIATION
-  PORT
-  MAJOR HIGHWAYS
-  MUNICIPAL BOUNDARY
-  RAILROAD
-  STATE-COUNTY BOUNDARY

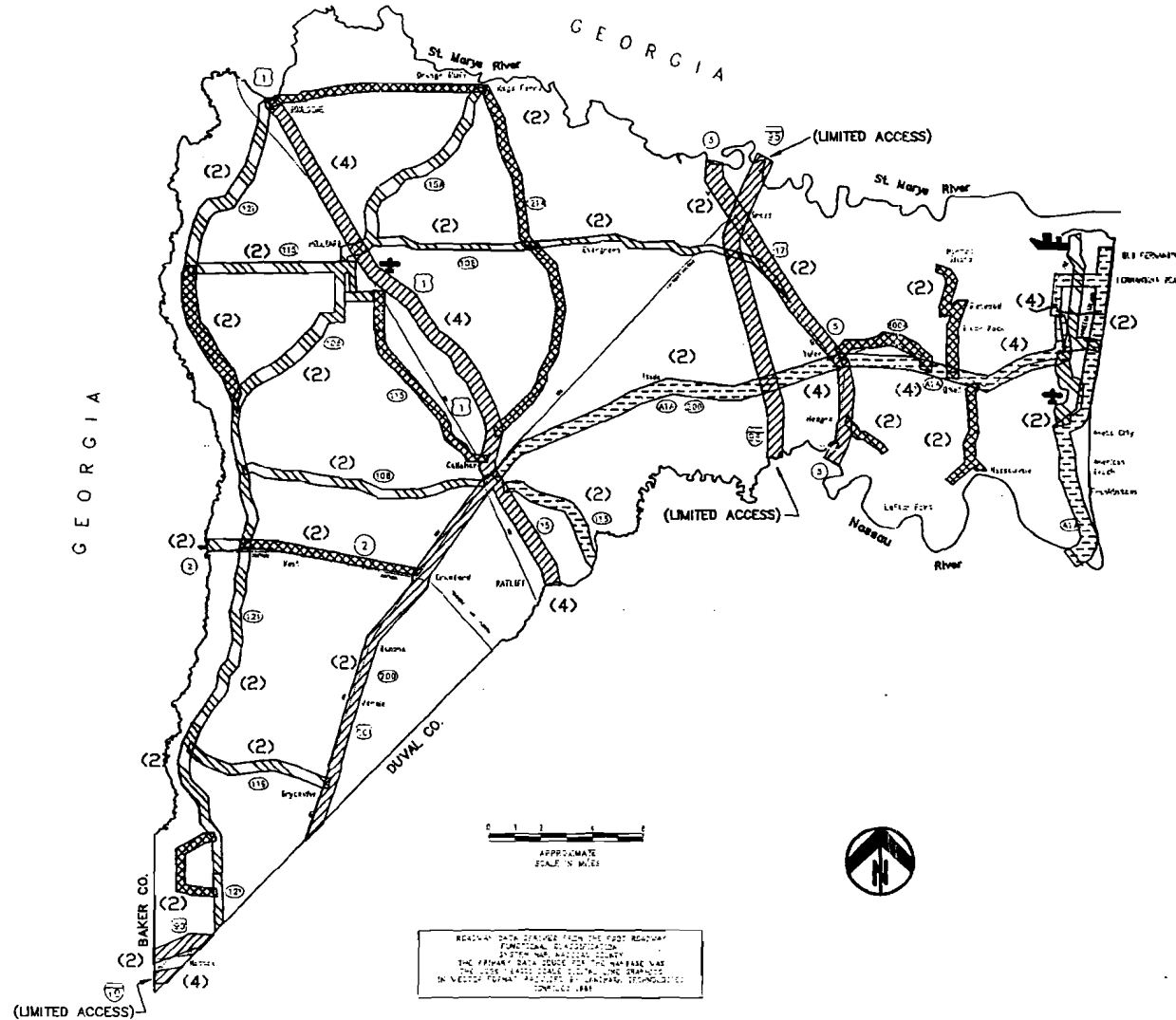
ISSUE DATE:	PREPARED BY: A/R/M/ST
PRINT DATE: 12-18-90	STATE:
REVISION DATE:	FILE NAME: NASSAUFAC

# COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:

NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

1990



**2.02.02 Roadway Project Evaluation Criteria.** Proposed roadway improvement projects shall be evaluated, ranked, and added to the Roadway Improvement Program based on the following guidelines:

- a) The project is needed to: protect the public health and safety; or, fulfill the county's legal commitment to provide facilities and services.
- b) The project is needed to: preserve or achieve full use of existing facilities; promote efficient use of existing facilities; or, prevent or reduce future maintenance or improvement costs.
- c) The project is needed to: provide service to developed areas lacking full service; or, promote in-fill development within existing urbanized areas.
- d) The project is needed to: provide service to development areas consistent with the Land Use and Transportation Plan; or, provide service to development areas which may be approved as amendments to the Land Use and Transportation Plan.

**2.02.03 Review of Development Proposals.** Procedures shall be implemented and maintained such that all development proposals are reviewed prior to receipt of construction approval to insure consistency with the objectives and policies of the Land Use and Transportation Plan.

**Objective 2.03  
Right of Way Protection**

The County shall institute a program of protection and acquisition of rights of way for the major roadway network: to ensure continuity of the roadway network; and, to protect the existing and future roadway network from development and other encroachments.

**Policies**

**2.03.01 Right of Way Standards.** The following minimum right of way standards are set for existing and future segments of the roadway network:

<u>Roadway Classification</u>	<u>Right of Way Width</u>
Arterial	125 Feet
Collector	90 Feet
Local	60 Feet

**2.03.02 Right of Way Acquisition.** Minimum right of way shall be acquired as part of roadway improvement projects undertaken on existing segments of the major roadway network, unless such acquisition is determined to be unreasonable by the Board of County

Commissioners because of cost or funding.

**2.03.03 Right of Way Dedication and Preservation.** A program shall be instituted in connection with development approvals which promotes and encourages the dedication, preservation, or other protection of rights of way for the existing and future major roadway network as defined in the Land Use and Transportation Plan.

**2.03.04 Centerline Setback Standards.** The following minimum construction setback requirements are established for construction adjacent to major roadway network segments:

<u>Roadway Classification</u>	<u>Minimum Building Setback</u>
Arterial	65 feet + Minimum Yard
Collector	45 feet + Minimum Yard

The minimum building setback will be measured from the centerline of the existing roadway or from the centerline of any proposed major roadway which is located on the Right of Way Corridor Map to be developed in conjunction with the Land Development Regulations. The minimum yard setback will be the applicable minimum yard requirement as established by the land use zone.

**2.03.05** Guidelines will be established in the Land Development Regulations to allow waivers to the right-of-way and road width standards as an incentive to encourage innovative design in mixed use or planned developments.

#### **Objective 2.04 Bicycle and Pedestrian Ways**

The County shall encourage and promote the safe integration and utilization of bicycle and pedestrian movement on the major roadway network, within public facilities, commercial development, residential areas, recreational facilities, and other areas that allow public access.

#### **Policies**

**2.04.01 Bicycle Route Network.** A bicycle route network may be designated to allow for safe bicycle use throughout the County.

**2.04.02 Bicycle and Pedestrian Facilities in Public Project Facilities** and features shall be incorporated in public projects, as designated on the Bicycle Route Network, to accommodate bicycle and pedestrian use. This shall include provision of paved shoulders and sidewalks on major roadway segments, especially those identified as part of the bicycle route network.

**2.04.03** The Amelia Island Bicycle Trail, as delineated, shall

be implemented by requiring developments to construct that section related to their development. Such development shall receive appropriate credit from recreation and/or transportation impact fees.

**Objective 2.05  
Site Development Traffic Circulation**

The County shall require that all major developments and planned unit developments provide a circulation system which: provides adequate access to the major roadway network; provides for sound design of local and collector streets within such development; and otherwise provides for the objectives and policies of the Land Use and Transportation Plan.

**Policies**

**2.05.01 Encourage Circulation within Development.**  
Development shall include features and provisions which encourage internal automobile circulation, bicycle use, pedestrian movement, and other features to minimize utilization of the major roadway network.

**2.05.02 Consistency with Transportation System.** The roadway and circulation systems of proposed developments should be developed in a manner consistent with the objectives, policies, and standards of the Land Use and Transportation Plan.

**2.05.03 Access to Major Roadway System.** Development which provides access directly to the major roadway network shall be designed to:

- a) Provide adequate and safe entrance intersection(s) including turn lanes, acceleration/deceleration lanes, signalization, signage, and pavement marking as appropriate;
- b) Prevent the creation of hazardous traffic conditions, such as excessive curb cuts which impede traffic flow; and,
- c) Ensure the long-term adequacy of the major roadway network.

**2.05.04** The County shall control the connections and access points of driveways and roads through land development regulations and recommendations to the FDOT concerning driveway permit applications. Land Development Regulations shall establish criteria for access road spacing consistent with FDOT Access Management Guidelines.

**2.05.05** All new developments and additions to existing developments shall make provisions for safe and convenient internal traffic flow and adequate off-street parking facilities for motorized and non-motorized vehicles through the Land Development Regulations, which



will establish on-site parking regulations.

**Objective 2.06  
Coordination With Other Transportation Agencies**

The County will coordinate transportation activities with other agencies, local governments, and state agencies having planning and implementation responsibilities for highway, mass transit, railroad, air, and port facilities.

**Policies**

- 2.06.01 Coordination with Department of Transportation Standards and Programs. Transportation activities will be accomplished by the minimum standards of the Florida Department of Transportation unless other standards are set by the Board of County Commissioners.
- 2.06.02 The Amelia Island Joint Advisory Planning Committee shall continue to serve in an advisory capacity to the Nassau County Board of Commissioners and the Fernandina Beach City Council with respect to Land Use and Transportation Planning issues.
- 2.06.03 The County shall supplement the requirements of Chapter 427, F.S., by providing local participation to the designated official planning agency and "coordinating board" and in meeting in the prescribed duties thereof.

NASSAU COUNTY

TRAFFIC CIRCULATION ELEMENT

Goal 2.0

THE COUNTY WILL PROMOTE THE DEVELOPMENT OF A TRANSPORTATION SYSTEM WHICH WILL PROVIDE FOR THE SAFE AND EFFICIENT MOVEMENT OF PEOPLE AND GOODS AND THE USE OF ALTERNATIVE MODES OF TRANSPORTATION.

Objective 2.01  
Level of Service

The County will establish minimum acceptable Levels of Service for all roadway segments within the major roadway network.

Policies

2.01.01 Level of Service Standards. The minimum acceptable Level of Service for Peak Hour (PKHR) Traffic shall be as set forth in the Table below. Level of Service shall be measured by methodologies outlined in Level of Service Manual, Florida Department of Transportation, 1988, or as updated.

*ORC #9 a.*

Minimum Acceptable Level of Service

<u>ROAD CLASSIFICATION</u>	<u>MINIMUM LOS</u>
<u>Principal Arterials</u>	<u>LOS C</u>
<u>Minor Arterials</u>	<u>LOS D</u>
<u>Collectors</u>	<u>LOS D</u>

Objective 2.02  
Roadway Network and Land Use Consistency

The County shall develop, construct, and maintain a major roadway network which is consistent with the existing and future land use patterns.

Policies

2.02.01 Roadway Improvement Program. The roadway improvement projects listed in Table B-6, Improvements Required for Amelia Island, and Table B-8, Improvements Required for Nassau County, will be completed in the priority order indicated and consistent with the Capital Improvement Program.

*ORC #11  
Tables B-7 +  
B-10  
in the revised  
Element*

CAPACITY ANALYSIS - SELECTED HIGHWAY SEGMENTS  
NASSAU COUNTY, FLORIDA 1989

TABLE B-9

ROADWAY	FROM	TO	'DAILY LOS		1995 ESTMTD LOS	2000 AADT	2000 ESTMTD LOS	2005 AADT	2005 ESTMTD LOS
			OPERATIONAL 'MAX VOL	1995 AADT					
US 17	DOT DUVAL C/L	SR A1A	9,400	12,514	D	14,624	D	16,793	E
US 17	DOT SR A1A	CR 108	9,400	7,817	C	9,135	C	10,491	D
US 17	DOT CR 108	GA. S/L	9,400	3,580	B	4,183	B	4,804	B
US 1	DOT DUVAL C/L	SR 200/A1A	26,400	17,103	C	19,987	C	22,952	C
US 1	DOT SR 200/A1A	CR 115	26,400	22,870	C	26,727	D	30,691	D
US 1	DOT CR 115	CR108	26,400	15,145	C	17,699	C	20,324	C
US 1	DOT CR 108	GA. S/L	26,400	12,468	C	14,570	C	16,731	C
US 301	DOT DUVAL C/L	CR 119	7,500	5,974	C	6,981	C	8,017	D
US 301	DOT CR 2	SR 15	7,500	6,808	C	7,956	D	9,136	D
SR 200	DOT SR 15	SR 9	11,300	8,766	D	10,244	D	11,763	E
SR 200	DOT SR 9	SR 5	28,800	12,131	C	14,177	C	16,280	C
SR 200	DOT SR 5	CR 107	28,800	23,299	C	27,228	D	31,266	E
SR 200	DOT CR 107	FBCH/L	28,800	27,980	C	32,698	F	37,548	F
SR 115	DOT DUVAL C/L	SR 15	11,300	6,540	C	7,643	D	8,766	D
I-95	DOT SR A1A	CR 108	37,600	44,823	D	52,381	F	60,151	F
I-95	DOT CR 108	GA. S/L	37,600	43,385	D	50,701	F	58,221	F
CR 2	CTY GA. S/L	CR 121	9,500	1,775	C	2,074	C	2,381	C
CR 108	CTY CR 121	SR 200	9,500	3,771	C	4,407	C	5,060	C
CR 108	CTY CR 121	CR 115	9,500	1,449	C	1,752	C	2,012	C
CR 108	CTY SR 15	CR 121A	9,500	2,004	C	2,342	C	2,689	C
CR 115	DOT CR 121	CR 108	9,500	1,231	C	1,439	C	1,653	C
CR 115A	DOT CR 108	CR 121	9,500	1,537	C	1,797	C	2,063	C

AADT=ANNUAL AVERAGE DAILY TRAFFIC

K=10% OF AADT OCCURRING DURING PEAK HOUR

LOS=LEVEL OF SERVICE BASED ON MINIMUM OPERATING STANDARDS

SOURCE: FDOT FLORIDA'S LEVEL OF SERVICE STANDARDS AND GUIDELINES MANUAL FOR PLANNING, 1989.

NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL, 1990

TABLE B-10  
 FUTURE ROADWAY NEEDS FOR NASSAU COUNTY  
 BASED ON TRAFFIC GROWTH

<u>1991-1995</u>	<u>FROM</u>	<u>TO</u>	<u>JURISDICTION</u>
U.S. 17	Duval C/L	A1A/SR 200	State
I-95	A1A/SR 200	CR 108	State
I-95	CR 108	GA S/L	State
<b><u>1996-2000</u></b>			
U.S. 1	A1A/SR 200	CR 115	State
U.S. 301	CR 2	SR 15	State
SR 200	CR 107	Fer. Bch/L	State
<b><u>2000-2005</u></b>			
U.S. 301	Duval C/L	CR 119	State
SR 200	SR 5	CR 107	State

## PORT OF FERNANDINA

The following text is referenced from the FDOT Florida Rail System Plan - Rail Access To Ports.

The Port of Fernandina, the northermost Florida port located on the east coast of Florida is sited some 18 straightline rail miles north of the entrance to Jacksonville Harbor, as shown by Figure B-1. It is the site of public use terminals operated by the Nassau County Ocean Highway and Port Authority, as well as private terminals.

The Port of Fernandina Beach was an important cargo center in the 1880's, but lost influence to Jacksonville when that port was developed as a rail center. Subsiding into a fishing port, Fernandina Beach did not begin to emerge again as a cargo port until 1985, when the Nassau County Ocean Highway and Port Authority issued \$100 million in municipal bonds for development of deepwater public terminals. The first wharf completed was for a forest products terminal, and it is now operational.

The Port is served by four shipping lines, ten truck lines and CSX Transportation. Highway access is via city streets to 4-lane State Route A1A, which connects U.S. 17 and to Interstate 95, 12 miles and 15 miles away respectively. Because of the two paper mills operating at Fernandina beach, rail service is more than adequate. Container traffic is beginning to grow and while provisions have been made for limited direct loading/unloading at the port, containers are presently being carried to/from Jacksonville.

**APPENDIX 1**  
**NASSAU COUNTY**  
**ROAD CLASSIFICATION/JURISDICTION LIST**

APPENDIX 1  
NASSAU COUNTY  
ROAD CLASSIFICATION/JURISDICTION LIST

ROADWAY	SEGMENT LIMITS		JURISDICTION	ENVIRONMENT	FUNCTIONAL CLASSIFICATION
	FROM	TO			
S.R. A1A/200	INTRACOASTAL WATERWAY	AMELIA ISLAND PKWY	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/200	AMELIA ISLAND PKWY	SADLER RD.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/200	SADLER RD.	JASHINE ST.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/200	JASHINE ST.	ATLANTIC AVE.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/200	8TH ST.	14TH ST.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/200	14TH ST.	FLETCHER AVE.	STATE	URBAN	MINOR ARTERIAL
8TH ST.	ATLANTIC AVE.	FRANKLIN AVE.	CITY	URBAN	MINOR ARTERIAL
ATLANTIC AVE.	2ND ST.	8TH ST.	CITY	URBAN	MINOR ARTERIAL
N. FLETCHER AVE.	LOWENSTEIN ST.	ATLANTIC AVE.	CITY	URBAN	COLLECTOR
S.R. A1A/105	S.R. A1A/200	JASHINE ST.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/105	JASHINE ST.	SADLER RD.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/105	SADLER RD.	AMELIA ISLAND PKWY.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/105	AMELIA ISLAND PKWY.	AMELIA RD.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/105	AMELIA RD.	AMELIA ISLAND PKWY.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/105	AMELIA ISLAND PKWY.	BEACHWOOD RD.	STATE	URBAN	MINOR ARTERIAL
S.R. A1A/105	BEACHWOOD RD.	NASSAU COUNTY LINE	STATE	URBAN	MINOR ARTERIAL
14TH ST.	EGAN'S CREEK	ATLANTIC AVE.	COUNTY	URBAN	COLLECTOR
14TH ST.	ATLANTIC AVE.	JASHINE ST.	COUNTY	URBAN	COLLECTOR
14TH ST.	JASHINE ST.	SADLER RD.	COUNTY	URBAN	COLLECTOR
14TH ST.	SADLER RD.	AMELIA ISLAND PKWY.	COUNTY	URBAN	COLLECTOR
WOODROW AVE.	14TH ST. (C.R. 105A)	S.R. A1A/200	COUNTY	URBAN	COLLECTOR
AMELIA RD. (C.R. 105A)	S.R. A1A/200	AMELIA ISLAND PKWY.	COUNTY	URBAN	COLLECTOR
AMELIA RD. (C.R. 105A)	AMELIA ISLAND PKWY.	S.R. A1A/105	COUNTY	URBAN	COLLECTOR
AMELIA ISLAND PKWY.	S.R. A1A/200	14TH ST.	COUNTY	URBAN	COLLECTOR
AMELIA ISLAND PKWY.	14TH ST.	AMELIA RD.	COUNTY	URBAN	COLLECTOR
AMELIA ISLAND PKWY.	AMELIA RD.	S.R. A1A/105	COUNTY	URBAN	COLLECTOR
AMELIA ISLAND PKWY.	S.R. A1A/105	S.R. A1A/105	COUNTY	URBAN	COLLECTOR
SADLER RD. (C.R.108)	S.R.A1A/200	14TH ST.	COUNTY	URBAN	COLLECTOR
SADLER RD. (C.R.108)	14TH ST.	S.R.A1A/105	COUNTY	URBAN	COLLECTOR
CITRONA ST. (C.R. 102)	ATLANTIC AVE.	JASHINE ST.	COUNTY	URBAN	COLLECTOR
CITRONA ST. (C.R. 102)	JASHINE ST.	SADLER RD.	COUNTY	URBAN	COLLECTOR
CITRONA ST. (C.R. 102)	SADLER RD.	SIMMONS RD.	COUNTY	URBAN	COLLECTOR
SIMMONS RD (C.R.105B)	AMELIA RD.	14TH ST.	COUNTY	URBAN	COLLECTOR
SIMMONS RD (C.R.105B)	14TH ST.	CITRONA BLVD.	COUNTY	URBAN	COLLECTOR
SIMMONS RD (C.R.105B)	CITRONA BLVD.	FLETCHER AVE.	COUNTY	URBAN	COLLECTOR
S.R. A1A/200	C.R.107	INTRACOASTAL WATERWAY	STATE	RURAL	MINOR ARTERIAL
S.R.115	DUVAL COUNTY LINE	U.S.1/U.S.23/S.R.15	STATE	RURAL	MINOR ARTERIAL
U.S. 90/S.R.10	DUVAL COUNTY LINE	BAKER COUNTY LINE	STATE	RURAL	PRIMARY ARTERIAL
U.S.301/S.R.200	DUVAL COUNTY LINE	C.R. 119	STATE	RURAL	PRIMARY ARTERIAL
U.S.301/S.R.200	C.R. 119	CRAWFORD RD.	STATE	RURAL	PRIMARY ARTERIAL
I-95/S.R. 9	C.R. 108	GEORGIA STATE LINE	STATE	RURAL	PRIMARY ARTERIAL
U.S.301/S.R.200	CRAWFORD RD.	U.S.1/U.S.23/S.R.15	STATE	RURAL	PRIMARY ARTERIAL
U.S.17/S.R.5	S.R. A1A/200	C.R. 108	STATE	RURAL	PRIMARY ARTERIAL
S.R. A1A/200	U.S.1/U.S.23/S.R.15	I-95/S.R. 9	STATE	RURAL	MINOR ARTERIAL
U.S.1/U.S.23/S.R.15	DUVAL COUNTY LINE	S.R. A1A/200	STATE	RURAL	PRIMARY ARTERIAL
S.R. A1A/200	I-95/S.R. 9	U.S.17/S.R.5	STATE	RURAL	MINOR ARTERIAL

APPENDIX 1  
 HASSAU COUNTY  
 ROAD CLASSIFICATION/JURISDICTION LIST

ROADWAY	SEGMENT LIMITS		JURISDICTION	ENVIRONMENT	FUNCTIONAL CLASSIFICATION
	FROM	TO			
U.S.1/U.S.23/S.R.15	C.R. 115	C.R. 108	STATE	RURAL	PRIMARY ARTERIAL
S.R. A1A/200	U.S.17/S.R.5	C.R.107	STATE	RURAL	MINOR ARTERIAL
S.R.107	S.R.A1A/200	SANTA JUANA RD.	STATE	RURAL	COLLECTOR
I-10/S.R. 8	DUVAL COUNTY LINE	BAKER COUNTY LINE	STATE	RURAL	PRIMARY ARTERIAL
U.S.17/S.R.5	C.R. 108	GEORGIA STATE LINE	STATE	RURAL	PRIMARY ARTERIAL
I-95/S.R. 9	DUVAL COUNTY LINE	S.R. A1A/200	STATE	RURAL	PRIMARY ARTERIAL
U.S.1/U.S.23/S.R.15	C.R. 108	GEORGIA STATE LINE	STATE	RURAL	PRIMARY ARTERIAL
U.S.1/U.S.23/S.R.15	S.R. A1A/200	C.R. 115	STATE	URBAN	PRIMARY ARTERIAL
U.S.17/S.R.5	DUVAL COUNTY LINE	S.R. A1A/200	STATE	RURAL	PRIMARY ARTERIAL
I-95/S.R. 9	S.R. A1A/200	C.R. 108	STATE	RURAL	PRIMARY ARTERIAL
LESSIE RD.	C.R.108	MIDDLE RD.	COUNTY	RURAL	COLLECTOR
THOMAS CREEK DR.	RATLIFF RD.	DUVAL COUNTY LINE	COUNTY	RURAL	COLLECTOR
RATLIFF RD.	CRAWFORD RD.	E.O.P.	COUNTY	RURAL	COLLECTOR
OWENS CUTOFF	C.R.108	U.S.17/S.R.5	COUNTY	RURAL	COLLECTOR
MIDDLE RD.	E.O.P.	C.R.115A	COUNTY	RURAL	COLLECTOR
GRIFFIN RD.	S.R.A1A/200	E.O.P.	COUNTY	RURAL	COLLECTOR
ROWE CUTOFF	C.R.121	C.R.108	COUNTY	RURAL	COLLECTOR
CRAWFORD RD.	C.R.121	U.S.301/S.R.200	COUNTY	RURAL	COLLECTOR
MURREE RD.	E.O.P.	KING'S FERRY RD.	COUNTY	RURAL	COLLECTOR
HORSESHOE CIRCLE	E.O.P.	C.R.121	COUNTY	RURAL	COLLECTOR
KING'S FERRY RD.	E.O.P	C.R.115A	COUNTY	RURAL	COLLECTOR
MIDDLE RD.	C.R.108	MUSSEL WHITE RD.	COUNTY	RURAL	COLLECTOR
TOMMY FORD RD.	U.S.301/S.R.200	E.O.P.	COUNTY	RURAL	COLLECTOR
CRAWFORD RD.	U.S.301/S.R.200	RATLIFF RD.	COUNTY	RURAL	COLLECTOR
C.R.121	C.R.108	C.R.115	COUNTY	RURAL	COLLECTOR
HENRY SMITH EXTENSION	U.S.1/U.S.23/S.R.15	C.R.108	COUNTY	RURAL	COLLECTOR
C.R.121A/MIDDLE RD.	C.R.108	E.O.P.	COUNTY	RURAL	COLLECTOR
RATLIFF RD.	E.O.P.	U.S.1/U.S.23/S.R.15	COUNTY	RURAL	COLLECTOR
C.R.115	C.R.108	C.R.121	COUNTY	RURAL	COLLECTOR
C.R.2	GEORGIA STATE LINE	C.R.121	COUNTY	RURAL	COLLECTOR
C.R.108	C.R.115	U.S.1/U.S.23/S.R.15	COUNTY	RURAL	COLLECTOR
MUSSEL WHITE RD.	U.S.1/U.S.23/S.R.15	MIDDLE RD.	COUNTY	RURAL	COLLECTOR
C.R.121	C.R.119	C.R.2	COUNTY	RURAL	COLLECTOR
TOMMY FORD RD.	E.O.P.	DUVAL COUNTY LINE	COUNTY	RURAL	COLLECTOR
C.R.108	U.S.1/U.S.23/S.R.15	C.R.121	COUNTY	RURAL	COLLECTOR
GRIFFIN RD.	E.O.P.	MIDDLE RD.	COUNTY	RURAL	COLLECTOR
KING'S FERRY RD.	U.S.1/U.S.23/S.R.15	E.O.P.	COUNTY	RURAL	COLLECTOR
C.R.119	U.S.301/S.R.200	DUVAL COUNTY LINE	COUNTY	RURAL	COLLECTOR
MURREE RD.	U.S.1/U.S.23/S.R.15	E.O.P.	COUNTY	RURAL	COLLECTOR
C.R.200A	U.S.17/S.R.5	CHESTER RD.	COUNTY	RURAL	COLLECTOR
C.R.108	U.S.1/U.S.23/S.R.15	EASTWOOD RD.	COUNTY	RURAL	COLLECTOR
CHESTER RD. (C.R. 200A)	S.R.A1A/200	C.R.200A	COUNTY	RURAL	COLLECTOR
C.R.108	C.R.121A/MIDDLE RD.	OWENS CUTOFF	COUNTY	RURAL	COLLECTOR
CHESTER RD.	C.R.200A	GREEN PINE CEMETERY RD.	COUNTY	RURAL	COLLECTOR
C.R.108	I-95/S.R. 9	U.S.17/S.R.5	COUNTY	RURAL	COLLECTOR
CHESTER RD.	GREEN PINE CEMETERY RD.	C.R.107	COUNTY	RURAL	COLLECTOR



APPENDIX I  
 NASSAU COUNTY  
 ROAD CLASSIFICATION/JURISDICTION LIST

ROADWAY	SEGMENT LIMITS		JURISDICTION	ENVIRONMENT	FUNCTIONAL CLASSIFICATION
	FROM	TO			
EASTWOOD RD.	U.S.1/U.S.23/S.R.15	C.R.108	COUNTY	RURAL	COLLECTOR
BLACKROCK RD. (C.R.107)	S.R.11A/200	CHESTER RD.	COUNTY	RURAL	COLLECTOR
C.R.115	U.S.1/U.S.23/S.R.15	HENRY SMITH EXTENSION	COUNTY	RURAL	COLLECTOR
HARTS RD.	U.S.17/S.R.5	HADDOCK RD.	COUNTY	RURAL	COLLECTOR
C.R.121	C.R.2	C.R.108	COUNTY	RURAL	COLLECTOR
HADDOCK RD.	HARTS RD.	MINER RD.	COUNTY	RURAL	COLLECTOR
C.R.15A	U.S.1/U.S.23/S.R.15	U.S.301/S.R.200	COUNTY	RURAL	COLLECTOR
MINER RD.	HADDOCK RD.	S.R.11A/200	COUNTY	RURAL	COLLECTOR
C.R.108	EASTWOOD RD.	C.R.121 <sup>1</sup> /MIDDLE RD.	COUNTY	RURAL	COLLECTOR
BARNWELL RD.	S.R.11A/200	E.O.P.	COUNTY	RURAL	COLLECTOR
C.R.115A	C.R.108	MIDDLE RD.	COUNTY	RURAL	COLLECTOR
C.R.119	C.R.121	U.S.301/S.R.200	COUNTY	RURAL	COLLECTOR
C.R.121	DUVAL COUNTY LINE	C.R.119	COUNTY	RURAL	COLLECTOR
C.R.107	S.R.107	E.O.P.	COUNTY	RURAL	COLLECTOR
CHURCH RD.	U.S.1/U.S.23/S.R.15	S.R.115	COUNTY	RURAL	COLLECTOR
C.R.107A	S.R.107	E.O.P.	COUNTY	RURAL	COLLECTOR
C.R.108	C.R.121	C.R.115	COUNTY	RURAL	COLLECTOR
C.R.108	OWENS CUTOFF	I-95/S.R. 9	COUNTY	RURAL	COLLECTOR
C.R.121	C.R.115	U.S.1/U.S.23/S.R.15	COUNTY	RURAL	COLLECTOR
HORSESHOE CIRCLE	C.R.121	E.O.P.	COUNTY	RURAL	COLLECTOR
GREEN PINE CEMETERY RD.	C.R.107	CHESTER RD.	COUNTY	RURAL	COLLECTOR

**APPENDIX 2**  
**NASSAU COUNTY**  
**ROAD PHYSICAL CHARACTERISTICS**

APPENDIX 2  
 NASSAU COUNTY  
 ROAD PHYSICAL CHARACTERISTICS

ROADWAY	SEGMENT LIMITS		LENGTH	TRAVEL		DRAINAGE	R.O.W.	SURFACE	PAVEMENT WIDTH
	FROM	TO		LANES	MEDIAN				
S.R. A1A/200	INTRACOASTAL WATERWAY	AMELIA ISLAND PKWY	0.6	4	DIVIDED	SWALE	128	PAVED	48
S.R. A1A/200	AMELIA ISLAND PKWY	SADLER RD.	1.7	4	DIVIDED	C & G	90	PAVED	48
S.R. A1A/200	SADLER RD.	JASMINE ST.	1.4	4	DIVIDED	C & G	90	PAVED	48
S.R. A1A/200	JASMINE ST.	ATLANTIC AVE.	0.9	2	UNDIVIDED	C & G	60	PAVED	40
S.R. A1A/200	8TH ST.	14TH ST.	0.4	2	UNDIVIDED	C & G	80	PAVED	40
S.R. A1A/200	14TH ST.	FLETCHER AVE.	1.2	2	UNDIVIDED	C & G	80	PAVED	40
8TH ST.	ATLANTIC AVE.	FRANKLIN AVE.	0.5	2	UNDIVIDED	SWALE	60	PAVED	25
ATLANTIC AVE.	2ND ST.	8TH ST.	0.4	2	UNDIVIDED	C & G	60	PAVED	55
N. FLETCHER AVE.	LOWENSTEIN ST.	ATLANTIC AVE.	1.6	2	UNDIVIDED	SWALE	50	PAVED	22
S.R. A1A/105	S.R. A1A/200	JASMINE ST.	0.9	2	UNDIVIDED	SWALE	100	PAVED	24
S.R. A1A/105	JASMINE ST.	SADLER RD.	1.2	2	UNDIVIDED	SWALE	100	PAVED	24
S.R. A1A/105	SADLER RD.	AMELIA ISLAND PKWY.	3.0	2	UNDIVIDED	SWALE	100	PAVED	24
S.R. A1A/105	AMELIA ISLAND PKWY.	AMELIA RD.	0.8	2	UNDIVIDED	SWALE	100	PAVED	24
S.R. A1A/105	AMELIA RD.	AMELIA ISLAND PKWY.	1.3	2	UNDIVIDED	SWALE	200	PAVED	23
S.R. A1A/105	AMELIA ISLAND PKWY.	BEACHWOOD RD.	1.4	2	UNDIVIDED	SWALE	200	PAVED	23
S.R. A1A/105	BEACHWOOD RD.	NASSAU COUNTY LINE	2.5	2	UNDIVIDED	SWALE	200	PAVED	23
14TH ST.	EGAN'S CREEK	ATLANTIC AVE.	1.6	2	UNDIVIDED	SWALE	60	PAVED	23
14TH ST.	ATLANTIC AVE.	JASMINE ST.	0.9	2	UNDIVIDED	SWALE	60	PAVED	23
14TH ST.	JASMINE ST.	SADLER RD.	1.1	2	UNDIVIDED	SWALE	100	PAVED	23
14TH ST.	SADLER RD.	AMELIA ISLAND PKWY.	1.4	2	UNDIVIDED	SWALE	80	PAVED	23
WOODROW AVE.	14TH ST. (C.R. 105A)	S.R. A1A/200	0.2	2	UNDIVIDED	SWALE	80	PAVED	23
AMELIA RD. (C.R. 105A)	S.R. A1A/200	AMELIA ISLAND PKWY.	1.4	2	UNDIVIDED	SWALE		PAVED	20
AMELIA RD. (C.R. 105A)	AMELIA ISLAND PKWY.	S.R. A1A/105	1.1	2	UNDIVIDED	SWALE		PAVED	20
AMELIA ISLAND PKWY.	S.R. A1A/200	14TH ST.	1.6	2	UNDIVIDED	SWALE	80	PAVED	20
AMELIA ISLAND PKWY.	14TH ST.	AMELIA RD.	0.9	2	UNDIVIDED	SWALE	100	PAVED	20
AMELIA ISLAND PKWY.	AMELIA RD.	S.R. A1A/105	0.8	2	UNDIVIDED	SWALE	110	PAVED	20
AMELIA ISLAND PKWY.	S.R. A1A/105	S.R. A1A/105	1.9	2	UNDIVIDED	SWALE	110	PAVED	20
SADLER RD.	S.R. A1A/200	14TH ST.	0.2	2	UNDIVIDED	SWALE	100	PAVED	24
SADLER RD.	14TH ST.	S.R. A1A/105	1.1	2	UNDIVIDED	SWALE	100	PAVED	24
CITRONA ST.	ATLANTIC AVE.	JASMINE ST.	0.9	2	UNDIVIDED	SWALE		PAVED	23
CITRONA ST.	JASMINE ST.	SADLER RD.	1.3	2	UNDIVIDED	SWALE		PAVED	23
CITRONA ST.	SADLER RD.	SIMMONS RD.	1.4	2	UNDIVIDED	SWALE	60	PAVED	24-35
SIMMONS RD	AMELIA RD.	14TH ST.	0.1	2	UNDIVIDED	SWALE		PAVED	20
SIMMONS RD	14TH ST.	CITRONA BLVD.	0.6	2	UNDIVIDED	SWALE		PAVED	20
SIMMONS RD	CITRONA BLVD.	FLETCHER AVE.	0.4	2	UNDIVIDED	SWALE		PAVED	20
S.R. A1A/200	C.R. 107	INTRACOASTAL WATERWAY	3.0	4	DIVIDED	SWALE	200	PAVED	50
S.R. 115	DUVAL COUNTY LINE	U.S. 1/U.S. 23/S.R. 15	5.1	2	UNDIVIDED	SWALE	100	PAVED	24
U.S. 90/S.R. 10	DUVAL COUNTY LINE	BAKER COUNTY LINE	2.2	4	DIVIDED	SWALE		PAVED	48
U.S. 301/S.R. 200	DUVAL COUNTY LINE	C.R. 119	1.8	2	UNDIVIDED	SWALE	200	PAVED	23
U.S. 301/S.R. 200	C.R. 119	CRAWFORD RD.	9.0	2	UNDIVIDED	SWALE	200	PAVED	23
I-95/S.R. 9	C.R. 103	GEORGIA STATE LINE	3.8	4	DIVIDED	SWALE	300	PAVED	50
U.S. 301/S.R. 200	CRAWFORD RD.	U.S. 1/U.S. 23/S.R. 15	4.7	2	UNDIVIDED	SWALE	200	PAVED	23
U.S. 17/S.R. 5	S.R. A1A/200	C.R. 108	4.7	2	UNDIVIDED	SWALE	75	PAVED	24
S.R. A1A/200	U.S. 1/U.S. 23/S.R. 15	I-95/S.R. 9	11.5	2	UNDIVIDED	SWALE	100	PAVED	21
U.S. 1/U.S. 23/S.R. 15	DUVAL COUNTY LINE	S.R. A1A/200	4.5	4	DIVIDED	SWALE	200	PAVED	50
S.R. A1A/200	I-95/S.R. 9	U.S. 17/S.R. 5	3.0	4	DIVIDED	SWALE	200	PAVED	50

APPENDIX 2  
 NASSAU COUNTY  
 ROAD PHYSICAL CHARACTERISTICS

ROADWAY	SEGMENT LIMITS		LENGTH	TRAVEL LANES	MEDIAN	DRAINAGE	R.O.W.	SURFACE	PAVEMENT WIDTH
	FROM	TO							
U.S.1/U.S.23/S.R.15	C.R. 115	C.R. 108	1.5	4	DIVIDED	SWALE	150	PAVED	50
S.R. 11A/200	U.S.17/S.R.5	C.R.107	4.3	4	DIVIDED	SWALE	200	PAVED	50
S.R.107	S.R.11A/200	SANTA JUANA RD.	3.5	2	UNDIVIDED	SWALE	66	PAVED	18
I-10/S.R. 8	DUVAL COUNTY LINE	BAKER COUNTY LINE	0.7	4	DIVIDED	SWALE		PAVED	50
U.S.17/S.R.5	C.R. 108	GEORGIA STATE LINE	4.5	2	UNDIVIDED	SWALE	150	PAVED	24
I-95/S.R. 9	DUVAL COUNTY LINE	S.R. 11A/200	2.7	4	DIVIDED	SWALE	300	PAVED	50
U.S.1/U.S.23/S.R.15	C.R. 108	GEORGIA STATE LINE	7.0	4	DIVIDED	SWALE	150	PAVED	50
U.S.1/U.S.23/S.R.15	S.R. 11A/200	C.R. 115	9.5	4	DIVIDED	SWALE	200	PAVED	50
U.S.17/S.R.5	DUVAL COUNTY LINE	S.R. 11A/200	4.0	2	UNDIVIDED	SWALE	75	PAVED	24
I-95/S.R. 9	S.R. 11A/200	C.R. 108	5.0	4	DIVIDED	SWALE	300	PAVED	50
LESSIE RD.	C.R.108	MIDDLE RD.	6.8	2	UNDIVIDED	SWALE	50	GRADED	24
THOMAS CREEK DR.	RATLIFF RD.	DUVAL COUNTY LINE	1.5	2	UNDIVIDED	SWALE	60	GRADED	24
RATLIFF RD.	CRAWFORD RD.	E.O.P.	0.8	2	UNDIVIDED	SWALE	80	GRADED	24
OWENS CUTOFF	C.R.108	U.S.17/S.R.5	3.9	2	UNDIVIDED	SWALE		GRADED	24
MIDDLE RD.	E.O.P.	C.R.115A	3.7	2	UNDIVIDED	SWALE	66-100	GRADED	24
GRIFFIN RD.	S.R.11A/200	E.O.P.	2.5	2	UNDIVIDED	SWALE	60	GRADED	19
ROWE CUTOFF	C.R.121	C.R.108	1.9	2	UNDIVIDED	SWALE		GRADED	24
CRAWFORD RD.	C.R.121	U.S.301/S.R.200	7.0	2	UNDIVIDED	SWALE		GRADED	24
MURREE RD.	E.O.P.	KING'S FERRY RD.	1.7	2	UNDIVIDED	SWALE	50	GRADED	24
HORSESHOE CIRCLE	E.O.P.	C.R.121	2.2	2	UNDIVIDED	SWALE	40	GRADED	24
KING'S FERRY RD.	E.O.P.	C.R.115A	7.4	2	UNDIVIDED	SWALE	60	GRADED	24
MIDDLE RD.	C.R.108	MUSSEL WHITE RD.	4.5	2	UNDIVIDED	SWALE	50	GRADED	24
TOMMY FORD RD.	U.S.301/S.R.200	E.O.P.	1.3	2	UNDIVIDED	SWALE		GRADED	24
CRAWFORD RD.	U.S.301/S.R.200	RATLIFF RD.	2.7	2	UNDIVIDED	SWALE	30-60	GRADED	24
C.R.121	C.R.108	C.R.115	6.5	2	UNDIVIDED	SWALE	50	GRADED	24
HENRY SMITH EXTENSION	U.S.1/U.S.23/S.R.15	C.R.108	2.0	2	UNDIVIDED	SWALE	80	PAVED	18
C.R.121A/MIDDLE RD.	C.R.108	E.O.P.	2.7	2	UNDIVIDED	SWALE	100	PAVED	18
RATLIFF RD.	E.O.P.	U.S.1/U.S.23/S.R.15	2.6	2	UNDIVIDED	SWALE	66-80	PAVED	20
C.R.115	C.R.108	C.R.121	6.0	2	UNDIVIDED	SWALE	100	PAVED	20
C.R.2	GEORGIA STATE LINE	C.R.121	4.7	2	UNDIVIDED	SWALE		PAVED	24
C.R.108	C.R.115	U.S.1/U.S.23/S.R.15	0.9	2	UNDIVIDED	SWALE	60	PAVED	20
MUSSEL WHITE RD.	U.S.1/U.S.23/S.R.15	MIDDLE RD.	4.0	2	UNDIVIDED	SWALE		PAVED	20
C.R.121	C.R.119	C.R.2	8.0	2	UNDIVIDED	SWALE	100	PAVED	20
TOMMY FORD RD.	E.O.P.	DUVAL COUNTY LINE	2.0	2	UNDIVIDED	SWALE	80	PAVED	20
C.R.108	U.S.1/U.S.23/S.R.15	C.R.121	10.9	2	UNDIVIDED	SWALE	100	PAVED	18
GRIFFIN RD.	E.O.P.	MIDDLE RD.	1.8	2	UNDIVIDED	SWALE	60	PAVED	24
KING'S FERRY RD.	U.S.1/U.S.23/S.R.15	E.O.P.	1.0	2	UNDIVIDED	SWALE	80	PAVED	20
C.R.119	U.S.301/S.R.200	DUVAL COUNTY LINE	0.4	2	UNDIVIDED	SWALE		PAVED	18
MURREE RD.	U.S.1/U.S.23/S.R.15	E.O.P.	3.3	2	UNDIVIDED	SWALE	80	PAVED	20
C.R.200A	U.S.17/S.R.5	CHESTER RD.	3.8	2	UNDIVIDED	SWALE	100	PAVED	18
C.R.108	U.S.1/U.S.23/S.R.15	EASTWOOD RD.	1.0	2	UNDIVIDED	SWALE	66	PAVED	18
CHESTER RD. (C.R. 200A)	S.R.11A/200	C.R.200A	0.5	2	UNDIVIDED	SWALE	100	PAVED	18
C.R.108	C.R.121A/MIDDLE RD.	OWENS CUTOFF	4.7	2	UNDIVIDED	SWALE	100	PAVED	20
CHESTER RD.	C.R.200A	GREEN PINE CEMETERY RD.	1.9	2	UNDIVIDED	SWALE	66	PAVED	20
C.R.108	I-95/S.R. 9	U.S.17/S.R.5	1.5	2	UNDIVIDED	SWALE	80	PAVED	18
CHESTER RD.	GREEN PINE CEMETERY RD.	C.R.107	1.4	2	UNDIVIDED	SWALE	66	PAVED	20

APPENDIX 2  
 NASSAU COUNTY  
 ROAD PHYSICAL CHARACTERISTICS

ROADWAY	SEGMENT LIMITS		LENGTH	TRAVEL LANES	MEDIAN	DRAINAGE	R.O.W.	SURFACE	PAVEMENT WIDTH
	FROM	TO							
EASTWOOD RD.	U.S.1/U.S.23/S.R.15	C.R.108	1.5	2	UNDIVIDED	SWALE	66	PAVED	20
BLACKROCK RD. (C.R.107)	S.R.1A1/200	CHESTER RD.	5.0	2	UNDIVIDED	SWALE	100	PAVED	18
C.R.115	U.S.1/U.S.23/S.R.15	HENRY SMITH EXTENSION	8.5	2	UNDIVIDED	SWALE	80	PAVED	18
HARTS RD.	U.S.17/S.R.5	HADDOCK RD.	1.1	2	UNDIVIDED	SWALE		PAVED	24
C.R.121	C.R.2	C.R.108	2.2	2	UNDIVIDED	SWALE	100	PAVED	20
HADDOCK RD.	HARTS RD.	MINER RD.	1.2	2	UNDIVIDED	SWALE	60	PAVED	20
C.R.15A	U.S.1/U.S.23/S.R.15	U.S.301/S.R.200	0.9	2	UNDIVIDED	SWALE	50	PAVED	18
MINER RD.	HADDOCK RD.	S.R.1A1/200	2.7	2	UNDIVIDED	SWALE	60	PAVED	20
C.R.108	EASTWOOD RD.	C.R.121A/MIDDLE RD.	5.8	2	UNDIVIDED	SWALE	66-100	PAVED	20
BARNWELL RD.	S.R.1A1/200	E.O.P.	2.5	2	UNDIVIDED	SWALE	60	PAVED	20
C.R.115A	C.R.108	MIDDLE RD.	7.9	2	UNDIVIDED	SWALE	100	PAVED	20
C.R.119	C.R.121	U.S.301/S.R.200	6.0	2	UNDIVIDED	SWALE	100	PAVED	18
C.R.121	DUVAL COUNTY LINE	C.R.119	6.5	2	UNDIVIDED	SWALE	100	PAVED	20
C.R.107	S.R.107	E.O.P.	1.8	2	UNDIVIDED	SWALE		PAVED	18
CHURCH RD.	U.S.1/U.S.23/S.R.15	S.R.115	2.7	2	UNDIVIDED	SWALE	60	PAVED	20
C.R.107A	S.R.107	E.O.P.	0.9	2	UNDIVIDED	SWALE		PAVED	18
C.R.108	C.R.121	C.R.115	7.0	2	UNDIVIDED	SWALE	100	PAVED	18
C.R.108	OWENS CUTOFF	I-95/S.R. 9	3.2	2	UNDIVIDED	SWALE	100	PAVED	20
C.R.121	C.R.115	U.S.1/U.S.23/S.R.15	8.0	2	UNDIVIDED	SWALE	100	PAVED	20
HORSESHOE CIRCLE	C.R.121	E.O.P.	2.3	2	UNDIVIDED	SWALE	60	PAVED	20
GREEN PINE CEMETERY RD.	C.R.107	CHESTER RD.	0.4	2	UNDIVIDED	SWALE	60	PAVED	20

**APPENDIX 3**  
**NASSAU COUNTY**  
**EXISTING VOLUMES AND TRAFFIC CHARACTERISTICS**

APPENDIX 3  
NASSAU COUNTY  
ROAD VOLUMES AND TRAFFIC CHARACTERISTICS

ROADWAY	SEGMENT LIMITS		ROADWAY CAPACITY	1986 AADT	K (%)	PEAK HOUR VOLUME
	FROM	TO				
S.R. 11A/200	INTRACOASTAL WATERWAY	AMELIA ISLAND PKWY	30000	18290	9	1646
S.R. 11A/200	AMELIA ISLAND PKWY	SADLER RD.	30000		9	0
S.R. 11A/200	SADLER RD.	JASHINE ST.	30000		9	0
S.R. 11A/200	JASHINE ST.	ATLANTIC AVE.	13100	16200	9	1458
S.R. 11A/200	8TH ST.	14TH ST.	13100		9	0
S.R. 11A/200	14TH ST.	FLETCHER AVE.	13100	8850	9	797
8TH ST.	ATLANTIC AVE.	FRANKLIN AVE.	13100		9	0
ATLANTIC AVE.	2ND ST.	8TH ST.	13100		9	0
N. FLETCHER AVE.	LOWENSTEIN ST.	ATLANTIC AVE.	13100		9	0
S.R. 11A/105	S.R. 11A/200	JASHINE ST.	13100		9	0
S.R. 11A/105	JASHINE ST.	SADLER RD.	13100		9	0
S.R. 11A/105	SADLER RD.	AMELIA ISLAND PKWY.	13100	3330	9	300
S.R. 11A/105	AMELIA ISLAND PKWY.	AMELIA RD.	13100	2790	9	251
S.R. 11A/105	AMELIA RD.	AMELIA ISLAND PKWY.	13100		9	0
S.R. 11A/105	AMELIA ISLAND PKWY.	BEACHWOOD RD.	13100	6820	9	614
S.R. 11A/105	BEACHWOOD RD.	NASSAU COUNTY LINE	13100	1650	9	149
14TH ST.	EGAN'S CREEK	ATLANTIC AVE.	13100		9	0
14TH ST.	ATLANTIC AVE.	JASHINE ST.	13100		9	0
14TH ST.	JASHINE ST.	SADLER RD.	13100	9690	9	872
14TH ST.	SADLER RD.	AMELIA ISLAND PKWY.	13100		9	0
WOODROW AVE.	14TH ST. (C.R. 105A)	S.R. 11A/200	13100		9	0
AMELIA RD. (C.R. 105A)	S.R. 11A/200	AMELIA ISLAND PKWY.	13100		9	0
AMELIA RD. (C.R. 105A)	AMELIA ISLAND PKWY.	S.R. 11A/105	13100		9	0
AMELIA ISLAND PKWY.	S.R. 11A/200	14TH ST.	13100		9	0
AMELIA ISLAND PKWY.	14TH ST.	AMELIA RD.	13100		9	0
AMELIA ISLAND PKWY.	AMELIA RD.	S.R. 11A/105	13100		9	0
AMELIA ISLAND PKWY.	S.R. 11A/105	S.R. 11A/105	13100		9	0
SADLER RD.	S.R. 11A/200	14TH ST.	13100	5660	9	509
SADLER RD.	14TH ST.	S.R. 11A/105	13100	5165	9	465
CITRONA ST.	ATLANTIC AVE.	JASHINE ST.	13100		9	0
CITRONA ST.	JASHINE ST.	SADLER RD.	13100		9	0
CITRONA ST.	SADLER RD.	SIMMONS RD.	13100		9	0
SIMMONS RD	AMELIA RD.	14TH ST.	13100		9	0
SIMMONS RD	14TH ST.	CITRONA BLVD.	13100		9	0
SIMMONS RD	CITRONA BLVD.	FLETCHER AVE.	13100		9	0
S.R. 11A/200	C.R. 107	INTRACOASTAL WATERWAY	12100	18290	10	1829
S.R. 115	DUVAL COUNTY LINE	U.S. 1/U.S. 23/S.R. 15	12100	4275	10	428
U.S. 90/S.R. 10	DUVAL COUNTY LINE	BAKER COUNTY LINE	21600		10	0
U.S. 301/S.R. 200	DUVAL COUNTY LINE	C.R. 119	12100	3905	10	391
U.S. 301/S.R. 200	C.R. 119	CRAWFORD RD.	12100		10	0
I-95/S.R. 9	C.R. 108	GEORGIA STATE LINE	21600		10	0
U.S. 301/S.R. 200	CRAWFORD RD.	U.S. 1/U.S. 23/S.R. 15	12100	4450	10	445
U.S. 17/S.R. 5	S.R. 11A/200	C.R. 108	12100	5110	10	511
S.R. 11A/200	U.S. 1/U.S. 23/S.R. 15	I-95/S.R. 9	12100	5730	10	573
U.S. 1/U.S. 23/S.R. 15	DUVAL COUNTY LINE	S.R. 11A/200	12100	11180	10	1118
S.R. 11A/200	I-95/S.R. 9	U.S. 17/S.R. 5	12100	7930	10	793

APPENDIX 3  
HASSAU COUNTY  
ROAD VOLUMES AND TRAFFIC CHARACTERISTICS

ROADWAY	SEGMENT LIMITS		ROADWAY CAPACITY	1986 AADT	K (%)	PEAK HOUR VOLUME
	FROM	TO				
U.S.1/U.S.23/S.R.15	C.R. 115	C.R. 108	12100	9900	10	990
S.R. A1A/200	U.S.17/S.P.5	C.R.107	12100	15230	10	1523
S.R.107	S.R.A1A/200	SANTA JUANA RD.	12100		10	0
I-10/S.R. 8	DUVAL COUNTY LINE	BAKER COUNTY LINE	21600		10	0
U.S.17/S.R.5	C.R. 108	GEORGIA STATE LINE	12100	2340	10	234
I-95/S.R. 9	DUVAL COUNTY LINE	S.R. A1A/200	21600		10	0
U.S.1/U.S.23/S.R.15	C.R. 108	GEORGIA STATE LINE	12100	8150	10	815
U.S.1/U.S.23/S.R.15	S.R. A1A/200	C.R. 115	12100	14950	10	1495
U.S.17/S.R.5	DUVAL COUNTY LINE	S.R. A1A/200	12100	8180	10	818
I-95/S.R. 9	S.R. A1A/200	C.R. 108	21600		10	0
LESSIE RD.	C.R.108	MIDDLE RD.	12100		10	0
THOMAS CREEK DR.	RATLIFF RD.	DUVAL COUNTY LINE	12100		10	0
RATLIFF RD.	CRAWFORD RD.	E.O.P.	12100		10	0
OWENS CUTOFF	C.R.108	U.S.17/S.P.5	12100		10	0
MIDDLE RD.	E.O.P.	C.R.115A	12100		10	0
GRIFFIN ED.	S.R.A1A/200	E.O.P.	12100		10	0
ROWE CUTOFF	C.R.121	C.P.108	12100		10	0
CRAWFORD RD.	C.R.121	U.S.301/S.R.200	12100		10	0
MURREE RD.	E.O.P.	KING'S FERRY RD.	12100		10	0
HORSESHOE CIRCLE	E.O.P.	C.R.121	12100		10	0
KING'S FERRY RD.	E.O.P	C.R.115A	12100		10	0
MIDDLE RD.	C.R.108	MUSSEL WHITE RD.	12100		10	0
TOMMY FORD RD.	U.S.301/S.P.200	E.O.P.	12100		10	0
CRAWFORD RD.	U.S.301/S.P.200	RATLIFF RD.	12100		10	0
C.R.121	C.R.108	C.R.115	12100		10	0
HENRY SMITH EXTENSION	U.S.1/U.S.23/S.R.15	C.R.108	12100		10	0
C.R.121A/MIDDLE RD.	C.R.108	E.O.P.	12100		10	0
RATLIFF RD.	E.O.P.	U.S.1/U.S.23/S.R.15	12100		10	0
C.R.115	C.R.108	C.R.121	12100	805	10	81
C.R.2	GEORGIA STATE LINE	C.R.121	12100	1160	10	116
C.R.108	C.R.115	U.S.1/U.S.23/S.R.15	12100		10	0
MUSSEL WHITE RD.	U.S.1/U.S.23/S.R.15	MIDDLE RD.	12100		10	0
C.R.121	C.R.119	C.R.2	12100		10	0
TOMMY FORD RD.	E.O.P.	DUVAL COUNTY LINE	12100		10	0
C.R.108	U.S.1/U.S.23/S.R.15	C.R.121	12100	2465	10	247
GRIFFIN RD.	E.O.P.	MIDDLE RD.	12100		10	0
KING'S FERRY RD.	U.S.1/U.S.23/S.R.15	E.O.P.	12100		10	0
C.R.119	U.S.301/S.R.200	DUVAL COUNTY LINE	12100		10	0
MURREE RD.	U.S.1/U.S.23/S.R.15	E.O.P.	12100		10	0
C.R.200A	U.S.17/S.R.5	CHESTER RD.	12100		10	0
C.R.108	U.S.1/U.S.23/S.R.15	EASTWOOD RD.	12100	1720	10	172
CHESTER RD. (C.R. 200A)	S.R.A1A/200	C.R.200A	12100	2700	10	270
C.R.108	C.R.121A/MIDDLE RD.	OWENS CUTOFF	12100	1310	10	131
CHESTER RD.	C.R.200A	GREEN PINE CEMETERY RD.	12100		10	0
C.R.108	I-95/S.P. 9	U.S.17/S.R.5	12100		10	0
CHESTER RD.	GREEN PINE CEMETERY RD.	C.R.107	12100		10	0



APPENDIX 3  
 NASSAU COUNTY  
 ROAD VOLUMES AND TRAFFIC CHARACTERISTICS

ROADWAY	SEGMENT LIMITS		ROADWAY CAPACITY	1986		PEAK HOUR VOLUME
	FROM	TO		AADT	K (%)	
EASTWOOD RD.	U.S.1/U.S.23/S.R.15	C.R.108	12100		10	0
BLACKROCK RD. (C.R.107)	S.R.11A/200	CHESTER RD.	12100		10	0
C.R.115	U.S.1/U.S.23/S.R.15	HENRY SMITH EXTENSION	12100		10	0
HARTS RD.	U.S.17/S.R.5	HADDOCK RD.	12100		10	0
C.R.121	C.R.2	C.R.108	12100		10	0
HADDOCK RD.	HARTS RD.	HINER RD.	12100		10	0
C.R.15A	U.S.1/U.S.23/S.R.15	U.S.301/S.R.200	12100		10	0
HINER RD.	HADDOCK RD.	S.R.11A/200	12100		10	0
C.R.108	EASTWOOD RD.	C.R.121A/MIDDLE RD.	12100	1720	10	172
BARNWELL RD.	S.R.11A/200	E.O.P.	12100		10	0
C.R.115A	C.R.108	MIDDLE RD.	12100	1005	10	101
C.R.119	C.R.121	U.S.301/S.R.200	12100		10	0
C.R.121	DUVAL COUNTY LINE	C.R.119	12100		10	0
C.R.107	S.R.107	E.O.P.	12100		10	0
CHURCH RD.	U.S.1/U.S.23/S.R.15	S.R.115	12100		10	0
C.R.107A	S.R.107	E.O.P.	12100		10	0
C.R.108	C.R.121	C.R.115	12100	980	10	98
C.R.108	OWENS CUTOFF	I-95/S.R. 9	12100		10	0
C.R.121	C.R.115	U.S.1/U.S.23/S.R.15	12100		10	0
HORSESHOE CIRCLE	C.R.121	E.O.P.	12100		10	0
GREEN PINE CEMETERY RD.	C.R.107	CHESTER RD.	12100		10	0

**APPENDIX 4**

**GENERALIZED LEVEL OF SERVICE MAXIMUM VOLUMES**

# GENERALIZED PEAK HOUR LEVEL OF SERVICE MAXIMUM VOLUMES FOR FLORIDA'S RURAL (<5,000) AREAS

(valid for use from January 1989 through December 1990)

## UNINCORPORATED RURAL AREAS

### FREEWAYS

Lanes	Level of Service				
	A	B	C	D	E
4	2,240	3,450	4,920	5,940	6,390
6	3,350	5,180	7,390	8,910	9,580
8	4,470	6,900	9,840	11,890	12,780

### MULTILANE UNINTERRUPTED HIGHWAYS (less than 1 signalized intersection every 4 miles)

Lanes	Level of Service				
	A	B	C	D	E
4	2,050	2,990	4,040	4,980	6,220
6	3,090	4,480	6,070	7,470	9,330

### TWO-LANE UNINTERRUPTED HIGHWAYS (less than 1 signalized intersection every 4 miles)

#### 55 MPH Posted Speed

Lanes	Level of Service				
	A	B	C	D	E
2	300	590	990	1,530	2,470

#### 45 MPH Posted Speed

Lanes	Level of Service				
	A <sup>a</sup>	B	C	D	E
2	—	290	760	1,200	2,380

## INCORPORATED BUT UNINCORPORATED AREAS

(cities, developed but unincorporated areas or roadways influenced by signalized intersections)

### TWO-WAY ARTERIALS

Group A (cities or developed areas with no signalized intersections, or roadways with 0.25 to 0.75 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2 Undiv.	—	—	770	1,150	1,540
4 Undiv.	—	—	2,560	2,790	3,100
4 Div.	—	—	2,690	2,940	3,260
6 Div.	—	—	4,070	4,420	4,900

Group B (0.76 to 1.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2 Undiv.	—	—	720	1,090	1,450
4 Undiv.	—	—	2,420	2,690	2,930
4 Div.	—	—	2,540	2,830	3,080
6 Div.	—	—	3,910	4,270	4,630

Group C (more than 1.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C <sup>a</sup>	D	E
2 Undiv.	—	—	—	1,070	1,420
4 Undiv.	—	—	—	2,600	2,890
4 Div.	—	—	—	2,740	3,050
6 Div.	—	—	—	4,190	4,600

### COLLECTORS AND LOCAL STREETS (signalized intersection analysis)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	620	970	1,100

\* The table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are average daily traffic maximum volumes (based on peak hour volumes) for levels of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. Roadways with more than the number of lanes shown should be treated on a case by case basis. The table's input value assumptions and level of service criteria appear on the back.

<sup>a</sup> Cannot be achieved.

**GENERALIZED DAILY LEVEL OF SERVICE MAXIMUM VOLUMES  
FOR FLORIDA'S URBAN/URBANIZED (5,000+) AREAS**  
(valid for use from January 1989 through December 1990)

**TWO-WAY ARTERIALS**

Group A (0.0 to 0.75 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A	B	C	D	E
2 Undiv.	13,700	15,000	18,600	16,500	17,400
4 Div.	29,800	31,900	33,000	34,900	35,700
6 Div.	45,400	48,100	49,700	52,400	53,300

Group B (0.76 to 1.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A	B	C	D	E
2 Undiv.	9,000	13,700	14,500	15,300	16,100
4 Div.	20,000	29,700	31,000	32,500	34,000
6 Div.	30,600	45,100	46,700	48,900	51,300

Group C (1.6 to 2.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B	C	D	E
2 Undiv.	—	10,200	13,500	14,800	15,700
4 Div.	—	22,800	29,500	31,700	33,600
6 Div.	—	35,100	45,000	47,900	50,500

Group D (2.6 to 3.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2 Undiv.	—	—	9,200	13,700	15,400
4 Div.	—	—	20,100	30,200	33,200
6 Div.	—	—	31,700	46,300	50,200

Group E (3.6 to 4.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2 Undiv.	—	—	—	12,300	14,600
4 Div.	—	—	—	24,300	32,100
6 Div.	—	—	—	36,500	48,800

Group F (more than 4.5 signalized intersections per mile and not within primary city central business district of urbanized area over 500,000)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2 Undiv.	—	—	—	10,300	14,600
4 Div.	—	—	—	22,900	32,100
6 Div.	—	—	—	34,900	48,000

Group G (more than 4.5 signalized intersections per mile and within primary city central business district of urbanized area over 500,000)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2 Undiv.	—	—	—	13,100	15,400
4 Div.	—	—	—	29,300	33,700
6 Div.	—	—	—	45,200	51,300

C  
L  
A  
S  
S  
I

C  
L  
A  
S  
S  
II

C  
L  
A  
S  
S  
III

**DIVIDED/UNDIVIDED ADJUSTMENTS**  
(alter corresponding two-way arterial volume indicated percent)

Lanes	Median	Left Turn Bays	Adjustment Factor
2	Divided	Yes	+ 5%
2	Undivided	No	- 10%
Multi	Undivided	Yes	- 5%
Multi	Undivided	No	- 20%

**FREEWAYS**

Group 1 (within urbanized area over 500,000 and leading to or within 5 miles of primary city central business district)

Lanes	Level of Service				
	A	B	C	D	E
4	27,800	42,800	61,100	73,900	79,300
6	41,700	64,300	91,600	110,700	119,000
8	55,500	85,700	122,200	147,600	158,700
10	69,400	107,100	152,700	184,500	198,400

Group 2 (within urbanized area over 50,000 and not in Group 1)

Lanes	Level of Service				
	A	B	C	D	E
4	21,400	33,000	47,100	56,900	61,100
6	32,100	49,500	70,600	85,300	91,700
8	42,800	66,000	94,200	113,700	122,300
10	53,500	82,500	117,700	142,200	152,900

Group 3 (within non-urbanized areas)

Lanes	Level of Service				
	A	B	C	D	E
4	17,100	24,300	37,600	45,400	48,800
6	25,600	39,500	59,500	69,000	73,200
8	34,100	52,700	78,100	90,700	97,500

**ONE-WAY ARTERIALS**

Group D (less than 3.6 signalized intersections per mile)

Lanes	Level of Service				
	A <sup>a</sup>	B	C	D	E
2	—	9,800	14,800	16,900	18,000
3	—	14,900	22,700	25,600	27,200
4	—	19,900	30,600	34,300	36,300

Group E (3.6 to 4.5 signalized intersections per mile)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	13,300	16,200	17,600
3	—	—	20,300	24,800	26,600
4	—	—	27,100	33,300	35,600

C  
L  
A  
S  
S

I

Group F (more than 4.5 signalized intersections per mile and not within primary city central business district of urbanized area over 500,000)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	10,900	15,600	17,700
3	—	—	16,600	23,900	26,600
4	—	—	22,400	32,400	35,900

C  
L  
A  
S  
S  
II

Group G (more than 4.5 signalized intersections per mile and within primary city central business district of urbanized area over 500,000)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	13,300	17,200	18,300
3	—	—	20,400	26,200	27,700
4	—	—	27,600	35,200	37,100

C  
L  
A  
S  
S  
III

**TWO-WAY COLLECTORS AND LOCAL STREETS**  
(signalized intersection analysis)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	7,700	11,600	12,900
4	—	—	16,200	24,300	26,400
6	—	—	24,900	37,200	40,100

\* The table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are average daily traffic maximum volumes (based on peak hour volumes) for levels of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. Roadways with more than the number of lanes shown should be treated on a case by case basis. The table's input value assumptions and level of service criteria appear on the back.

<sup>a</sup> Cannot be achieved.

# GENERALIZED DAILY LEVEL OF SERVICE MAXIMUM VOLUMES FOR FLORIDA'S RURAL (<5,000) AREAS (valid for use from January 1989 through December 1990)

## UNINCORPORATED AREAS AND PRINCIPALS

### FREEWAYS

Lanes	Level of Service				
	A	B	C	D	E
4	17,100	26,300	37,600	45,400	48,800
6	25,600	39,500	56,300	68,000	73,200
8	34,100	52,700	75,100	90,700	97,500

### MULTILANE UNINTERRUPTED HIGHWAYS (less than 1 signalized intersection every 4 miles)

Lanes	Level of Service				
	A	B	C	D	E
4	15,700	22,800	30,900	38,000	47,500
6	23,500	34,200	46,300	57,000	71,200

### TWO-LANE UNINTERRUPTED HIGHWAYS (less than 1 signalized intersection every 4 miles)

#### 55 MPH Posted Speed

Lanes	Level of Service				
	A	B	C	D	E
2	2,900	5,800	9,400	15,000	24,200

#### 45 MPH Posted Speed

Lanes	Level of Service				
	A <sup>m</sup>	B	C	D	E
2	—	2,800	7,500	12,300	23,300

## UNINCORPORATED AREAS AND PRINCIPALS

(cities, developed but unincorporated areas or roadways influenced by signalized intersections)

### TWO-WAY ARTERIALS

Group A (cities or developed areas with no signalized intersections, or roadways with 0.25 to 0.75 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>m</sup>	B <sup>m</sup>	C	D	E
2 Undiv.	—	—	7,500	11,300	15,100
4 Undiv.	—	—	25,100	27,400	30,300
4 Div.	—	—	28,400	28,800	31,900
6 Div.	—	—	39,900	43,400	48,000

Group B (0.76 to 1.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>m</sup>	B <sup>m</sup>	C	D	E
2 Undiv.	—	—	7,100	10,700	14,200
4 Undiv.	—	—	23,700	26,300	28,700
4 Div.	—	—	24,900	27,700	30,200
6 Div.	—	—	38,300	41,900	45,400

Group C (more than 1.6 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>m</sup>	B <sup>m</sup>	C <sup>m</sup>	D	E
2 Undiv.	—	—	—	10,500	13,900
4 Undiv.	—	—	—	25,500	28,400
4 Div.	—	—	—	26,800	30,200
6 Div.	—	—	—	41,100	45,100

### COLLECTORS AND LOCAL STREETS (signalized intersection analysis)

Lanes	Level of Service				
	A <sup>m</sup>	B <sup>m</sup>	C	D	E
2	—	—	6,100	9,500	10,800

\* The table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are average daily traffic maximum volumes (based on peak hour volumes) for levels of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. Roadways with more than the number of lanes shown should be treated on a case by case basis. The table's input value assumptions and level of service criteria appear on the back.

<sup>m</sup> Cannot be achieved.

**GENERALIZED PEAK HOUR LEVEL OF SERVICE MAXIMUM VOLUMES  
FOR FLORIDA'S URBAN/URBANIZED (5,000+) AREAS**  
(valid for use from January 1989 through December 1990)

**TWO-WAY ARTERIALS**

Group A (0.0 to 0.75 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A	B	C	D	E
2 Undiv.	1,580	1,440	1,490	1,580	1,670
4 Div.	2,880	3,070	3,170	3,350	3,530
6 Div.	4,350	4,620	4,770	5,030	5,300

Group B (0.76 to 1.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A	B	C	D	E
2 Undiv.	870	1,310	1,590	1,470	1,540
4 Div.	1,520	2,850	2,970	3,120	3,270
6 Div.	2,820	4,330	4,480	4,700	4,910

Group C (1.6 to 2.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B	C	D	E
2 Undiv.	—	980	1,290	1,420	1,510
4 Div.	—	2,190	2,830	3,040	3,210
6 Div.	—	3,570	4,320	4,600	4,830

Group D (2.6 to 3.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2 Undiv.	—	—	880	1,310	1,470
4 Div.	—	—	1,930	2,900	3,180
6 Div.	—	—	2,940	4,440	4,820

Group E (3.6 to 4.5 signalized intersections per mile)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C <sup>a</sup>	D	E
2 Undiv.	—	—	—	1,180	1,410
4 Div.	—	—	—	2,530	3,080
6 Div.	—	—	—	3,780	4,680

Group F (more than 4.5 signalized intersections per mile and not within primary city central business district of urbanized area over 500,000)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C <sup>a</sup>	D	E
2 Undiv.	—	—	—	980	1,400
4 Div.	—	—	—	2,180	3,050
6 Div.	—	—	—	3,350	4,710

Group G (more than 4.5 signalized intersections per mile and within primary city central business district of urbanized area over 500,000)

Lanes/ Divided	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C <sup>a</sup>	D	E
2 Undiv.	—	—	—	1,290	1,450
4 Div.	—	—	—	2,610	3,230
6 Div.	—	—	—	4,340	4,920

**DIVIDED/UNDIVIDED ADJUSTMENTS**  
(after corresponding two-way arterial volume indicated percent)

Lanes	Median	Left Turn Bays	Adjustment Factor
2	Divided	Yes	+ 5%
2	Undivided	No	- 15%
Multi	Undivided	Yes	- 5%
Multi	Undivided	No	- 20%

**FREEWAYS**

Group 1 (within urbanized area over 500,000 and leading to or within 5 miles of primary city central business district)

Lanes	Level of Service				
	A	B	C	D	E
4	2,470	3,610	5,440	6,570	7,080
6	3,710	5,720	8,160	9,850	10,580
8	4,940	7,630	10,880	13,140	14,120
10	6,180	9,530	13,560	16,420	17,650

Group 2 (within urbanized area over 50,000 and not in Group 1)

Lanes	Level of Service				
	A	B	C	D	E
4	2,350	3,630	5,180	6,250	6,730
6	3,530	5,450	7,770	9,380	10,060
8	4,710	7,260	10,580	12,510	13,450
10	5,880	9,060	12,950	15,640	16,820

Group 3 (within non-urbanized areas)

Lanes	Level of Service				
	A	B	C	D	E
4	2,240	3,450	4,920	5,940	6,380
6	3,350	5,180	7,380	8,910	9,580
8	4,470	6,900	9,840	11,880	12,780

**ONE-WAY ARTERIALS**

Group D (less than 3.6 signalized intersections per mile)

Lanes	Level of Service				
	A <sup>a</sup>	B	C	D	E
2	—	1,080	1,600	1,830	1,930
3	—	1,810	2,450	2,770	2,940
4	—	2,150	3,320	3,710	3,930

Group E (3.6 to 4.5 signalized intersections per mile)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	1,440	1,750	1,900
3	—	—	2,190	2,670	2,870
4	—	—	2,920	3,600	3,850

Group F (more than 4.5 signalized intersections per mile and not within primary city central business district of urbanized area over 500,000)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	1,150	1,680	1,940
3	—	—	1,730	2,590	2,890
4	—	—	2,410	3,500	3,870

Group G (more than 4.5 signalized intersections per mile and within primary city central business district of urbanized area over 500,000)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	1,440	1,830	1,980
3	—	—	2,210	2,830	2,990
4	—	—	2,980	3,800	4,000

**TWO-WAY COLLECTORS AND LOCAL STREETS**  
(signalized intersection analysis)

Lanes	Level of Service				
	A <sup>a</sup>	B <sup>a</sup>	C	D	E
2	—	—	730	1,110	1,240
4	—	—	1,590	2,330	2,540
6	—	—	2,380	3,570	3,850

\* The table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are average daily traffic maximum volumes (based on peak hour volumes) for levels of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. Roadways with more than the number of lanes shown should be treated on a case by case basis. The table's input value assumptions and level of service criteria appear on the back.

<sup>a</sup> Cannot be achieved.

HOUSING ELEMENT  
NASSAU COUNTY COMPREHENSIVE PLAN

Adopted  
January, 1991

Prepared by  
Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by  
The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

## Table of Contents

<u>Section</u>	<u>Page</u>
INTRODUCTION.....	C-1
Existing Housing Conditions.....	C-1
Housing Type and Tenure.....	C-2
Housing Development from 1980 to 1986.....	C-3
Mobile Home Parks.....	C-4
Special housing Types.....	C-6
Historically Significant Housing.....	C-6
Physical Characteristics.....	C-7
Age of Housing.....	C-7
Units Lacking Plumbing Facilities.....	C-8
Units Lacking Kitchen Facilities.....	C-8
Units Lacking Heating.....	C-9
Overcrowding Conditions in Housing.....	C-9
Inventory of Existing Housing Conditions.....	C-10
Housing Affordability in Rental Market.....	C-10
Rental Ranges of Housing Units.....	C-10
Value of Housing.....	C-11
Monthly Cost of Owner-Occupied Units.....	C-13
Ratio of Owner and Renter Costs to Income.....	C-14
FUTURE HOUSING NEEDS.....	C-15
Demographic Projections.....	C-15
Number of Households.....	C-16
Household Size.....	C-16
Projection of Housing Unit Need.....	C-17
Accommodating a Vacancy Rate and Replacement Housing.....	C-17
Tenure of Housing Units.....	C-18
Type of Housing Units.....	C-18
Estimated Rural and Farm Worker Households.....	C-18
Residential Land Requirements.....	C-19
Projected Amount of Residential Acreage Need by Densities.....	C-19
Housing Unit Projections.....	C-20
Households by Income.....	C-20
Housing Need Projections.....	C-22
Housing Delivery System.....	C-23
Land Availability.....	C-23
Service Facilities.....	C-24
Government Regulations.....	C-24
Elimination of Substandard Housing.....	C-24
Provision of Sites for Low and Moderate Income Housing.....	C-24
Provision of Sites for Mobile Homes.....	C-25
Provision of Group Home Sites.....	C-25
Protection of Historical Residential Structures.....	C-25



## LIST OF HOUSING TABLES

Table	PAGE
C-1 Year Round Housing Units by Type, 1980.....	C-2
C-2 Housing Units by Tenure and Occupancy, 1980.....	C-3
C-3 Housing Construction ACTivity, 1981-1986.....	C-4
C-4 Mobile Home Parks Licensed by HRS, Nassau County.....	C-4
C-5 Subsidized Housing.....	C-6
C-6 Housing of Historical Significance.....	C-6
C-7 Year Round Dwelling Units by Year Built, 1980.....	C-8
C-8 Units Lacking Complete Plumbing Facilities, 1980.....	C-8
C-9 Occupied Dwelling Units Lacking Complete Kitchen.....	C-9
C-10 Overcrowded Dwelling Units, 1980.....	C-9
C-11 Gross Rent for Housing Units, 1980.....	C-11
C-12 Housing Values in Total Nassau County, 1980.....	C-12
C-13 Mortgage Costs and Non-mortgaged Unit Costs, Owner Occupied Units, 1980.....	C-13
C-14 Ratio of Owner and Renter Costs to Income, 1980.....	C-14
C-15 Historical Population Counts for Nassau County and Unincorporated Area.....	C-15
C-16 Population Projections, Nassau County and Unincorporated....	C-16
C-17 Household Size, Total Nassau County, 1980.....	C-16
C-18 Projection of Households.....	C-17
C-19 Projection of Housing Units to Accommodate Vacancy Rate and Demolitions.....	C-17
C-20 Projected Dwelling Unit need by Type, 1990-2005.....	C-18
C-21 Projection of Housing Unit Needs, 1990-2005.....	C-19
C-22 Total Projected Number of Units and Number of Acres Required: Year 2005.....	C-20
C-23 Projection of Households by Income.....	C-21
C-24 Estimated Monthly Rental Limits and Purchase Costs.....	C-22
C-25 Projection of Housing Need by Cost for Renters and Owners...	C-23

## LIST OF FIGURES

Figure	Page
Figure C-1 Map of Nassau County Census Tracts.....	C-26
Figure C-2 General Location of Substandard Housing.....	C-27

# NASSAU COUNTY COMPREHENSIVE PLAN

## HOUSING ELEMENT

### INTRODUCTION

This element will document the existing conditions and characteristics of Nassau County's housing supply. Most of this examination will focus on data obtained from the 1980 Census of Population and Housing since this is the only source available for most of the 9J-5 requirements. This section will provide an understanding of the housing market system in the County and establish the basis to project future housing needs. It should be noted, however, that different categories of information in the Housing Census are based on different sample sizes. Because of this, the total sum of housing units in one sampling universe may not equate with the total sum of housing units in a smaller or larger sampling universe.

This element is scoped to address the unincorporated area of Nassau County with comparisons to the total County as required by 9J-5.010(1)(b). Unless otherwise noted, all references to Nassau County in this element refer to the unincorporated portion of the County.

#### Existing Housing Conditions

Figure C-1 is a map of Nassau County census tracts (501, 502, 503, 504 and 505), and the following inventory of housing is presented by census tract according to the 1980 Census counts. Data for the incorporated municipalities of Callahan, Hilliard and Fernandina Beach are not included in the following statistics unless otherwise noted.

## Housing Type and Tenure

Table C-1 presents the number of housing units by type and census tract. The data show that single family units predominated in both the unincorporated area and total County areas; however, the unincorporated area experienced a higher ratio of mobile homes and a lower ratio of multi-family units than did the total County. The large number of multi-family units in Tract 502 reflect the strong development trends, population growth, desirability of coastal areas in the Amelia Island area of Tract 502. That area of continued development of large projects such as Amelia Island Plantation has central water and sewer and experiences major transportation linkages providing access to it.

TABLE C-1  
Year Round Housing Units by Type, 1980

Census Tract	Total Units	Single Family	Multi-Family	Mobile Homes
501	9	9	0	0
502	2136	931	882	323
503	2727	1582	121	1024
504	1259	702	120	437
505	2690	1611	91	988
Totals	8821	4835 (54.8%)	1214 (13.8%)	2772 (31.4%)
Nassau County:	13009	7733 (59.4%)	2231 (17.2%)	3045 (23.4%)

Source: U.S. Census, Summary Tape File 3A, 1980.

Table C-2 presents 1980 Census counts of year round dwelling units by tenure and occupancy status. While the unincorporated area and total Nassau County experienced nearly the same occupancy rate (84.4%), the unincorporated area had a slightly higher percentage of owners than did the total County area (80.4% and 78.3%, respectively).

Census Tract 502, the Amelia Island area, shows the highest ratio of vacant units (35.6 percent) and Census Tract 505 experienced the highest occupancy rate at 93.2 percent; this area is the Callahan area which is adjacent to northwest Duval County.

TABLE C-2  
HOUSING UNITS BY TENURE AND OCCUPANCY, 1980

Status	Tract 501	Tract 502	Tract 503	Tract 504	Tract 505	Unincorp. Area	Total Nassau County
Total Units	9	2136	2727	1259	2690	8,821	13,009
Occupied	9	1375	2449	1103	2508	7,444	10,976
Occ. Rate	100%	64.4%	89.8%	87.6%	93.2%	84.39%	84.37%
Owners	9	893	2098	825	2158	5,983	8,589
Renters	0	482	351	278	350	1,461	2,387
Vacant Units	0	761	278	156	182	1,377	2,033

Source: U.S. Census 1980, Summary Tape File 3A.

Housing Development from 1980 to 1989

Housing construction and mobile home placements according to building permit records of the County Building and Zoning Department are presented in Table C-3.

The available records show 63 permits for multi-family structures; however the number of dwelling units in those permitted structures are not available. Of the 6,876 conventional dwelling units and mobile homes permitted during the period since 1989, almost 68 percent were mobile homes. The County also issued permits for the demolition of 18 residential units. The high ratio of mobile homes reflects the desirability of mobile homes as an affordable housing choice in unincorporated areas. The growth of the multi-family market indicates a need for increased densities as the demand for the diminishing land on Amelia Island increases and the price of land increases.

TABLE C-3  
Housing Construction Activity, 1981-1986

Year	Single Family	Multi-Family	Mobile Homes	Demolitions
1981	180	5 permits	395	
1982	164	6 permits	458	1
1983	187	16 permits	495	2
1984	209	2 permits	586	1
1985	224	21 permits	625	2
1986	264	1 permit	629	2
1987	360		542	
1988	337		530	2
1989	294	12 permits	397	8
TOTALS:	2219	63 permits	4657	18

Source: Nassau County Planning & Zoning Department.

Mobile Home Parks

Table C-4 contains a listing of existing mobile home parks and their respective unit spaces in Nassau County that are licensed by the Department of Health and Rehabilitative Services.

TABLE C-4

Mobile Home Parks Licensed by HRS, Nassau County

Name/Location/Planning District	Mobile Homes Spaces
Bow and Arrow Campground 1064 U.S. 17 South Yulee	1
Goodbread Mobile Home Park Goodbread Circle North at U.S. 17 Yulee	30
Bells Trailer Park U. S. 17 South of Yulee Yulee	8
Teakwood Mobile Home Park 908 U.S. 17 South Yulee	30
Robinson Trailer Park Henry Smith Road Hilliard	61
Ridley's Trailer Park Boulogne Hilliard	7
Braddocks Trailer Park 2nd Avenue at Mickler Street Callahan	19
Countrypride Mobile Home Park U.S. 1 North Callahan	9
Pine Tree Trailer Park 4th Avenue at U.S. 1 Callahan	10
Whispering Pines Mobile Home Park U.S. 1 South Callahan	18

Table C-4 continued:

Name/Location/Planning District	Mobile Home Spaces
Island Trailer Park Clinch Drive Amelia Island	6
Roaring Creek Trailer Park 4th Street, Rt. 3, Box 322 Amelia Island	6
Midway Mobile Home Park Rt. 1, Box 174-F, Midway Road Amelia Island	10
Village Mobile Home Park Clinch Drive Amelia Island	7
Ruby Peeples Mobile Home Park 6th Street Ext. at Magnolia St. Amelia Island	10
Kirby T. Peeples Mobile Home Park Amelia Avenue Amelia Island	12
Nassau Acres Mobile Home Park 110 Pages Dairy Road Amelia Island	20
Pine Grove Mobile Home Park 1119 South 10th Street Amelia Island	8
Teakwood Mobile Home Park 908 U.S. 17 South Yulee	30
Deckers Trailer Park White Street - Old Town Amelia Island	11
Shady Oak Villa Park Drury Road Amelia Island	7
Sandpiper Mobile Home Park Amelia City Amelia Island	12

Source: State of Florida, Department of Health and Rehabilitative Services, Mobile Home Park and Vehicle Registration, June 1986.

### Special Housing Types

The special housing types that were assessed included subsidized renter-occupied developments, historically significant housing and group homes.

Table C-5 identifies renter-occupied housing subsidized by federal, state or local programs.

TABLE C-5  
SUBSIDIZED HOUSING

Census Tract	Program	Agency	Name	Type of Unit		Total
				EF/1 BR	2/3 BR	
502	515	FMHA	Peppertree Village	60	-	60
502	515	FMHA	Fernandina Beach Villas	-	42	42
504	515	FMHA	Pine Tree Apts.	12	32	44

Source: Farmer's Home Administration; Fleet & Associates 1987

After contacting the Department of Health and Rehabilitative Services, it was determined that there are no group homes located in Nassau County.

### Historically significant Housing

Table C-6 presents a listing of historically significant housing located in Nassau County. The structures identified in Table C-6 were identified from the Florida Master Site File. The National Register of Historic Places lists several structures in the incorporated areas of the County, however, none are located in the unincorporated areas.

TABLE C-6  
Housing of Historical Significance

No.	Site Name	Location	Use
1.	Deep Creek School	CR 121 2.5 Mi N. of CR 119	Pvt. Residence
2.	Wade Hicks House	CR 121 4 Mi N. of CR 119	Pvt. Residence
3.	Log House #1	CR 121 4 Mi N. of CR 119	Pvt. Residence
4.	W. M. Canupp Log Cabin	CR 121 4 Mi N. of CR 119	Pvt. Residence
5.	Allen House	CR 121 4.5 Mi N. of CR 119	Vacant
6.	Green House	CR 121 5 Mi N. of CR 119	Vacant
7.	St. George House	SR 1, 1 Mi W. of CR 121	Vacant
8.	William Rowe Farm Furnace House	3.75 Mi N. of SR 2 on 121	Mill
9.	James M. Henderson House	.25 Mi S. of CR 115/CR 121	Pvt. Residence
10.	Roy Sikes House	Roy Sikes Road, Hilliard area	Pvt. Residence

Table C-6 continued:

No.	Site Name	Location	Use
11.	Tompkins Road House	Tompkins Road, Hilliard area	Pvt. Residence
12.	Conner Cutoff House	1 Mi S. of Conner Cutoff	Pvt. Residence
13.	Hilliard House	CR 108 2.5 Mi S Hilliard	Vacant
14.	Noah Carroll House	CR 121 .25 Mi N CR 108	Pvt. Residence
15.	Roger Crews House	CR 108 1.1 Mi N. of CR 121	Vacant
16.	Carroll/Smith Cabin	CR 108 1.1 Mi NE of 121	Pvt. Residence
17.	Daniel Benjamin Sykes House	CR 108 1.9 Mi SE of 121	Pvt. Residence
18.	Ralph Hurst House	CR 108 2.9 Mi E. of CR 121	Pvt. Residence
19.	Hurst House #2	CR 108 2.9 Mi E. of CR 121	Pvt. Residence
20.	Old Jones House	CR 108 1.3 Mi W. of Callahan	Pvt. Residence
21.	James Wesley Keen House	SR 2 2.5 Mi SE, Crawford	Pvt. Residence
22.	D. W. Keen House	SR 2 2.5 Mi SE, Crawford	Pvt. Residence
23.	House #4	CR 115 2 Mi N. of Callahan	Pvt. Residence
24.	Braddock Road House	Roy Braddock Rd, Callahan area	Pvt. Residence
25.	Claude Sikes House	U.S. 301 2 MI SE, Hilliard	Pvt. Residence
26.	Musselwhite Turpentine Co. House	Middle Rd., Callahan area	Pvt. Residence
27.	Middle Road 'I' House	Middle Rd., Callahan area	Pvt. Residence
28.	Haddock House	CR 121A N 1.25 Mi, Hilliard	Pvt. Residence
29.	King's Ferry House	CR 115A 2.5 Mi SW, Hilliard	Pvt. Residence
30.	Conners/Haddock House	King's Ferry Crossing	Pvt. Residence
31.	Clarence Rerrine House	Lessie Rd., King's Ferry	Pvt. Residence
32.	Lingon L. Owens Slaughter House	Owens Cutoff, Evergreen	Vacant
33.	Thomas Jefferson Wingate House	Owens Cutoff, Evergreen	Pvt. Residence
34.	Callahan House	A1A 1 Mi NE, Callahan	Pvt. Residence
35.	Alonzo Joyce House	A1A 1.7 Mi NE, Callahan	Pvt. Residence
36.	S. Bennett Farmstead House	CR 121 1.75 Mi N. of US 90 Bryceville	Pvt. Residence
37.	William Pringle House	CR 121 N. of Brandy Branch	Pvt. Residence
38.	Henry J. Stokes House	Stokes Rd., Bryceville	Pvt. Residence

Source: Florida master Site File: Inventory dated August 9, 1990.

### Physical Characteristics

#### Age of Housing

According to the 1980 Census, over half (58.77%) of all year round units in the County were constructed since 1970.

Table C-7 presents 1980 Census counts of dwelling units by year built in Nassau County. Almost 62 percent of the County's units built before 1940 were in the incorporated area and the unincorporated housing supply appeared to be somewhat newer than that for the County as a whole.



TABLE C-7  
YEAR ROUND DWELLING UNITS BY YEAR BUILT, 1980

Year Built	C E N S U S			T R A C T		UNINCORPORATED	TOTAL
	501*	502	503	504	505	TOTAL	COUNTY
1979-1980		105	213	60	168	546	670
1975-1978		288	504	156	515	1463	1843
1970-1974		1128	735	386	916	3165	4004
1960-1969		351	664	267	562	1844	2586
1950-1959		101	317	210	278	906	1849
1940-1949		89	162	85	141	477	1007
1939 & Earlier		74	124	95	110	403	1050
TOTAL UNITS:	9	2136	2719	1259	2698	8813	13009

\* The Census Bureau suppressed data variables for the 9 units in Tract 501 due to their small number.

Source: U.S. Census, 1980, Summary Tape File 3A.

#### Units Lacking Plumbing Facilities

According to the 1980 Census, 139 of the County's occupied year round dwelling units lacked complete plumbing facilities. Those 139 occupied units lacking complete plumbing facilities represented 1.9 percent of all occupied units in the area. This data compares to the total County having 2.3 percent of all occupied units without complete plumbing and this data is presented in Table C-8 by Census Tract and for the total Nassau County area.

TABLE C-8  
Units Lacking Complete Plumbing Facilities, 1980

Tract	U N I N C O R P O R A T E D		TOTAL COUNTY	
	Occupied Units	W/O Plumbing	Occ. Units	W/O Plumb.
501	9	0	10,976	255
502	1375	21		
503	2449	32		
504	1103	13		
505	2508	73		
Totals:	7444	139		

Source: U.S. Census, 1980, Summary Tape File 3A.

#### Units Lacking Kitchen Facilities

Table C-9 presents 1980 Census counts of Nassau County housing units lacking complete kitchen facilities. According to the Census Bureau, a unit has complete kitchen facilities when it has all of the following: (1) an installed sink with piped water, (2) a range or cookstove, and (3) a mechan-

ical refrigerator; all kitchen facilities must be located in the structure. As indicated, 314 of the unincorporated County's occupied dwelling units did not have complete kitchens in 1980. This amounts to 4.2 percent of all occupied units.

TABLE C-9  
Occupied Dwelling Units Lacking Complete Kitchen Facilities, 1980

Tract	U N I N C O R P O R A T E D		TOTAL COUNTY	
	Occupied Units	W/O Kitchen	Occ. Units	W/O Kitchen
501	9	0	10,976	436
502	1375	29		
503	2449	117		
504	1103	52		
505	2508	116		
Total:	7444	314		

Source: U.S. Census, 1980, Summary Tape File 3A.

#### Units Lacking Heating

According to the 1980 Census, only 17 of the unincorporated area's occupied units experienced no means of heat. Those 17 units were located in Tract 505. The Census reported 37 units without some kind of heat in the total County area; therefore 20 of the occupied units with heat were in the incorporated area.

#### Overcrowding Conditions in Housing

The Census Bureau defines overcrowding in housing units as a condition with more than one person to a room. Based on this criterion, 344 occupied units in the County were overcrowded in 1980. Table C-10 presents Census counts for this variable.

TABLE C-10  
Overcrowded Dwelling Units, 1980

Tract	U N I N C O R P O R A T E D		TOTAL COUNTY	
	Occupied Units	Overcrowded	Occ. Units	Overcrowded
501	9	0	10,976	479
502	1375	26		
503	2449	146		
504	1103	49		
505	2508	123		
Totals:	7444	344		

Source: U.S. Census, 1980, Summary Tape File 3A.

## Inventory of Existing Housing Conditions

The estimate for the number of substandard housing units in Nassau County was based on the 1980 Census counts of units that lacked complete plumbing. It is assumed that the units lacking other amenities such as central heat and kitchens and that experienced overcrowding were, for the most part, the same units as those lacking complete plumbing. Based on the data provided in Table C-8, 139 occupied dwelling units would have been determined to be substandard.

The county's housing stock increased 44% from 1980-1986. The units added were a combination of new construction and mobile home placements. All new housing units were constructed according to the Southern Standard Building Code and are assumed to be in standard condition. The mobile homes added to the Nassau County housing stock since 1980 had to meet state and federal requirements for construction of manufactured housing. These are also assumed to be in standard condition.

The estimated 139 substandard units represent less than 2 percent of the area's occupied units. This low percentage is common in the majority of the rapidly growing communities in northeast Florida. As the number of housing units increase, the percentage of substandard housing decreases.

Figure C-2 locates areas with a known concentration of substandard housing. These are duplexes and other multi-family units concentrated in American Beach, the older sporadically occurring single-family units in the greater O'Neill area, an old and small subdivision in the Yulee area along Highway 200-A1A just east of its intersection with Highway 17, and two small pockets of poor quality low-income housing located in the greater Callahan area. One area is located just northwest of the town limits of Callahan along the northside of Highway 200-A1A, and the other is located along State Road 115 in the vicinity of Callahan Junior High School.

## Housing Affordability in Rental Market

Housing affordability has been cited as a growing problem across the State of Florida in both the renter and owner markets. This section will examine the problem in the Nassau County renter-occupied housing market in 1980. Subsequent sections will look at later time periods and attempt to project changes in the situation.

## Rental Ranges of Housing Units

Gross monthly rent for specified renter-occupied units in Nassau County, according to the 1980 Census, is presented in Table C-11. Gross rent is the contract rent plus the estimated average monthly cost of utilities if these are paid for by the renter in addition to rent.

Table C-11 data shows that renters in Tract 502 experienced the highest rental rates, and the lower rentals were in Tracts 503 and 505.

TABLE C-11  
Gross Rent for Housing Units, 1980

Rent Range	C E N S U S			T R A C T		UNINCORPORATED TOTAL	TOTAL COUNTY
	501	502	503	504	505		
Specified Renters		447	312	246	270	1275	2204
Less than \$60	N	0	0	0	0	0	20
\$60-\$79	o	17	5	4	33	59	75
\$80-\$99	n	5	0	0	16	21	45
\$100-\$119	e	14	25	5	25	69	85
\$120-\$149		26	46	11	22	105	158
\$150-\$169		21	33	16	5	75	152
\$170-\$199	C	39	34	10	30	113	232
\$200-\$249	o	65	50	45	23	183	389
\$250-\$299	u	77	34	69	34	214	283
\$300-\$349	n	78	9	18	5	110	188
\$350-\$399	t	59	13	17	0	89	131
\$400-\$499	e	15	0	0	0	15	77
\$500 or more	d	5	7	0	0	12	35
Average		\$276	\$180	\$251	\$170	\$219	\$222
No Cash Rent		26	56	51	77	210	334

Source: U.S. Census, 1980; Summary Tape File 3A.

#### Value of Housing

Housing unit value, according to the 1980 Census, is the Census respondent's estimate of how much the property (property and lot) would sell for if it were for sale. The most definitive data available for housing values in Nassau County is from the 1980 Census; however, value ranges are provided for the total County only, as presented in Table C-12. The median value for specified owner-occupied noncondominium housing units was \$32,600, considerably lower than the State's median of \$45,100.

TABLE C-12  
Housing Values in Total Nassau County, 1980

Value	Number	Percent
*Specified owner-occupied noncondominium units	4,982	
Less than \$ 1,000	393	7.9%
\$10,000 to \$14,999	407	8.2%
\$15,000 to \$19,999	439	8.8%
\$20,000 to \$24,999	538	10.8%
\$25,999 to \$29,999	487	9.8%
\$30,000 to \$34,999	434	8.7%
\$35,000 to \$39,999	387	7.8%
\$40,000 to \$49,999	635	12.7%
\$50,000 to \$59,999	456	9.2%
\$60,000 to \$79,999	507	10.2%
\$80,000 to \$99,999	147	2.9%
\$100,000 to \$149,999	109	2.2%
\$150,000 to \$199,999	31	.6%
\$200,000 or more	12	.2%

\* Limited to owner-occupied one-family houses on less than 10 acres without a commercial establishment or medical office on the property; data excludes mobile homes.

Source: U.S. Census, 1980; Summary Tape File 3A.

### Monthly Cost of Owner-Occupied Units

The unincorporated area of the County overall experienced higher owner mortgage rates than did total Nassau County in 1980. This accounts for the higher housing and mortgage costs in the Amelia Island area. Table C-13 presents 1980 Census counts of monthly costs of owner-occupied units for both the unincorporated and total Nassau County areas.

TABLE C-13  
Mortgage Costs and Non-mortgaged Unit Costs, Owner Occupied Units, 1980

	Specified Owner-Occupied Units with a Mortgaged		Units not Mortgaged		
	Unincorp.	Tot. County	Unincorp.	Tot. County	
Total Units	1596	2936	Total Units	1148	1977
Less than \$100	19	44	Less than \$50	60	99
\$100 - \$149	77	117	\$ 50 - \$ 74	99	208
\$150 - \$199	133	287	\$ 75 - \$ 99	245	374
\$200 - \$249	224	370	\$100 - \$124	304	459
\$250 - \$299	302	511	\$125 - \$149	197	345
\$300 - \$349	307	550	\$150 - \$199	178	368
\$350 - \$399	143	242	\$200 - \$249	49	124
\$400 - \$449	134	198	\$250 or more	16	54
\$450 - \$499	117	168	Median	\$115	\$118
\$500 - \$599	124	222			
\$600 - \$749	86	139			
\$750 or more	47	88			
Median	\$363	\$313			

Source: U.S. Census, 1980; Summary Tape File 3A.

Ratio of Owner and Renter Costs to Income

Table C-14 presents 1980 Census data for housing costs as a percentage of income for Nassau County owners and renters. The statistics reflect that more than half of all householders earning less than \$10,000 spent 35 percent or more of their earnings on housing costs. The situation was more serious for renters than for owners: 50.2 percent of all renter-occupied households earning less than \$10,000 spent 35 percent or more of their earnings for housing. Looking at all ranges of income, 8 percent of all owners and 25 percent of all renters spent 35 percent or more of their income on housing costs. Notable is that almost 71 percent of all owners spent less than 20 percent of their incomes on housing costs.

TABLE C-14  
Ratio of Owner and Renter Costs to Income, 1980

Pct. of Income Spent on Hsg.	I N C O M E			R A N G E S		Total H' Holds	
	Less than \$5000	\$5000- \$9999	\$10000- \$14999	\$15000- \$19999	\$2000 or More	No.	Pct.
Specified							
Owner-Occ Units	227	300	347	353	1647	2874	100%
Less than 20 Pct.	59	153	196	190	1433	2031	71%
20 to 24 Pct.	10	45	50	92	95	292	10%
25 to 34 Pct.	47	48	57	44	88	284	10%
35 Pct. or More	78	54	44	27	31	234	8%
Not computed	227	0	0	0	0	233	1%
Specified							
Renter-Occ. Units	309	288	205	159	262	1223	100%
Less than 20 Pct.	0	41	52	114	227	434	35%
20 to 24 Pct.	0	18	37	30	0	85	7%
25 to 34 Pct.	27	45	73	15	7	167	14%
35 Pct. or More	182	118	7	0	0	307	25%
Not computed	100	66	36	0	28	230	19%
	Households Earning Less than \$10,000						
	O W N E R S		R E N T E R S		T O T A L		
	No.	Pct.	No.	Pct.	No.	Pct.	
Total Units	527	100%	597	100%	1124	100%	
Less than 20 Pct.	212	40%	41	7%	253	23%	
20 to 24 Pct.	55	10%	18	3%	73	7%	
25 to 34 Pct.	95	18%	72	12%	167	15%	
35 Pct. or More	132	25%	399	50%	432	38%	
Not computed	33	6%	166	28%	199	18%	

Source: U.S. Census, 1980, Summary Tape File 3A.

## FUTURE HOUSING NEEDS

In this section, future needs will be projected and analyzed. These projections will form a base of data on anticipated changes in the housing market from which public and private decision-makers involved in residential development will be able to more accurately gauge the needs of future residents of Nassau County.

### Demographic Projections

This and subsequent sections will focus on the projection of population and households in unincorporated Nassau County. These projections will form the basis for the analyses of future housing needs that follow.

According to the University of Florida, Bureau of Economic and Business Research, in 1989, total Nassau County had an estimated population of 47,863, an increase of 14,969 persons over the 1980 census of 32,894. Since the 1960 census, the unincorporated area of the County has increased its ratio to the total County population from 46.87 percent to 69.71 percent in the 1980 census. Table C-15 presents historical census counts for total Nassau County and the unincorporated area and BEBR estimates through year 1989.

TABLE C-15

### HISTORICAL POPULATION COUNTS FOR NASSAU COUNTY AND UNINCORPORATED AREA

Year	Total County		Unincorporated Area		Unincorp Pct of Total
	Population	Pct Change	Population	Pct Change	
1960	17,189		8,056		46.87%
1970	20,626	20.0%	11,694	45.2%	56.70%
1980	32,894	59.5%	22,932	96.1%	69.71%
1981	33,718	2.5%	23,538	2.6%	69.81%
1982	35,458	5.2%	24,956	6.0%	70.38%
1983	36,318	2.4%	25,667	2.9%	70.67%
1984	37,690	3.8%	26,578	3.6%	70.52%
1985	39,822	5.7%	28,411	6.9%	71.34%
1986	41,804	5.0%	30,087	5.9%	71.97%
1987	43,994	5.2%	31,931	6.1%	72.58%
1988	45,609	3.7%	33,289	4.2%	72.99%
1989	47,863	4.9%	35,311	6.1%	73.78%

Source: U.S. Census, 1960, 1970, 1980;  
BEBR, Florida Estimates of Population, 1981 through 1989.

Although the unincorporated area of Nassau County is expected to increase its ratio of the total County population throughout the planning period, projections of population are developed assuming the unincorporated area's population will account for 75 percent of the total County population. BEBR high projections published in Bulletin No. 83, January 1988 for total Nassau County are used and presented in Table C-16.



TABLE C-16  
POPULATION PROJECTIONS, NASSAU COUNTY AND THE UNINCORPORATED AREA

Year	High Projection, Total County	Unincorporated Area
1990	51,400	38,550 (75%)
1995	61,300	45,975 (75%)
2000	70,600	52,950 (75%)
2005	80,200	60,150 (75%)

Source: BEBR Bulletin No. 83, January 1988.

#### Number of Households

In order to project the anticipated number of households in an area by size and income range, it is necessary to analyze available comparative historical data.

#### Household Size

As indicated in Table C-17, household sizes decreased in total Nassau County during the period 1970 to 1980. The number of one and two person households increased from 40 percent of all households in 1970 to 46 percent in 1980; and the number of households with 4 or more persons decreased from 42 percent in 1970 to 35 percent in 1980.

TABLE C-17  
Household Size, Total Nassau County, 1980

Persons in Units	1970		1980		1970-1980 Change	
	No.	Pct.	No.	Pct.	No.	Pct.
Occupied Units	6018	100%	10829	100%	4811	80%
1 Person	859	14%	1860	17%	1001	116%
2 Persons	1551	26%	3105	29%	1554	100%
3 Persons	1062	18%	2114	19%	1052	99%
4 Persons	1005	17%	2032	19%	1027	102%
5 Persons	683	11%	1046	10%	363	53%
6 Persons or more	858	14%	672	6%	-186	-22%
Avg. Household Size	3.42		2.98			

Source: U.S. Census, 1970; U.S. Census 1980, Summary Tape File 3A.

According to the 1980 Census counts, the unincorporated areas of the County experienced slightly higher average households than the County as a whole which included municipalities. BEBR estimated the total County experienced an average household size of 2.80 in 1989. In projecting the number of households through year 2005, an average household size of 2.90 is estimated for unincorporated Nassau County for year 1990, and the average house-

hold size is projected to decrease by 0.05 person each 5-year period throughout the Plan. Table C-18 presents this when applied to population projections in Table C-16. The calculations indicate an increase of 21,600 persons and 8,580 households during the 15-year period of the Plan.

TABLE C-18  
Projection of Households

	1990	1995	2000	2005
Total Population	38,550	45,975	52,950	60,150
Average Household Size	2.90	2.85	2.80	2.75
Number of Households	13,293	16,131	18,910	21,873

Northeast Florida Regional Planning Council, 1990.

Projection of Housing Unit Need

Accommodating a Vacancy Rate and Replacement Housing

In 1980, the unincorporated area reportedly experienced a housing vacancy rate of 15.7 percent; the 1980 Census shows that total Nassau County also experienced that vacancy rate. County officials and realtors estimate that a more current vacancy is closer to 10 percent since the population is growing and dwelling unit starts have slowed. Also, the 1970 Census count reflected a 9.87 vacancy rate. Table C-19 presents projections of housing units needed to house the projected population and accommodate a vacancy rate of 10 percent.

Nassau County issues approximately 4 permits for dwelling unit demolition each year. This indicates a projection of approximately 20 units being demolished in a 5-year period. Table C-19 projections of needed housing units through year 2005 accommodates this replacement housing and indicates a need for a total of 9,549 units through year 2005.

TABLE C-19  
Projection of Housing Units to Accommodate Vacancy Rate and Demolitions

	1990 Estimate	1995	2000	2005
Total Households	13,293	16,131	18,910	21,873
Vacant Units	1,481	1,792	2,101	2,430
Units for Vacancy Rate	14,774	17,923	21,011	24,303
Units to be Replaced		20	20	20
Total Units Needed	14,774	17,943	21,031	24,323

Northeast Florida Regional Planning Council, 1990.

## Tenure of Housing Units

The percentages of owner-occupied and renter-occupied units are expected to remain approximately the same as those experienced in unincorporated Nassau County at the time of the last decennial Census in 1980; that is, 80 percent owners versus 20 percent renters (Table C-2).

## Type of housing Units

The single family dwelling unit was the predominant dwelling unit type in 1970 (79.6 percent) and in 1980 (54.8 percent). The number of mobile homes, however, increased from 733 in 1970 to 2,772 in 1980, almost doubling their ratio of all units in the County (17.5% in 1970 and 31.3% in 1980). Residential building permits since 1980 indicate that over half of all units permitted are mobile homes. This indicates that mobile homes had become the predominant type of dwelling unit by the end of the 1980s. Table C-20 presents an estimate of the number of units needed through year 2005 by type.

TABLE C-20  
Projected Dwelling Unit Need by Type, 1990-2005

Unit Type	Percent of Total	Projection Period			Totals
		1990-1995	1995-2000	2000-2005	
New Units Required*	100%	3,169	3,088	3,292	9,549
Single Family	35%	1,109	1,081	1,152	3,342
Multi-Family	20%	634	618	659	1,911
Mobile Home	45%	1,426	1,389	1,481	4,296

\* Based on Table C-19, Total Units Needed

Northeast Florida Regional Planning Council, 1990.

## Estimated Rural and Farm Worker Households

Rural Nassau County contains approximately 400 farms of various sizes, all privately run and requiring no migrant or transient workers. Officials of the County do not anticipate any future need for the development of farm worker dwelling units in the County throughout the planning period.

## Residential Land Requirements

An important interrelationship between Housing and Future Land Use Elements involves the requirements for land to accommodate the projected need for additional housing. In addition to permanent resident dwelling units, this plan projects the number of seasonal units required to accommodate vacationers in Nassau County. Table C-21 presents a projection of total housing unit needs for the period 1990 to 2005 including seasonal units as projected in the Future Land Use Element (Table A-13).

TABLE C-21  
Projection of Housing Unit Needs 1990-2005

	1990	1995	2000	2005
Number of Seasonal Units	1,003	1,453	1,603	1,753
Average Household Size	2.3	2.3	2.3	2.3
Peak Seasonal Population	2,307	3,342	3,687	4,032
Permanent Residential Units (From Table C-19)	14,774	17,923	21,011	24,303
<b>TOTAL HOUSING UNITS</b>	<b>15,777</b>	<b>19,375</b>	<b>22,614</b>	<b>26,056</b>

Note: The number of permanent residential units in this table does not include the 20 units per planning period needing to be replaced since additional acreage is not required for those units.

## Projected Amount of Residential Acreage Needs by Densities

The total amount of land that will be required to support residential development is limited to the number of housing units required (as shown in Table C-21) times the amount of land occupied by each housing unit. The number of residential units are then distributed in Table C-22 among both agricultural land uses (parcels greater than 5 acres) and residential land uses (parcels under 5 acres). (This methodology is described in the Future Land Use Element.)

Based upon past trends, it is found that conventional built single family homes have occupied an average land area of 1 one unit per acre on the mainland and up to 5 units per acre on Amelia Island. Mobile homes have averaged 1 unit per 2 acres on the mainland; because of high land costs mobile homes are seldom located on Amelia Island. The County has had few multi-family homes constructed in the unincorporated area; however, the construction of multi-family housing will be encouraged in the future.

Table C-22 provides the County's best estimate of land requirements to support new residential construction during the planning period 1990-2005.

TABLE C-22  
Total Projected Number of Dwelling Units and  
Number of Acres Required: Year 2005

Land Use Designation	Maximum Density	Projected Number of Dwelling Units	Number of Acres Required
<b>Agriculture:</b>			
I	1 unit/20 acres	612	12,240
II	1 unit/10 acres	1,837	18,370
III	1 unit/5 acres	2,022	10,110
<b>Residential:</b>			
Low	up to 2 units/acre	15,643	7,822
Medium	1-5 units/acre	4,118	1,373
High	above 5 units/acre	1,824	364
TOTAL		26,056	50,279

Housing Unit Projections

Households by Income

Until the 1990 Census counts become available, the most reliable income data is from the 1980 Census. Unincorporated Nassau County residents experienced a higher median income (\$17,088) than did the total County (\$16,948) due to upper income households in the Amelia Island area.

Table C-23 presents 1980 Census counts of households by income range and projects the number of households by income levels throughout the planning period. As can be seen from this data, while the numbers of households will increase in all income ranges, the ratio of lower income households will decrease and the ratio of moderate and middle income households will increase. Thus, the future Nassau County population and households are expected to have more spending power and be able to afford higher priced housing. However, this conclusion must be tempered with the previous findings that a substantial proportion of Nassau renters and homeowners spend an excessive percentage of their incomes on housing.

The numbers of households in Table C-23 under the Projection Period years reflect the numbers of households projected to be added during each planning period as presented in Table C-18.

TABLE C-23  
Projection of Households by Income

Income Range	1980 Census		Needed in Projection Period			Totals	
	No.	Pct.	1990-1995	1995-2000	2000-2005		
Total Households	7,444	100%	2,838	2,779	2,963	8,580	100%
Very Low Income							
Less than \$10,000	2,072	28%	719	705	751	2,175	25%
Low Income							
\$10,000-\$14,999	1,042	14%	383	375	400	1,158	14%
Moderate Income							
\$15,000-\$19,000	1,031	14%	454	445	474	1,373	16%
Middle Income							
\$20,000-\$24,999	1,241	17%	497	486	519	1,502	18%
Upper Income							
\$25,000 or More	2,058	27%	785	768	819	2,372	27%

Source: U.S. Census, 1980, Summary Tape File 3A.

According to these calculations, 1,102, or almost 39 percent of the needed units during the period 1990 to 1995, will be required to meet the housing needs of very low and low income households.

## Housing Need Projections

In this section, the projections of population, households, and housing units will be examined more closely through estimates of need by housing rent and cost. In addition, the portion of each kind of need projected to be met under current market conditions will be estimated as of 1989.

According to the Final Report of the Affordable Housing Commission Agenda for Florida Housing Policy, December, 1987, affordable housing is computed according to the following standard:

Very Low Income - A household income that falls below 50 percent of the state median annual income, or below that of the metropolitan statistical area (MSA) if applicable, or the median income in the county in which the household is located, whichever is greater.

Low Income - A household income between 50 percent and 80 percent of the applicable median income.

Moderate Income - A household income between 80 percent and 120% of the applicable median income.

Federal Housing and Urban Development (HUD) annually develops median incomes for MSAs and counties outside of MSAs. Nassau County is part of the Jacksonville MSA for which HUD defined a 1989 median family income of \$32,000.

Applying HUD's median income of \$32,000 to the above standard for Nassau County results in the following annual incomes:

Very Low Income	Under \$16,000
Low Income	\$16,000 to \$25,600
Moderate Income	\$25,601 to \$38,400

Applying the rule of thumb that a family should spend no more than twice their annual income for the purchase of a home or one third their monthly income for rent, Table C-24 presents estimated monthly rents and purchase costs for Nassau County:

TABLE C-24  
Estimated Monthly Rental Limits and Purchase Costs, 1989 Dollars

Income Category	Monthly Rent	Purchase Cost
Very Low Income	Less than \$440	Less than \$32,000
Low Income	\$440 to \$704	\$32,000 to \$51,200
Moderate Income	\$705 to \$1,056	\$51,200 to \$76,800

Northeast Florida Regional Planning Council, 1990.

Table C-25 calculates the number of renters and owners (assuming the earlier projection of renters and owners representing 20 percent and 80 percent, respectively, of all occupied units) by applying Table C-24 monthly rent

and purchase cost limits to the number of households by income presented in Table C-23. The calculations assume the 80%/20% ratios apply to all income range groups.

TABLE C-25  
Projection of Housing Need by Cost for Renters and Owners

	1990-1995	1995-2000	2000-2005	Totals
Total Projected Households	2,838	2,779	2,963	8,580
Owners (80%)	2,270	2,223	2,370	6,863
Very Low Income	575	564	601	1,740
Low Income	306	300	320	926
Moderate Income	363	356	379	1,098
Middle Income	398	389	415	1,202
Upper Income	628	614	655	1,897
Renters (20%)	568	556	593	1,717
Very Low Income	144	141	150	435
Low Income	77	75	80	232
Moderate Income	91	89	95	275
Middle Income	99	97	104	300
Upper Income	157	154	164	475

Northeast Florida Regional Planning Council, 1990.

### Housing Delivery System

#### Land Availability

Nassau County has a large percentage of vacant land available for development. The main limiting factors on the development of land will be infrastructure and environmental constraints. The acreage proposed for residential developments and the number of dwelling units projected in the housing element take into account these constraints.

Land is available for housing development throughout the County. Housing units in the Amelia Island area of Tract 502 will have a higher density than development in the remaining portions of the County. Many of the units constructed in this area will be in approved PUDs or DRIs. In Tracts 503, 504 and 505, the development will be limited to low density development unless public sewer and water facilities are constructed. The municipalities within the County have policies to annex land to serve developments with sewer and water facilities. Callahan and Fernandina Beach have water and sewer plants with adequate capacities to serve new developments.



## Service Facilities

The provision of public water and sewer systems outside of the municipalities is limited. The southern portion of Amelia Island is served by a private utility company and Rayland has recently created a utility company to serve the Yulee area. The remainder of the County does not have any public water or sewer systems. These areas are served by private systems (wells and septic). Without expansion of the public utility system which includes the establishment of private utility companies, development will be limited to low density development.

## Government Regulations

The existing development codes appear to be promoting growth in the County while protecting the environment. Development regulations for Nassau County are implemented by the County's Building and Zoning Department, which has limited office space and staff. As the County grows, the department will need to be expanded to adequately serve the public and implement the development regulations in the County.

## Elimination of Substandard Housing

The County's housing supply is in good condition and of fairly new construction. As discussed in the Age of Units section, less than 5 percent of all units were built before 1940. The 1990 Census reports will provide the County with a more current estimate of the age of units and those lacking certain amenities. In order to more adequately determine the current structural condition of the County's housing supply, however, the County should conduct a survey of all units in the unincorporated area to determine the number and generalized location of dwelling units in standard and substandard condition based on a methodology determining condition.

The County, with a comprehensive survey in hand, could identify and prioritize recognized areas of blighted units and neighborhoods for rehabilitation projects. The County should systematically pursue available federal and state housing rehabilitation revenues and grants to target such areas in order to eliminate substandard units and blighted neighborhoods.

## Provision of Sites for Low and Moderate Income Housing

Existing housing conditions as presented in this element indicate that projected households in Nassau County will require a significant number of low and moderate priced housing units. The mobile home or manufactured home option is expected to retain its popularity in satisfying housing needs of very low and lower income households unless government intervention in some form is established. The development of multi-family units could satisfy most lower income housing needs and represent a longer-lasting housing stock. If the increase of mobile homes continues the trend established during the past several years, almost 5,000 mobile homes will be permitted in the area by year 2005.

While the local government is not in the housing delivery business itself, it can provide technical guidance on land use techniques, permitting, zoning and financial mechanisms to local builders, developers and bankers. The County should provide selective incentives to residential developers to assist the latter in the provision of affordable housing; these incentives could include and not be limited to density bonuses, land cost write downs, and tax increment financing.

#### Provision of Sites for Mobile Homes

The County's Zoning Ordinance currently allows mobile homes in its Residential, Mixed (RM) district and as a conditional use in other residential districts. The County needs to review its Zoning Ordinance to ensure that mobile homes are permitted throughout the area in accordance with Chapter 553.38, Florida Statutes.

#### Provision of Group Home Sites

As stated earlier in this Element, the County currently does not contain any group homes licensed by HRS. County zoning ordinances, however, allow the permitting of nursing homes, retirement communities and child care facilities in all zoning districts in accordance with Chapter 419, F.S. and any newly adopted Land Development Regulations pursuant to this Comprehensive Plan will continue to allow the siting of such facilities.

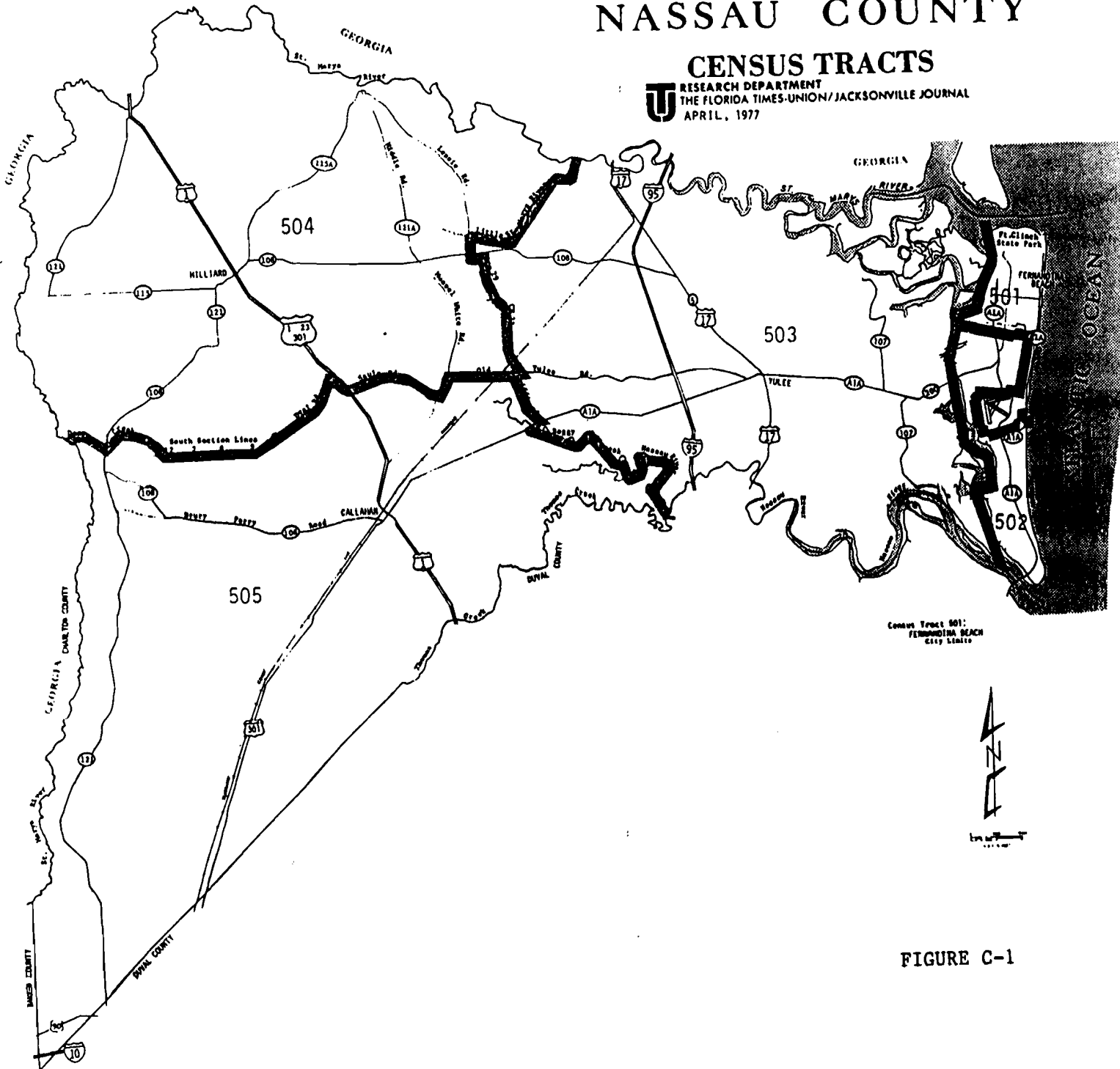
#### Protection of Historical Residential Structures

As indicated in Table C-6 of the Inventory section of this Element, the Florida Department of State, Division of Historical Preservation lists approximately 40 Nassau County residential structures on its Florida Master Site File. The County should commit to assisting in the preservation of these and any other sites that are or should be identified as being of historical significance to the County's heritage. To further this goal, the County should conduct a survey in cooperation with the Department of State, Division of Historical Preservation to identify all residential structures with historical significance and ensure their registration on the State Master Site File.

# NASSAU COUNTY

## CENSUS TRACTS

RESEARCH DEPARTMENT  
THE FLORIDA TIMES-UNION/JACKSONVILLE JOURNAL  
APRIL, 1977



Census Tract 501:  
FERNANDINA BEACH  
City Limits



FIGURE C-1

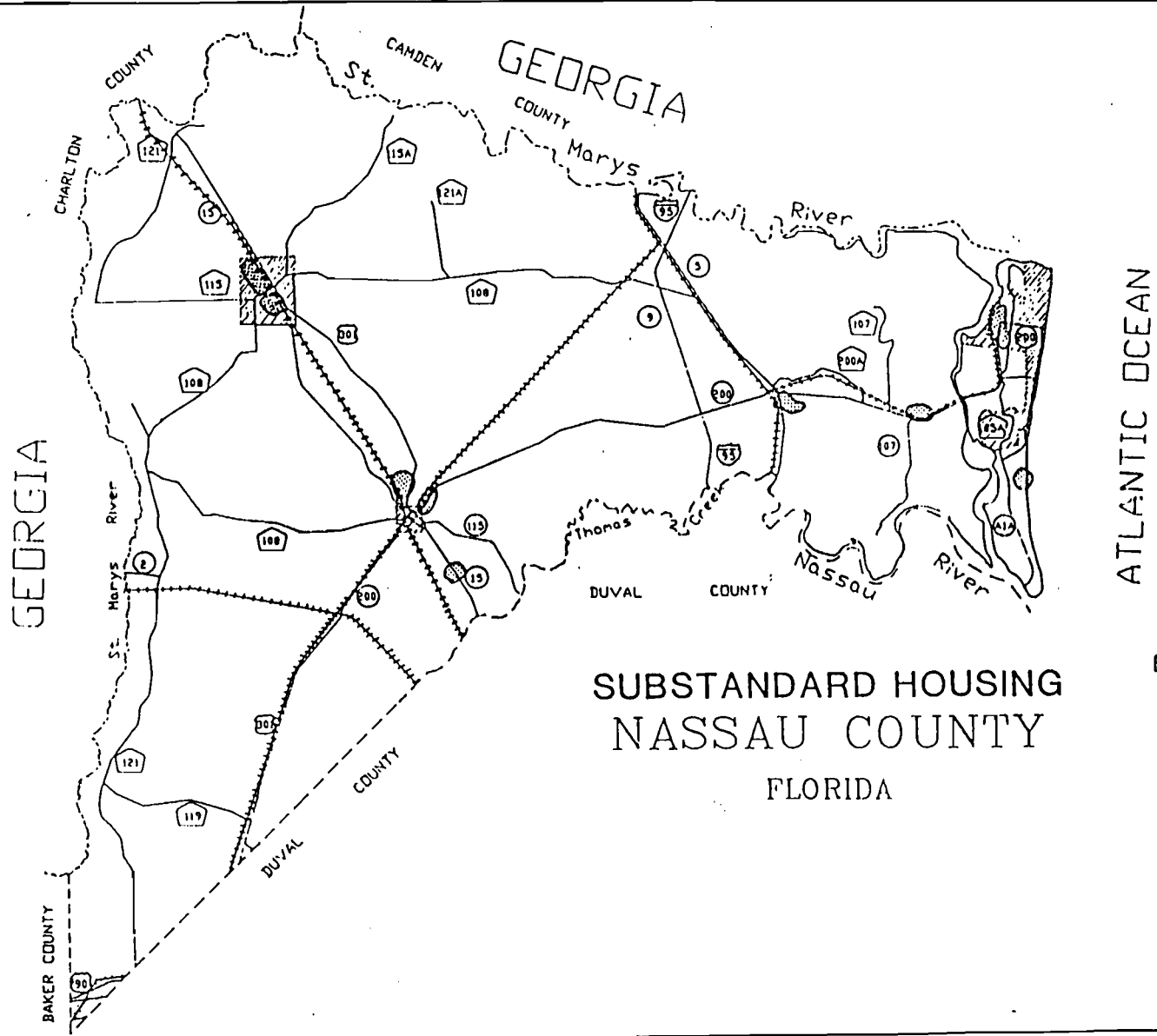


FIGURE C-2

HOUSING ELEMENT  
GOALS, OBJECTIVES AND POLICIES

GOAL 1

PROVIDE AND MAINTAIN AND ADEQUATE INVENTORY OF DECENT, SAFE AND SANITARY HOUSING IN SUITABLE NEIGHBORHOODS AT AFFORDABLE COSTS TO MEET THE NEEDS OF THE PRESENT AND FUTURE RESIDENTS OF THE COUNTY.

OBJECTIVE 3.01  
HOUSING DEMAND 9J-5.010(3)(b)1

ORC # 11 The County, during the period 1990-2005, shall assist the private sector in the provision of affordable housing units to satisfy the demand of the existing and projected population, and of housing for special needs households.

Policies

3.01.01 Land Development Regulations shall provide a process including incentives which encourage the use of Planned Unit Developments (PUDs) and mixed use developments, and which will offer a variety of housing types.

ORC # 13 3.01.02 Upon Plan adoption, the County shall review and amend where necessary all government ordinances, codes and permitting practices to ensure efficiency in the housing delivery process while continuing to ensure the health, welfare and safety of the citizenry and the integrity of natural resources.

3.01.03 The Land Development Regulations shall include criteria for the location of housing projects for the elderly and institutional housing which shall consider accessibility, convenience and infrastructure availability.

ORC # 17 3.01.04 The County's Land Development Regulations shall ensure the continued permitting of mobile homes in all residential areas of the County in accordance with Sections 320.8285(5) and 553.38(2), Florida Statutes.

ORC # 13 3.01.05 The County's adopted Land Development Regulations shall include the use of innovative land development techniques such as zero-lot-line permitting and planned unit development and use of smaller sized lots as density bonuses for construction of affordable housing units.

OBJECTIVE 3.02  
SUBSTANDARD HOUSING

Establish programs which will work towards the elimination of 60% of sub-standard housing by 2000.

Policies

- 3.02.01 Increase code enforcement in the County
- 3.02.02 Seek federal and state funding, for the demolition or rehabilitation of substandard housing.

OBJECTIVE 3.03

The County will help assure that adequate sites for housing for low and moderate income persons will be available.

Policies

- 3.03.01 The County, through the Building Official, shall encourage local developers to avail themselves of County zoning and procedural support to site and construct affordable housing in the County.
- 3.03.02 Distribute publicly assisted housing throughout the County to provide for a wide variety of neighborhood settings for low and moderate income persons and to avoid undue concentration in any one neighborhood.
- 3.03.03 Encourage the use of state "affordable housing" assistance loans and grants.
- 3.03.04 To counter the high cost of land for construction of affordable housing, the County shall adopt Land Development Regulations that include but not be limited to the use of innovative land development techniques such as zero-lot-line and planned unit development, density bonuses, transfers of development rights, land cost write downs, tax increment financing and public/private partnership ventures.
- 3.03.05 The Land Development Regulations shall include criteria to promote infill development

OBJECTIVE 3.04

Sites for group homes will be available at suitable locations to ensure that the needs of persons requiring such housing are met.

Policies

- 3.04.01 The County shall establish non-discriminatory standards and criteria addressing the location of group homes and foster care facilities.
- 3.04.02 Examine the zoning code and develop guidelines for placement of different classes of group homes that will be permitted in appropriate residential neighborhoods.
- 3.04.03 Community-based residential care facilities shall be provided adequate sites in locations within the residential or institutional areas of Nassau County.

OBJECTIVE 3.05

Uniform and equitable treatment for persons and businesses displaced by state and local government programs will be provided consistent with Sec. 421.55 F.S.

Policy

- 3.05.01 The County will help to assure that reasonably located, standard housing at affordable costs is available to persons displaced through public action prior to their displacement.

OBJECTIVE 3.06

The County shall identify and implement programs to preserve its historically significant housing by 1992.

Policy

- 3.06.01 The County shall conduct a survey in cooperation with the Florida Department of State, Division of Historical Preservation, to identify all residential structures with historical significance and ensure their registration on the State Master Site File.

OBJECTIVE 3.07

The County shall adopt Land Development Regulations that support and implement housing goals and objectives of the Comprehensive Plan.

Policy

- 3.07.01 The County will ensure that the useful life of existing dwelling units will be conserved and neighborhood quality will be improved.

ORC # 12  
ORC # 15  
ORC # 14

EXHIBIT D

PUBLIC FACILITIES ELEMENT  
NASSAU COUNTY COMPREHENSIVE PLAN

Adopted

January, 1991

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida



## TABLE OF CONTENTS

	Page
I. SANITARY SEWER SUB-ELEMENT.....	D-1
A. Regulatory Framework.....	D-1
B. Existing Conditions.....	D-1
C. Problems and Opportunities for Replacement, Expansion and Siting of New Sanitary Sewer Facilities.....	D-7
D. Impact of Sanitary Sewer Disposal Systems on Natural Resources.....	D-8
II. SOLID WASTE SUB-ELEMENT.....	D-9
A. Existing Conditions.....	D-9
1. Existing Landfills.....	D-9
2. Demand on Facility Capacity.....	D-10
3. Analysis of General Performance of Existing Solid Waste Facilities.....	D-11
B. Projected Future Demand.....	D-11
C. Plan to Meet Current and Future Landfill Needs.....	D-14
III. DRAINAGE SUB-ELEMENT.....	D-14
A. Existing Conditions.....	D-14
1. Facilities.....	D-14
2. Flooding Characteristics.....	D-15
3. Water Quality.....	D-16
B. Requirement for Additional Data.....	D-17
1. Master Stormwater Drainage Plan.....	D-17
2. Incorporation of Drainage Master Plan into the County's Comprehensive Plan.....	D-17
C. Regulatory Framework.....	D-18
IV. POTABLE WATER SUB-ELEMENT.....	D-20
A. Existing Conditions.....	D-20
B. Projected Potable Water Needs.....	D-23
C. Facility Capacity Surpluses & Deficiencies Through the Planning Period.....	D-24
D. Nassau County Plans for Providing a Central Water System; Opportunities for Expansion and New Facility Siting.....	D-26
V. NATURAL GROUNDWATER RECHARGE SUB-ELEMENT.....	D-27
A. Regulatory Framework.....	D-27
B. Existing Conditions.....	D-28
C. Analysis.....	D-29

LIST OF TABLES

Table	Page
D-1 Soil Ratings Affecting Selected Uses by Soil Association.....	D-5
D-2 Nassau County Package Treatment Plant Inventory.....	D-5
D-3 Solid Waste Disposal by Type of Waste.....	D-10
D-4 Solid Waste Generation.....	D-12
D-5 Nassau County Public Water System Inventory.....	D-22
D-6 Amelia Island Planning District; Florida Public Utilities: Potable Water Capacity.....	D-25

LIST OF FIGURES

D-1 Franchise Service Areas: Sanitary Sewer.....	D-32
D-1A Callahan Sanitary Sewer.....	D-33
D-2 Soils.....	D-34
D-3 Drainage System.....	D-35
D-4 Franchise Service Areas: Potable Water.....	D-36
D-4A Callahan Water System.....	D-37

## NASSAU COUNTY

### PUBLIC FACILITIES ELEMENT

#### I. SANITARY SEWER SUB-ELEMENT

##### A. REGULATORY FRAMEWORK

###### 1. Federal

The Federal Water Pollution Control Act (PL 92-500) is the controlling national legislation relating to the provision of sanitary sewer service. The goal of this act is the restoration and/or maintenance of the chemical, physical and biological integrity of the nation's waters. The act established the national policy of implementing areawide waste treatment and management programs to ensure adequate control of sources of pollutants. Under Section 201 of PL 92-500, grants are made available to local governments to construct facilities to treat "point sources" of pollution, which include effluent from sewage treatment processes. The U.S. Environmental Protection Agency is responsible for implementing the act.

###### 2. State

The Florida Department of Environmental Regulation (DER) is responsible for ensuring that the State carries out responsibilities assigned to it under PL 92-500. FDER has adopted rules for the regulation of wastewater facilities in Chapter 17-6, F.A.C. These rules apply to facilities which treat flows exceeding 5,000 gallons per day for domestic establishments, 3,000 gallons per day for food service establishments, and where the sewage contains industrial or toxic or hazardous chemical wastes.

The Florida Department of Health and Rehabilitation Services (DHRS) regulates septic tank and drainfield installation within the state. These requirements have been adopted by rule in Chapter 10D-6, F.A.C.

##### B. EXISTING CONDITIONS

Nassau County does not operate a public sanitary sewer system. Public sanitary sewer systems are limited to the incorporated cities of Fernandina Beach, Hilliard and Callahan in Nassau County. Portions of the unincorporated areas on Amelia Island are served by private utility companies. The remainder of the County is served by septic tanks or package treatment plants.

1. Municipal Sewage Systems Geographic Service Areas and Capacity analysis

a. Fernandina Beach

Sanitary sewer service is provided to the residents of Fernandina Beach by the City's Public Works Department. The City does not provide sewer service to any areas outside the City limits.

b. Hilliard

The Town of Hilliard owns and operates the municipal wastewater treatment plant and sewer system and is located in the Town at the intersection of Fifth Street and Catherine Street. The system does not serve the unincorporated area of Nassau County

c. Callahan

The Town of Callahan placed a .3 million gallons per day (MGD) wastewater treatment plant into operation in February 1985. The plant is located at the end of the Brandies Avenue East, approximately one mile northeast of Town.

The new plant is operating at approximately 50 percent, treating an average of .146 mgd.

The Callahan central sewer system provides service to two areas in the immediately adjacent unincorporated area north of the Town (Figure D-1a). One line extends to the Callahan Middle School which uses approximately 2,750 gpd or 0.9 percent of system capacity. The second line extends to a subdivision of fifty units along State Road 200. This subdivision uses approximately 14,000 gpd or 4.5 percent of system capacity.

2. Private Sanitary Sewer Franchise Geographic Service Areas and Capacity Analysis

There are two sanitary sewer franchise service areas currently functioning in Nassau County. These are the Southern States utility Company and Sunray Utilities (Figure D-1).

a. Southern States Utilities

Southern States Utilities provides sewer service to developments on Amelia Island from the southern limits of Fernandina Beach on Fletcher Avenue to the south end of the Island. This includes Amelia Island Plantation, the Summer Beach Development and American Beach area.

Southern States Utilities currently has a 600,000 gallons-per-day capacity sewer treatment plant and is currently treating approximately 400,000 gallons per day. Southern States Utilities will provide sewer service to any development in its franchise area in which the development is willing to pay for the construction of the sewer lines.

As of November 1989, Southern States had 1,805 active connections, 1,737 of those were residential and 68 were commercial. The monthly average daily flow for both residential and commercial customers is 365,000 gallons per day while the monthly maximum average daily flow is 485,000 gallons per day.

The level of service that Southern States needs to provide is derived as follows:

1805 active ERCs x 3.5 (population factor) = 6,318 (estimated population)

therefore,

485,000 gpd divided by 6,318 = 76.76 gallons per capita per day (LOS) with a 1.2 peak flow factor

b. Sunray Utilities, Inc.

Sunray Utilities, Inc., is a subsidiary of Ray Land, Inc., which is the real estate arm of ITT Rayonier.

In 1986, Ray Land formed Sunray Utilities, Inc., to provide water and sewer service to portions of Nassau County. The service area is generally between Lofton Creek and the Intracoastal Waterway. In 1987, Sunray Utilities began construction on a 500,000 gallons-per-day treatment plant. The plant is being constructed to serve a housing development being constructed by the owners of Amelia Island Plantation, the Marsh Lakes and Otter's Run developments. It is estimated that these developments will have a combined demand of 150,000 to 200,000 gallons per day.

Sunray has been permitted for 225 Equivalent Residential Connections (ERCs) within its franchise area. Currently there are no commercial connections and 14 active users. The system is designed to provide 350 gallons per day per ERC or 100 gallons per capita per day. The daily demand on the facility is 4,165 gallons per day.

The recommended level of service for this facility is as follows:

14 active ERCs x 3.5 = 49 (estimated population)

4,165 gpd divided by 49 = 85 gallons per capita per day with a 1.2 peak flow factor

By 1994, Sun Ray expects to have a total of 1,800 ERCs. That is roughly the equivalent population of 6,300 persons.

3. Septic Tanks

The majority of Nassau County is served by septic tanks. This includes the rural portions of the County west of the Intracoastal Waterway and the portion of Amelia Island north of the Southern States Utility area and outside the Fernandina Beach limits. Septic tanks will continue to be the primary provider of sanitary waste disposal in areas of the County beyond the immediate service areas of central systems.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material from the surface to 6 feet is evaluated. The soil properties considered are those that affect both absorption of effluent, and construction and operation of the system. Properties that affect absorption are permeability, depth to water table, and susceptibility to flooding.

a. Suitability of Soil for Septic Tank Operation

It is the responsibility of the Nassau County Public Health Department to determine whether or not a septic tank may be permitted in a specific location. The soils of Nassau County rate from well-drained to very poorly drained, Figure D-2. This ability of the soil to drain directly affects septic tank functions.

Septic tanks located in soils of moderate or severe limitation for septic tank absorption may be made to function properly through adding fill to raise the septic tank and drain field above the water table or to increase the size of the absorption drain field so that satisfactory performance is achieved. The decision regarding the ability of a septic tank to perform satisfactorily is the responsibility of the County Department of Health which must issue a permit for the installation of the septic tank before a construction permit is approved by the County Building Official. In addition, the septic tank installation must be approved by the County Health Department before a "Certificate of Occupancy" is issued by the County for actual use of the structure.

As shown in Figure D-3, the areas of Nassau County most suitable for septic tank sewage disposal are (1) Amelia Island, (2) north and west of the Town of Callahan, and (3) an area approximately two miles east and west and eight miles north and south of the community of Yulee. In addition, a band of Albany-Blanton-Penny soil association approximately three miles wide running north-south on the western border of the County has good potential for septic tank absorption but has restricted growth potential because of the DCA fetish regarding leap frog development.

Table D-1 lists the 12 soil associations present in Nassau County and provides a determination of each soil association's potential for septic tank effluent absorption.

Table D-1  
Soil Ratings Affecting Selected Uses by Soil Association

Soil Association	Septic Tank Absorption Fields
1. Kureb-Fripp-Newhan	Slight
2. Mandarin-Echaw	Severe
3. Ridgewood-Hurricane-Pottsburg	Severe
4. Albany-Blanton-Penny	Severe
5. Leon-Boulogne-Kingsferry	Severe
6. Sapelo-Leon-Goldhead	Severe
7. Goldhead-Chaires-Meadowbrook	Severe
8. Meggett-Goldhead	Severe
9. Kingsland-Maurepaus	Severe
10. Buccaneer-Ellabelle	Severe
11. Osier-Ousley-Mandarin	Severe
12. Tisonia	Severe

Source: USDA, Soil Conservation Service, Interim Soil Survey Report of Nassau County, Florida, 1988.

#### 4. Package Plants

There are approximately 31 package treatment plants located throughout Nassau County. Design capacities of these plants range from 2,400 to 30,000 gallons per day. The majority of the package plants are designed to treat sewage generated by a particular land use and very little excess capacity. Table D-2 lists the package plants operating in Nassau County.

TABLE D-2

Nassau County Package Treatment Plant Inventory

Facility Name	Type	Population Served	Design Capacity	Type of Treatment
DOT I-95 Welcome Station/Rest Area I-95, 7 Mi NW Yulee		10,600	30,000 GPD	Extended Aeration to Evap Perc Pond
EXXON Service Station #6235 I-95 & SR 200 Yulee		20	2,400 GPD	Extended Aeration w/Chlorination to Ditch
Goodbread Mobile Home Park Goodbread Circle Yulee		60	5,000 GPD	Extended Aeration w/Chlorination to Pond to Lofton Creek
Joyce Motel, Inc US 17 at I-95 Yulee		150	30,000 GPD	Contact Stabilization Tertiary Filter

## D. IMPACT OF SANITARY SEWER DISPOSAL SYSTEMS ON NATURAL RESOURCES

### 1. Central Systems

Southern States Utilities and Sunray Utilities are both currently operating well below capacity and are producing effluent that is not affecting water quality of surrounding waters.

### 2. Package Plants

A number of the package plants functioning in Nassau County at one time or other will function below operational standards and discharge untreated or poorly treated effluent into the surrounding environment. These breakdowns in performance usually can be attributed to poor training (operational and maintenance) of attending personnel.

Since these deficiencies in operation are short-term, it is impossible to identify any individual system as a primary contributor to the problem.

The County must work with the operators of package plants and the DER to implement improved training procedures for personnel responsible for operation and maintenance of package plant sewage disposal systems.

### 3. Septic Tanks

Septic tanks have the potential for being the principal source of sewage pollution to the environment. These facilities are permitted by the County Department of Health who also has responsibility for monitoring septic tank operations. Problems with the function of septic tanks in rural areas are rarely identified and such tanks may go on operating ineffectively for years.

The County should coordinate with the County Department of Health personnel responsible for septic tank approval to develop a public information program that will enhance public awareness of the problems that may occur when septic tanks function improperly and the impact of these tanks on the environment.



## II. SOLID WASTE SUB-ELEMENT

### A. EXISTING CONDITIONS

In Nassau County, a series of factors have combined to create a serious solid waste disposal problem. The only operational landfill, the West Nassau Landfill, is operating without a Department of Environmental Regulation (DER) permit, and the County is under a DER consent order until a new landfill is built. There are two landfills which are not active, Lofton Creek and Bryceville, but have not been properly closed. At the Lofton Creek Landfill, there is a serious potential for pollution of groundwater and testing is currently underway. At the Bryceville Landfill, test wells have been installed and groundwater monitoring has commenced. The County has applied for a permit for expansion of the West Nassau Landfill which would be designed to meet existing DER standards, and is examining the means to fund this expansion as well as means of funding the proper closure of the Lofton Creek and Bryceville landfills.

#### 1. Existing Landfills

Nassau County currently operates one solid waste landfill: the West Nassau landfill, a Class I landfill. Another landfill, the Sandhill Landfill is permitted as a Class III site but is not currently in use. It serves the population of all incorporated and unincorporated Nassau County.

##### a. West Nassau Landfill

West Nassau Landfill is located in the west central portion of the County and has available surrounding property for filling and borrow material. West Nassau Landfill receives all of the County solid waste and has a potential life of three years. It is being used as a short-term interim landfill until a new landfill can be constructed.

This Class I landfill receives approximately 150 tons of solid waste per day. The minimum requirement for cover frequency is once every day.

The utilized portion of the 162-acre West Nassau Landfill consists of approximately 47 acres. Of the total 47 acres of West Nassau landfill, 38 acres have been filled since the late 1960s with the trench method with solid waste while the remaining 9 acres are used for perimeter ditches, roadways or are subject to periodic flooding. A substantial tract of land surrounding the site is owned by the Nassau County School Board. The existing landfill operation is the high-rise method. The current operation covers approximately 12 acres.

Leachate was suspected of flowing into the perimeter ditch on the western edge as well as into the parameter ditch on the southeast side of the site. The east-central area of the landfill is subject to seasonal flooding resulting in washout. Erosion is severe in the southeast, southwest and western parameter ditch due to inadequate compaction and steep side slopes. Landfill gas is suspected in the southernmost portion of the landfill.

The West Nassau landfill requires considerable work to put the facility in shape for continued operation. The County has determined to improve this

As shown, residential, commercial/industrial, yard trash and sludge has been combined and divided by the County's total population (since the landfill provides service to both incorporated and unincorporated Nassau County) to derive a level of service of 5.12 lbs per capita per day of solid waste disposal.

### 3. Analysis of General Performance of Existing Solid Waste Facilities

The West Nassau Landfill currently is the only Class I and Class II landfill in the County. While West Nassau has the capacity to accept an additional 250,000 cubic yards of material (sufficient to support County needs to the year 1994), the landfill operation does not meet DER requirements regarding the release of leachate into surrounding soils. For this reason, the landfill is operating under a "consent order" from DER to continue operations while the County strives to "close" the presently operating section of the landfill while "opening" a new section that meets all DER requirements for lining, test wells, etc.

The West Nassau landfill site consists of a total of 162 acres of which 65 acres are now being utilized. Twelve acres of the 65 are "active" where high rise landfill operations are being conducted. The twelve acres now in operation could support the County landfill needs for 3 additional years, though operating without all pollution control measures in place. The County has submitted an application for permits for Class I and Class II landfills which should be issued in the near future requiring construction of the Class I landfill by 1992.

The Sandhill landfill which accepts only construction debris is operating within DER regulations and has sufficient reserve capacity to meet County demand for the next 10 years; however, all Class III material will be deposited at the West Nassau landfill when the new section is "opened".

### B. PROJECTED FUTURE DEMAND

Based upon the level of growth projected for Nassau County as shown in Table A-15 of the Future Land Use Element. As shown, by the year 2000, a total of 1,441,317 cubic yards of material is projected from the incorporated and unincorporated areas of Nassau County.

The cumulative demand of 1,441,317 cubic yards of solid waste is based upon a provided level of service of 5.12 lbs per day per capita. In order to provide sufficient landfill to support this demand over the planning period, approximately 100 acres of land will be required. This land currently is available at the West Nassau landfill site and will be available to accept Class I and III solid waste as soon as permits are secured and the facility is "opened" per federal and state regulations.

site rather than seek a new landfill site and accordingly has made application to the DER for new "state-of-the-art" Class I and III landfills meeting current requirements. In the meantime, the landfill continues operations under a DER "consent order".

Funding to pursue improvement of the current and construction of a new landfill at the West Nassau site is shown in Table J-7 of the Capital Improvement Element.

b. Sandhill Landfill

The Sandhill Landfill currently is approved for construction debris only. It consists of 40 acres acceptable for landfilling operations. The 40 acres would provide for a landfill life of 5 to 8 years with an additional 100 to 110 acres needed for the projected 20-year life. This site is not currently in operation.

2. Demand on Facility Capacity

In November, 1987, the County began to keep daily records of the amount and types of waste received by screening all incoming waste at the West Nassau landfill. West Nassau is the only landfill open for the entire County's Class I and Class III solid waste disposal. Table D-3 is believed to be an accurate account of the average amount of solid waste generated by the total County during the period 1/89 to 12/89. Approximately 0.17 percent of the solid waste generated was deposited at the Sandhill landfill until November 1989.

TABLE D-3  
Solid Waste Disposal by Type of Waste  
From 09/89 - 12/89

	Residential	Comm./ Indus.	Yard Trash	Bldg. Material	Ind/Comm Sludge	Total
1989 Est. Pop.	47,863					47,863
Solid Waste weight/month (tons)	1,235.77	1292.43	503.90	620.55	85.81	3,728.46
Solid Waste weight/day (tons)	40.78	42.65	16.63	20.48	2.50	123.04
Solid Waste weight/day/ per capita (lbs)	1.70	1.78	.69	.85	.10	5.12

Based on 30.3 days per month

Source: Nassau County Building and Zoning Department, 1990.

TABLE D-4  
NASSAU COUNTY

PROJECTED SOLID WASTE GENERATION, 1990 - 2005

YEAR	UNINCORPORATED AREA			CALLAHAN	FERNANDINA BEACH	HILLIARD	CUBIC YARD CONVERSION *	REQUIRED STORAGE CAPACITY CUMULATIVE CUBIC YARDS	
	PEAK POPULATION (Uninc. Pop.)	X	PER CAPITA GENERATION LBS./DAY =	SOLID WASTE TONS/YEAR	SOLID WASTE TONS/YEAR	SOLID WASTE TONS/YEAR			
1990	38,550		5.12	36,021	1,292	10,860	2,230	112,006	112,006
1991	40,035		5.12	37,409	1,329	11,135	2,273	115,879	227,885
1992	41,520		5.12	38,796	1,365	11,411	2,315	119,751	347,636
1993	43,005		5.12	40,184	1,402	11,687	2,358	123,624	471,260
1994	44,490		5.12	41,571	1,438	11,963	2,400	127,495	598,756
1995	45,975		5.12	42,959	1,475	12,239	2,442	131,367	730,122
1996	47,370		5.12	44,263	1,504	12,494	2,485	134,992	865,114
1997	48,765		5.12	45,566	1,534	12,750	2,527	138,615	1,003,729
1998	50,160		5.12	46,870	1,563	13,005	2,569	142,238	1,145,967
1999	51,555		5.12	48,173	1,593	13,261	2,612	145,863	1,291,831
2000	52,950		5.12	49,476	1,622	13,516	2,654	149,486	1,441,317
2001	54,390		5.12	50,822	**	13,784	**	ERR	ERR
2002	55,830		5.12	52,168	**	14,051	**	ERR	ERR
2003	57,270		5.12	53,513	**	14,319	**	ERR	ERR
2004	58,710		5.12	54,859	**	14,587	**	ERR	ERR
2005	60,150		5.12	56,204	**	14,854	**	ERR	ERR

\* Based on 900 lbs. per cubic yard; general standard based on state-wide historical trends.

\*\* Population Data not available for Callahan and Hilliard beyond 2000

Source: NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL;  
COMPREHENSIVE PLANS FOR CALLAHAN, FERNANDINA BEACH AND HILLIARD

### C. PLAN TO MEET CURRENT AND FUTURE LANDFILL NEEDS

The Nassau County Board of County Commissioners recognizes the need to immediately address this issue of solid waste disposal as perhaps the principal concern of the County. As stated previously, the current facility is inadequate to serve the public while still protecting the health and well being of County residents.

In meeting the Goal of the Public Facilities Element, the County Commission has designated funds in the current 5-year Capital Improvement Plan to "close" the Bryceville and Lofton Creek landfills and correct deficiencies at the currently operating West Nassau Landfill.

Nassau County, like all small rural counties in Florida, is charged with correcting 15-20 years of accumulated public facility deficiencies within a very short period of time with a very small tax base from which to fund needed improvements. The state rather than appreciating the financial problems of small rural counties and attempting to work with these counties to provide assistance (both technical and financial) chooses to place unreasonable demands on the county for action and then fines the County considerable amounts of money from their limited resources when they are unable to comply.

The Nassau County Board of County Commissioners will strive to work with their legislators and responsible state department heads over the next two-year period to acquire state support to supplement its own best efforts to fund all of those activities required to resolve the solid waste issue in Nassau County. For its part, Nassau County will:

Reduce the level of solid waste disposal through recycling. The County will implement a public education and recycling program with a goal of reducing solid waste in the County by 33 percent by 1993.

Look into financial options, such as revenue bonds, to fund the necessary improvements at West Nassau, Class I and III landfills, and closures at West Nassau, Bryceville and Lofton Creek.

### III. DRAINAGE SUB-ELEMENT

#### A. EXISTING CONDITIONS

##### 1. Facilities

The County's current drainage system consists of the integration of natural drainage features (creeks, streams, topography) with man-made swales that channel runoff into these natural drainage features to enhance flow and reduce or eliminate flooding.

The drainage features in Nassau County consist of many short tributaries which flow into the three major streams: the St. Marys River, the Nassau River, and the Intracoastal Waterway, which drain approximately 48, 38, and 14 percent of the total planning area, respectively. The drainage basin divides are illustrated on the following page. Along the divides between the major drainage basins, erosion has not been nearly as pronounced as further down the slopes and, as a result, relatively wide and flat swampy areas remain along the divides. These conditions are typical in western Nassau County along the north to south drainage divide between the St. Marys and Nassau River basins. The swampy areas here are so flat that delineation of some drainage areas is difficult if not impossible. Considerable water is interchanged between these two drainage basins because the direction of flow in the swamps depends on the intensity of the rainfall and its areal distribution over the swamps.

Runoff in the planning area is rapid despite the storage afforded by numerous swamps and most of the streams go dry after fairly short periods of deficient rainfall. Recently, the United States Geological Survey conducted an investigation to determine runoff characteristics in the planning area. Gauging stations at the Little St. Marys River and Thomas Creek were operated for this purpose. The average runoff at these stations is considered representative of the area, although average runoff varies considerably from basin to basin. The average runoff from these basins during the investigation was 21.46 inches. This yield is over 50 percent greater than the average for the state as a whole. This high yield is probably caused by two factors:

1. Little of the rain seeps to the Floridan aquifer, and
2. The rain that does not enter the shallow surficial aquifer runs off before much of it has time to evaporate or transpire.

Many of the streams in Nassau County go dry on an annual basis. However, streams with large storage areas in their headwaters, such as the St. Marys River, flow year around.

The drainage from 14 percent of Nassau County flows into the Intracoastal Waterway or into streams and sloughs connecting with it. In this area, tides affect the stage and flow so that the water in the channels is nearly always brackish to saline. The St. Marys River is affected by tide in its lower reaches. Flow in the river is affected by tide as much as 60 miles from its mouth. Tidal stage fluctuations can be noted even farther upstream.

During droughts the cumulative net flow is upstream, and sea water intrudes up the channel to well past the point where the Little St. Marys River empties into it.

The upstream limit of tidal effect on the streams in Nassau County is not a fixed point but, instead, varies with the tidal height and the amount of freshwater flow. For a specific height of tide, flow reversal will occur farther upstream as stream discharge diminishes. Stage fluctuations resulting from tidal action will occur farther upstream when a stream is flowing moderately than when there is no flow because backwater from tide cannot extend any farther upstream than the first sandbar that is higher than the tide when there is no flow. At high discharge, tidal effect on the stage may be dampened out farther downstream than the first sandbar.

Flow reversal by the tide is important because it forces saline water from the ocean upstream against the freshwater flow, while displacing and mixing with the freshwater. This condition increases the distance upstream to a point where water is being withdrawn for uses for which pollution cannot be tolerated.

## 2. Flooding Characteristics

Knowledge of the magnitude and frequency of the recurrence of floods on a piece of property is necessary to the proper design and location of any type of structure or land use. In Nassau County, very localized flooding results from strong convective storms, common in spring and summer, and general flooding results from tropical storms in summer and fall or strong frontal activity in winter. Since 1927, six floods that reached peak discharges of 22,600 cubic feet per second have occurred on the St. Marys River at a point ten miles inland. The flood resulting from Hurricane Dora in September 1964, reached 26,000 cubic feet per second at this same measuring station on the St. Marys River. Only one of the floods, that of April 1948, was not due to rains from a tropical storm.

The problems with flooding in Nassau County are localized. Two problem areas that presently exist in the County are in Callahan and on Amelia Island at Amelia City.

Callahan and the unincorporated areas surrounding Callahan are subject to frequent flooding which is due in part to the low elevation and a gumbo clay soil which retards percolation of standing water. Most soils in Nassau County are sandy and have high percolation rates. The rain falling in these areas absorb into the ground rapidly. Whereas, the clay soils in and around Callahan retard percolation and the flat terrain does not augment runoff which in turn leads to the flooding problems during heavy rainfall periods.

The Amelia City flooding problems are not related to soils but are caused by a circuitous drainage pattern. Runoff on the west side of A1A from as far south of Old Bluff Road is channeled north through a FDOT drainage ditch to Forest Drive where it flows east under A1A and is combined with other runoff from the east side of A1A creating the flooding problems in the portion of Amelia City bounded by A1A on the north and east and Amelia

Avenue on the south. The only flow out of this area is in a southerly direction through Amelia City and back under A1A south of Orange Avenue. Ultimately, the water flows from this area into the Amelia River via a drainage way just north of the Harrison Creek.

Other problem areas which occur along county roads are in Nassauville at A1A where a culvert west of Payne's Diesel frequently overflows. This situation is due to an undersized culvert pipe. While the culvert was adequate when it was installed, the additional runoff from subsequent development has exceeded the capacity of the culvert pipe.

The structural alteration of floodplains and wetlands can significantly increase and create drainage problems. Wetlands are extremely valuable for storing flood waters, augmentation stream flow, filtering nutrients from polluted water and providing fish and wildlife habitat. They should be protected from development that would interfere with seasonal flows and levels for surface water courses and groundwater.

Nassau County needs to ensure that future drainage facilities of major developments utilize the 25-year frequency, 24-hour duration storm event and facilities of minor developments should be designed using the 5-year frequency, 24-hour duration storm event for on-site systems.

### 3. Water Quality

The most troublesome problems of water quality in Nassau County occur in the immediate coastal area, in the estuarine rivers and marshes. The tidal St. Marys River has been classified as an effluent limited segment. In the Department of Environment Regulation's (DER) estimation, it is one which is and will continue to be in compliance with applicable standards or will comply with these standards after the application of best practice treatment.

The Amelia River and St. Marys estuary have suffered a general decline in water quality due to urban and industrial pollution. All the waters in Nassau County are now classified by DER as Class III waters, suitable for recreation, fish, and wildlife, but not shellfish harvesting.

The Nassau River drainage segment has been classified as a water quality limited segment. This is one where best practicable treatment for industrial discharges and secondary treatment for domestic dischargers is insufficient to achieve desirable water quality. It requires more strictly controlled effluent limitations for either non-point sources or point sources or both.

Low-level development in the Nassau River basin has created hydrologic and fishery impacts. A major portion of Mills Creek has been channelized since 1974 to prevent flooding in the town of Callahan and surrounding agricultural lands (USDA, 1976). The channelization has altered the hydrology of the Mills Creek watershed and may be affecting water quality as far downstream as the creek's confluence with the Nassau River. The lower reach of the Nassau estuary has been closed to bivalve harvesting since 1977 because fecal coliform densities have been above standards (Florida Department of



Natural Resources, 1984). Septic tank leachate from residential development has been implicated as the contamination source.

In the Nassau-St. Marys drainage basin, water quality problems resulting from stormwater runoff are usually minimal. Most of the area remains covered with vegetation and therefore, runoff receives an effective natural purification treatment. The urbanized area of Fernandina Beach represents the greatest potential urban runoff problem in the planning area. Two bodies of water that presently face water quality problems, the St. Marys River and Nassau River, have been estimated to receive deleterious substances from urban runoff. The St. Marys River is also affected by runoff from development areas in Georgia.

It is doubtful that urban runoff by itself presents a great problem, but in combination with other pollution sources, its impact is more serious.

## **B. REQUIREMENT FOR ADDITIONAL DATA**

### **1. Master Stormwater Drainage Plan**

As stated earlier, the drainage system of Nassau County primarily consists of natural drainage features with some augmentation by swales to increase runoff and culverts to permit runoff to flow under roadways. The system generally has evolved over time with individual man-made drainage features added as development progressed. Many man-made additions to the system were installed without a full understanding of how that addition affected other components of the system. The result has been the breakdown of efficient drainage in some parts of the County.

The County is at a point in time where it must take an overview of its drainage network, identify specific problem areas, identify those components of the system that contribute to the problems, develop a cost/benefit analysis of work to be accomplished in order to improve the system and from this analysis develop a priority listing of tasks to be performed based upon available funding and system improvement. It is only at this point that the County can establish a work plan for improving drainage and begin funding for such work in its 5-year Capital Improvement Plan.

As the initial effort in developing a county-wide drainage plan, the County Engineer must begin development of a County map showing all in-place drainage features and identify the features' effectiveness and who has primary responsibility for maintaining the feature. This effort should be accomplished over the next eighteen months. From this initial map, the County Engineer can begin to identify cause and effect relationships for areas in the County that are known to be subject to flooding during various levels of rain fall and establish plans for improving the system.

### **2. Incorporation of Drainage Master Plan into the County Comprehensive Plan.**

Upon completion of a Master Drainage Plan and approval of that Plan by the Board of County Commissioners, Nassau County, the Master Drainage Plan shall be incorporated into the Drainage Sub-Element and costs to implement

the first 5 years of the Plan shall become part of the County's 5-year Capital Improvement Plan.

## C. REGULATORY FRAMEWORK

### 1. Federal

Section 208 of the Federal Water Pollution Control Act (PL 92-500, 1972) is the directing federal law with respect to water pollution abatement. In implementing the Act, the Environmental Protection Agency (EPA) identified pollutants carried in stormwater runoff as a major source of water contamination. To achieve the pollution abatement goals of the act, EPA provided assistance to state and local governments to develop Areawide Water Quality Management Plans, or "208 Plans" as they are commonly known. These 208 Plans studies a broad range of potential water pollution sources, including stormwater, and focused on identifying pollutant sources and abatement needs as well as development of regulatory programs to ensure implementation. At present, there are no federal regulations for stormwater management concerning the quantity of stormwater runoff.

### 2. State

The Florida Department of Environmental Regulation (DER) has adopted a Stormwater Rule (Ch. 17-25, F.A.C.) to fulfill part of the state's responsibilities under Section 208 of the Federal Water Pollution Control Act. The rule's basic objective is to achieve 80-95 percent removal of stormwater pollutants before discharge to receiving waters. This rule requires treatment of the first inch of runoff for sites less than 100 acres in size and the first one-half inch of runoff for sites 100 acres or greater in size.

Treatment is generally accomplished through retention or through detention with filtration. Retention requires the diversion of the required volume of runoff to an impoundment area with no subsequent direct discharge to surface waters. Pollutant removal by settling and by percolation of the stormwater through the soil is almost total. Detention facilities are typically within the line of flow of the drainage system. Stormwater from a site passes through the detention facility and is filtered prior to discharge to remove pollutants.

Implementation of the stormwater rule is achieved through a permitting process. DER has delegated permitting responsibility to the St. Johns River Water Management District (SJRWMD) with jurisdiction over the Nassau County area. Exemptions to the permit requirements are provided for: 1) facilities serving individual sites for single-family, duplex, triplex or quadruplex units; 2) facilities serving dwelling unit sites which are less than ten acres in total land area, have less than two acres of impervious area, and which comply with local stormwater management regulations or discharge to a permitted regional facility; and, 3) facilities for agricultural or silvicultural lands which have approved management plans.

### 3. Local

Nassau County already has in-place some measures to control surface water runoff in its subdivision regulations. These measures will be expanded by

additional regulations that are adopted as part of the County's effort in revising its current codes to implement the Comprehensive Plan.

4. Strengths/Weaknesses of Regulations and Programs Concerning Land Use and the Development of Drainage Features

State regulations provide a good framework for establishing criteria for maintaining water quality. Local ordinances, however, provide the most effective immediate control over the distribution of land uses and the implementation and enforcement of measures which support the funding of drainage projects and functioning of drainage features within the County.

#### IV. POTABLE WATER SUB-ELEMENT

##### A. EXISTING CONDITIONS

Nassau County does not operate a public water utility for the unincorporated portions of Nassau County. Hilliard and Callahan have public utility systems. The three private utilities companies (Florida Public Utilities, Southern States and Sun Ray Utilities) are authorized by the Florida Public Service Commission to serve designated areas in Nassau County. The remaining portions of unincorporated Nassau County are served by private individual wells or small water systems. Wells are permitted and regulated by the Nassau County Public Health Department. Areas of the County served by franchised public utility systems are shown in Figure D-4.

##### 1. Franchised Water Systems

##### a. Florida Public Utilities

Florida Public Utilities provides water to residents of the City of Fernandina Beach.

As of January 1989, FPU serves a population of approximately 12,500. The plant has a capacity to treat 8.0 mgd and averages a daily water demand of 2.7 million gallons and a maximum daily demand of 4.2 million gallons. The level of service provided by the facility is 214 gallons per capita day. Approximately 1 percent of the system's capacity is provided to residences in the unincorporated Nassau County area.

The source of potable water is from four deep wells. Two wells can pump up to 1,600 gallons per minute each while the remaining two pump up to 1,500 gallons per minute each, a total pumping capacity of approximately 8.0 million gallons per day.

There are four ground storage tanks with a combined holding capacity of 1.295 million gallons. An elevated water storage tank will hold 75,000 gallons, bringing the total storage capacity to 1.37 million gallons.

##### b. Sunray Utilities

Sunray Utilities is a private utility company organized in 1986 and owned by Rayland (ITT Rayonier). It constructed a water plant to supply 160,000 gallons per day for an estimated population of 1,250; all within the unincorporated area of Nassau County.

In 1988, the plant submitted an application to increase capacity by 670,000 gallons per day, thereby allowing a total capacity of 820,000 gallons per day. The plant would be designed to serve a population of up to 6,682 or 429 ERCs.

Water is pumped from 2 deep wells which withdraw from the Floridan Aquifer. Both have a pumping capacity of 750 gallons per minute. Included in the 1988 expansion application was a request to construct 2 more deep wells which would have a pump capacity of 1,500 gallons per minute.

Currently, Sunray serves a population of 130 people or 37 equivalent residential connections (ERCs). The average day demand is 13,000 gallons per day and the maximum day demand is 26,000 gallons per day. The current level of service provided by the facility is 100 gallons per capita per day with a 2.0 peak factor.

There are no major industrial users which place an abnormal demand on this facility. The plant primarily serves residential developments/subdivisions in the Yulee planning district area.

### c. Southern States Utilities

Southern States Utilities franchise area is from the south end of the airport to the end of the island. It supplies water to the developments of Amelia Island Plantation and Summer Beach. Many residents in Southern States franchise area have wells for potable water.

Southern States Utilities operates two water plant facilities. The main water treatment plant is located on SR A1A, just north of Amelia Island Plantation and the second plant, a high pressure fire repump facility, is located at Amelia Island Plantation. The water supply is obtained through two wells in the Floridan Aquifer having depths of 1,400 feet and 1,800 feet. The pumping capacity of these two wells is 4.032 million gallons per day. Total water storage capacity at the two water plant facilities is one million gallons with 600,000 gallons storage capacity at the main water plant and 400,000 gallons at the high pressure fire repump facility. The plant has a total capacity of 3.6 million gallons per day but currently averages a daily demand of 0.505 mgd. The number of ERCs as of March 1988 was 1,783, however, the number of possible ERCs approved by DER is 3,307. The pumping capacity of the plant would allow for 5,090 possible ERCs while its ground storage capacity would allow for 11,574 possible ERCs.

In summary, Southern States primarily serves an estimated population of 6,240. It is permitted to serve a population of 11,575 and has a capacity to serve a population of 17,815. The level of service being provided by the utility is 81 gallons per capital per day. Approximately 92 percent of Southern States Utilities capacity serves residential hook-ups, 7 percent commercial and 1 percent industrial.

## 2. Municipal Water Systems

The Callahan municipal water system serves two areas in unincorporated Nassau County. The system serves 50 residential subscribers, 19 commercial and 1 school. These subscribers utilize approximately 13 percent of the system's capacity. Figure D-4a shows the location of Callahan water system subscribers in unincorporated Nassau County.

## 3. Other Water Systems

There are approximately 37 smaller water treatment facilities serving unincorporated Nassau County in addition to the municipal and large private utility systems. These systems are monitored by the Florida Department of Environmental Regulation. These systems range from 1 to 120 service connections. Table D-5 is an inventory of the smaller public water systems.

TABLE D-5  
Nassau County Public Water System Inventory

Facility Name	Population Served	# Service Connections	Owner * Type
Best Western Ramada Inn	300	100	I
Bryceville Elem. School	175	2	N
Burger Bar	30	3	I
Callahan Intermed. School	575	1	N
Cary State Forest	100	4	S
Casey's Snack Bar	75	3	I
Deerfield Country Club	100	3	I
Dorseys Restaurant	150	2	I
Eastwood Oaks	364	104	I
FAA Air Traffic Cont. Ctr.	800	4	F
Goldkist Eggs WTP	75	2	I
Gran-Maws Kitchen	65	1	I
Islander Restaurant	50	2	I
Jamica Quality Inn Motel	200	65	I
Marsh Cove Apts.	300	126	I
Nassau Acres MHP	43	17	I
Nassau Co. Detention Fac.	55	1	N
Nassau Co. Road Dept.	50	4	S
Nassau Holiday Motel	25	31	I
Nassau Baptist Temple School	150	2	I
Sanbar	75	1	I
Sandpiper MHP	63	25	I
Stevens Motel & Gas	50	2	I
Stuckey's (I-95 & A1A)	100	2	I
Stuckey's - Hilliard	200	1	I
Sunshine Truck Plaza	200	1	I
Teakwood Mobile Home Park	63	30	I
Terminal Paper Bag Co.	500	1	I
Thrift Host Motel & Rest.	300	34	I
Traders Village	240	1	I
Waffle House (I-95 & A1A)	350	1	I
Wayfara Reataurant	110	1	I
Welcome Station I-95	500	1	S
Welcome Station I-95	2,000	1	S
Whispering Pines	45	20	I
Yulee Elementary School	834	1	S
Yulee Junior High School	425	1	S

\* I - Investor  
 N - Non-community  
 S - State  
 F - Federal

4. General Performance and Impact of Systems on Adjacent Natural Resources

All systems providing potable water in unincorporated Nassau County are functioning well below capacity and are less than 5 years old. Probably because of these two factors, the systems are functioning efficiently. The expected life of all systems is at least 15 additional years. All have plans for expansion and system improvement during the planning period 1990-2005.

Water plants, unlike sanitary sewer plants have little impact on the land adjacent to the processing facility. Chlorine is used in the purification process, which if improperly controlled could release hazardous gas to the atmosphere. There have been no such cases reported within Nassau County.

The County should adopt ordinances requiring the use of water saving devices in new construction and adopt water conservation and landscape ordinances to reduce per capita potable water consumption.

**B. PROJECTED POTABLE WATER NEEDS**

1. Amelia Island (including the City of Fernandina Beach)

The projected population for the year 2005 is 20,983 with 6,971 persons residing within the unincorporated planning area. The utility companies serving this area have a combined capacity to serve a maximum population of over 55,000. The utilities will likely have to apply to DER to increase permitted capacity, however, the plants are, at this time, capable of handling future water demands.

2. Yulee Planning District

Sun Ray Utilities has filed an application with DER to increase/ expand its water plant. As of August 1989, expansion had not occurred, however, the utility will increase when the demand is sufficient to warrant the expansion. The expansion will be able to serve approximately 6,682 persons, which will be approximately 50 percent of the population projected for this planning area in 2005. It is hoped, and realistically expected, that the Sun Ray franchise will expand its capacity on an as needed basis as the population in the area grows.

3. Hilliard Planning Area

Residents residing within this planning area, but outside the incorporated limits of the town, are served by private wells. Other than the Town of Hilliard's water plant, no other major public or private facility exists to serve the residents potable water needs. The planning area is basically rural in nature, with a project population to reach 7,622 by 2005.

At the present, there are no foreseeable plans of a large utility company offering potable water service to this area. The Town of Hilliard is also not expected to expand service outside its corporate limits. Therefore,

existing and future residents will continue to rely on private wells as a source of potable water.

#### 4. Callahan Planning Area

As in the Hilliard planning area, the Town of Callahan is the only place in this planning area this is served by a public water facility.

The Town, according to its comprehensive plan has been under increasing pressure to annex land used for residential northeast along SR A1A, and land use for mixed commercial and residential along US 1. However, the water treatment plant is expected to reach capacity by 2000 with its current population projections, and would, therefore, have little room to accommodate an "outside" population for some time.

As Nassau County does not own or operate any potable water facilities, its best hope for providing potable water is to either encourage current public water facilities to expand service to contiguous areas and to encourage development near these facilities.

### C. FACILITY CAPACITY SURPLUSES & DEFICIENCIES THROUGH THE PLANNING PERIOD

#### 1. Amelia Island (including Fernandina Beach)

As note earlier, 2 facilities, Florida Public Utilities (FPU) and Southern States, provide potable water to Amelia Island. To project capacities and future deficiencies, only the capacity of FPU will be analyzed in conjunction with the projected population. (Table D-6). This analysis will serve only to show that more than enough capacity is available to serve the 2005 population, however, it is not meant to exclude Southern States as another primary source for the residents on the Island. Because of the boundaries delineated for each facility, it is impossible to project the populations which will be served by one facility or the other. In the final analysis, both facilities will continue to have sufficient capacity to serve the existing population as well past the year 2005.



Table D-6  
 Amelia Island Planning District  
 Florida Public Utilities: Potable Water Capacity  
 (1987-2005)

---

Year	Population	Aver. Day Demand	Max. Day Demand	LOS	Capacity Remaining <sup>1&amp;2</sup>
1987	12,500	2.7 mgd	4.2 mgd	216 gpcd	5.3 mgd
1990	15,158	3.3 mgd	5.1 mgd	216 gpcd	4.7 mgd
1995	17,173	3.7 mgd	5.8 mgd	216 gpcd	4.3 mgd
2000	19,032	4.1 mgd	6.4 mgd	216 gpcd	3.9 mgd
2005	20,983	4.5 mgd	7.1 mgd	215 gpcd	3.5 mgd

---

<sup>1</sup>Actual capacity of the facility is 8.0 mgd.

<sup>2</sup>Capacity is highly unlikely to be reached by 2005 as Southern States does and will continue to serve part of the projected population. Southern States currently serves a gross estimated population of 6,000 (1,783 connections x 3.5) and has a current capacity of 3.6 million gallons per day.

---

## 2. Yulee Planning District

Sun Ray Utilities has only recently begun to serve this area and currently serves a population of only 130 people. The planning district itself is projected to have a population of over 12,900 by the year 2005. The utility company has requested an expansion permit but at this writing, has not begun construction of the expansion because of lack of demand. If and when the utility company does expand its capacity (as outlined in its DER permit application) it could provide potable water to an estimated population of 6,682 (based on an LOS of 100 gpcd and a permitted capacity of 0.820 mgd) or approximately 50 percent of the projected population.

## 3. Hilliard and Callahan Planning Districts

There are no facilities serving the unincorporated areas of the Hilliard planning district at this time.

The Town of Callahan has projected a small surplus in potable water capacity to the year 2000. It is estimated that approximately 5 percent of the projected population for the unincorporated area in the Callahan Planning District (that portion closest to the Town/County line) may be served by the Callahan central water system; other residents will rely on water wells.

**D. NASSAU COUNTY PLANS FOR PROVIDING A CENTRAL WATER SYSTEM;  
OPPORTUNITIES FOR EXPANSION AND NEW FACILITY SITING**

**1. Nassau County Support**

As discussed in the Sanitary Sewer Sub-element, Nassau County must prioritize its limited financial resources to serve its residents in the most cost-effective manner. During the first 5 years of this planning period (1990-2005), the County will concentrate its resources in providing solid waste disposal facilities for its citizens. The County's entry into providing sanitary sewer and potable water facilities to its residents is dependent upon the costs involved to satisfy DER requirements for closing present land fill facilities and opening a new facility.

**2. Opportunities for Expansion**

It may be considered that a major deficiency in providing potable water in Nassau County is that the existing systems do not provide service to all Nassau County residents. Since Nassau County is a rural community with a spatial distribution of residences that does not lend itself to supporting the cost of providing central water service, this deficiency is not likely to be overcome during the planning period 1990-2005. However, there is an expected population growth in all areas now being served by central potable water systems. It is necessary, if these central systems are to be viable operations, that growth be directed in such a manner that it is economically feasible to extend water/sewer lines to service that population. The County can support the development of central water/sewer systems through managing growth into more compact areas thereby reducing urban sprawl and improving the efficiency of central water/sewer operations.

## V. NATURAL GROUNDWATER RECHARGE SUB-ELEMENT

### A. REGULATORY FRAMEWORK

#### 1. Federal

In 1986, the Federal Safe Drinking Water Act (PL 93-523) was amended to strengthen protection of public water system wellfields and aquifers that are the sole source of drinking water for a community. The amendments for wellfield protection require states to work with local governments to map wellhead areas and develop land use controls that will provide long-term protection from contamination for these areas. The aquifer protection amendments require EPA to develop criteria for selecting critical aquifer protection areas. The program calls for state and local governments to map these areas and develop protection plans, subject to EPA review and approval. Once a plan is approved, EPA may enter into an agreement with the local government to implement the plan. As of this writing, EPA has not completed development of the criteria needed to implement this program.

#### 2. State

In implementing the Florida Safe Drinking Water Act (Ch. 403, F.S.), DER has developed rules classifying aquifers and regulating their use (Chapter 17-22, Part III, F.A.C.). These rules are currently being amended to strengthen protection of established regulatory requirements for facilities which discharge to groundwater (Section 17-4.245, F.A.C.) and which inject materials directly underground (Chapter 17-28, F.A.C.).

The task of identifying the nature and extent of groundwater resources available within the state has been delegated to the regional water management districts. Each district must prepare and make available to local governments a Groundwater Basin Resource Availability Inventory (GWBRAI), which the local governments are to use to plan for future development in a manner which reflects the limits of available resources. The Criteria for the inventories, and legislative intent for their use, are found in Chapter 373, Florida Statutes.

#### 3. Local

Nassau County supports protection of the aquifer and natural groundwater recharge through implementing County ordinances that are currently in force and those to be adopted subsequent to the adoption of this plan (a Wellhead Protection Ordinance and an ordinance controlling mining/excavation among others). In addition, the County continues to coordinate with state agencies concerning with pollution of the County's wetlands, streams and rivers; particularly the County supports the state's SWIM program in identifying sources of pollution.

#### 4. Strengths and Deficiencies of Current Regulations and Programs in Maintaining Groundwater Recharge Areas

The Florida Legislature has directed local governments to include topographic maps of areas designated by the water management districts as prime

recharge areas for the Floridan or Biscayne aquifers in local comprehensive plans, and to give special consideration to these areas in zoning and land use decisions (Section 163.3177(6)(c), F.S.). As of this writing, the GWBRAI for Nassau County has not been completed. The Water Management District obviously requires additional financial support if it is to meet its state mandate.

The most effective measures for protecting aquifer recharge and surface waters within the County is through its own ordinances to control pollution and limit development in areas of significant aquifer recharge.

## **B. EXISTING CONDITIONS**

The groundwater system underlying Nassau County generally consists of two aquifers: the surficial aquifer and the Floridan Aquifer. The surficial aquifer lies just below the land surface and extends throughout the planning area. Recharge of the surficial aquifer is directly from rainfall in the local area, and possibly upward leakage from the deeper Florida Aquifer or where the hardpan has been cut by excavation. Water quality of the surficial aquifer is generally good and is used for domestic, commercial, and agriculture purposes within the planning area.

The Floridan Aquifer, which is the principal groundwater supply source for the entire State of Florida, lies 400 to 500 feet below the ground surface in the Nassau County area. The limestone beds which make up this aquifer are approximately 1,700 to 2,000 feet thick in the Nassau County area. Recharge to the Floridan Aquifer generally occurs south of the planning area where the overlying beds are thin or non-existent. The overlying soils in the planning area are not conducive to substantial recharge. In comparison to other areas of the state, recharge to the Floridan Aquifer in the Nassau County area is very low.

The Floridan aquifer is recharged only in areas where the water table stands higher than the piezometric surface. Recharge in the county is primarily a result of downward leakage from surface bodies of water or from shallower aquifers where the aquiclude is thin or absent. Local recharge of the aquifer which occurs in western Nassau County, is supplemented by a more remotely located potentiometric high centered near Valdosta, Georgia.

The generalized geologic structure of Nassau County consists of several water-bearing formations which vary as to water availability and quality. The surficial strata or post-Hawthorn formation provides a groundwater supply from two types of aquifers: surficial sand beds and limestone, shell and sand beds to lying between 50-150 feet below the surface. Those provide small to moderate amounts of water utilized for rural domestic, irrigation, and lawn sprinkling purposes. The amount and quality of this water supply is not adequate to serve an urban population. For these reasons, it is generally the deeper Floridan aquifer which supplies the potable water in Nassau County.

The limestone, shell and sand aquifers extend downward into the upper portion of the Hawthorn formation but otherwise, there is generally a poor yield of water from this formation. The Hawthorn formation is relatively impervious but discontinuous in Nassau County. Also, the Hawthorn forma-

tion is the confining layer for the underlying limestones which comprise the Floridan Aquifer.

The Crystal River, Williston, and Ingles formations of the late Eocene age lie directly beneath the Hawthorn formation. These are collectively referred to as the Ocala Group by the Florida Geological Survey. These formations consist of a homogeneous sequence of hard to soft, calcitic, porous marine limestone containing thin discontinuous zones of dolomite near the base of the formation. The Ocala Group generally yields large quantities of water and is the primary water source for most of Nassau County.

Finally, the deepest strata within the geological structure of Northeast Florida are the Avon Park, Lake City, and Oldsmar limestones of the Eocene age. These formations consist predominantly of soft porous limestones and crystalline limestone and dolomite. These formation along with the Ocala Group and the lower extremities of the Hawthorn formation collectively comprise the Floridan Aquifer, the principal artesian aquifer. This Eocene limestone ranges in thickness from about 500 to more than 1,000 feet and is the primary source of potable water in the study area. Under good management, this resource could provide quality water indefinitely.

### C. ANALYSIS

As the population in Nassau County grows, an increase in the use of the groundwater can be expected. Fortunately, one of the most prolific aquifers in the world, the Floridan Aquifer, underlies Nassau County and the remainder of the Florida peninsula and extends throughout parts of Georgia, Alabama, and South Carolina. In Nassau County, the surface water is either too salty or insufficient in quantity to supply the needs of the population and industry, thus the Floridan Aquifer is utilized as the principal source of water for municipal, industrial, and agricultural uses.

Heavy water use has resulted in a general decline of water levels in the aquifer in Nassau County as well as large cones of depression in the piezometric surface in the industrial area near Fernandina Beach. Along with this decline in artesian water levels, the salt content of the water has increased in some areas which indicates an advancement of salt water into the fresh water zones of the Floridan aquifer.

Three types of aquifers supply water in Nassau County: shallow sand beds; relatively thin limestone, shell and sand beds; and the thick limestone and dolomite beds of the Floridan aquifer. The shallow aquifer water is generally low in dissolved solid content but may be corrosive to pumping fixtures due to its slightly acidic character and high carbon dioxide content. Shallow aquifers generally consist of a series of thin permeable zones separated by a number of thin confining beds. Water from the shallow aquifer is primarily used for lawn and ornamental shrub irrigation. In most cases, this water is suitable for domestic and most industrial uses, however, because this aquifer is recharged primarily by local rainfall, this practice of tapping water resources should be regulated from a public health standpoint due to a potential contamination problem.

The limestone, shell and sand aquifer occurs in most parts of the area from 50-200 feet below the surface. It is recharged by downward leakage from

the shallow aquifer, by surface streams, and in some areas by upward leakage from the Floridan aquifer. The water from this aquifer tends to be slightly alkaline. Most individual domestic water supplies are obtained from this aquifer in areas not serviced by municipal or private water utilities. It also supplies water for lawn sprinkling and some industrial purposes.

Water in aquifers in Nassau County occur under both artesian and non-artesian conditions. In areas where the aquifer is exposed at the surface or where the overlying material is relatively thin, the water in the aquifer is under non-artesian conditions. The extensive permanent swamps in the western part of the county south and west of Callahan are good examples of where non-artesian conditions exist and the aquifer is filled to capacity. The water bearing zones of these surficial aquifers are generally thin and therefore not used for irrigation. In the eastern Amelia Island section of the county where there is a growing demand for domestic water supplies, the non-artesian water sources will become more important as the underlying and deeper artesian reservoir continues to increase in water of a poorer chemical quality.

Relatively large quantities of water are lost from the aquifer by natural discharge of springs and upward leakage through the overlying confining beds. Some loss via upward leakage probably occurs throughout the area of artesian flow.

Large quantities of water are also lost by artificial discharge from wells. The principal artificial discharge area in Nassau County is the urban-industrial area in the vicinity of Fernandina Beach. In the long term, a net decline in artesian pressure of more than 20-25 feet in the vicinity of Fernandina Beach has occurred. Total discharge from the aquifer in Nassau County has steadily increased since 1940. The greatest discharge results from industrial uses, specifically the pulp and paper industries of Fernandina Beach. These companies alone withdraw approximately 53 million gallons per day from the aquifer. This is about 90 percent of the total fresh groundwater withdrawal in Nassau County. The decline in artesian pressure in Fernandina Beach is compounded by a pulp mill located in Georgia just across the St. Marys River. The results of this increase in discharge has been a decline of artesian pressures or cessation of flow in wells near the center of discharge.

Recently, the rate of discharge at Fernandina Beach has remained constant, and if this continued, the cone of depression in this area would eventually reach equilibrium and the decline in artesian pressure arrested. However, with the expected industrial expansion and increased population, withdrawal from the aquifer can be expected to increase, thus, artesian pressures will continue to decline. It is estimated that the Floridan aquifer provides at least 350 mgd of water to northeast Florida. If this discharge continues at the present rate, in 20 years the water level will be 20-40 feet lower than it is now in the urban-industrial centers such as Fernandina Beach.

The results of the decline in artesian pressures are two-fold: the area of artesian flow has been reduced and the yield of wells by natural flow has decreased, and there has been a threat of contamination of the freshwater supply by saltwater intrusion.

Salt water underlies the fresh water in the discharge areas of Nassau County. Wells in eastern Nassau County show that fresh water occurs in the upper 1400 feet of the Florida aquifer, but below that the water is saline. The greatest increase in salinity is directly related to the areas of increased discharge. In Nassau County, the chloride content has risen from 50 parts per million (ppm) to well over 1,000 ppm in the deep parts of the aquifer indicating that contamination from below is a problem for the deep water-bearing zones of the aquifer in this area. The relatively slight increase in chloride content of water in the upper part of the Floridan aquifer at Fernandina Beach is probably due to the presence of impermeable barriers located below the fresh water zones, inhibiting saltwater intrusion.

As more water is used from the Floridan aquifer, especially in the easterly section of the county, and artesian pressures continue to decline, saltwater intrusion may increase. However, recent studies by the St. Johns Water River Management District indicate it may be possible to prevent or delay further contamination in the Fernandina Beach area by selectively utilizing the upper portions of the aquifer without disturbing the deeper saline water. Their work found a need to limit well depth to less than 1,150 feet. The deeper wells that have been grouted up to 1,200 feet have ceased having chloride problems, indicating that incipient, large-scale connate intrusion is not a problem here as it is in other coastal areas.

Another method which may help maintain artesian pressures is artificial recharge. This process involves providing a means for water, either naturally by rainfall or artificially by man's introduction, to reach the aquifer quickly. The most effective method would require wells which connect the aquifer to the water table thus increasing recharge. However, because of the expense involved in a project of this sort, this may not be a viable solution for Nassau County within the next 20 years.

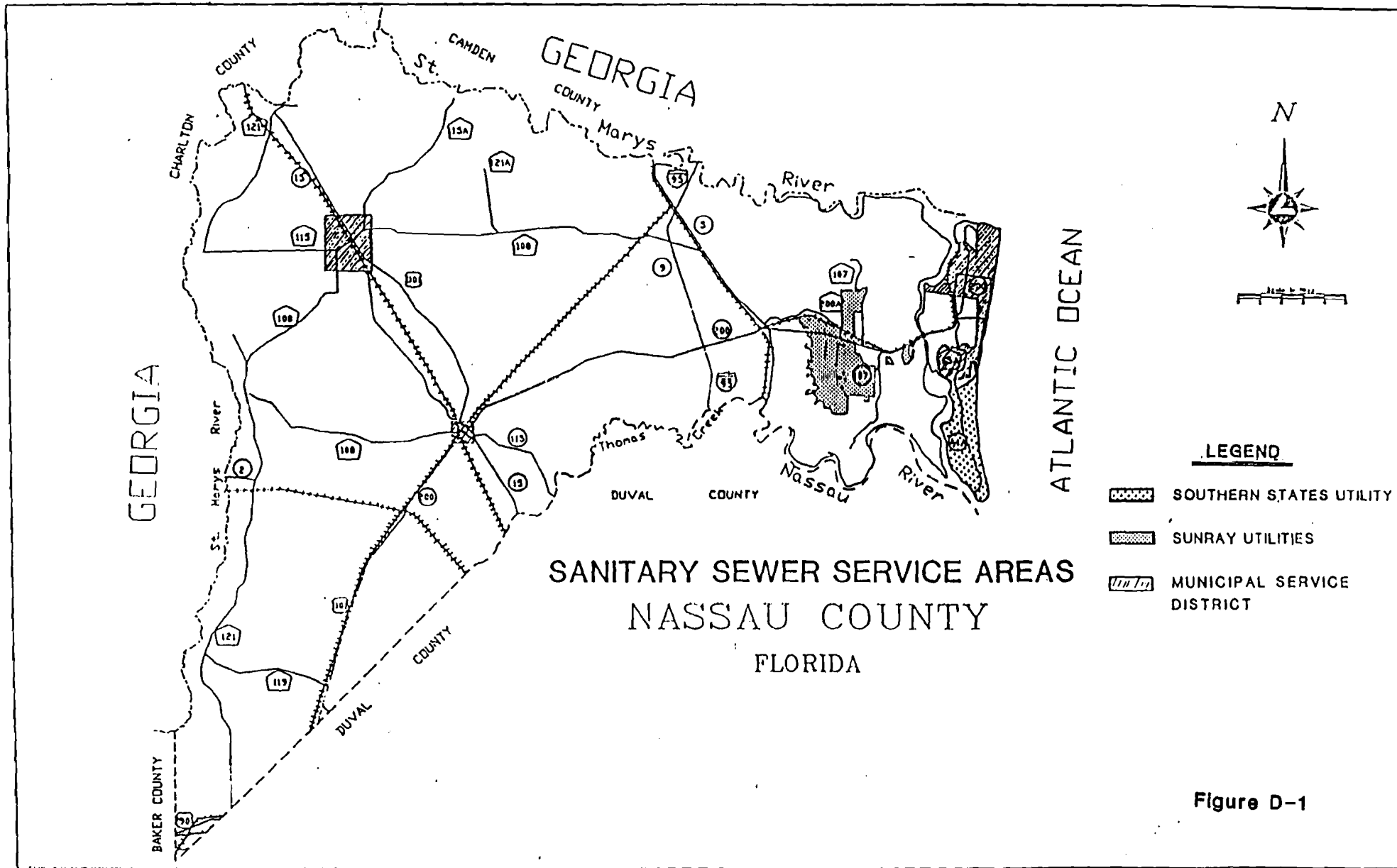



Figure D-1



# NASSAU COUNTY EXISTING SEWER LINES

Figure D-1A

LEGEND  
SEWER LINE 

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning assistance program authorized by 86-167, Laws of Florida, and administered by the Florida Department of Community Affairs

SOURCE  
TOWN OF CALLAHAN  
NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL

NASSAU COUNTY, FLORIDA  
COMPREHENSIVE PLAN



1988  
PREPARED BY  
NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

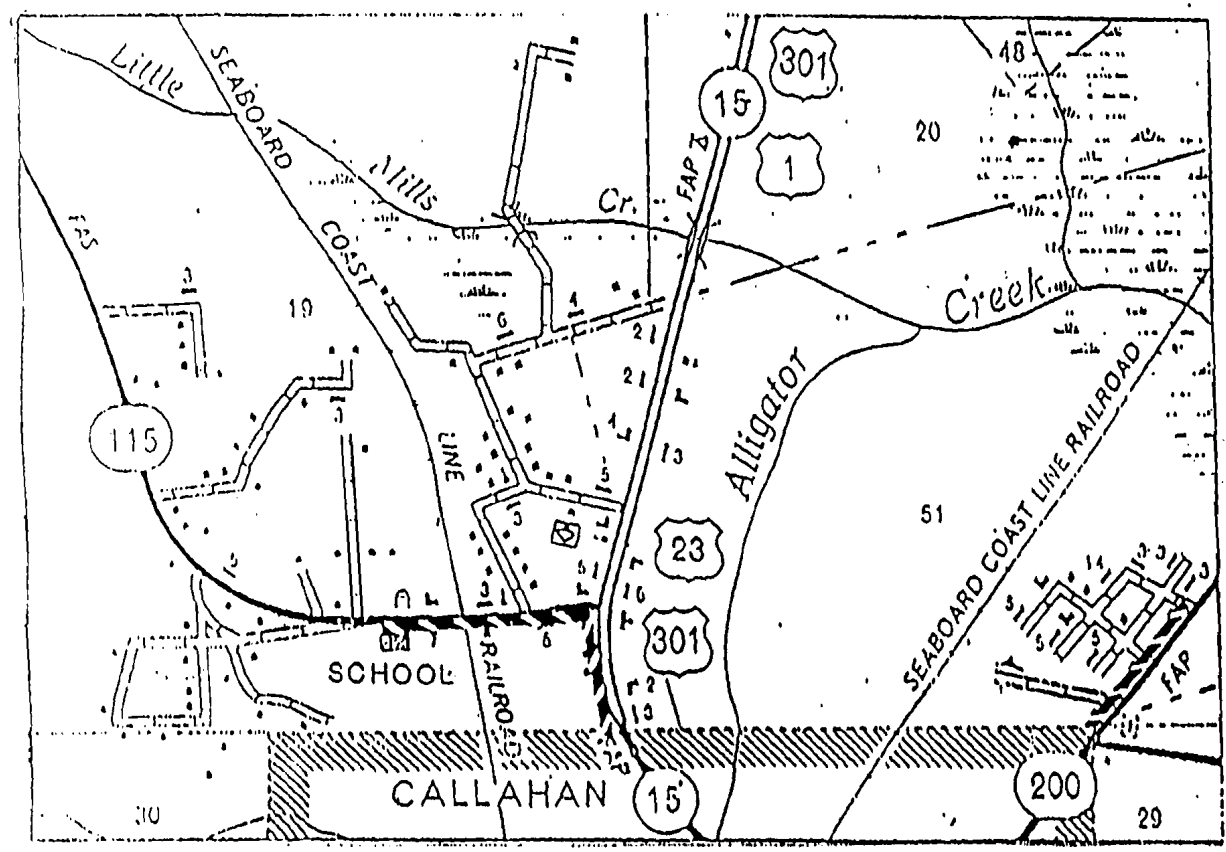


Table D-2 continued

Facility Name	Type	Population Served	Design Capacity	Type of Treatment
Marsh Cove Apts Amelia Island Parkway Amelia Island		500	50,000 GPD	Contact Stabiliza- tion Filter Through Marsh
Nassau Acres Mobile Home Park SR 200A, E US 17 Yulee		32	2,400 GPD	Extended Aeration Chlorinated to Polish Pond
Police ADM- Detention Facility 4310 Ft E I-95 & 200 Yulee		56	10,000 GPD	Extended Aeration to Evap Perc Pond
Shell Oil Co. (I-95 & SR A1A (200)) I-95 & SR 200 Yulee		NA	3,000 GPD	Extended Aeration Chlorinated Dis- charge to Drain Field
Shell Oil Co. (I-95 & SR A1A (200)) I-95 & SR 200 Yulee		NA	5,000 GPD	Extended Aeration Chlorinated Dis- charge to Drain Field
Stuckeys Pecan Shop I-95 & SR 200 Yulee		90	9,000 GPD	Extended Aeration
Sunshine Truck Plaza SW LY corner I-95 & SR 200 Near Yulee		NA	20,000 GPD	Extended Aeration to Spray Irrigation
Teakwood Mobile Home Park HWY 17 Yulee Heights		50	5,000 GPD	Extended Aeration to Retention Pond
Terminal Paper Bag US 17 Yulee		550	8,400 GPD	Septic Tank Over- flow to Sand Filter
Wayfara, Inc. I-95 & SR 200 Yulee		60	6,000 GPD	Extended Aeration to Spray Irrigation

Table D-2 continued

Facility Name	Type	Population Served	Design Capacity	Type of Treatment
Yulee Elementary US 17 & SR S-200A Yulee		150	15,000 GPD	Extended Aeration to Evap Perc Pond Overflow to Ditches
Yulee Jr. High N SR 200 Yulee		600	6,900 GPD	Extended aeration to Evap Perc Pond
Yulee Villas US 17, 6 MI S of A1A Jnct. Yulee		140	15,000 GPD	Extended Aeration w/Evap Perc Pond

Source: Florida Department of Environmental Regulation (DER), June 1984.

**C. PROBLEMS AND OPPORTUNITIES FOR REPLACEMENT, EXPANSION AND SITING OF NEW SANITARY SEWER FACILITIES**

As stated earlier, Nassau County basically is a rural county. As discussed in Section II of this Element (Solid Waste Sub-element), Nassau County has an immediate costly problem to resolve regarding the issue of solid waste. The County must "close" two now unused solid waste landfills and refit the existing West Nassau Land Fill to meet current DER regulations. Accomplishing these tasks will require all of the potential funding Nassau County may realistically have available for improving public facilities (sanitary sewer, potable water and solid waste) over the next five years. Balancing infrastructure needs with the County's financial resources, it becomes clear that as a matter of setting priorities, correcting deficiencies in the area of solid waste disposal takes precedence over the installation of a central sanitary sewer system. Therefore, until all solid waste issues are resolved, the County will rely on franchised entrepreneurs to install, manage, and operate sanitary sewer systems in unincorporated Nassau County.

To further the utilization of the one municipal system (Town of Callahan) and two franchised systems already operating in the unincorporated area of Nassau County, and to discourage urban sprawl, the County has directed growth, as much as possible, on its Future Land Use Map into areas that can be served by these systems. In addition, as market forces drive development into new areas of the County, the County will require that developers strive to coordinate and combine development operations to enhance the feasibility of providing central water/sewer systems within the new development area.

# GENERAL SOILS MAP NASSAU COUNTY, FLORIDA

Figure D-2

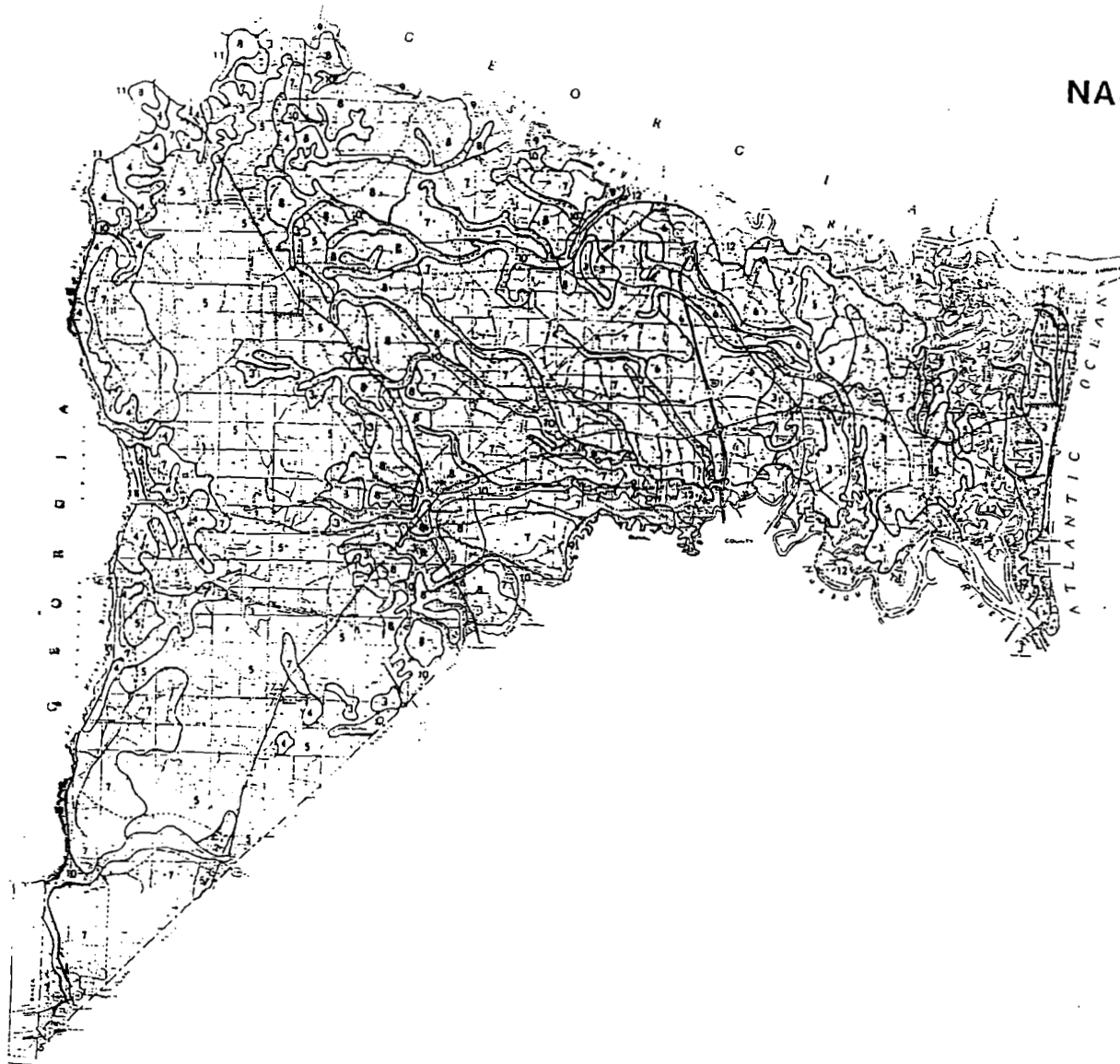


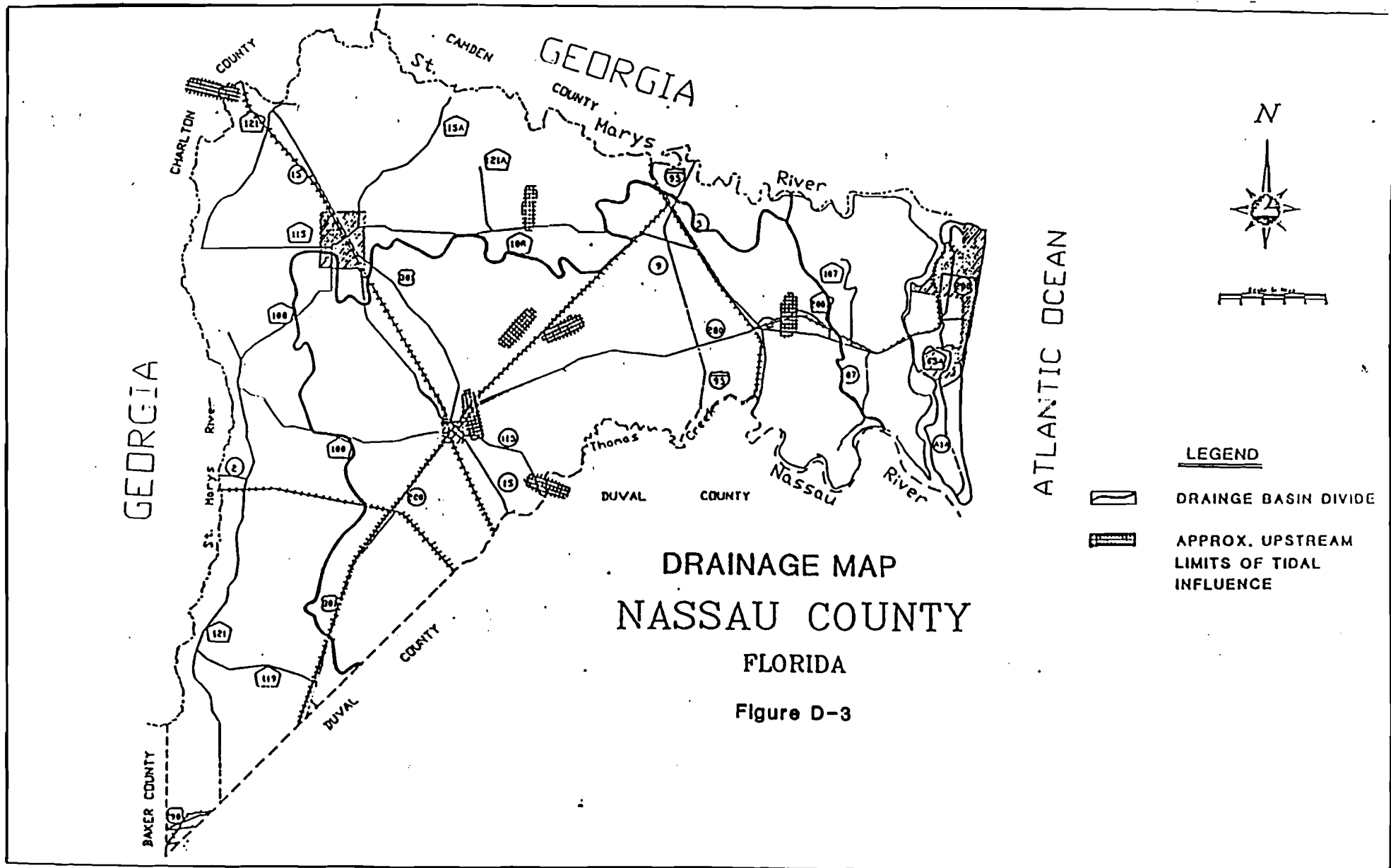
## SOIL ASSOCIATION

1. Kureb - Fripp - Newhan
2. Mandarin - Echaw
3. Ridgewood - Hurricane - Pottsburg
4. Albany - Blanton - Penny
5. Leon - Boulogne - Kingsferry
6. Sapelo - Leon - Goldhead
7. Goldhead - Haires - Meadowbrook
8. Megget - Goldhead
9. Kingsland - Maurepaus
10. Buccaneer - Ellabelle
11. Osier - Ousley - Mandarin
12. Tisonia

## SOURCE:

Soil Conservation Service,  
Interim Soil Study,  
Report of Nassau County, Florida 1988







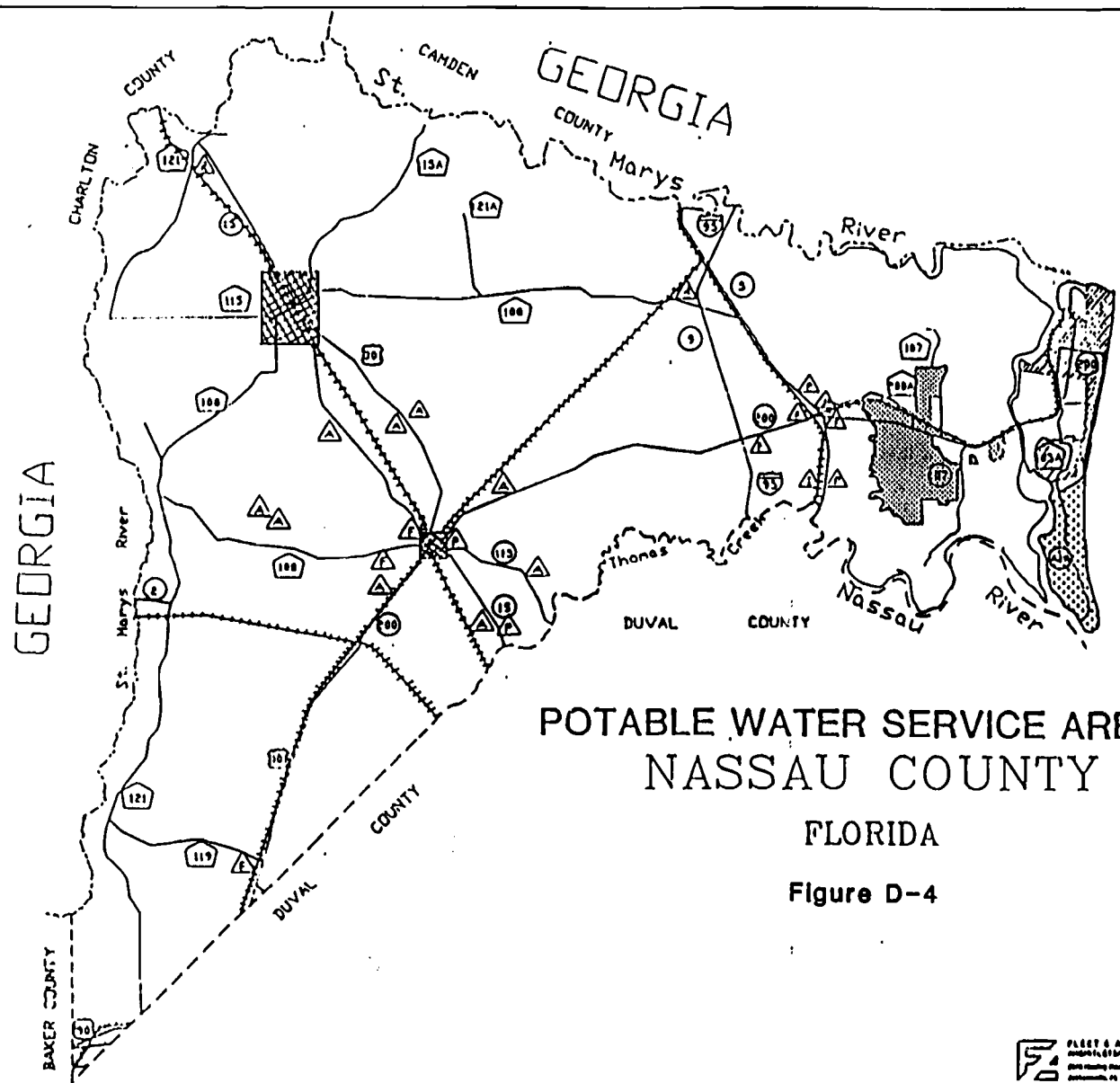
DRAINAGE MAP  
 NASSAU COUNTY  
 FLORIDA

Figure D-3



LEGEND

-  DRAINAGE BASIN DIVIDE
-  APPROX. UPSTREAM LIMITS OF TIDAL INFLUENCE








POTABLE WATER SERVICE AREAS  
NASSAU COUNTY

FLORIDA  
Figure D-4




LEGEND

-  SOUTHERN STATES UTILITY
-  SUNRAY UTILITIES
-  FLORIDA PUBLIC UTILITIES
-  MUNICIPALITY
-  MAJOR WATER SUPPLY USES  
 (P) Public supply  
 (I) Industrial  
 (F) Institutional Facility  
 (R) Recreational  
 (A) Agricultural Irrigation

# NASSAU COUNTY POTABLE WATER LINES

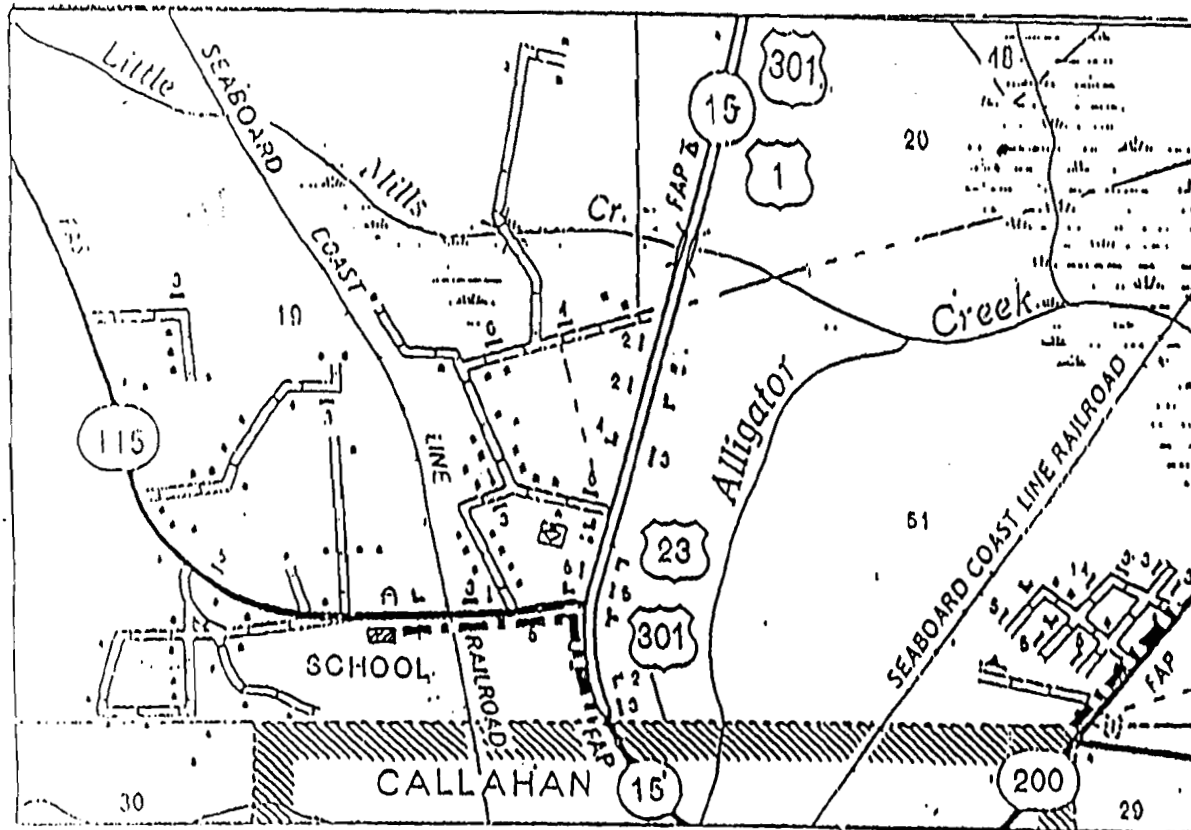
Figure D-4A

## LEGEND

WATER LINE 

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning assistance Program authorized by 88-187, Laws of Florida, and administered by the Florida Department of Community Affairs.

SOURCE  
TOWN OF CALLAHAN  
NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL



NASSAU COUNTY, FLORIDA  
COMPREHENSIVE PLAN



1" = 400'  
1000  
PREPARED BY  
NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

SANITARY SEWER, SOLID WASTE, DRAINAGE, POTABLE WATER  
AND NATURAL GROUNDWATER AQUIFER RECHARGE ELEMENT

GOAL 4.0

PROVIDE PUBLIC FACILITIES IN A MANNER WHICH ENSURES THE HEALTH, WELFARE AND SAFETY OF THE RESIDENTS OF NASSAU COUNTY; PROMOTES DEVELOPMENT; REDUCES URBAN SPRAWL; PROTECTS AND CONSERVES NATURAL RESOURCES; AND SATISFIES THE REQUIREMENTS OF SOUND FISCAL PLANNING.

OBJECTIVE 4.01  
MEETING FUTURE NEEDS

Upon Plan adoption, Nassau County shall implement procedures to ensure that at the time a development permit is issued, adequate facility capacity is available or will be available to serve the development in accordance with the schedule provided in Chapter 9J-5.0055 (2)(a)(b) and (c), FAC.

Policies

4.01.01 The following level of service standards are hereby adopted, and shall be used as the basis for determining the availability of facility capacity and the demand generated by a development.

Facility/Service Area

Level of Service Standard

Sanitary Sewer

Fernandina Beach

172 gallons per capita per day with  
1.2 peak factor

Southern States

76.8 gallons per capita per day with  
1.2 peak factor

Sunray

85 gallons per capita per day with  
1.2 peak factor

Potable Water

Florida Public Utilities

170.9 gallons per capita per day with

1.6 peak factor

Southern States

81 gallons per capita per day with  
1.5 peak factor

Sunray

100 gallons per capita per day with  
2.0 peak factor

Solid Waste

5.12 pounds per capita per day

0.78 pounds per capita per day at Sandhill

4.34 pounds per capita per day at West Nassau  
(Both will be combined at the new West Nassau  
facility as shown in Table D-4)

ORC #11

#11  
#13  
#16  
#12



Drainage

Water Quality

Applicable local standards as well as water quality standards specified by Chapter 17-3, Section 17-3.051, F.A.C. shall apply.

Wetland Stormwater Discharge

Permits for Wetland stormwater discharge shall follow F.A.C. 17-25.042.

Stormwater Discharge Facilities

Permits for construction of new stormwater discharge facilities shall follow F.A.C. 17-25.040.

Closed Conduits

10-year frequency, 24-hour duration; IDF curve Zone 5, DOT Drainage Manual 1987.

Open channels

25-year frequency, 24-hour duration; IDF curve Zone 5, DOT Drainage Manual 1987.

Level of Service

Shall meet DER Stormwater Drainage Rule 17-25 (retain the first inch of stormwater for drainage basins over 100 acres; the first one-half inch of stormwater for drainage basins under 100 acres).

Potable Water

Florida Public Utilities

170.9 gallons per capita per day with 1.6 peak factor

Southern States

81 gallons per capita per day with 1.5 peak factor

Sunray

100 gallons per capita per day with 2.0 peak factor

The standards stated above shall pertain to all new development and redevelopment without exception for the planning period 1990-2005.

4.01.02 All improvements, replacements, expansion or increase in capacity of facilities shall be compatible with the adopted level of service standards for the facilities and the distribution of these facilities shall be consistent with the Future Land Use Map.

4.01.03 The County Engineer shall, on a semi-annual basis, review the level of County development in terms of infrastructure availability and provide the findings to the Board of County Commissioners and the Building Official for guidance in the issuing of Certificates of Concurrency.

#1a  
San. Sewer

# 1a San. Sewer

4.01.04 The County Engineer shall prepare annual summaries of capacity and demand information for each public infrastructure facility. The County Engineer then shall submit recommendations to the County Commission regarding extensions of facilities to meet future needs. These recommendations shall include required costs to implement such improvements and upon Commission approval be considered as recommendations in the next fiscal year budget hearings.

#15

#1b San. Sewer

4.01.05 New or expansion service areas for publicly owned or investor-owned utilities shall be consistent with the development areas on the Future Land Use Map or Future Land Use Map as amended in accordance with Chapter 163.3187 F.S. The boundaries of the utility service areas shall not be gerrymandered in such a way that enclaves are created that will lack service.

#11

4.01.06 The County Engineer is charged with the responsibility to determine where the potential exists for Nassau County to improve its providing public facilities through coordinating County efforts with adjacent county/municipality system planning and to recommend to the County Commission such intergovernmental agreements that will promote improved services and thereby discourage urban sprawl.

OBJECTIVE 4.02  
CORRECTING EXISTING DEFICIENCIES

Solid Waste  
#8, #9  
San. Sewer  
#10

Upon Plan adoption, the County shall correct deficiencies in potable water, solid waste, sanitary sewer and drainage systems for which it is responsible through implementing the following policies:

Policies

#13

4.02.01 A five-year schedule of capital improvement needs for public facilities will be maintained and updated annually in conformance with the review process for the Capital Improvements Element of this plan.

Proposed capital improvement projects will be evaluated and ranked according to the following priority level guidelines:

Level One - whether the project is needed to protect public health and safety, to fulfill the County's legal commitment to provide facilities and services, or to preserve or achieve full use of existing facilities.

Level Two - whether the project increases efficiency of use of existing facilities, prevents or reduces future improvement costs, provides service to developed areas lacking full service or promotes in-fill development.

Level Three - whether project represents a logical extension of facilities and services within a designated service area.

#8

4.02.02 Unless modified by an amendment to the element, all projects shall be completed in accordance with the schedule provided in the County Capital Improvements 5-year plan as shown below:

- a. Drainage -- Immediate concerns for drainage are maintenance of existing County drainage facilities; coordinating with the state for maintenance of state facilities along state highways and development of a county-wide drainage master plan.

While these are not items that should be shown in the County's 5-year Capital Improvement Plan, the findings of the drainage master plan undoubtedly will require some construction of new, and realignment of existing, drainage facilities. These new facilities and associated construction costs will be added to the Drainage Sub Element and Capital Improvement Element as amendments to the Plan.

- b. Sanitary Land Fill -- The Lofton and Bryceville land fills must be "closed" per DER regulations. In addition, the County has applied for and awaits required permits for continued interim use of the West Nassau Land Fill. Funding is shown in the Capital Improvement 5-year plan to support both actions.

"Closing" the Lofton and Bryceville landfills and "opening" the new section of the West Nassau landfill are "Level One" priority projects and are shown on Table J-7 of the Capital Improvement Element to be completed during the current 5-year Capital Improvement Plan.

- c. Sanitary Sewer -- Immediate concern of the County regarding sanitary sewer disposal is the performance of package plants and septic tanks so as to not impact on the County's natural resources. The County support at this time should be primarily to support the County Department of Health in locating and identifying malfunctioning systems.

Since this effort can best be accomplished through citizen participation, the County shall establish a public information program wherein water quality literature available from the County Department of Health and Water Management District will be made available to Nassau County residents.

While the cost of such an effort will not be identified in the County's 5-year Capital Improvement Plan, it will add some expense to County operations within the Office of the County Engineer.

#8  
Solid Waste  
#10  
#11  
#12

San. Sewer #13

# 8  
# 11

- d. Potable Water -- Since the County does not own or operate a central potable water system, nor does it expect to have the financial resources to implement such a system within the 1990-2005 planning period, the County must make more feasible the expansion of potable water system by its franchised operators.

Nassau County will ensure that future land development follows the Comprehensive Plan through implementing growth management in accordance with the adopted Future Land Use Map thereby promoting compact development and promoting extension of water/sewer systems.

- # 10  
# 15  
4.02.03 Upon completion of the Master Drainage Study (Policy 4.05B.04) the County Engineer shall prepare a priority listing of drainage projects to be completed by the County to correct existing deficiencies. This listing, with associated costs, shall be presented to the Board of County Commissioners for consideration in the FY 1995-1996 budget.

- # 11  
4.02.04 The County Engineer shall maintain inventories of all currently operating public facilities and annually report to the County Commission locations required to support future development needs and provide estimated costs or other possible means for acquisition.

*Sanitary Sewer*  
# 9, # 11

OBJECTIVE 4.03  
DISCOURAGE URBAN SPRAWL

Upon Plan adoption, the County shall regulate land use and discourage urban sprawl by adopting land development regulations that maximize use of current and planned infrastructure facilities.

Policies

- 4.03.01 The Nassau County Health Department shall require that on-site sewage systems, except approved on-site graywater systems, connect to a publicly owned or investor-owned sewage system within 365 days after notification that such a system is available. (F.S. 381.272(1)).
- 4.03.02 Issuance of building permits will be conditioned upon demonstration of compliance with applicable federal, state and local permit requirements for on-site wastewater treatment systems.
- 4.03.03 Provisions shall be made in the Sub Division Regulations for the inclusion of water and sewer utility easements and rights-of-way in a subdivision plat to assure the eventual construction and utilization of a sewage system in such subdivision. (F.S. 381.272 (1)).

4.03.04 Provisions shall be made in the Land Development Regulations for waivers to the requirement for mandatory connection to a publicly owned or investor-owned sewage system based on the criteria listed in Chapter 381.272 F.S.

San. Sewer  
#12

4.03.05 Provisions shall be incorporated in the Land Development Regulations to allow developer agreements for the timing of installation and connection of water and/or sewer to a publicly owned or investor-owned water and/or sewer system. Said developer agreements will be based on density formulas and may allow temporary use of on-site water or sewer systems until the agreed upon densities are resolved. On-site sewer systems must be approved by the County Department of Health for proper operation in the specific location.

ORC #10

OBJECTIVE 4.04  
CONSERVATION OF POTABLE WATER RESOURCES

Upon Plan adoption, the County shall conserve potable water resources through implementing the following policies:

Policies

#13  
4.04.01 The County shall coordinate efforts with the Water Management District to identify and map prime natural groundwater aquifer recharge areas.

4.04.02 The St. Johns River Water Management District will be used as source for the identification and protection of recharge areas.

4.04.03 The County shall conduct a public information program utilizing materials available from the Water Management District to alert residents of wasteful water usage practices and enhance the responsible and practical use of potable water resources.

#13  
#14  
4.04.04 The County shall adopt Land Development Regulations that implement the requirements of Chapter 553.14, F.S., "The Water Conservation Act."

#15  
4.04.05 The County shall require that wastewater be reused where practical. New wastewater treatment plants shall be required to provide for the reuse and/or disposal of wastewater by best available technology, including for agriculture or landscaping irrigation, percolation, or other permitted measures unless data are presented to support claims for inability of the system to support such reuse.

#3  
#4

OBJECTIVE 4.05A  
PROTECTING THE FUNCTION OF NATURAL  
GROUNDWATER RECHARGE AREAS

Upon Plan adoption, the County shall provide protection to Natural Groundwater Recharge areas through implementing the following policies:

Policies

- 4.05A.01 The County Planning Director shall coordinate with the St. Johns River Water Management District to acquire area maps which define the location of significant groundwater recharge areas in the County. These recharge areas will be noted on zoning maps so that requests for rezoning or land use changes in these areas can be evaluated both in terms of need and potential impact to the aquifer.
- # 7  
4.05A.02 The County, in coordination with DER and the St. Johns River Water Management District shall, under the SWIM program, identify all known point and non-point sources of pollution within the County. All permitted discharge sources shall be required to meet state Water Quality Standards, all discharges under state law not requiring a permit will be required to meet all applicable Best Management Practices.
- 4.05A.03 A 200 foot buffer will be established around all wellheads serving the public as a "reasonable radius" to protect the cone of depression of wellfields which draw their water from the surficial aquifer as identified by the St. Johns River Water Management District. Wells which do not obtain their water supply from the surficial aquifer are exempt from this policy.
- #5  
#6  
4.05A.04 Upon completion, by the Water Management District, of a map which identifies significant aquifer recharge areas in Nassau County, the County shall incorporate such map into the Natural Groundwater Recharge Sub-Element and through the Comprehensive Plan amendment process revise the policies of this section to include specific policies for protecting the identified locations. Such policies will include control of land use and siting of septic tanks for sewage disposal.

ORC #13

OBJECTIVE 4.05B  
PROTECT THE FUNCTION OF NATURAL  
DRAINAGE FEATURES

Upon Plan adoption, the County shall protect the function of natural drainage features through implementing the following policies:

Policies

#12

4.05B.01 In order to maximize the use/functions of existing facilities, the County shall establish a maintenance program of County controlled drainage ditches throughout County, the cost of which shall be incorporated into the County's operating budget.

4.05B.02A buffer of natural vegetation as required under Chapters 373 and 403, F.S., implementing regulations and permits granted thereunder, shall be provided where wetlands occur.

4.05B.03 The County shall, by 1995, initiate a master drainage study of the County to identify (1) the volume, rate, timing and pollutant load of stormwater run off in each planning district, (2) areas of recurring drainage problems, and (3) establish a priority for improving drainage throughout the County.

Upon approval of the study by the Nassau County Board of County Commissioners, the findings of the study shall be incorporated into a Stormwater Management Ordinance and made part of the County's Comprehensive Plan.

#17

4.05B.04 The County shall regulate the use of land in accordance with the Future Land use Map.

#17

4.05B.05 Adopted sub-division regulations shall ensure that new streets are designed to direct storm drainage in a manner that such water will be filtered through soils and native vegetation before the runoff enters drainage creeks.

#17

4.05B.06 New sub-divisions or individual parcels must be engineered so that post development runoff for the property is no greater than predevelopment runoff.

COASTAL MANAGEMENT ELEMENT  
NASSAU COUNTY COMPREHENSIVE PLAN

Adopted  
January, 1991

Prepared by  
Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by  
The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs



COASTAL ELEMENT  
NASSAU COUNTY

TABLE OF CONTENTS

Introduction.....E-1  
Boundaries of the Coastal Zone.....E-2  
Topography and Geomorphology.....E-3  
Coastal Resources.....E-4  
    Coastal Waters.....E-4  
    Coastal Marshes.....E-6  
    Aquatic Preserves.....E-7  
    Shellfish Harvestin.....E-7  
    Beaches and Dunes.....E-7  
    Coastal Strand.....E-10  
    Maritime Hammock.....E-10  
    Wildlife Habitat.....E-10  
    Living Marine Resources.....E-11  
    Floridan Aquifer Water Supply.....E-11  
    Flood Hazard Areas.....E-12  
Natural Disaster Planning.....E-13  
Port of Fernandina Beach.....E-16  
Other Ecological Elements.....E-18  
    Threatened and Endangered Species.....E-18  
    Areas of Known Mineral Deposits - Mining.....E-21  
    Air Qaulity.....E-22  
    Cultural and Historical Resources.....E-22  
Bibliography.....E-23

LIST OF TABLES

Table 1 Evacuation Order Time.....E-17  
Table 2 Federal and State Listed Endangered and  
Threatened Species .....E-19

## INTRODUCTION

The Coastal Zone Management Element of the Nassau County Comprehensive Plan has been prepared to comply with the requirements of the Florida Department of Community Affairs Rule 9J5.013. The Element is designed to serve as a guide to those functions of local government that apply to management of coastal resources. The Element identifies important coastal resources and discusses problems affecting them.

### BOUNDARIES OF THE COASTAL ZONE

The coastal zone boundary for Nassau County has been prepared by the Florida Department of Environmental Regulation (DER) (1977). This management and planning boundary was drawn to include:

1. Vital coastal resources;
2. Conservation areas; and
3. Activities which have a direct or significant impact on coastal water.

Vital areas have been defined by DER to include those portions of the coastal zone which have major ecological, hydrological, physiographic, historical, or socio-economic importance to the public at large. In Nassau County the vital resources are:

1. Class II waters,
2. Coastal marshes,
3. Atlantic Beaches and dunes,
4. Aquatic preserves,
5. Historical and archaeological sites, and
6. The Floridan Aquifer.

Conservation areas, in contrast to vital areas, are lands and waters of the coastal zone having natural or institutional use limitations requiring special precautions prior to alteration or development. They are usually significant environmental resources which provide public benefit. The following resources and institutionally-identified landscape features are classified as conservation areas:

1. Class III waters,
2. Hurricane surge zone,
3. Interior freshwater marshes and swamps, and
4. River flood plains.

## TOPOGRAPHY AND GEOMORPHOLOGY

The topography of Nassau County characteristically consists of higher elevations with greater relief in the western one third of the county and lower elevations with little relief in the remaining area. The western area has elevations of as much as 107 feet above mean sea level (MSL) near Boulogne; however, the average elevation in this area ranges from 70 to 80 feet above MSL. The lowlands surrounding the St. Marys River, generally the lowest points in the area, range in elevation from near 50 feet above MSL in the southwest to less than 5 feet above MSL along the northern boundary of the county. The eastern two-thirds of the county, the coastal zone, average less than 25 feet above MSL with the lowlands generally below 10 feet above MSL. The greatest topographic relief in the coastal zone is found on Amelia Island near relict dunes which range from 20 to 60 feet above MSL.

Nassau County lies in the northern or Proximal Zone of White (1970). The high areas of the western part of the county are part of the Duval Uplands. Most of the remainder of the county falls in the St. Marys Meander Plain. The east coast of Nassau County, the "Sea Island", is part of the Atlantic Beach Ridges and Barrier Chain.

The coastal zone surface deposits are composed of sandy sediments which lie as a thin mantle over underlying formations. These deposits were laid as marine terraces during past floodings of Florida, during the Pleistocene Era, and shaped by coastal processes.

The coastal processes of longshore sediment transport and wind and wave action have resulted in a strong north-south, cost parallel orientation of the major coastal zone topographic features. These include Amelia Island and its beach and dune ridges, the St. Marys-Nassau River estuary, the mainland shore to the west of the marshes, and ancient but still discernible terraces which rise in staircase fashion to the western part of the county.

The coastal zone surficial deposits are underlain by the Hawthorn formation, the clays of which provide an important barrier to the downward movement of saline water. Below the Hawthorne lie several thousand feet of limestone. Several formations comprise the Floridan Aquifer, the source of almost all potable and industrial water used in the coastal zone.

Barrier islands (Amelia Island) are particularly important to the landscape of the coastal zone. They protect the coastal salt marshes from the salinity and wave action of the open ocean environment and provide the final line of defence for the mainland against hurricanes.

## COASTAL RESOURCES

Within coastal Nassau County, there are valuable resources which support wildlife and fish, provide flood protection, and are vital to the economic base of the county. The vital coastal resources of Nassau County include the

1. Coastal waters,
2. Coastal marshes,
3. Aquatic preserves,
4. Shellfish harvesting,
5. Beaches and dunes,
6. Floridan Aquifer,
7. Flood hazard areas, and
8. Port of Fernandina Beach.

### COASTAL WATERS

Coastal waters include marine (saline) and estuarine (brackish) areas. The main challenge to environmental managers in these areas is the maintenance or enhancement of water quality. In general, the quality of coastal waters is satisfactory for maintenance of optimum populations of marine and estuarine organisms. However, the estuarine areas of the county have suffered a general decline in quality due mainly to industrial and urban pollution in the Fernandina Beach area and, to a lesser extent, pollution brought into the estuary by upland streams, not notably Mills creek. All the estuarine waters in Nassau County have been downgraded from Class II to Class III waters, suitable for recreation, fish and wildlife, but not shellfish harvesting.

The Amelia River and St. Marys River estuary near Fernandina Beach are areas with chronic water quality problems. The most recent published information on water quality for this area is DER's Florida Water Quality Assessment Technical Report 305-B, 1986. A 1988 update is being printed, but DER sources say trends have not changed. In brief, water quality in the St. Marys estuary is fair, with dissolved oxygen (DO), water clarity, and nutrient levels being cited as chronic problems. The Rayonier and Container plants as well as the Fernandina Beach sewage treatment plant (STP) have been implicated. Rayonier and Container plant discharges failed bioassay tests in 1982 and 1984, respectively. They have since operated under site-specific alternative criteria for DO. This means they have been allowed to operate under less stringent DO standards. Nevertheless, recent sampling by DER has found DO to be below the alternate standards 10 to 40 percent of the time. Since the Amelia River and St. Marys River estuary have no significant freshwater flow and rely on tidal flushing action to dilute and dispose of discharge, the site-specific alternative criteria for the Amelia/St. Marys River estuary are in effect only on outgoing tidal cycles.

The tidal St. Marys River has been classified by DER as an effluent limited segment. In DER's estimation, it is a water body which will comply with state standards after the application of best practical treatments.

The other major drainage basin in the county's estuarine area is the Nassau River drainage segment has been classified as a water quality limited segment. This is one where best practicable treatment for industrial discharges and secondary treatment for domestic dischargers is insufficient to achieve desirable water quality. It requires more strictly controlled effluent limitations for either non-point sources or point sources or both.

The Nassau River basin is situated between the St. Johns River estuary to the south and the St. Marys River estuary to the north. The 350 mile basin is composed of a variety of land types: fresh and saltwater marshes, mixed hardwood swamps characteristic of the Nassau's headwater creeks, and pine flatwood areas interspersed with light urban, agricultural, and silvacultural land use. The Nassau River is a typical, southeast coastal plain drowned river estuary whose freshwater inflows are contributed by several major creeks. Three of these creeks, Thomas, Mills, and Boggy, are the main headwater creeks.

Despite the low-level development in the basin, hydrologic and fishery impacts have occurred. A major portion of Mills Creek has been channelized since 1974 to prevent flooding in the town of Callahan and surrounding agricultural lands (USDA, 1976). The channelization has altered the hydrology of the Mills Creek watershed and may be affecting water quality as far downstream as the creek's confluence with the Nassau River. The lower reach of the Nassau estuary has been closed to bivalve harvesting since 1977 because fecal coliform densities have been above standards (Florida Department of Natural Resources, 1984). Septic tank leachate from residential development has been implicated as the contamination source.

It is likely that further growth in the basin will create additional environmental impacts in the coastal zone unless preventive management strategies are developed and employed. Toward this end, the St. Johns River Water Management District, in cooperation with the U. S. Geological Survey, has initiated a hydrologic and water quality monitoring program.

A hydrologic and water quality monitoring network, fully established since 1982, covers the major Nassau River subbasins. Preliminary analysis of data collected since then reveals excessively large concentrations of total nitrogen (TN) and total phosphorus (TP) in Mills Creek near Callahan. Apparently, these large concentrations are related to domestic effluent discharges from the Callahan primary STP and may be elevating downstream

nutrient concentrations at the confluence of Mills and Boggy Creeks. In the Nassau River estuary, TN and TP concentrations drop by nearly an order of magnitude. These concentrations again decline somewhat through dilution and assimilation near the river mouth. A majority of the inorganic nitrogen in Mills Creek is ammonia and concentrations were measured that are potentially toxic to aquatic organisms, especially to the low levels of DO found in the creek.

#### COASTAL MARSHES

Nassau County contains approximately 23,456 acres of coastal (estuarine) salt marshes. The coastal marshes are the lower portion of the Nassau/St. Marys River basin and merge to form the eastern border of the mainland portion of Nassau County. Coastal marsh extends 14 miles up the Nassau River and 12 miles up the St. Marys River.

The majority of the Nassau River salt marshes are in pristine condition. A small portion of salt marshes in the Amelia River are impacted by poor water quality. The system is very productive biologically. Perhaps the best indication of the importance of the system is the designation of the majority of the salt marsh as Environmentally Endangered Lands. The area has a number one priority for protection by the state, an essential step in the maintenance of the present environmental quality of the system. The St. Marys River coastal marshes form an expansive plain of spartina and juncus groves interspersed with numerous large tidal creeks. The St. Marys River coastal marshes are also in fairly pristine condition. The only existing problem is the discharge of sewage effluent, primarily domestic and industrial discharges. Area industries, Gilman Paper Company, ITT Rayonier, and Container Corporation, have constructed new treatment facilities and the City of Fernandina Beach is proceeding with preparation of a 201 facilities plan. Coastal areas are valuable habitat for numerous species of birds and terrestrial animals. They also provide necessary nutrients to adjacent waters and, through their filtering action, help maintain good water quality. Many important marine species are dependent upon marsh systems for survival, and preservation of these areas is considered crucial to maintenance of marine fisheries. Their storm-buffering function also helps reduce damages to coastal development. Included in this category are "high" marsh areas generally considered as being above the mean high water (MHW) line. Under Chapters 253 and/or 403 Florida Statutes dredging and/or filling in portions of coastal marshes is regulated by the DER. These areas are also subject to regulation by the U.S. Army Corps of Engineers (COE).

A potential problem is periodic dredging of the Fernandina Beach Harbor. Periodic dredging will be necessary to maintain the navigation channels in St. Marys Sound. Dredging in both areas could have a detrimental affect on the marshlands due to

sedimentation is not carried out properly. The use of sediment reduction techniques and consideration of biological cycles is important. Dredging should be scheduled to minimize disruption of life cycles of shrimp and fish species.

#### **AQUATIC PRESERVES**

Aquatic preserves occupy a considerable portion of land and water in the coastal areas of Nassau County. Approximately 11,326 acres of land and 16,180 acres of water are designated as aquatic preserves by the State of Florida. The aquatic preserves surround the northeastern tip of Amelia Island and the lower portion of the Nassau River including the adjacent coastal marshes of the Intracoastal Waterway.

#### **SHELLFISH HARVESTING**

The Nassau County shellfish harvesting area was temporarily closed on February 26, 1977, due to increased bacterial levels found in samples taken throughout the approved area. It has remained closed since that time.

Under Chapter 16B-2B FAC and National Shellfish Sanitation Program Standards, no closed shellfish area may be reopened without a resurvey or reappraisal. Therefore, in 1978, a 6-year bacterial sampling program was undertaken by the Florida Department of Natural Resources (DNR) to reappraise the area for shellfish harvesting. The reappraisal, published in 1984, recommended a downward classification of the Nassau County shellfish harvesting area from Approved (although temporarily closed) to Prohibited. This recommendation was based on actual fecal coliform pollution counts.

#### **BEACHES AND DUNES**

The beaches and dunes in Nassau County extend approximately 13 miles along the Atlantic Coast of Amelia Island. The beaches and dunes occupy

1,471 acres of Amelia Island. The sandy beach is generally backed by a beach ridge (dune system) which extends up to 2,000 feet inland at the north end of the island. The dunes can reach elevations of 40 feet but are usually 10 to 20 feet high. The highest dunes are located along the northern tip of Amelia Island within the Ft. Clinch State Park. There are several gaps in the dune system, mostly in the north beach and main beach areas within the city limits of Fernandina Beach and at American Beach.

It is important to maintain the dynamics of the dune system because it protects the beaches from erosion. Although the beach itself is remarkably tolerant to man's activities; the primary dune system is not. Building on the dunes or trampling of the stabilizing dune



vegetation may result in destruction of the dune system leading to increased erosion of the beach. The dunes also provide a buffer against storm action, thus protecting inland areas.

The coastal setback line is the first step towards beach preservation. Construction is not permitted seaward of the line. The coastal construction setback (CCS) line is determined by the Bureau of Beaches and Shores, DNR. In Nassau County, the CCS line is located 50 feet landward of the erosion control line which is the MHW line, the bulkhead, the top of the revetment or at the line of dune vegetation.

Presently, development along the coastline extends from Ft. Clinch State Park, which fronts on approximately 4,000 feet of the ocean, southward for more than 8 miles. This developed property is privately owned except for streets which terminate the shore, providing pedestrian access to the publicly owned beach. Public Beach access, including vehicular access, is provided at several locations. The Amelia Island Plantation Corporation is currently developing the southern portion of the island. This resort community has incorporated numerous ecological concepts into its design and has preserved the primary dunes system.

Beach use patterns are discernible despite the lack of survey data. Swimming and sunbathing activities along the beaches of Amelia Island have shifted from North and Main Beaches to the south beach areas in the county. This is mainly due to beach erosion along the North and Main Beaches. Fishing (surf casting) activities are centered along the northern tip of Amelia Island at the jetty and within Ft. Clinch State Park. Fishing is allowed along the entire beach with the exception of Main Beach.

The beaches of northern Amelia Island, like those to the south in Duval County, have undergone severe erosion. The COE has estimated that 250,000 cubic yards of beach material is lost annually. The problem is one of erosion and lowering of the beach profile where protected by seawalls and revetments, and recession of dunes on unprotected beaches.

The problems are artifacts of our desire to stabilize coastal features. The natural southward movement of sediments along the coast, under the influence of longshore currents, erodes coastal barrier islands at their north ends and builds beaches at their southern ends, resulting in a long-term southward movement of coastal features. Attempts to stabilize coastal inlets, such as the St. Marys Entrance to Cumberland Sound, with jetties, interrupts the southward movement of sediments, and beaches south of such structures suffer chronic erosion problems.

There have been several attempts, since 1978, to obtain Congressional approval of funding for a beach renourishment program for Amelia Island, to be carried out by COE. This request is

currently being reviewed by Congress as part of the 1988 Water Resources Bill. If funded, this will be a cost sharing effort with 75 percent of the project cost paid by the Federal Government and 25 percent paid by Nassau County. Additionally, 75 percent of the Nassau County cost would be picked up by the State of Florida, resulting in a local government cost of 6 to 7 percent of the total project cost.

The project, as planned by COE, would have a 50-year project life. Initially, 1.4 million cubic yards of material, obtained from maintenance dredging operations at the nearby Kings Bay Naval Station, would be placed on 4.3 miles of north Amelia Island Beach, from the south jetty to Sadler Road. This would be followed by the annual placement of 170,000 cubic yards of material.

Short of removing the jetties at the mouth of the St. Marys Entrance, which have captured southward-moving sediments, an artificial replenishment program such as the one described above is the only way to effectively control beach erosion in the area. A program similar to this was undertaken for Duval County beaches in 1979 and the results have been satisfying. There is now a fairly wide beach in the Duval project area and small foredunes have formed along the top of old bulkheads. These dunes have already been colonized by typical dune vegetation. A beach renourishment program of this nature would probably take care of Amelia Island's beach erosion problems until well into the next century.

As might be imagined, there are adverse environmental impacts associated with such projects. These include the temporary loss of large numbers of surf zone benthic invertebrates (most notably Donax, the fingernail clam) and temporary increases in turbidity during periodic replenishment operations. These and other impacts would be addressed by COE in an Environmental Impact Statement.

There have been several other projects affecting Amelia Island beaches. An unknown quantity of material was recently placed on south Amelia Island beaches under a memorandum agreement between Nassau County and the U.S. Navy, and COE and the U.S. Navy are currently "sand tightening" the south jetty of the St. Marys Entrance in a project with a planned completion date of September 1988.

Additionally, a project authorized to rebuild groins and place fill near Ft. Clinch has languished due to disagreements between State and Federal agencies and is now in need of a local sponsor.

Finally, any discussion of coastal dynamics should mention that sea level has been rising at an average rate of 0.7 to 1.0 foot per century. For every foot in rise there is a potential loss of 30 feet of beach due to erosion. Therefore, a potential loss of 3.6 feet of beach per year exists solely from sea level rise.

## COASTAL STRAND

The area immediately shoreward of the active beach dunes is known as the coastal strand. This is an area of stabilized coastal dunes vegetated by saw palmetto, yucca, cacti, mixed stunted shrubs, and vines.

An unusually wide expanse of this community is found on the northeast part of Amelia Island between the small active beach dunes and the main shore dunes found along the Ft. Clinch entrance road. This zone is thin and linear south of Highway 200 and is the main community eliminated by Highway 1A and the residential dwellings fronting on the highway's west side.

Much of the coastal strand north of S.R. 200 is protected by the Ft. Clinch State Park. The vegetation here is scattered and dominated by wax myrtle, several species of greenbriar vine, saltbush, rush, juniper, young cabbage palms, and cactus. Development along 105A, in this area will continue to eliminate unprotected parts of this rapidly disappearing plant community.

## MARITIME HAMMOCK

The main dune ridge which lies just shoreward of the coastal strand community and extends from Ft. Clinch to the south end of Amelia Island supports a maritime hammock community. This is an area of stabilized coastal dunes with sand substrate, dominated in this area by sand live oak, laurel oak, red bay, and wild olive. The canopy is smooth and contoured as a result of salt spray pruning.

At least 3 miles of this habitat is protected locally by the Ft. Clinch State Park. About 10 miles of this community is found south of S.R. 200 just west of Highway 1A. Much of this community has gone to residential development and the remainder is undoubtedly under strong development pressure.

## WILDLIFE HABITAT

The coastal zone beaches are frequented by many species of shorebirds and by large numbers of a few species of invertebrates such as Donax clams. Spring and autumn migrating birds follow the Atlantic Flyway along the coast. However, the heavy recreational usage by people on the beach limits its value as daytime wildlife habitat except for human-tolerant species. Nesting sea turtles no longer use Amelia Island's beach dunes habitat.

The coastal salt marshes are the most significant wetland wildlife habitat in the county. It has the attributes of high productivity, large size, and contiguousness with the remainder of the estuarine habitat to the north and south. Because of these factors, and the relatively low human intrusion rate, a large variety of

invertebrates, fish, and other wildlife exist in and depend on the salt marsh. Some of the more conspicuous are the egrets and herons, kingfisher, ducks and coots, oyster-catcher, raccoon, river otter, seatrout, red drum, mullet, and blue crab. The manatee utilize the Amelia River and Intracoastal Waterway for migration and summer residence, and the wood stork feeds in the salt marsh's shallow flats and tidal channels. On Amelia Island, the fresh-water swamps and transitional areas along the upper reaches of Egans Creek are excellent wildlife habitat, providing valuable refuge from human activities for small mammals, reptiles, and amphibians and birds.

#### LIVING MARINE RESOURCES

Surf zone invertebrates and fish within the Nassau County coastal zone are common species, the assemblage of which occurs along beaches throughout the South Atlantic Coastal Plain from North Carolina to south Florida. There are no noteworthy living marine resources known to occur in the city. This is not to say that the city's living marine resources lack value. They do have value, locally and regionally, and are deserving of conservation. But there are no known unique or noteworthy locations to be singled out for special attention.

#### FLORIDAN AQUIFER-WATER SUPPLY

In the coastal region of northeast Florida, surface water bodies are undesirable sources of municipal supply due to high salinity, high pollution susceptibility, and seasonal variations in water availability. Therefore, groundwater sources have become increasingly important, and their general condition has become a concern. Nassau County relies almost exclusively on groundwater from the Floridan Aquifer as a potable water source. Barrier island supplies are severely limited.

In 1979, the St. Johns River Water Management District (SJRWMD) published Tech Pub, SJ 80-4, An Investigation of Ground Water Resources and Salt Water Intrusion in the Coastal Areas of North Florida. The following three paragraphs are their summary and conclusions for Nassau County.

#### "NASSAU COUNTY

Coastal shallow clastic and secondary artesian aquifers, and the Fernandina cone of depression in the Floridan aquifer potentiometric surface are proposed a 'areas of vital concern'. In most areas near Fernandina Beach, local shallow clastic and shallow-rock zone wells provide potable water suitable for most domestic, irrigation, and light commercial uses. The Fernandina cone of depression is a result of large coastal withdrawals. Based on current probable safe yield approximations, these withdrawals are within safe levels for

the ground water basin including parts of Nassau County and that portion of southeastern Georgia included in the Fernandina cone.

The cone of depression surrounding Fernandina is causing a reversal of natural leakage patterns, increased mineralization at depths below 1,700 feet due to the presence of unflushed connate water, and a reversal in hydraulic gradients inducing flow from the east side of the depression cone. The cone boundary is estimated to be five miles offshore. Small quantities of laterally intruded shallow aquifer water may be leaking downward via damaged well casings towards the Floridan aquifer due to lowering of the Floridan aquifer potentiometric surface. This potential leakage is considered insignificant at the present time.

Industrial withdrawals comprise the major water use in the area. Water quality in the upper zones of the Floridan aquifer indicates little or no intrusion at this time. Recent studies have shown the need to limit well depth to less than 1,150 feet in the Fernandina area. Lower zones increase in chlorides and are therefore not recommended for potable supplies. The deeper zones below 1,800 feet indicate chloride concentrations 30 times higher than concentrations recorded in 1940 according to previously published U.S. Geological Survey reports."

#### FLOOD HAZARD AREAS

Flood Hazard Areas are those parts of Nassau County that would be covered by flood water during major storm events. About 22,300 acres of land would be inundated in a 100-year flood.

Storm surge is the greatest threat to the coastal zone barrier islands and mainland shorelands. Hurricane storm surges of 14 feet have occurred along the south Atlantic coast. Historically, the Nassau County coast has experienced destruction from hurricanes every 5 to 10 years. Hurricane Dora, in 1964, was the most recent major storm. Most damage was confined to Amelia Island along the beachfront. Little inland damage was caused because the flood hazard areas were sparsely developed. Future hurricanes will probably cause considerably more structural damage because of the increased development in the coastal zone.

On the mainland part of coastal Nassau County, flood damages occur as a result of riverain flooding and the accumulation of surface water. Flood peaks of over 22 feet have been recorded along the St. Marys River.

## Natural Disaster Planning

Natural disaster planning deals with problems created by natural events, such as hurricanes, tornados, and floods. Hurricanes have the greatest potential to cause widespread losses of life and property in the coastal zone, and this discussion will be limited to hurricane disaster planning.

A report on the Northeast Florida Hurricane Evacuation Study (NEFHES), was published by the Northeast Florida Regional Planning Council in December 1984. This report was the primary reference used in the preparation of this portion of the Coastal Element. The hurricane evacuation study is currently being updated but will not be available until or after the Comprehensive Plan for Nassau County is due. The updates will be incorporated in the final comprehensive plan if received in sufficient time prior to submission of the final plan.

Similarly, a preliminary edition of the Storm Surge Atlas for Northeast Florida (Nassau, Duval and St. Johns Counties), prepared by the National Oceanic and Atmospheric Administration (National Weather Service, National Hurricane Center), was used in this discussion. This undated edition is currently under review by its publisher, the U.S. Army Corps of Engineers, Jacksonville District. Its data and maps are therefore preliminary and subject to change. Therefore, storm surge maps of Nassau County are not available for this document but will be available for the Comprehensive Plan's final draft.

Storm surge, wind and rain are the major destructive forces of hurricanes.

Storm surge is the most destructive hurricane force to be expected along coastal areas. Storm-surge is the mound of wind-driven water, 50 to 100 miles wide, that moves across the coastline as a hurricane makes landfall. A Category 5 hurricane storm surge at Fernandina Beach could elevate the ocean's surface as much as 17.0 feet MSL during a normal high tide. Preliminary maps in the storm surge atlas depict the portions of the county which would be inundated under Categories 1 through 5 hurricanes, based on a storm forward velocity of 12 knots and a 1-foot tide. The maps show there would be some flooding of uplands on Amelia Island and on the mainland in Categories 1, 2, and 3 hurricanes, and that almost all of Amelia Island (except the high dune area near downtown) and widespread areas of the mainland would be inundated in Categories 4 and 5 hurricanes.

Wind is the second most destructive force of hurricanes. While winds may be nearly absent within the eye of the storm, sustained winds of over 74 mph will occur up to 50 miles from the eye, and can surge up to 150 mph with gusts up to 200 mph. Winds decrease

significantly as the storm moves over land, but all of Amelia Island would be susceptible to full hurricane force winds due to its proximity to the coastline. Hurricanes are categorized according to the velocity of sustained winds around their center. The five categories of hurricanes according to the Saffir/Simpson Scale are as follows:

<u>Category</u>	<u>Winds (mph)</u>
1	74-95
2	96-110
3	111-130
4	131-154
5	155+

Rain is considered the third most destructive hurricane force. In the average 24-hour period it normally takes a hurricane to pass over an area, 5 to 10 inches of rainfall may occur. Historic rainfalls of up to 20 inches have also occurred, however.

Hurricanes may occur at any time from June 1 to November 30, although most hurricanes have struck from mid-August to mid-October.

Damage from hurricanes can result from any of their three major forces, storm surge, wind, and rain, or from a combination of any of them. Storm surge can overtop seawalls or floodplains to damage upland features by flooding or by salting. Storm surge can, in concert with wind-driven waves and long-shore currents, undercut and destroy seawalls, roads, and buildings. This kind of synergistic action has the capability to create or destroy coastal barrier islands, to move lagoonal inlets, and to change coastal drainage patterns. Similarly, storm surge and rainfall can inundate low-lying roads preventing vehicular traffic from entering or evacuating coastal areas. Further examples are provided in

NEFHES:

1. Storm surge and wind from a Category 1 or 2 hurricane can destroy or heavily damage beachfront buildings, seawalls, piers, and boardwalks; and
2. Storm surge and wind from Category 3, 4, and 5 hurricanes are expected to cause massive destruction on coastal barrier islands and such exposed shorelines as Fernandina Beach.

The NEFRPC has established two vulnerability levels (A & B) reflecting flood levels. The following table describes the hurricane type creating each vulnerability level:

## REGIONAL VULNERABILITY LEVELS

Vulnerability Level	Storm Description
A	Landfalling Category 1-2; exiting and paralleling hurricane, Category 1-3
B	Landfalling Category 3-5

A significant portion of Amelia Island's inhabitants will be required to evacuate during Category A hurricanes, and the entire island's populace as well as a significant percentage of the coastal mainland inhabitants will need to be evacuated in Category B hurricanes. Generally, everyone living within the storm surge flood zone must be evacuated. In addition, all those living in mobile homes must be evacuated due to high wind vulnerability. Finally, all those who live within areas that historically flood during periods of heavy rainfall must be evacuated. For Amelia Island, this means everyone living between the Atlantic Ocean and Highway A-A will be evacuated in a Category A hurricane, and that everyone living between the Amelia River and Highway A1A will be evacuated in a Category B hurricane. On the mainland, people living in low-lying areas along the Intracoastal Waterway and along stream valleys will have to be evacuated.

The general evacuation route from Amelia Island is to drive to the Thomas Shave Bridge (S.R. 200) then turn west toward the mainland.

Clearance time is critical to determining the amount of lead time needed for an evacuation order. Clearance time is the time it will take to mobilize and travel to the destination of safety prior to the arrival of gale force winds, starting from the time that the evacuation order is given. Clearance time depends on response time, which can be categorized as being "quick", "medium", or "slow".

Several assumptions have been made in determining clearance time:

1. All drawbridges over the Intracoastal Waterway will remain closed until the evacuation is complete, and that early coordination with the Coast Guard will be done to ensure that all boats will be moved to safe ports during or before the hurricane watch period;
2. Extra law enforcement officers will be assigned to critical roadway segments and intersections along the evacuation route; and;
3. Incapacitated vehicles will be quickly removed from the road during the evacuation.



The 1984 NEFHES study determined clearance times for the entirety of Nassau County and did not calculate them for smaller areas such as Amelia Island. Maximum Nassau County clearance times are considered appropriate for this plan since the residents of Amelia Island and the coastal mainland will have to travel farther than anyone else in the county to evacuate. Clearance times for Nassau County coastal evacuees are given in Table 4-1.

Pre-landfill hazards time must be added to clearance time to determine when to issue an evacuation order. Pre-landfall hazards time refers to the period when sustained gale force winds, which are 40+ mph winds, make evacuation dangerous. Evacuation order time (clearance time added to pre-landfall hazards time) is the time in hours before hurricane eye landfall in which an evacuation order must be given to allow all evacuees to reach their chosen destinations.

#### PORT OF FERNANDINA BEACH

Activities at the Port of Fernandina Beach have a significant impact on the economy and ecology of coastal Nassau County. The major users of the port are the pulp and fishing industries. The port also has marina facilities and the first marine welcome station built in Florida for people visiting the state by boat.

The port is managed by a five-member port authority which can issue bonds to raise funds for industrial development. The major commodities which pass through the port include residual fuel, sodium hydroxide, and pulpwood. The remaining tonnage is comprised mainly of shrimp and fish products. Over 90 percent of the fish landed were one species, menhaden, which is processed to produce fertilizer, fish oil, and meal. The majority of the vessels entering the port (80 percent) are relatively small vessels with drafts of less than 18 feet.

Activities at the Port of Fernandina Beach also have significant effects on the other coastal resources. Port maintenance and channel dredging activities are very important but have the potential to negatively impact surrounding coastal waters, aquatic preserves, and marshes. Also major industries associated with the port are potential polluters of the air and water. Efforts by the industries to clean up the pollutants should be encouraged by the county and assistance provided where the county can be helpful.

Table 1. Evacuation Order Time, Nassau County

Vulnerability Level	Pre-Evacuation Order Time	Clearance Time (hours)	Pre-Landfall Hazard Time (hrs)*	Evacuation Time (hrs)
A (Cat. 1-2)	Behavioral Response A; Quick Response	4.75	4-8	9-13
B (Cat. 3-5)		5.00	9-11	14-16
A (Cat. 1-2)	Behavioral Response B; Medium Response	6.50	4-8	11-15
B (Cat. 3-5)		6.50	9-11	16-18
A (Cat. 1-2)	Behavioral Response C; Slow Response	9.50	4-8	14-18
B (Cat. 3-5)		9.50	9-11	19-21

\*Ranges in Pre-Landfall Hazard Time are based upon variable including the intensity of storms and the angle of approach, i.e., landfalling, paralleling, etc.

## OTHER ECOLOGICAL ELEMENTS

### THREATENED AND ENDANGERED SPECIES

Nassau County is a permanent or seasonal home for 15 species of plants and animals that are legally considered to be threatened or endangered (T&E) by the State of Florida and/or the federal government. The majority of the listed species have been placed on this list because their native habitats have slowly been encroached upon to the point that their natural ranges have been severely restricted, while others are listed because of over harvesting in the past. With some species, the protection of specific sites may insure their survival while others may be protected by timing human activities so as not to interfere with an animal's specific seasonal needs.

In order to comply with the criteria of 9J-5.013, a survey was done to determine which state or federal T&E species are present in coastal Nassau County, and these species are listed in Table 5-1 along with their legal status, habitat preference, and likelihood of occurrence. A short discussion on possible effective conservation efforts for each species is given below in the text.

The black bear is known to occur in western Nassau County. The continued urbanization of eastern Nassau County makes its occurrence in coastal Nassau County less likely.

The indigo snake is known to occur in mainland Nassau County as well as On Amelia Island. Protection of gopher tortoises will enhance the survival of the indigo snake in zeric habitats, where they depend on the tortoise burrows for shelter. The snake may be encountered in any habitat, however, and people should be encouraged to spare the lives of black as well as all other snakes.

Table 2 Federal and State Listed Endangered and Threatened Species Which May Occur in the Nassau County Coastal Zone (Page 1 of 2)

Species	Status*		Habitat	Likelihood of Occurrence#
	Federal	State		
<u>Trichechus manatus</u> West Indian Manatee	E	E	Amelia River Intracoastal Waterway	+
<u>Eubalaena glacialis</u> Black Right Whale	E	N	Marine	0
<u>Ursus americanus floridanus</u> Florida Black Bear	C2	T	Ubiquitous	+
<u>Alligator mississippiensis</u> American Alligator	T	S	Freshwater and brackish wetlands	+
<u>Chelonia mydas mydas</u> Atlantic Green Turtle	E	E	Marine	0
<u>Lepidochelys kempii</u> Atlantic Ridley	E	E	Marine	0
<u>Dermodochelys coriacea</u> Leatherback Turtle	E	E	Marine	0
<u>Caretta caretta</u> Loggerhead	T	T	Marine	0
<u>Drymarchon corais couperi</u> Eastern Indigo Snake	T	T	Ubiquitous, uplands	+
<u>Mycteria americana</u> Wood Stork	E	E	Freshwater and brackish wetlands	0
<u>Haliaeetus l. leucocephalus</u> Bald Eagle	E	T	Ubiquitous	-
<u>Falco sparverius paulus</u>	C2	T	Ubiquitous	0

Table 2 Federal and State Listed Endangered and Threatened Species Which May Occur in the Nassau County Coastal Zone (Page 2 of 2)

Species	Status*		Habitat	Likelihood of Occurrence#
	Federal	State		
<u>Grus canadensis pratensis</u> Florida Sandhill Crane	N	T	Nonforested wetlands	-
<u>Epidendron coropseum</u> Green Fly Orchid	N	T	Maritime hammock, epiphitic on live oaks and other trees	+
<u>Sterna antillarum</u> Least Tern	N	T	Beaches, Amelia Island, Ft. Clinch State Park	+
<u>Charadrius melodus</u> Piping Plover	T	T	Beaches, tidal flats	-

\*E-Endangered; T-Threatened; S-Species of Special Concern; N-No Listing; C2-Under Review for Federal Listing  
 #-Likely; (-)-Low; (--)-Very Low; ---Present.

The American alligator, wood stork, sandhill crane, and bald eagle are all mobile animals with broad habitat requirements. The preservation of fresh and brackish wetlands and the protection from molestation in suitable habitats is important. Bald eagle nesting sites must be protected from human disturbance.

The kestrel has recently suffered a notable decline in population. The cause of this decline is unknown but destruction of nesting sites is a possible factor. Old pines with woodpecker holes are preferred nesting sites and those trees should be preserved.

Piping plovers are winter migrants and creatures of the open beaches and are of no special concern to Florida conservation efforts.

The least tern has a worldwide distribution. It nests shoreward of dune vegetation or opportunistically on a variety of temporary sites, such as construction sites. Known nests should not be disturbed. Twenty-five to thirty nests were present in 1983 on the accreting beach south of the pier/jetty on the north tip of Amelia Island at the mouth of the St. Marys Entrance.

The west Indian manatee is known to use the Intracoastal Waterway as a migratory route and so is known to be present in the Amelia River in the summer season. Construction projects in the estuary should heed U.S. Fish and Wildlife Service guidelines for construction in manatee areas. Speed limits for powered craft should be posted in the Amelia River during summer months.

Five T&E marine species could occur in the coastal zone. The right whale is a rare migrant which should not be bothered by normal human activities in the area.

The loggerhead turtle is known to nest on Northeast Florida beaches between May and September. However, these turtles normally avoid high-use beaches and therefore are not expected to nest in the area.

The timing of beach nourishment programs to avoid nesting turtles is a concern of the county and COE.

Recent information shows that the green turtle now nests considerably south of Nassau County and is of no conservation concern to the area. The hawksbill is a casual visitor and is also of no conservation concern to the area.

#### AREAS OF KNOWN MINERAL DEPOSITS--MINING

There are no known commercial deposits of minerals or mining activities in the Nassau County coastal zone.

## AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has designated six pollutants which can cause adverse health, environmental, and structural impacts. These are total suspended particulates (TSS), sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide, and lead. EPA has designated standards for these pollutants. The state has adopted not only the federal standards, but also more stringent state standards. DER is responsible for monitoring and enforcing those air quality standards. If violations are found for point sources such as factories, a notice is issued. If corrective action is not taken, a cease and desist order can be issued. If air standards are not met, the state and EPA can together attempt to develop a solution.

Three pollutants are monitored in Fernandina Beach. TSP standards have not been exceeded, but monitors have recorded levels of 65 percent or the standard. No exceedences were reported for nitrogen dioxide, but sulphur dioxide levels have been exceeded in the past.

There have been problems with odors caused by paper mills in Nassau County. In 1985, the state adopted the total reduced sulfur (TRS) rule which establishes limits on sulfur emissions, the primary odor-causing chemical in the kraft process. Full compliance with the rule should result in the reduction of 90 percent of the TRS compounds.

## CULTURAL AND HISTORICAL RESOURCES

Nassau County contains an abundance of historically and archaeologically significant sites, and coastal Nassau County played a prominent role in the early exploration and settlement of North America.

The Florida Master Site File, compiled by the State of Florida's Division of Archives, History and Records Management, lists a total of 663 cultural sites in Nassau County. Included are 90 archaeological sites and 573 structures, many of which are located in the City of Fernandina Beach.

The concern for historic preservation in Nassau County is exemplified in the City of Fernandina Beach, where numerous structures and sites have been listed in the National Register of Historic Places. In order to preserve and enhance the historical significance of these structures (the majority of which are privately owned dwellings) as well as pertinent surrounding areas, the community has created a special historical preservation district. This district consists of a large section of the downtown and adjacent areas of Fernandina Beach. All land use, building, and other planning matters are controlled by a special Historical District Council.

## BIBLIOGRAPHY

- Florida Department of Environmental Regulation, The Florida Coastal Management Program Workshop Draft. Tallahassee, 1977.
- Florida Department of Environmental Regulation, The Florida Coastal Management Program, Legislative Draft. Tallahassee, 1978.
- Florida Department of Natural Resources, Coastal Coordinating Council. Local Coastal Management: Ak Handbook. Tallahassee, 1979.
- Frazer, M.J. and McClaugherty, D.R. Investigation of Ground Water Resources and Salt Water Intrusion in the Coastal Areas of Northeast Florida. Tech. Pub. SJ 80-4. 1979.
- Institute of Science and Public Affairs. Water Resources Atlas of Florida. 1984.
- Jacksonville Area Planning Board. Comprehensive Plan, Nassau County, Florida, Vol. 1. 1979.
- Northeast Florida Regional Planning Council. Northeast Florida Comprehensive Regional Policy Plan. 1987.
- Poole, B.D. and Barnett, E.L. Shellfish Growing Area Reappraisal for Nassau County, Florida. Fla. DNR. 1984.
- Steward, J.S. The Nassau River Basin Environmental Study. In: Proceedings, Fish Habitat Symposium: Growth Impacts on Coastal N.E. Florida and Georgia. 1987.
- United States Geological Survey. Surface Water in Duval and Nassau Counties, Florida, Tallahassee, 1972.



NASSAU COUNTY COMPREHENSIVE PLAN  
GOALS, OBJECTIVES AND POLICIES  
COASTAL MANAGEMENT ELEMENT

GOAL 5.0

THE COUNTY SHALL MANAGE, USE, CONSERVE AND PROTECT THE COASTAL RESOURCES  
ALONG WITH PROTECTING HUMAN LIFE FROM NATURAL DISASTERS.

OBJECTIVE 5.01  
PUBLIC BEACH ACCESS

The County will maintain, improve, and increase public beach access through acquisition and other land use controls.

**Policies**

5.01.01 The County shall maintain inventory and analyze existing public beach access and demand to establish future beach access requirements based upon projected populations. By 1994 a study of needs will be completed and the findings incorporated into the Recreation and Open Space and Coastal Management Elements through the Comprehensive Plan amendment process. In the interim, a LOS standard of the average of 1 beach access per 0.5 mile shall be established.

ORC # 35 (b)

5.01.02 Within an average of one-half mile increments, the County will require the dedication of public access to beaches from developments located along the Atlantic Coast beach.

# 35 (a)

5.01.03 The County will not vacate necessary existing easements, rights-of-way, walkways and other access points to beaches and shores.

5.01.04 The County will acquire through dedication, purchase or other means, public access at approximately 1/2 miles increments and increased facilities for public beaches.

5.01.05 Private land owners adjacent to public beach access points, including easements, will not be allowed to restrict public access to the beaches through access points.

5.01.06 The County shall maintain and preserve current facilities which provide for vehicular accesses to the beach; including, but not limited to, driving to, driving on, and parking on and adjacent to the beach at locations which the County and the Florida Department of Natural Resources determine that such activities do not adversely impact upon the ecology of the beach or dune system.

35 (c)

5.01.07 The County in cooperation with FDNR will develop a beach access and parking plan that will assure maximum accessibility to public beaches while providing sufficient protection to maintain the current quality of the beach and dune system.

35 (d)

**OBJECTIVE 5.02A  
DUNE PRESERVATION**

Upon Plan adoption, the County shall protect, conserve and enhance the remaining coastal barrier dunes and establish construction standards to minimize the impact of man-made structures on the dunes and beaches through implementing the following policies:

**Policies**

**5.02A.01** The County will seek professional evaluation before permitting any coastal structure proposed for controlling beach erosion.

**5.02A.02** No motorized vehicles will be allowed on dune systems except in an emergency situation as designated by the local civil defense agency.

**5.02A.03** The State of Florida Department of Natural Resources Bureau of Beaches and Shores shall be requested to reevaluate the Coastal Construction Central Line (CCCL) at a minimum of five (5) year intervals.

**5.02A.04** In order to help protect the primary and secondary dune system and mitigate the effects of a storm surge, criteria shall be incorporated in the Land Development Regulations requiring the following:

- Sufficient vegetated oak hammock and dune interface area shall be preserved to ensure protection of primary and secondary dune systems.
- Excavation shall be confined to construction zones containing building pads, drainage structures, parking and drives and recreational uses with maximum efforts made to minimize damage in all areas of the dune system.
- Any excavation in the primary or secondary dune system shall not reduce existing crest elevations below twenty-six feet (26') mean sea level.
- Any breaches or blowouts in the primary dune system shall be indicated on the site plan and shall be filled and revegetated per permits obtained through DNR.

# 25(c)

OBJECTIVE 5.02B  
BEACH RESTORATION

#17  
Upon Plan adoption, the County shall strive to restore altered beaches through implementing the following policies:

Policies

- 5.02B.01 The County shall apply to State DNR and the Army Corps of Engineers to acquire grant funding for the restoration of altered beaches or dunes on Amelia Island where such alteration occurs over time.
- 5.02B.02 The County shall request State of Florida Department of Natural Resources (DNR) and the U.S. Army Corps of Engineers to notify them of any pending projects for dredging in the St. Marys channel in order to obtain joint agreements with appropriate public agencies to mitigate impacts to the beach area at Fort Clinch State Park and to enhance and renourish the public beaches of Amelia Island.
- CRPP  
9.4.1.8  
5.02B.03 Fill-in beach areas shall be restricted to materials characteristic of the beach which are compatible with those currently in place.

OBJECTIVE 5.03  
HURRICANE EVACUATION & EMERGENCY MANAGEMENT

The County shall make every reasonable effort to ensure the public safety, health and welfare from the effects of natural and technological hazards. It will participate with all applicable state and federal agencies to ensure public safety by keeping disaster preparedness plans current and coordinated within the region and with adjacent jurisdictions.

Policies

- #27(b)  
#38  
5.03.01 The County shall continue to review and revise all development regulations to reduce the vulnerability of future development in the A-Zone. Such revisions shall include:
- a. Implementation of road concurrency requirements to ensure evacuation capability;
  - b. Adoption of policies regarding the siting of infrastructure facilities in hazardous areas; and
  - c. Alerting potential purchasers of property in hazard areas of the potential consequences of construction in such areas.
- #28  
5.03.02 The County, by reference, incorporates the Nassau County Peacetime Emergency Plan into the Coastal Management Element. Responsibility for coordination of the Peacetime Emergency Plan with the County Comprehensive Plan shall be designated to the County Planning Director.

**OBJECTIVE 5.04  
POST DISASTER REDEVELOPMENT**

#21  
Upon Plan adoption, the County shall review and where possible revise its Emergency Preparedness Plan to provide greater safety for its residents during the post-disaster reconstruction/rehabilitation period.

**Policies**

- #21
- 5.04.01 The Nassau County Emergency Management Plan shall be used as the operational guide in preparing for, responding to, and recovering from, natural and technological hazards requiring emergency actions by local government officials.
- 5.04.02 The County shall establish a Post Disaster Plan describing facilities and sites designed to serve as local, state and federally sponsored emergency assistance locations. Examples of such facilities include disaster application centers, citizen assistance centers, disaster field offices, include temporary housing sites and debris disposal locations.
- 5.04.03 The County shall coordinate the development and maintenance of Post Disaster plans and programs among the relevant local, regional and state governments, districts or agencies.
- 5.04.04 The County shall update its hurricane evacuation plan and disaster preparedness plan every five years and also re-evaluate its effectiveness immediately after a major disaster event to recommend appropriate improvements.
- 5.04.05 The County shall update its hurricane evacuation plan showing evacuation routes, hurricane hazards, safety procedures, shelters, and other pertinent information for its citizens.
- (5.  
#30
- 5.04.06 The County will continue to implement its Emergency Disaster Preparedness Plan (as amended). The county Emergency Services Director shall be responsible for coordinating post disaster activities with fire, law enforcement, medical and support services through scheduled quarterly meetings.

**OBJECTIVE 5.05  
HURRICANE EVACUATION TIME**

#20  
Upon Plan adoption, the County shall continue to maintain its current maximum evacuation time of 9.5 hours and strive to reduce this time.

**Policies**

- 5.05.01 Existing evacuation routes shall be given special consideration for improvement over other transportation facilities.

- 5.05.02 Critical roadway links causing congestion or evacuation routes for Category 1 through 3 hurricanes shall receive high priority for capital improvement expenditures.
- 5.05.03 New or replacement bridges on evacuation routes spanning major or marked navigable waterways shall not be draw bridges.
- 5.05.04 Roadway segments located within low lying areas, that are utilized for hurricane evacuation routes, shall be considered for elevation increases during construction or reconstruction.
- 5.05.05 Adopt requirements in the Land Development Regulations establishing minimum crown elevations for new road construction for roads constructed within Special Flood Hazard Areas and areas subject to flooding from a Class I hurricane, as depicted in the Hurricane Storm Surge Atlas.
- 5.05.06 All new construction within the Coastal High Hazard Area will be required to meet the County Concurrency Management Plan and 9J-5.0055(2)(c) F.A.C. for concurrency.

# 38. b

**OBJECTIVE 5.06  
EVACUATION SHELTERING**

Upon Plan adoption, the County Office of Emergency Services will continue to strive to provide required levels of emergency sheltering for County residents through implementing the following policies:

20. b

**Policies**

- 5.06.01 Off-Island school sites will be designated as shelters as coordinated by the local government and the Red Cross.
- 5.06.02. New construction over 10,000 square feet shall be continually surveyed upon issuance of a building permit to determine its potential for serving as a hurricane shelter based upon its size and location.

20. b  
29

**OBJECTIVE 5.07  
PROTECT POPULATION FROM HIGH HAZARD**

Upon Plan adoption, the County, through its Future Land Use Map and Development Orders shall direct population concentrations away from known or predicted high hazard areas.

19

By 1990, the County shall have a mechanism in place to provide for people with special needs during an emergency.

**Policies**

- 5.07.01 The County shall apply the RPC Hurricane Threat Study data to

32

identify areas to be designated as Coastal High Hazard Areas. These areas shall be parcels of land shown to become inundated from storm surge from Category 3 hurricanes and above.

#38 5.07.02 The issuance of building permits on the barrier island shall be restricted by the ability of the road network to serve evacuation at a maximum clearance time of 9.5 hours.

#32 5.07.03 A statement shall be included on all new subdivision plats located within areas of potential storm surge inundation that ("The area as depicted hereon is subject to storm surge inundation during a Category 1, 2, 3, 4, and 5 hurricane").

#### OBJECTIVE 5.08 LAND USE COMPATIBILITY

The County will give priority to compatible water dependent uses over other land uses to maximize the beneficial use of coastal natural resources.

#### Policies

#40 5.08.01 The County shall identify existing water dependent activities in the coastal area and shall establish coordination procedures with adjacent counties and municipalities to determine LOS required to support use of water dependent County resources by other jurisdictions and explore means for jointly funding such activities.

5.08.02 The future land use plan and implementing land development regulations shall protect existing water dependent uses from intrusion by incompatible land uses.

5.08.03 The public need for additional public marinas will be evaluated to best locate marinas in areas of high demand with priority consideration given to sites that:

- #34
- a. are compatible with adjacent land use;
  - b. have available upland support services;
  - c. provide protection of water quality;
  - d. have minimal hurricane vulnerability;
  - e. will be available for public use; and
  - f. will cause least environmental disruption.

#33 5.08.04 Land Development Regulations shall specify performance standards for shore line land uses. The LDRs will address at a minimum:

- a. Set back based upon calculated levels of storm surge;

- b. Building height based upon potential wind loading and aesthetic considerations;
- c. Requirements for central potable water and sewer service;
- d. Area of permitted parcel coverage;
- e. Requirements for protecting dunes and beaches; and
- f. Landscaping and internal circulation.

5.08.05 By 1992 the County shall inventory existing marinas and boat ramps and evaluate the need for additional such facilities.

5.08.06 Adequate waterfront property, meeting the site requirements for waterfront dependent uses, should be reserved through zoning and compatible land use planning.

5.08.07 The Director of Planning shall, on an annual basis and within 3 months subsequent to a hurricane or other major disaster, through coordination with the Sheriff's Department, conduct a visual assessment of the exterior of structures in the County generally and in areas of known substandard housing in particular to identify structures with a potential need for redevelopment.

Structures identified as possible unsafe structures will be examined more closely by the Building Inspector and cited for conditions that are in violation of current housing and building codes.

**OBJECTIVE 5.09  
COASTAL PRESERVATION**

Upon Plan adoption, the County will cooperate with federal and state agencies (i.e., Corps of Engineers, FDNR, FDER) in the protection, enhancement, and restoration of the environmental quality of the coastal area through implementing the following policies:

**Policies**

15(b) 5.09.01 The County will continue to cooperate with FDER to improve and maintain water quality at the appropriate designated state standards for particular water body classifications.

15b  
25 5.09.02 The County shall not issue a development permit prior to the review by the appropriate state regulatory agency for projects that may impact the coastal barrier island, coastal wetlands, living marine resources or coastal habitat known to be supporting endangered or threatened species of plant or animal..

39(b) 5.09.03 The County will restrict development proposals which could adversely impact the coastal area, both individually and cumulatively. New development on Amelia Island shall not be permitted

unless there exists available central sewer capacity for connection.

5.09.04 Projects which result in the loss of coastal resources will only be permitted in cases of overriding public benefit.

#25- 5.09.05 A buffer of natural vegetation as required under Chapters 373 and 403, F.S., implementing regulations and permits granted thereunder, shall be provided there wetlands occur.

5.09.06 Assure that new development does not interfere or restrict water from entering wetlands or estuaries to maintain normal biological productivity.

#25- 5.09.07 Development orders shall be designed to protect the type, nature, and function of floodplains, wetlands, waterways, inlets, estuaries, lakes and wildlife habitat occupied by endangered or threatened species by limiting encroachment, removal of native vegetation, pollution discharge, dredge and fill, drainage, or other impacts associated with development.

#40 5.09.08 The County shall establish coordinating procedures with adjacent counties and municipalities to establish intergovernmental agreements for coordinating efforts in preventing estuarine pollution, controlling surface water runoff and protecting living marine resources.

#### OBJECTIVE 5.10 DREDGE AND FILL

Dredging and filling in the coastal areas shall be discouraged.

#### Policies

5.10.01 The construction of canals and other manmade navigable water ways shall not be approved by the County until all federal and state permits have been acquired.

5.10.02 All approved dredge and/or fill activities shall be conducted in a manner which minimizes adverse impacts on natural ecosystems, water quality, and allow for adequate flushing.

5.10.03 All dredge spoil material shall be placed on suitable disposal sites approved by all agencies with jurisdiction.

5.10.04 Approved best management practices, published by the Florida Department of Environmental Regulation, shall be used before, during and after construction to reduce siltation and erosion.

#25(d) 5.10.05 The County shall permit riprap landward of the mean high water line and Coastal Construction Control Line (CCCL) only on parcels of land adjacent to existing shoreline erosion structures. In other areas vegetative buffers should be utilized.



**OBJECTIVE 5.11  
PRESERVATION OF COASTAL RESOURCES**

152 Upon Plan adoption, the County shall implement the following policies to protect, conserve or enhance remaining coastal wetlands, living marine resources, coastal barriers and wildlife habitat.

**Policies**

5.11.01 The County shall adopt land development regulations which limit specific and cumulative impacts of development or redevelopment on coastal resources. Specifically these LDRs shall:

- 152
- Limit density in designated wetlands to 1 unit per 2 acres.
  - Where development in environmentally sensitive lands must be permitted to avoid the "taking" issue, development must proceed under the PUD district concept with development clustered in the least ecologically sensitive portion of the parcel.
  - A buffer of vegetative native to the area will be required between the developed area and wetlands.

**OBJECTIVE 5.12  
LIMITING PUBLIC EXPENDITURE**

#18 Upon Plan adoption, the County shall limit public expenditures that subsidize development permitted in coastal high hazard areas except for the restoration or enhancement of natural resources.

**Policies**

32 5.12.01 The County shall promote compact growth within the barrier island whereby the cost of providing public facilities and services that benefit development is borne by those individuals who receive direct benefit. For example, the establishment of Municipal Taxing Units or Benefit Units.

32 5.12.02 The County shall review its Zoning Code and Subdivision regulations and make required revisions to control development on the barrier island in a manner that will reduce vulnerability to hurricane forces.

5.12.03 The County Engineer shall review proposed development plans to ensure that infrastructure (water, sewer, roads) is located in a manner that provides least susceptibility to hurricane impact.

32 Where in-place infrastructure is destroyed by hurricane forces, replacement of such facilities shall be engineered to provide least exposure to hurricane forces.

**OBJECTIVE 5.13  
ESTUARINE ENVIRONMENTAL QUALITY**

#16 Upon Plan adoption, the County shall maintain or improve the environmental quality of its estuarine systems through implementing the following policies:

**Policies**

- 5.13.01 Marinas and boat ramps shall be located in areas where they create a minimum adverse impact to water quality and existing marine habitat.
- 5.13.02 The County will seek professional evaluation regarding the impact upon environmental quality of estuarine systems prior to permitting any structure proposed for controlling bank erosion.
- 5.13.03 Construction sites which border estuarine systems must control surface water run-off during and after construction activities to a level equal to or less than that which occurred prior to construction.
- 5.13.04 New development on the barrier island will require an available central sewer hook-up before a building permit or development order to proceed will be issued.
- 5.13.05 Marinas that cater to live-aboard craft shall be equipped with sewage pump-out and collection systems for vessels.
- 256  
28  
41  
5.13.06 In order to protect the St. Johns Marsh and Fort Clinch State Park Aquatic Preserves, the County Commission shall adopt Policy 9.2.2.5 of the Northeast Florida Comprehensive Regional Policy Plan, which states: Developments adjacent to Class II Waters, Aquatic Preserves, and Outstanding Florida Waters should be required to provide retention or detention with filtration of the first three-quarters of an inch of runoff or the runoff from the first 1-1/2 inches of rainfall, should provide offline retention or offline detention with filtration of the first 1/2 inch of runoff of the total amount required to be treated; and should be required to demonstrate that the project will not result in the degradation of the water quality in Outstanding Florida Waters, Class II Waters, and Aquatic Preserves.
- 41  
5.13.07 The County shall request that the FDNR and the Florida Game and Fish Commission review its Coastal Management Element and provide recommendations for improving County protection of Aquatic Preserve resources. These recommendations, upon approval by the Board of County Commissioners shall, through the amendment process, be made part of the Coastal Management Element.

~~#23~~

5.13.08 The County Building Official shall coordinate with the County Department of Health to ensure that septic tanks and septic tank drainfields are located at setback distances prescribed by appropriate Administrative Codes.

**OBJECTIVE 5.14  
PROTECTION OF HISTORIC RESOURCES**

#23

Upon Plan adoption, the County shall provide for the protection, preservation or sensitive reuse of historic resources through implementing the following policies:

**Policies**

#36

5.14.01 Historic resources shall be protected through designation as historic sites by the state or County. Such designated sites shall require site plan review procedures for proposed alterations or remodeling that will ensure, through the permitting process, that the proposed activity will not degrade or destroy the historical/archaeologic significance of the site.

#36

5.14.02 Adaptive reuse of historic structures shall be given priority over actions that would harm or destroy the historic value of such resources. Adaptive reuse shall include the permitting of historic structures to be remodeled or rehabilitated for a use that would be non-conforming to adjacent properties so long as the remodeling/rehabilitation does not affect the historical significance of the structure and the proposed use is, or can be made, compatible with adjacent land uses.

36

5.14.03 Proposed development projects shall be reviewed at the time of issuing a building permit or development order to determine potential impacts on known historic sites.

When such construction or other development activity may impact adversely on a historic/archaeologic site, the proposed development must provide sufficient buffering (spatial separation, physical wall, or other method approved by the County Planning and Zoning Commission) before a permit is issued.

**OBJECTIVE 5.15  
LEVEL OF SERVICE STANDARDS**

24 Upon Plan adoption, the County shall establish level of service standards, areas of service and phasing of infrastructure in the coastal area through implementing the following policies:

**Policies**

5.15.01 Levels of Service for potable water, sanitary sewer, drainage, and solid waste specified in the Public Facilities Element shall pertain also to the County's coastal area.

Levels of Service for roads as specified in the Traffic Circulation Element shall pertain also to the County's coastal area.

5.15.02 Potable Water and Sanitary Sewer service areas on the County's barrier island shall continue to be served by the franchised service operations of Southern States Utilities and Florida Public Utilities.

24 5.15.03 Potable water and sanitary sewer infrastructure shall be phased into operation on the barrier island as development proceeds. Such phasing will follow the requirement of 9J-5.0055(2)(a) since no construction is permitted on the island without hook-up to a centralized sewer system.

CONSERVATION ELEMENT  
NASSAU COUNTY COMPREHENSIVE PLAN

Adopted

January, 1991

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

## Table of Contents

<u>Section</u>	<u>Page</u>
INTRODUCTION.....	F-1
RIVERS.....	F-1
BAYS.....	F-3
LAKES.....	F-3
WETLANDS.....	F-3
AIR.....	F-4
FLOODPLAINS.....	F-5
COMMERCIALY VALUABLE MINERALS.....	F-6
SOIL EROSION PROBLEM AREAS.....	F-6
Soils.....	F-6
Soils of the Sand Ridges and Coastal Dunes.....	F-8
Soils of the Flatwoods.....	F-8
Soils of the Swamps and Flood Plains.....	F-9
Soils of the Tidal Marsh.....	F-10
FISHERIES.....	F-10
WILDLIFE.....	F-11
Threatened and Endangered Species.....	F-11
MARINE HABITATS.....	F-20
Beach Zone.....	F-20
Aquatic Preserves.....	F-21
VEGETATIVE COMMUNITIES.....	F-21
WATER NEEDS AND SOURCES.....	F-22
Groundwater.....	F-22
Water Conservation.....	F-27

LIST OF CONSERVATION TABLES

Table	PAGE
F-1 A Partial Species List of Nassau County.....	F-12
F-2 Special Protection Status of Species in Nassau County.....	F-18
F-3 Nassau County Land Use and Vegetation Inventory Summary.....	F-29
F-4 1985 Calendar Year water Use Inventory.....	F-27
F-5 Potable Water Projections, Nassau County.....	F-28

LIST OF FIGURES

Figure	Page
F-1 Map of Nassau County Conservation Areas.....	F-30
F-2 100-Year Floodplain Map.....	F-31
F-3 Soil Associations.....	F-32
F-4 Estuarine Systems.....	F-33

**NASSAU COUNTY COMPREHENSIVE PLAN**  
**CONSERVATION ELEMENT**

**INTRODUCTION**

This element addresses those requirements in Chapter 163, Florida Statutes and Chapter 9J-5, Florida Administrative Code concerning conservation and natural resources. The element addresses riverine systems, floodplains, aquatic preserves, wetlands, soils, air quality, vegetation and wildlife. The conservation map (Figure F-1), at the end of this section, identifies major conservation features, including aquatic preserves and state parks.

**ESTUARINE SYSTEMS**

Nassau County has numerous rivers, creeks and streams which traverse the county. These include the Nassau River, the St. Marys River, the Amelia River and the Bells, Jolly, Little St. Marys rivers, as well as the Lofton, Thomas, Alligator, Boggy, Mills and Kingsley creeks. The location of these estuarine systems are shown in Figure F-4.

The Nassau River forms a portion of the southern boundary between Nassau County and Duval County. It is 54.8 miles long and drains 430 square miles of predominately forest and wetlands. In Nassau County, the Nassau River and its tributaries are responsible for draining approximately 38 percent of the county. The mouth of the Nassau River, South Amelia River, Sisters Creek and Ft. George River all form an estuary of approximately ten square miles, known as the Nassau Sound.

The upper Nassau River is classified as a Class II water body. The lower river has poor bacteriological quality and DNR has restricted the harvesting of shellfish in the estuary. Mill Creek, a tributary near the headwaters of the Nassau River, has been dredged and receives effluent from the Town of Callahan's wastewater treatment facility and non-point source pollution from cattle operations. The town of Callahan is presently constructing a secondary level sewage treatment plant. This should significantly reduce the high nutrient levels in the creek. Lofton Creek, a tributary of the lower river, is presently threatened by runoff from silvicultural operations and by rapid development of its watershed.

The St. Marys River defines the northern border of Nassau County and a portion of its western border, as well as being a significant geographical boundary between the State of Florida and the State of Georgia. With its headwaters in the Okefenokee Swamp, the St. Marys travels approximately 148 miles to the Atlantic Ocean and drains, in Nassau County, approximately 48 percent of the total planning area.

The St. Marys River is affected by tide in its lower reaches. Flow in the river is reversed by tide as much as 60 miles from its mouth. Tidal stage fluctuations can be noted even farther upstream. During droughts the cumulative net flow is upstream, and sea water intrudes up the channel to well past the point where the Little St. Marys River empties into it.



The upstream limit of tidal effect on the streams in Nassau County is not a fixed point but, instead, varies with the tidal height and the amount of freshwater flow. For a specific height of tide, flow reversal will occur farther upstream as stream discharge diminishes. Stage fluctuations resulting from tidal action will occur farther upstream when a stream is flowing moderately than when there is no flow because backwater from tide cannot extend any farther upstream than the first sandbar that is higher than the tide when there is no flow. At high discharge, tidal effect on the stage may be dampened out farther downstream than the first sandbar.

Flow reversal by the tide is important because it forces saline water from the ocean upstream against the freshwater flow, while displacing and mixing with the freshwater. This condition increases the distance upstream from the ocean within which freshwater is not always available from the river. Reversing flow may carry pollutants (man-made or natural) upstream to a point where water is being withdrawn for uses for which pollution cannot be tolerated.

The Amelia River, which comprises the northern portion of the Intracoastal Waterway in Florida, and the St. Marys River both empty into the Atlantic Ocean at the Cumberland Sound, located between Amelia Island in Florida and Cumberland Island in Georgia. The drainage from 14 percent of Nassau County flows into the Intracoastal Waterway or into streams and sloughs connecting with it. In this area, tides affect the stage and flow so that the water in the channels is nearly always brackish to saline.

Many of the streams in Nassau County go dry on an annual basis. However, streams with large storage areas in their headwaters, such as the St. Marys River, flow year around.

Being a rural area, the Nassau-St. Marys River basin has not been subject to substantial pressures for dredge and fill operations. A brief review of permits issued for dredge and fill by the Army Corps of Engineers indicates this to be true. The major projects in the area have been undertaken by the Corps of Engineers for navigational purposes; they are the maintenance of the Intracoastal Waterway and the maintenance of the Fernandina Beach Harbor. Both projects are located in the estuarine environment. The Intracoastal Waterway is maintained by a depth of 12 feet through the Amelia River and the Fernandina Beach Harbor. The Fernandina Beach Harbor project provides a 28-foot channel for 7 miles, extending from the river entrance to the junction of Lanceford Creek and the Amelia River. Since both projects require continued maintenance dredging, the temporary detrimental effects on estuarine life take on added significance.

The maintenance of the natural vegetation in Nassau County is important for the preservation of environmental quality. It is particularly important in the Nassau-St. Marys basins because it is the natural resource required by the paper and pulp industry which is so important to the economy of the area. The extensive commercial forest and the management techniques utilized can present unique problems to the area. Timber harvesting in sensitive areas such as wetlands and stream banks can create adverse impacts through an increase in runoff, siltation, or damage to wildlife habitat. Although, in many cases, damage is only temporary, it is possible through proper management techniques to avoid most deleterious effects. In this

area, the task is simplified because of the large holdings of the timber companies. They have access to professional foresters and resource managers who can apply appropriate techniques to their large holdings.

The Nassau County river basins have been fortunate from an ecological perspective in that development has exerted little pressure. Even on Amelia Island, the majority of the land remains in a natural state. However, development pressure here is increasing as evidenced by the advent of the Amelia Island Plantation. To date, this development demonstrates how a developer, through proper site analysis and planning, can develop within the natural systems without destroying them.

## **BAYS**

There are no bays located in Nassau County. However, the confluence of several rivers and the Atlantic Ocean create two sounds in Nassau County, the Cumberland Sound, located between Cumberland Island, Georgia and Amelia Island, and the Nassau Sound, located between Nassau County and Duval County.

Nassau Sound is utilized by recreational fishermen on a regular basis. Shellfishing has been prohibited by DNR in the Sound. An AIA fixed bridge crosses the Nassau Sound and a sand bar on the outside of the Sound creates a barrier to most recreational or commercial boat traffic.

Cumberland Sound is a major shipping channel and serves the submarine Naval base in Kings Bay, Georgia, as well as providing the entrance into Fernandina Beach Harbor. Both recreational and commercial boats utilize the Cumberland Sound and Fernandina Beach Harbor. The Port of Fernandina is located in the City of Fernandina Beach.

Aquatic Preserves occupy considerable acreage in the coastal areas of Nassau County. Approximately 11,326 acres of salt marsh and 16,180 acres of water are designated as aquatic preserves by the state of Florida. The aquatic preserves surround the northern tip of Amelia and the lower portion of the Nassau River, including the adjacent coastal marshes of the Intracoastal Waterway.

## **LAKES**

Lake Hampton is used for recreational purposes. This resistively lake was dammed to provide shore fishing opportunities for the residents of Nassau County. There are no significant lakes in Nassau County.

## **WETLANDS**

Freshwater swamps are found in linear strips, rarely wider than several hundred feet, along the flanks of the St. Marys River, Little St. Marys River, Nassau River, Thomas Creek, and other freshwater streams. Large upland swamps in western Nassau County include the Brandy Branch Swamp, Baldwin Bay (Bryceville area), and the Buford Bay (just east of Hilliard).

Other major swamps include White Oak Swamp, Spell Swamp, and McQueen Swamp located in the north and central portions of the county.

Freshwater swamps provide certain functions of public value, including surface water quality protection, flood control, and, under certain circumstances, groundwater recharge. Freshwater swamps dampen flood hydrographs and positively influence water quality by detaining stormwater runoff which reduces both suspended and dissolved materials. Freshwater swamps also have a moderating influence on local climate, function as visual, sound, spacial, and fire buffers, and provide habitat for wildlife.

Tidal marshlands occur in protected areas behind barrier islands, where fresh surface waters mix with salt water from the ocean under the influence of tidal action. Tidal marshlands positively influence water quality by assimilating nutrients from upland runoff and wastewater, and by serving as settling basins for silt from upland erosion. These wetlands are buffers to storms and floods, and they provide essential breeding and feeding grounds for shellfish, sport, and other food fish. It has been estimated that two-thirds of the cash value of species harvested on the Atlantic Coast is dependent on the tidal wetland. Plants of the tidal wetland and the animals which feed on them are 20 times more productive than the deep sea.

In the treatment of storm water and other waste waters, tidal wetlands can make an important contribution by the removal of inorganic nutrients--a very expensive process by artificial systems. It has been estimated that one acre of tidal marsh can assimilate on a yearly basis sufficient waste to replace thousands of dollars worth of artificial treatment.

Nassau County has approximately 30,000 acres of tidal marshland dominated by salt cordgrass and blackrush. Much of this is in a natural, pristine state. Salt marsh is considered, in the planning process, to be a vital area, and as such, is vigorously protected by the state. This is reflected in the state's designation of 27,500 acres of Nassau County's tidal marsh and estuary as an aquatic preserve regulated by the Department of Natural Resources. Certain activities are strictly regulated including dredge and fill, oil and gas exploration, erection of structures, waste discharge, and stormwater runoff.

## AIR

The U.S. Environmental Protection Agency (EPA) has designated six pollutants which can cause adverse health, environmental, and structural impacts. These are total suspended particulates (TSP), sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide, and lead. EPA has designated standards for these pollutants. The state has adopted not only the federal standards, but also more stringent state standards. DER is responsible for monitoring and enforcing those air quality standards. If violations are found for point sources such as factories, a notice is issued. If corrective action is not taken, a cease and desist order can be issued. If air standards are not met, the state and EPA can together attempt to develop a solution.

Three pollutants are monitored in Fernandina Beach. TSP standards have not been exceeded, but monitors have recorded levels of 65 percent of the standard. No exceedences were reported for nitrogen dioxide, but sulphur dioxide levels have been exceeded in the past.

There have been problems with odors caused by paper mills in Nassau County. In 1985, the state adopted the total reduced sulfur (TRS) rule which establishes limits on sulfur emissions, the primary odor-causing chemical in the kraft process. Full compliance with the rule should result in the reduction of 90 percent of the TRS compounds.

## FLOODPLAINS

Surface water bodies, wetland areas, and floodplains are important to Nassau County for the purpose of providing drainage, controlling surface water levels, and in providing flood storage areas during flood conditions. They are also important to Nassau County for wildlife habitat. Floods are a natural occurrence and only a hazard when the natural drainage ways, floodplains, or wetlands have been altered through urbanization and development. As urbanization increases in the low-lying areas, property damage and loss of life increases due to flooding.

Floodplains are areas which have a certain probability of annual flooding. A map which identifies the Nassau County 100-year floodplain is included as Figure F-2. The county's floodplain ordinance regulates land use in flood-prone areas, with the intent of reducing loss of life and property damage. Different levels of development are permitted within each flood year boundary. Other measures included in the flood ordinance are minimum floor elevations for structures and flood proofing standards. Nassau County's Floodplain Ordinance qualifies residents for low cost federally subsidized flood insurance which most financial institutions require before lending mortgage money.

In general, floodplains in Nassau County occur along the flanks of the county's two major streams, the St. Marys and Nassau Rivers, as well as their tributaries. Almost all the coastal areas along the Intracoastal Waterway and much of Amelia Island are located within floodplain boundaries.

The U.S. Corps of Engineers prepared a Storm Surge Atlas for Northeast Florida in 1988, based on the National Hurricane Center's hurricane modeling efforts, which provides the latest maps estimating the extent of coastal and inland flooding in Nassau County for mild to severe hurricane events.

Knowledge of the magnitude and frequency of the recurrence of floods on a piece of property is necessary to the proper design and location of any type structure or land use. In Nassau County, very localized flooding results from strong convective storms, common in spring and summer, and general flooding results from tropical storms in summer and fall or strong frontal activity in winter. Since 1927, six floods that reached peak discharges of 22,600 cubic feet per second have occurred on the St. Marys River at a point ten miles inland. The flood resulting from Hurricane Dora in September 1964, reached 26,000 cubic feet per second at this same measur-

ing station on the St. Marys River. Only one of the floods, that of April 1948, was not due to rains from a tropical storm.

### **COMMERCIALY VALUABLE MINERALS**

Titanium is found in Northeast Florida and southern Georgia along a geological feature known as the Trail Ridge. The ridge is approximately 130 miles long, extending from southern Georgia to the southern portions of Clay and Bradford counties in Florida. Deposits of heavy minerals occur along most portions of the ridge. It is theorized that the deposit of these minerals is the result of erosion from the Appalachian Mountains, receding oceans and wind action.

Areas of known mineral deposits in Nassau County are in its extreme northwest corner near Boulogne. Titanium mining operations have operated in this area in the past.

On a general nature, pollution problems from titanium mining could result in poor water quality potential or excessive water use as well as potential destruction of wetlands. However, due to the mining operation's no longer in existence, it is unlikely that the County will need to respond to these issues. Should mining be instituted in the future, these issues will be addressed.

### **SOIL EROSION PROBLEM AREAS**

Soil erosion is caused by both water and wind erosion and varies in intensity depending on soil type and land use. The Soil Conservation Service has determined that agricultural soils in Nassau County can tolerate a yearly loss of five tons per acre. Wind erosion occurs on exposed fields that are bare during the wind erosion period of January through April. Because of the flat topography in Nassau County, soil erosion is not as severe a problem as it is in other counties with greater relief, however, soil erosion does occur here.

Soil erosion is a natural phenomenon especially along drainage areas like the St. Marys River, but it is also caused by man's activities which include agriculture, silviculture, and urban development. Little can be done to reduce soil erosion along natural drainage areas. This is a natural function which has benefits for creek systems and their associated fish and wildlife. Soil erosion along creek systems creates diverse habitats such as the creation of sandbars and deep holes. Streambank erosion also causes trees to fall which creates eddies, and cover for many types of fish and wildlife. In addition, much of the alluvial sands transported by streams ultimately end up along the Atlantic coast and help to replenish beaches there.

#### Soils

The purpose of this portion of the data and analysis is to identify major general soil map units within Nassau County, outline their significant characteristics, and assess their suitability to accommodate specific land

uses. Data of this nature, although general, is important as a guide for planners and other decision makers concerned with land use and the environment. However, greater specificity in soil information is desirable and it is fortunate that the U.S.D.A. Soil Conservation Service has completed a detailed soil survey of Nassau County. An interim Soil Survey Report was published in 1988.

The general physical characteristics of the county's general soil map units are given below. The major source of material used for this study is derived from the Manuscript and Interim Soil Survey report by the U.S.D.A. Soil Conservation Service.

The general soil map shows map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential and suitabilities of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management. The soils in the survey area vary widely in their potential and suitabilities for major land uses.

Within Nassau County there are twelve soil associations identified by the U.S.D.A.'s Soil Conservation Service. They are:

1. Kureb-Fripp-Newhan
2. Mandarin-Echaw
3. Ridgewood-Hurricane-Pottsburg
4. Albany-Blanton-Penney
5. Leon-Boulogne-Kingsferry
6. Sapelo-LeonGoldhead
7. Goldhead-Chaires-Meadowbrook
8. Meggett-Goldhead
9. Kingsland-Maurepaus
10. Buccaneer-Ellabelle
11. Osier-Ousley-Mandarin
12. Tisonia

The soil associations found in Nassau County are located on Figure F-3.

### -Soils of the Sand Ridges and Coastal Dunes

This group consists of excessively to poorly drained, nearly level to rolling soils that are sandy to a depth of 80 inches or more. Some are loamy below depths of 40 inches. This unit occurs in the eastern part of the county, along an area east of Boulogne to west of Callahan and extending southward along the St. Marys River and a small area near Evergreen. Four general soil map units are in this group.

1. Kureb-Fripp-Newhan - Nearly level to rolling, excessively drained sandy soils. These ridges and swales are elongated, and their long axis generally is oriented from the north to the south. They are parallel to the Atlantic coast and extend inland for about 1 to 2 miles in the northern and southern part of the county and about 1/2 mile in the middle part on Amelia Island. The ridges form the primary dunes adjacent to the ocean

beach and relict beach dunes farther inland. The height of the ridges range from 4 to 35 feet and the slope length is mostly 8 to 100 or more feet. An area of similar soil occurs in downtown Fernandina Beach. Slopes are complex. This unit is relatively large in size and is elongated in shape.

2. Mandarin-Echaw - Nearly level, somewhat poorly and moderately well drained soils with dark colored subsoils within depths of 30 inches; some have dark subsoils at depths of 30 to 50 inches. The soils in this map unit are nearly level slightly elevated flatwood areas. This unit occurs on Amelia Island in the eastern part of the county.

3. Ridgewood-Hurricane-Pottsburg - Nearly level to gently sloping somewhat poorly and poorly drained soils that are sandy throughout; some have dark colored subsoils below depths of 50 inches. The soils in this map unit are on slightly elevated ridges in the flatwoods. This unit occurs in the eastern and western part of the county and one small area near Evergreen. The individual areas of this unit are small to relatively large and irregular or elongated in shape.

4. Albany-Blanton-Penny - Nearly level to moderately steep somewhat poorly, moderately well and excessively drained soils that have loamy subsoils below depths of 40 inches; some have lamella below depths of 50 inches. The soils in this map unit are on slightly elevated and elevated ridges and in places on uplands. This map unit occurs generally along the St. Marys River. The individual areas of this unit are small to medium and irregular in shape or elongated.

### -Soils of the Flatwoods

This group consists of poorly and very drained, nearly level sandy soils with dark colored subsoils within depths of 30 inches of the surface; some have dark colored subsoils below depths of 30 inches. This group occurs in the eastern part of the county. Four general soil map units are in this group.

5. Leon-Boulogne-Kingsferry - Nearly level poorly and very poorly drained sandy soils with dark colored subsoils within depths of 30 inches; some have dark colored subsoils below depths of 30 inches. The soils in this map unit are on the flatwoods. Areas of this soil occur in the eastern and western part of the county. The individual areas vary in shape and size.

6. Sapelo-Leon-Goldhead - Nearly level poorly drained sandy soils with dark colored subsoils within depths of 30 inches underlain with pockets of loamy material; some have loamy subsoils at depths of 20 to 40 inches. Soils in this map unit are on the flatwoods. Areas of this unit are located near and around Interstate 95 and U.S. Highway 17 in the east-central part of the county. The individual areas vary in shape and size.

7. Goldhead-Chaires-Meadowbrook - Nearly level poorly drained sandy soils with loamy subsoils at depths of 20 to 40 inches; some have dark colored subsoils within depths of 30 inches and some have loamy subsoils below depths of 40 inches.

8. Meggett-Goldhead - Nearly level, poorly drained sandy soils with clayey subsoils within depths of 20 inches; some have loamy subsoils below depths of 40 inches. The soils in this map unit on slightly elevated lower positions in the flatwood and in depressions, some are adjacent to the drainageways and floodplains. This map unit occurs in an area 4 to 7 miles wide in a north-south direction going through Callahan, north east of Hilliard to Kings Ferry.

#### -Soils of the Swamps and Flood Plains

This group consists of somewhat poorly to very poorly drained, level to nearly level soils. Some have organic layers more than 51 inches deep; some have clayey subsoils within depths of 20 inches; some are sandy with loamy subsoils between depths of 20 to 40 inches; and some have sandy soils or sandy soils with dark colored subsoils. This group occurs in swamps along the St. Marys River, the Nassau River, the Little St. Marys River, Mills Creek and Alligator Creek in the central, northern and southern parts of the county. Three general soil map units are in this group.

9. Kingsland-Maurepaus - Level to nearly level very poorly drained organic soils that are more than 51 inches deep. This map unit is in swamps along the St. Marys River, the Nassau River, the Little St. Marys River, Mills Creek and Alligator Creek in the central, northern and southern parts of the county.

10. Buccaneer-Elabelle - Nearly level very poorly drained soils that have clayey subsoils within depths of 20 inches; some are sandy with loamy subsoils at depths of 20 to 40 inches. This soil map unit is in swamps, drainageways and floodplains and found in the central part and southern part of the county. The individual map units are narrow and elongated in shape.

11. Osier-Ousley-Mandarin - Nearly level poorly and somewhat poorly drained sandy soils; some have dark colored subsoils. The soils of this map unit are on elevated ridges and swamps along the St. Marys River. The individual map units are mostly narrow and elongated in shape.



## -Soils of the Tidal Marsh

12. Tisonia - This unit consists of level and nearly level, very poorly drained, saline, organic soils underlain by clayey materials. These soils are on broad tidal marshes in the eastern part of the county along the St. Marys River, The Nassau River, Egans Creek and the Intracoastal Waterway. The tidal marsh is saline in most places, but is brackish where small feeder streams enter it. This unit is flooded daily by tides.

## FISHERIES

The Amelia River and St. Marys estuary have suffered a general decline in water quality due to urban and industrial pollution. All the waters in Nassau County are now classified by DER as Class III waters, suitable for recreation, fish, and wildlife, but not shellfish harvesting.

Despite the low-level development in the Nassau River Basin, hydrologic and fishery impacts have occurred. A major portion of Mills Creek has been channelized since 1974 to prevent flooding in the town of Callahan and surrounding agricultural lands (USDA, 1976). The channelization has altered the hydrology of the Mills Creek watershed and may be affecting water quality as far downstream as the creek's confluence with the Nassau River. The lower reach of the Nassau estuary has been closed to bivalve harvesting since 1977 because fecal coliform densities have been above standards (Florida Department of Natural Resources, 1984). Septic tank leachate from residential development has been implicated as the contamination source.

It is likely that further growth in the basin will create additional environmental impacts unless preventive management strategies are developed and employed. Toward this end, the St. Johns River Water Management District, in cooperation with the U.S. Geological Survey, has initiated a hydrologic and water quality monitoring program.

A hydrologic and water quality monitoring network, fully established since 1982, covers the major Nassau River subbasins. Preliminary analysis of data collected since then reveals excessively large concentrations of total nitrogen (TN) and total phosphorus (TP) in Mills Creek near Callahan. Apparently, these large concentrations are related to domestic effluent discharges from the Callahan primary STP and may be elevating downstream nutrient concentrations at the confluence of Mills and Boggy Creeks. In the Nassau River estuary, TN and TP concentrations drop by nearly an order of magnitude. These concentrations again decline somewhat through dilution and assimilation near the river mouth. A majority of the inorganic nitrogen in Mills Creek is ammonia and concentrations were measured that are potentially toxic to aquatic organisms, especially at the low levels of DO found in the creek.

These tidal wetlands are buffers to storms and floods, and they provide essential breeding and feeding grounds for shellfish, sport, and other food fish. It has been estimated that two-thirds of the cash value of species harvested on the Atlantic Coast is dependent on the tidal wetland. Plants of the tidal wetland and the animals which feed on them are 20 times more productive than the deep sea.

The final zone is the estuarine and bayshore environments, which are among the most productive aquatic areas in the world. Infants of the important fish species live here, and so do the valuable shellfish.

## WILDLIFE

### Threatened and Endangered Species

Nassau County is a permanent or seasonal home for 15 species of plants and animals that are legally considered to be threatened or endangered (T&E) by the state of Florida and/or the federal government. The majority of the listed species have been placed on this list because their native habitats have slowly been encroached upon to the point that their natural ranges have been severely restricted, while others are listed because of over harvesting in the past. With some species, the protection of specific sites may insure their survival while others may be protected by timing human activities so as not to interfere with an animal's specific seasonal needs.

A survey was done to determine which state or federal T&E species are present in Nassau County. These species are listed in Table 1 along with their legal status, habitat preference, and likelihood of occurrence. A short discussion on possible effective conservation efforts for each species is given below in the text.

The black bear is known to occur in Nassau County. The maintenance of wildlife corridors between large forested tracts, especially those near the Okeefenokee Swamp to the west, will aid the black bears' survival in the area.

The indigo snake is known to occur in mainland Nassau County as well as on Amelia Island. Protection of gopher tortoises will enhance the survival of the indigo snake in zeric habitats, where they sometimes depend on the tortoise burrows for shelter. The snake may be encountered in any habitat, however, and people should be encouraged to spare the lives of black as well as all other snakes.

The American alligator, wood stork, sandhill crane, and bald eagle are all mobile animals with broad habitat requirements. The preservation of fresh and brackish wetlands is important. Bald eagle nesting sites must be protected from human disturbance.

The kestrel has recently suffered a notable decline in population. The cause of this decline is unknown but destruction of nesting sites is a possible factor. Old pines with woodpecker holes are preferred nesting site and those trees should be preserved.

Piping plovers are winter migrants and creatures of the open beaches and are of no special concern to Nassau County conservation efforts.

The least tern has a worldwide distribution. It nests shoreward of dune vegetation or opportunistically on a variety of temporary sites, such as construction sites. Known nests should not be disturbed. Twenty-five to

30 nests were present in 1983 on the accreting beach south of the pier/jetty on the north tip of Amelia Island at the mouth of the St. Marys Entrance.

The west Indian manatee is known to use the Intracoastal Waterway as a migratory route and is present in the Amelia River in the summer season. Construction projects in the estuary should heed U.S. Fish and Wildlife Service guidelines for construction in manatee areas. Speed limits for powered craft should be posted in the Amelia River during summer months.

Five Endangered and Threatened marine species could occur along coastal Nassau County. The right whale is a rare migrant which should not be bothered by normal human activities in the area.

Table F-1 is a partial species list of Nassau County provided by the Conservation Service. Table F-2 is a list of species under special protection status in Nassau County as provided by the Florida Game and Freshwater Fish Commission, 1987.

---

#### AMPHIBIAN

<i>Acris Gryllus</i>	Frog - Cricket
<i>Ambrystoma Tigrinum</i>	Salamander - Tiger
<i>Amphiuma Means</i>	Amphiuma - Two-toed
<i>Bufo quercicus</i>	Toad - Oak
<i>Bufo Terrestris</i>	Toad - Southern
<i>Desmognathus Fuscus</i>	Salamander - Dusky
<i>Eurycea bislineata</i>	Salamander - Southern two-lined
<i>Aurycea logicauda</i>	Salamander - Three lined
<i>Hyla andersoni</i>	Frog - Pine Barrens tree
<i>Hyla cinerea</i>	Frog - Green tree
<i>Hyla crucifer</i>	Southern spring peeper
<i>Hyla ocularis</i>	Frog - Gray tree
<i>Manculus quadridigitatus</i>	Salamander - Dwarf
<i>Plethadon glutinosis</i>	Salamander - Slimy
<i>Pseudacris nigrita</i>	Frog - Chorus
<i>Pseudacris ornata</i>	Frog - Ornata chorus
<i>Pseudabranthus striatus</i>	Siren - Dwarf
<i>Pseudotriton montanus</i>	Salamander - Rusty mud
<i>Rana areolata aesopus</i>	Frog - Florida gopher
<i>Rana catesbiana</i>	Bullfrog
<i>Rana grylio</i>	Frog - Pig
<i>Rana pipiens</i>	Frog - Leopard
<i>Scaphiopus holbrooki</i>	Toad - Common spadefoot
<i>Siren intermedia</i>	Siren - Lesser
<i>Siren lacertina</i>	Siren - Great

TABLE F-1  
 (CONTINUED)  
 A PARTIAL SPECIES LIST OF NASSAU COUNTY

BIRDS

<i>Actitis Macularia</i>	Sandpiper - Spotted
<i>Agelaius phoeniceus</i>	Blackbird - Red-winged
<i>Aimophila aestivalis</i>	Sparrow - Bachman's
<i>Anas discors</i>	Teal - Blue-winged
<i>Anas Fulvigula</i>	Duck - Florida
<i>Anhinga anhinga (1)</i>	Anhinga
<i>Anhinga anhinga (2)</i>	Water turkey
<i>Aphelocoma coerulescens</i>	Jay - Scrub
<i>Aramus guarana</i>	Limpkin
<i>Archilochus colubris</i>	Hummingbird - Rudy-throated
<i>Ardea herodias</i>	Great - blue
<i>Arenaria interpres</i>	Ruddy turnstone
<i>Aythya affinis</i>	Lesser scaup
<i>Aythya collaris</i>	Duck - Ring-necked
<i>Bombyci'la cedrorum</i>	Cedar waxwing
<i>Botaurus lentiginosus</i>	Bittern - American
<i>Bubo virginianus</i>	Owl - Great horned
<i>Buteo jamaicensis</i>	Hawk - Red-tailed
<i>Buteo lineatus</i>	Hawk - Red-shouldered
<i>Butarides virescens</i>	Heron - Green
<i>Campephil's principalis</i>	Woodpecker - Ivory-billed
<i>Capella gallinago</i>	Snipe - Common
<i>Caprimulgus carolinensis</i>	Chuck - Will's widow
<i>Caracara cheriway</i>	Caracara
<i>Cardinalis cardinalis</i>	Cardinal
<i>Casmerodius albus</i>	Egret - American
<i>Cassidix mexicanus</i>	Grackle - Boat-tailed
<i>Cathartes aura</i>	Vulture - Turkey
<i>Catoptrophorus semipalmatus</i>	Willet
<i>Chaetura pelagica</i>	Swift - Chimney
<i>Charadrius alexandrinus</i>	Plover - Snowy
<i>Charadrius hiaticula</i>	Plover - Semipalmated
<i>Charadrius vociferus</i>	Killdeer
<i>Chordeiles minor</i>	Nighthawk
<i>Circus cyaneus</i>	Marsh hawk
<i>Coccyzus minor</i>	Cuckoo - Mangrove
<i>Colaptes auratus</i>	Flicker
<i>Colinus virginianus</i>	Quail - Bobwhite
<i>Colubigallina passerina</i>	Dove - Ground
<i>Coragyps atratus</i>	Vulture - Black
<i>Corvus brachhynchos</i>	Crow
<i>Corvus ossifragus</i>	Crow - Fish
<i>Cyanacitta cristata</i>	Jay - Blue
<i>Dendroica coronata</i>	Warbler - Yellow-rumpet
<i>Dendroica discolor</i>	Warbler - Prairie
<i>Dendroica palmarum</i>	Warbler - Palm
<i>Dendroica pinus</i>	Warbler - Pine
<i>Dryocopus pileatus</i>	Woodpecker - Pileated

TABLE F-1  
(CONTINUED)  
A PARTIAL SPECIES LIST OF NASSAU COUNTY

Eudocimus albus	Ibis - White
Falco peregrinus	Falcon - Peregrina
Falco sparverius	Little kerstrel
Florida saerulea	Heron - Little blue
Fulica americana	Coat
Gallinula chloropus	Florida gallinule
Geothlypis trichas	Yellow throat
Grus canadensis	Crana - Sandhill
haematopus pallinatus	American oystercatcher
Haliaetus leucocephalus	Eagle - Southern bald
Hylocichla guttata	Thrush - Hermit
Icteria virens	Yellow-breasted Chat
Iridoprocene bicolor	Swallow - Tree
Lanius ludovicianus	Shrike - Loggerhead
Larus argentatus	Gull - Herring
Larus delawarensis	Gull - Ring-billed
Leucephoyx thula	Egret - Snowy
Megaceryle alcyon	Kingfisher - Belted
Helanerpes carolinus	Woodpecker - Red bellied
Helanerpes erythrocephalus	Woodpecker - Red headed
Meleagris gallopavo	Turkey
Melospiza georgiana	Sparrow - Swamp
Melospiza melodia	Sparrow - Song
Mergus serrator	Merganser - Red-breasted
Mimus polyglottos	Mockingbird - Eastern
Mycteria americana (1)	Ibis - Wood
Mycteria americana (2)	Wood stork
Myiarchus crinitus	Flycatcher - Crested
Nyctanassa violacea	Heron - Yellow-crowned night
Nycticorax nycticorax	Heron - Black-crowned night
Otus asio	Owl - Screech
Pandion haliaetus	Osprey
Parula americana	Warbler - Parula
Parus bicolor	Titmouse - Turfted
Parus corolinensis	Chickades
Passer domesticus	Sparrow - English
Passerina ciris	Painted bunting
Pelecanus erythrorhynchos	Pelican - White
Phalacrocorax auritus	Double-crested comorant
Philohela minor	Woodcock
Picoides borealis	Woodpecker - Red cockaded
Picoides pudescens	Woodpecker - Downy
Pipilo erthropthalmus	Towhee - Rufous-sided
Piranga rubra	Summer tanager
Podilymbus podiceps	Pied-bill grebe
Polioptila caerulea	Gnatchatcher - Blue-gray
Poocetes gramineus	Saprow - Vesper
Progna subis	Swallow - Purple martin

fied for investigation for this inventory. The report identifies the longleaf flatwoods and coastal maritime forest as important and vanishing natural resources in the St. Marys River basin. The report recommends, due to the nature of the ownership of the longleaf flatwoods areas (small family-operated firms), that the best method of protection would be in management agreements which would favor the continued management of the timber resources on a sustainable, long-term basis while at the same time using prescribed burning as a management tool to maintain the ecological integrity of the system.

The Nature Conservancy Report states that the salt marshes of the lower St Marys River are being adequately protected and are, for the most part, owned by the State of Florida.

## **WATER NEEDS AND SOURCES**

### Groundwater

The generalized geologic structure of Nassau County consists of several water-bearing formations which vary as to water availability and quality. The surficial strata or post-Hawthorn formation is composed of undifferentiated deposits of clay, sand, and shell. The groundwater supply in this formation is from two types of aquifers: surficial sand beds and limestone, shell and sand beds lying between 50-150 feet below the surface. These provide small to moderate amounts of water utilized for rural domestic, irrigation, and lawn sprinkling purposes. The amount and quality of this water supply is not adequate to serve an urban population. For these reasons, it is generally the deeper Floridan aquifer which supplies the potable water in Nassau County.

Below these surficial deposits lie the Hawthorn formation. It is comprised of sandy clay and limestone beds containing phosphatic sand and gray hard dolomite. The thickness of this formation ranges from 50-500 feet. The limestone, shell and sand aquifers extend downward into the upper portion of the Hawthorn formation but otherwise, there is generally a poor yield of water from this formation. The Hawthorn formation is relatively impervious but discontinuous in Nassau County. Also, the Hawthorn formation is the confining layer for the underlying limestones which comprise the Floridan Aquifer.

The Crystal River, Williston, and Ingles formations of the late Eocene age lie directly beneath the Hawthorn formation. These are collectively referred to as the Ocala Group by the Florida Geological Survey. These formations consist of a homogeneous sequence of hard to soft, calcitic, porous marine limestone containing thin discontinuous zones of dolomite near the base of the formation. The Ocala Group generally yields large quantities of water and is the primary water source in most of Nassau County.

Finally, the deepest strata within the geological structure of Northeast Florida are the Avon Park, Lake City, and Oldsmar limestones of the Eocene age. These formations consist predominantly of soft porous limestones and crystalline limestone and dolomite. These formations along with the Ocala Group and the lower extremities of the Hawthorn formation collectively

comprise the Floridan Aquifer, the principal artesian aquifer. This Eocene limestone ranges in thickness from about 500 to more than 1,000 feet and is the primary source of potable water in the study area. Under good management, this resource could provide quality water indefinitely.

As the population in Nassau County grows, an increase in the use of the groundwater can be expected. Fortunately, one of the most prolific aquifers in the world, the Floridan Aquifer, underlies Nassau County and the remainder of the Florida peninsular and extends throughout parts of Georgia, Alabama, and South Carolina. In Nassau County, the surface water is either too salty or insufficient in quantity to supply the needs of the population and industry, thus the Floridan Aquifer is utilized as the principal source of water for municipal, industrial, and agricultural uses.

Heavy water use has resulted in a general decline of water levels in the aquifer in Nassau County as well as large cones of depression in the piezometric surface in the industrial area near Fernandina Beach.

Along with this decline in artesian water levels, the salt content of the water has increased in some areas which indicates an advancement of salt water into the fresh water zones of the Floridan aquifer.

Three types of aquifers supply water in Nassau County: shallow sand beds; relatively thin limestone, shell and sand beds; and the thick limestone and dolomite beds of the Floridan aquifer. The shallow aquifer water is generally low in dissolved solid content but may be corrosive to pumping fixtures due to its slightly acidic character and high carbon dioxide content. Shallow aquifers generally consist of a series of thin permeable zones separated by a number of thin confining beds. Water from the shallow aquifer is primarily used for lawn and ornamental shrub irrigation. In most cases, this water is suitable for domestic and most industrial uses. However, because this aquifer is recharged primarily by local rainfall, this practice of tapping water resources should be regulated from a public health standpoint due to a potential contamination problem.

The limestone, shell and sand aquifer occurs in most parts of the area from 50-200 feet below the surface. It is recharged by downward leakage from the shallow aquifer, by surface streams, and in some areas by upward leakage from the Floridan aquifer. The water from this aquifer tends to be slightly alkaline. Most individual domestic water supplies are obtained from this aquifer in areas not serviced by municipal or private water utilities. It also supplies water for lawn sprinkling and some industrial purposes.

Water in aquifers in Nassau County occur under both artesian and non-artesian conditions. In areas where the aquifer is exposed at the surface or where the overlying material is relatively thin, the water in the aquifer is under non-artesian conditions. The extensive permanent swamps in the western part of the county south and west of Callahan are good examples of where non-artesian conditions exist and the aquifer is filled to capacity. The water bearing zones of these surficial aquifers are generally thin and therefore not used for irrigation. In the eastern Amelia Island section of the county where there is a growing demand for domestic water supplies, the non-artesian water sources will become more important as the underlying and

deeper artesian reservoir continues to increase in water of a poorer chemical quality.

The Floridan aquifer is recharged only in areas where the water table stands higher than the piezometric surface. Recharge in the county is primarily a result of downward leakage from surface bodies of water or from shallower aquifers where the aquiclude is thin or absent. Local recharge of the aquifer which occurs in western Nassau County, is supplemented by more remotely located replenishment areas in Duval, Clay, and Putnam counties. This occurs because groundwater moves generally northeastward through the aquifer system into Nassau County. These areas of recharge should be protected from any development which could contaminate the artesian groundwater system.

Relatively large quantities of water are lost from the aquifer by natural discharge of springs and upward leakage through the overlying confining beds. Some loss via upward leakage probably occurs throughout the area of artesian flow.

Large quantities of water are also lost by artificial discharge from wells. The principal artificial discharge area in Nassau County is the urban-industrial area in the vicinity of Fernandina Beach. In the long term, a net decline in artesian pressure of more than 20-25 feet in the vicinity of Fernandina Beach has occurred. Total discharge from the aquifer in Nassau County has steadily increased since 1940. The greatest discharge results from industrial uses, specifically the pulp and paper industries of Fernandina Beach. These companies alone withdraw approximately 53 million gallons per day from the aquifer. This is about 90 percent of the total fresh groundwater withdrawal in Nassau County. The decline in artesian pressure in Fernandina Beach is compounded by a pulp mill located in Georgia just across the St. Marys River. The results of this increase in discharge has been a decline of artesian pressures or cessation of flow in wells near the center of discharge.

Recently, the rate of discharge at Fernandina Beach has remained constant, and if this continued, the cone of depression in this area would eventually reach equilibrium and the decline in artesian pressure arrested. However, with the expected industrial expansion and increased population, withdrawal from the aquifer can be expected to increase, thus, artesian pressures will continue to decline. It is estimated that the Floridan aquifer provides at least 350 mgd of water to northeast Florida. If this discharge continues at the present rate, in 20 years the water level will be 20-40 feet lower than it is now in the urban-industrial centers such as Fernandina Beach.

The results of the decline in artesian pressures are two two-fold: the area of artesian flow has been reduced and the yield of wells by natural flow has decreased, and there has been a threat of contamination of the freshwater supply by saltwater intrusion.

Salt water underlies the fresh water in the discharge areas of Nassau County. Wells in eastern Nassau County show that fresh water occurs in the upper 1400 feet of the Floridan aquifer, but below that the water is saline. The greatest increase in salinity is directly related to the areas of increased discharge. In Nassau County, the chloride content has risen



from 50 parts per million (ppm) to well over 1,000 ppm in the deep parts of the aquifer indicating that contamination from below is a problem for the deep water-bearing zones of the aquifer in this area. The relatively slight increase in chloride content of water in the upper part of the Florida aquifer at Fernandina Beach is probably due to the presence of impermeable barriers located below the fresh water zones, inhibiting saltwater intrusion.

As more water is used from the Floridan aquifer, especially in the easterly section of the county, and artesian pressures continue to decline, saltwater intrusion may increase. However, recent studies by the St. Johns River Water Management District indicate it may be possible to prevent or delay further contamination in the Fernandina Beach area by selectively utilizing the upper portions of the aquifer without disturbing the deeper saline water. Their work found a need to limit well depth to less than 1,150 feet. The deeper wells that have been grouted up to 1,200 feet have ceased having chloride problems, indicating that incipient, large-scale connate intrusion is not a problem here as it is in other coastal areas.

Another method which may help maintain artesian pressures is artificial recharge. This process involves providing a means for water, either naturally by rainfall or artificially by man's introduction, to reach the aquifer quickly. The most effective method would require wells which connect the aquifer to the water table thus increasing recharge. However, because of the expense involved in a project of this sort, this may not be a viable solution for Nassau County within the next 20 years.

TABLE F-4  
1985 CALENDAR YEAR WATER USE INVENTORY

Type of Water Use	Jan MGD	Feb MGD	Mar MGD	Apr MGD	May MGD	Jun MGD
GW FR INDUSTRIAL	33.885	37.971	38.326	40.607	34.661	43.307
GW FR PUBLIC	2.965	2.785	2.712	3.135	3.240	3.453
GW FR RECREATION	0.014	0.015	0.023	0.020	0.016	0.019
GW TOTAL	36.834	40.771	41.061	43.762	37.917	46.779

S SA INDUSTRIAL	1.484	2.000	2.000	2.000	1.419	2.000
-----------------	-------	-------	-------	-------	-------	-------

Continued:	July	Aug	Sept	Oct	Nov	Dec
GW FR INDUSTRIAL	43.307	43.358	26.000	42.940	43.781	24.503
GW FR PUBLIC	3.625	3.402	2.858	2.759	2.719	2.802
GW FR RECREATION	0.026	0.020	0.013	0.018	0.017	0.018
GW TOTAL	47.009	29.422	45.811	46.558	42.609	27.323

S SA INDUSTRIAL	2.000	0.065	1.933	2.000	2.000	0.194
-----------------	-------	-------	-------	-------	-------	-------

Continued:

DAILY  
AVERAGE  
MGD

GW FR INDUSTRIAL	37.381
GW FR PUBLIC	3.040
GW FR RECREATION	0.018
GW TOTAL	40.439

S SA INDUSTRIAL	1.584
-----------------	-------

Source: St. Johns River Water Management District, Individual Public and Industrial Water Users, 1985 - Supplement to Technical Publication SJ86-5

The largest user of water in Nassau County is industry. Since the general population is not on public water supply systems it is not possible to estimate the water demand strictly from evaluating the existing population figures and the existing water withdrawal data from the St. Johns River Water Management District. We do, however, have an estimate of water usage for those persons on public water supply as provided in the public facilities element of the plan. Calculations of future water needs will be based on an average service of 100 gallons per capita per day.

TABLE F-5  
POTABLE WATER PROJECTIONS, NASSAU COUNTY

Year	High Projection Total County	Unincorp. Pop.	Per capita Potable Water Demand	Total Potable Daily Water Demand
1990	51,400	38,550	100 gal/day	5.14 MGD
1995	61,300	45,975	100 gal/day	6.13 MGD
2000	70,600	52,950	100 gal/day	7.06 MGD
2005	80,200	60,150	100 gal/day	8.02 MGD

Source: BEBR Bulletin No. 83, January 1988.  
Northeast Florida Regional Planning Council

Most of the heavy industrial users of ground water are located in the City of Fernandina. They are taking steps to work with the industries to institute water conservation measures. Due to this effort, projections of county water demand will be based on the assumption that conservation will account for any significant needed growth in industrial water needs for the first ten years.

Therefore, based on the potable water needs of the county and the industrial needs (the largest users), Nassau County's need for ground water in the next ten years should not exceed 46.1 MGD per day. This accounts for both the Floridan and surficial aquifers.

#### Water Conservation

The County has worked with major developments, specifically Developments of Regional Impact to institute water conservation measures in their developments. As mentioned previously, the major water users are located in the City of Fernandina Beach. Fernandina Beach is actively working with the industries to instigate some water conservation measures.

The St. Johns River Water Management District is currently (January 1991) undergoing rule development concerning ongoing water conservation. They are considering implementing such policies as watering limitations from 9:00 am to 5:00 pm on a continuous basis and water conservation plans for large users. In addition to these policies, it is their intent, at this time, to require metering of wells of agricultural use and other large wells to provide a baseline for data on water use and subsequent conservation.

642 SALT TWA									
650 NON VEGETATED									
651 TIDAL FLATS	216	105	1314	1314	11031	522	3532	6127	
653 INTERMITTENT POND	9	57	1314	1314	39333				
700 BARREN LANDS	45	48							
710 BEACHES	152	103	132	3					
720 SAND OTHER THAN BEACHES	431								
730 SAND OTHER THAN BEACHES									
740 DISTURBED LAND									
800 TRANSPORTATION	14455	14889	30509						
TOTAL									

SOURCE: LAND USE AND VEGETATIVE INVENTORY, REMOTE SENSING CENTRE  
 FLORIDA DEPARTMENT OF TRANSPORTATION, 1989  
 (INTERPRETATION FROM PHOTOGRAPHY DATED 12-31-85)

CONSERVATION ELEMENT

GOAL 6.0

THE COUNTY SHALL CONSERVE, UTILIZE, AND PROTECT THE NATURAL RESOURCES OF THE AREA, INCLUDING AIR, WATER, WETLAND, WATERWELLS, ESTUARIES, WATER BODIES, SOILS, MINERALS, VEGETATIVE COMMUNITIES, WILDLIFE, WILDLIFE HABITAT AND OTHER NATURAL AND ENVIRONMENTAL RESOURCES, INSURING THAT ADEQUATE RESOURCES ARE AVAILABLE FOR FUTURE GENERATIONS.

OBJECTIVE 6.01  
GROUND WATER

*#10(a)* Upon plan adoption, the County will ensure that it has adequate water supplies, of a quality sufficient for its intended use to meet existing and projected future demands by implementing the following policies.

Policies

*# 14 (a)*  
*# 14 (c)* 6.01.01 The County shall require that wastewater be reused where practical. New wastewater treatment plants shall be required to provide for the reuse and/or disposal of wastewater by best available technology, including for agricultural or landscaping irrigation, percolation, or other permitted measures unless data are presented to support claims for the inability to support such reuse.

6.01.02 By 1995, the City of Fernandina Beach, the County and industry shall develop and initiate implementation of an analysis to determine the need for alternative water supplies to help meet future demands. The study will consider, at a minimum, the feasibility of using various water supply alternatives such as desalinization, transfer of water, and wastewater reuse as a potential alternative water supply source.

*# 14 (c)* 6.01.03 The County shall withhold development rights to future land development unless infrastructure (which includes water supply capacity and facilities) is available concurrent with the impacts of that development in accordance with 9J-5.0055(2)(a),(b) and (c).

- 6.01.04 The County will coordinate with the State of Florida and the SJRWMD to uniformly collect and analyze water use data every two years to determine water use trends, including projections and water quality, to ensure adequate future water supplies for all reasonable and beneficial users.
- # 13 6.01.05 The Land Development Regulations shall include criteria, such as reduced densities and reduced impervious surfaces, to protect the functions of natural drainage systems and natural groundwater aquifer recharge areas, as identified by the St. Johns River Water Management District.
- # 13 6.01.06 A 200 foot buffer will be established around all wellheads serving the public as a "reasonable radius" to protect the cone of depression of wellfields which draw their water from the surficial aquifer as identified by the St. Johns River Water Management District. Wells which do not obtain their water supply from the surficial aquifer are exempt from this policy.
- # 17 6.01.07 Voluntary water conservation measures as defined by the St. Johns River Water Management District, shall be promoted and become mandatory during water shortage emergencies for all potable water users including domestic, public, institutional, industrial, commercial and agricultural.
- # 17 6.01.08 The County shall continue to enforce the Uniform Energy Conservation Construction Code which requires water conserving plumbing fixtures and devices in new construction.

**OBJECTIVE 6.02  
WATER BODIES, FLOODPLAINS, WETLANDS AND UPLAND COMMUNITIES**

The County shall protect ecological systems which are sensitive to development impacts and provide important natural functions for maintenance of environmental quality and wildlife habitats.

**Policies**

- # 16 6.02.01 The Land Development Regulations shall include guidelines and standards, such as reduced densities, required percentages of open space, etc., for the regulation of open space, tree protection, native vegetative communities, including the maintenance of canopy integrity in hammock and scrub areas, and scenic corridors and wildlife habitat for use in development review and approval.
- # 11 # 20 (j) 6.02.02 Recommend, based on considerations of size of the development or sensitivity of the property, Planned Unit Developments and other cluster type developments in order to preserve wetlands, important native vegetative communities, and other environmentally sensitive communities, by reducing or prohibiting development in the sensitive areas of the property.

- # 19  
# 20 (a)  
# 20 (K) 6.02.03 A buffer of natural vegetation as required under Chapters 373 and 403, F.S., implementing regulations and permits granted thereunder, shall be provided where wetlands occur.
- # 20 (L) 6.02.04 Stormwater management systems, including rerouting and maintenance of drainage ditches, control of development in areas of sheetflow, shall be used where appropriate, to enhance the hydrologic conditions of stressed or impacted wetlands.
- 6.02.05 All construction in floodplains and floodways shall be required to comply with FEMA, Federal Insurance Administration and County building codes.
- # 19  
# 20 (a) 6.02.06 Existing and future agricultural and silvicultural pursuits will be encouraged, through the provision of literature, to implement Best Management Practices, including determination of site sensitivity, establishment of streamside management zones, and determination of minimum residual stands for timber harvesting.
- # 20 (a) 6.02.07 Waterfront developments shall be designed to ensure that stormwater runoff and erosion do not affect ambient water quality of adjacent waters in accordance with Chapters 10D-6 and 17-600, Florida Administrative Code.
- # 20 (a) 6.02.08 The natural functions and hydroperiods of wetlands and floodplains shall be maintained.

**OBJECTIVE 6.03  
WASTEWATER**

# 10(b) Upon plan adoption, the County shall protect the water resources of the County from contamination by industrial wastewater disposal and sewage effluent disposal systems utilizing the following policies.

**Policies**

- 6.03.01 New septic tank systems will continue to be inspected and approved by the County Health Department prior to issuance of a certificate of occupancy.
- 20 (b) 6.03.02 Septic tanks shall be prohibited where soils are unsuitable unless adequate approved fill is supplied for the septic tank and drainfield. Land Development Regulations will be developed which require a minimum set back for septic tanks from waterbodies based on HRS minimum standards for septic tanks. No septic tanks will be permitted in the V zone, as identified by FEMA FIRMS. Septic tanks in the A zones, as identified by FEMA FIRMS must be floodproof.

- 6.03.03 Inspection and maintenance of septic tanks and drainfields by the public shall be fostered through public education and awareness programs.
- 6.03.04 Developments above the Department of Health and Rehabilitative Services (DHRS) threshold for septic tank use shall be required to utilize public sewer systems or private waste-water treatment plants built to County specifications.
- 6.03.05 Public and private central sewage treatment systems and package systems shall be brought into full compliance with applicable state regulations and permit conditions by October 1991. Where noncompliance with applicable law continues, the County will seek enforcement in conjunction with state agencies to alleviate adverse environmental impacts.
- 6.03.06 Standards shall be developed for the construction and maintenance of package treatment plants for the future option of the County taking over or incorporating these systems.
- 20 (c) 6.03.07 All industrial developments with private sewage treatment plants must provide annual monitoring reports to the Department of Environmental Regulation concerning their sewage treatment plants.

**OBJECTIVE 6.04  
STORMWATER**

10 (c) Throughout the planning period, water quality relating to the impacts of point and non-point pollution sources to surface waters within the County will be maintained or improved.

**Policies**

- 6.04.01 The County shall adopt an interim Stormwater Management Ordinance which regulates the quality and quantity of stormwater runoff for all new development based upon current state regulations.
- 6.04.02 Interim stormwater management plans shall ensure adequate retention/detention of stormwater runoff to maintain surface water quality, to ensure percolation and reduce adverse impacts to drainage canals, surface water, and groundwater.



6.04.03 Provide letters of support and technical assistance to the City of Fernandina and the Town of Callahan in their efforts to upgrade their sewage treatment plants.

\* 20 (a) 6.04.04 Industries which are permitted discharge into the waterbodies of the County must meet all applicable state and federal guidelines for water quality.

# 19  
# 21 6.04.05 In order to protect the St. Johns Marsh and Fort Clinch State Park Aquatic Preserves, the County Commission shall adopt Policy 9.2.2.5 of the Northeast Florida Comprehensive Regional Policy Plan, which states: Developments adjacent to Class II Waters, Aquatic Preserves, and Outstanding Florida Waters should be required to provide retention or detention with filtration of the first three-quarters of an inch of runoff or the runoff from the first 1-1/2 inches of rainfall, should provide offline retention or offline detention with filtration of the first 1/2 inch of runoff of the total amount required to be treated; and should be required to demonstrate that the project will not result in the degradation of the water quality in Outstanding Florida Waters, Class II Waters, and Aquatic Preserves.

# 20(c) 6.04.06 The County shall close and monitor the County's completed land fills in compliance with standards established by federal, state, and local laws, regulations, and guidelines.

#### OBJECTIVE 6.05 WILDLIFE/NATIVE PLANT HABITAT

# 12.(a) Upon plan adoption, the County shall implement measures to conserve, appropriately use and protect fisheries, wildlife, wildlife habitat, marine habitat, and native plan communities in a healthy environment and for the enjoyment of future generations.

#### Policies

6.05.01 The County should acquire, through donations or purchase, environmentally sensitive land to assure their conservation and protect their availability for future generations.

6.05.02 The County shall establish a land acquisition fund within one (1) year after plan approval, and shall offer local contributions for the public acquisition of important areas of natural habitat and environmentally sensitive land, through federal, state, and regional land acquisition programs. The County will work with the Florida Department of Community Affairs to utilize the Community Trust Fund monies for this purpose, if available.

# 18  
# 20(g)  
# 20(i)

6.05.03 The County shall request that the Florida Division of Forestry, the Florida Game and Fresh Water Fish Commission, the U.S. Fish and Wildlife Service, the St. Johns River Water Management District, and other appropriate agencies work together with owners of tracts of land to ensure wise management of endangered and threatened species of plants, fish, wildlife, and their habitat in which they are located. The County will participate by implementing land use and land development regulations and incentives/disincentives necessary to protect endangered and threatened species and the habitat in which they are located, such as establishing a beach lighting ordinance and reduced densities.

# 18

6.05.04 The County shall coordinate with appropriate agencies to prohibit or limit marinas and prohibit discharges under applicable law in Outstanding Florida Waters, Class II Waters, Wild and Scenic Rivers, and other sensitive areas designated for protection.

# 20(i)

6.05.05 The County shall coordinate with adjacent local governments in the protection of endangered or threatened species and the habitat in which they exist..

6.05.06 The County shall initiate, subject to available resources, the inventory, mapping, and protection of endangered and threatened species of plants and wildlife and the habitat in which they exist to ensure their continued survival.

# 23(a)

6.05.07 The County will request assistance from the Florida Game and Fresh Water Fish Commission or the Federal Wildlife Service in determining the viability of known populations of threatened and endangered species and recommended protection measures.

6.05.08 Marinas and ports proposed for siting adjacent to Department of Natural Resources manatee-designated sanctuaries, foraging areas, or in or adjacent to freshwater or warm water discharge habitat areas must receive DNR approval prior to requesting County permits for construction.

# 18

6.05.09 Developments proposed adjacent to "Outstanding Florida Waters" wildlife sanctuaries, wildlife refuges, state preserves, sanctuaries, forest, and publicly owned parks, gardens, and wildlife management areas in the County shall be environmentally compatible in order to conserve wildlife populations and habitat through the use of buffers, lower densities and intensities of use, adjacent to boundaries, etc.

# 18  
# 22

6.05.10 The County, adjacent jurisdictions, and private landowners should cooperate to retain the significant habitats for native wildlife and vegetation. If on-site habitat of threatened or endangered species should be disturbed by new development, similar habitat should be protected, through land bank mitigation, with an emphasis on viability by virtue of its size, configuration, and connecting habitat.

OBJECTIVE 6.06  
AIR QUALITY

# 9 Upon plan adoption, the County will ensure that air quality shall be maintained or improved throughout the County, by meeting or exceeding those minimum standards established by state and federal agencies.

Policies

6.06.01 Industry locating in the County shall be required to meet or exceed the air quality standards established by state and federal agencies.

# 9 6.06.02 Existing industries that demonstrate potential for violating state and federal air quality standards, including sulfur dioxide, shall be required to set specific targets to meet appropriate ambient air standards.

6.06.03 If vehicular traffic is found to be an air quality problem, methods should be investigated to reduce vehicle traffic by including bikeways, pedestrian ways, public transportation, and other means where applicable.

OBJECTIVE 6.07  
ENERGY

The County will strive to reduce energy consumption both for the public and private sectors.

Policies

6.07.01 The County will promote energy conservation in public and private buildings.

6.07.02 Building and landscape design along with solar and other alternate energy sources should be investigated and encouraged where appropriate to reduce the amount of energy required of new construction.

OBJECTIVE 6.08  
AGRICULTURE/SILVICULTURE SOILS

Unique agricultural/silvicultural soils will be conserved and managed.

Policies

6.08.01 The County will work with local Soil Conservation Services (SCS) offices to develop methods and educate the agricultural community about soil conservation and erosion control practices.

6.08.02 Experimental agricultural programs will be supported to strengthen the County's agricultural base.

**OBJECTIVE 6.09  
MINING OPERATIONS**

#11  
#15  
Upon Plan adoption, the County shall conserve, appropriately use and protect mineral deposits of economic value.

Policies

#16  
6.09.1 Mining operations within the County's forested wetlands shall be minimized and subject to approval from environmental permitting agencies and local government.

6.09.2 The County shall prohibit any mining operations which would negatively impact the quality and quantity of groundwater supplies of existing users.

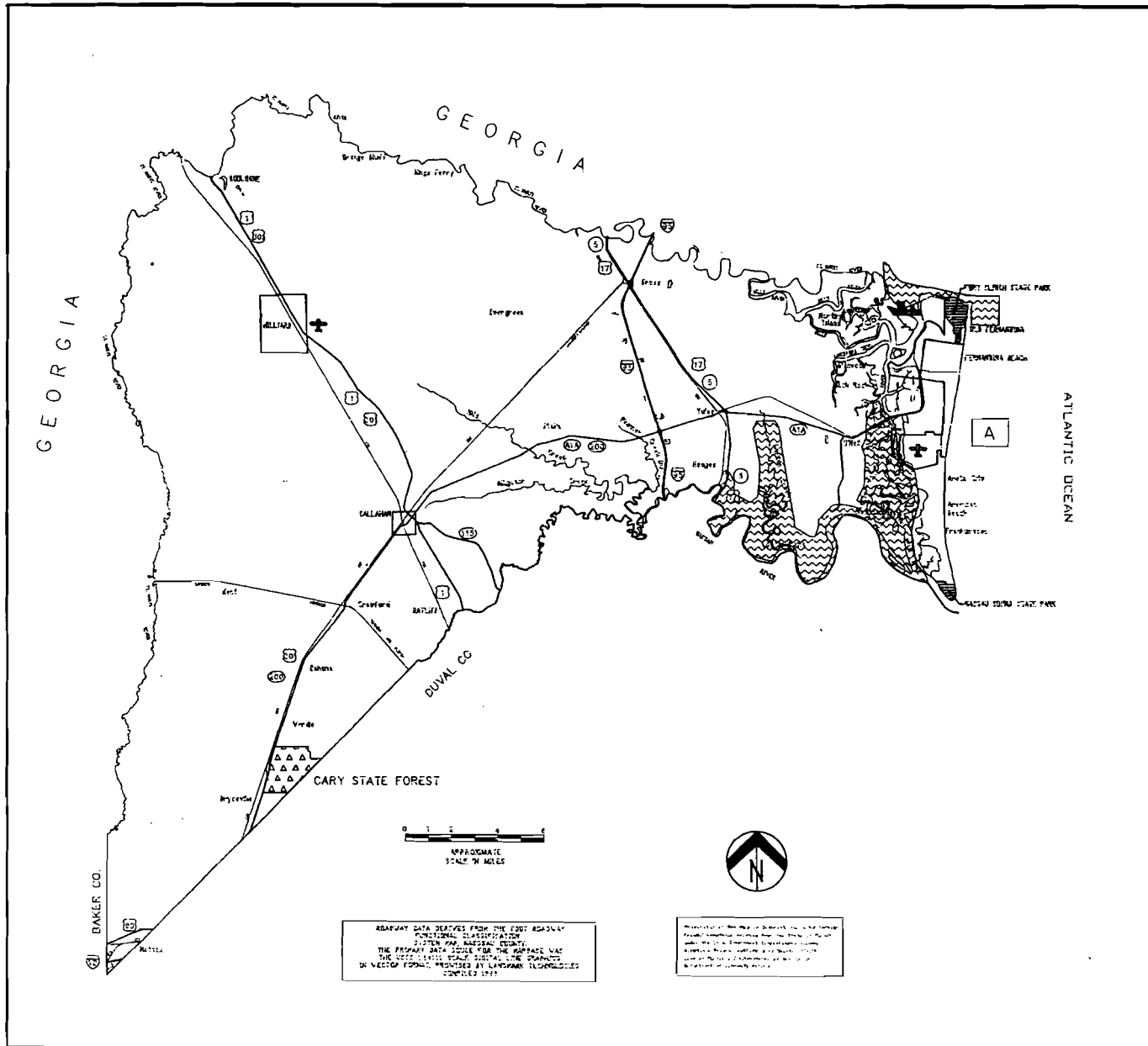
6.09.3 The County shall protect areas of economically valuable mineral deposits from premature development through programs such as Transfer of Development Rights which encourage the reservation of lands for future uses.

**OBJECTIVE 6.10  
HAZARDOUS WASTE**

Upon Plan adoption, the County shall take appropriate measures to safeguard its residents and natural resources from dangers of hazardous materials.










6.10.01 Commercial and industrial establishments which use, treat, store, generate or transport toxic or hazardous substances shall submit annual reports, as required by state and federal regulations, which identify the materials and how these materials will be handled and disposed.





# CONSERVATION

Figure F-1  
LEGEND

-  AQUATIC PRESERVES
-  STATE PARK
-  AMELIA ISLAND (ACQUISITION SAVE OUR COAST PROGRAM - 1985)
-  CARY STATE FOREST
-  MUNICIPAL AIRPORT
-  PORT
-  MAJOR HIGHWAYS
-  MUNICIPAL BOUNDARY
-  RAILROAD

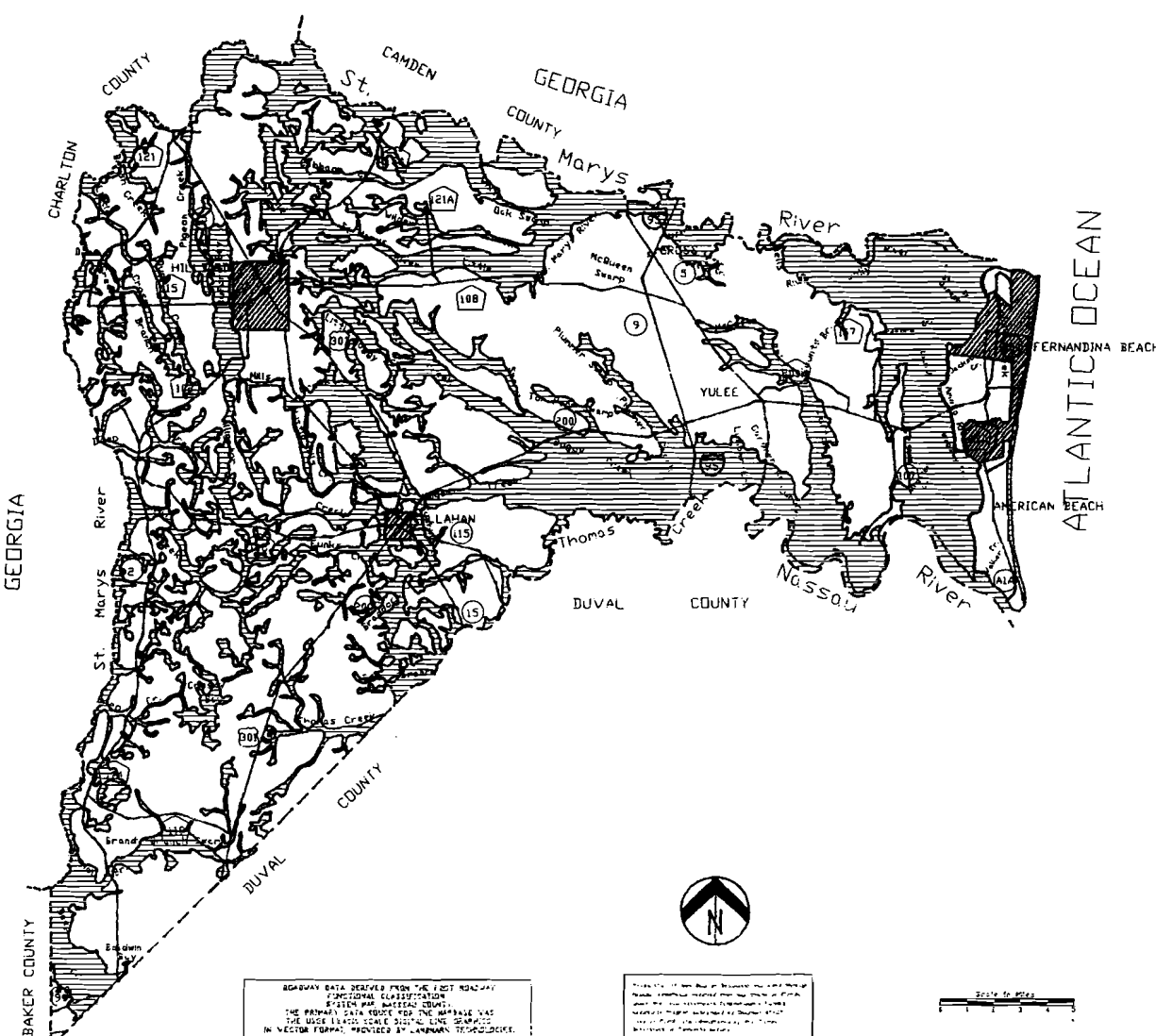
ISSUE DATE:	PREPARED BY:	NW/WE/ST
PRINT DATE: 1-8-91	STATUS:	
REVISION DATE:	FILE NAME:	NASSBASE.dwg

## COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:  
NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

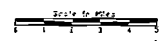
ROADWAY DATA DERIVED FROM THE 1987 ROADWAY FUNCTIONAL CLASSIFICATION SYSTEM FOR NASSAU COUNTY. THE PRIMARY DATA SOURCE FOR THE SURFACE WAS THE 1987 1:25,000 SCALE DIGITAL DATA PREPARED IN VECTOR FORMAT, PROVIDED BY LINDSAY TECHNOLOGIES COMPILED 1988.

REVISIONS TO THIS PLAN OR DATA SET MAY BE MADE WITHOUT NOTICE. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA SET. THE USER SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND RIGHTS OF WAY FOR ANY PROJECTS THAT MAY BE AFFECTED BY THIS PLAN OR DATA SET.



ROADWAY DATA DERIVED FROM THE FAST ROADWAY  
 PROFESSIONAL CLASSIFICATION  
 SYSTEM MAP, NATIONAL COUNTIES  
 THE PRIMARY DATA SOURCE FOR THE SOURCE WAS  
 THE USGS 1:50,000 SCALE DIGITAL LINE GRAPHIC  
 IN VECTOR FORMAT, PROVIDED BY LANGLAND TECHNOLOGIES,  
 COPYRIGHT 1991

THE 100-YEAR FLOOD PLAINS ARE BASED ON THE 1985 FLOOD  
 INSURANCE RATE STUDY (FIRMS) DATA. THESE FLOOD PLAINS  
 ARE NOT TO BE USED FOR DESIGN OR CONSTRUCTION OF  
 STRUCTURES OR OTHER FACILITIES WITHOUT CONSULTATION  
 WITH THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).  
 FOR MORE INFORMATION CONTACT THE FEDERAL EMERGENCY  
 MANAGEMENT AGENCY (FEMA) AT 404/546-3447.








SOURCE: U.S.C.S. 1954, 1957 (PARTIALLY REVISED 1966)

# FLOOD PLAINS ( 100-YEAR )

Figure F-2

## LEGEND

-  AREAS OF 100-YEAR FLOOD
-  MUNICIPALITIES
-  MAJOR HIGHWAYS
-  MUNICIPAL BOUNDARY
-  STATE-COUNTY BOUNDARY

ISSUE DATE	PREPARED BY	WF
PRINT DATE	1-8-91	STATUS
REVISION DATE		FILE NAME: NASTOPO.DWG

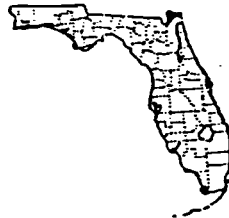
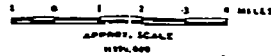
## COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:  
 NORTHEAST FLORIDA  
 REGIONAL PLANNING COUNCIL

1990

# GENERAL SOILS MAP NASSAU COUNTY, FLORIDA

Figure F-3



## SOIL ASSOCIATION

1. Kureb - Fripp - Newhan
2. Mandarin - Echaw
3. Ridgewood - Hurricane - Pottsburg
4. Albany - Blanton - Penny
5. Leon - Boulogne - Kingsferry
6. Sapelo - Leon - Goldhead
7. Goldhead - Haires - Meadowbrook
8. Megget - Goldhead
9. Kingsland - Maurepau
10. Buccaneer - Ellabelle
11. Osier - Ousley - Mandarin
12. Tisonia

## SOURCE:

Soil Conservation Service,  
Interim Soil Study,  
Report of Nassau County, Florida 1988











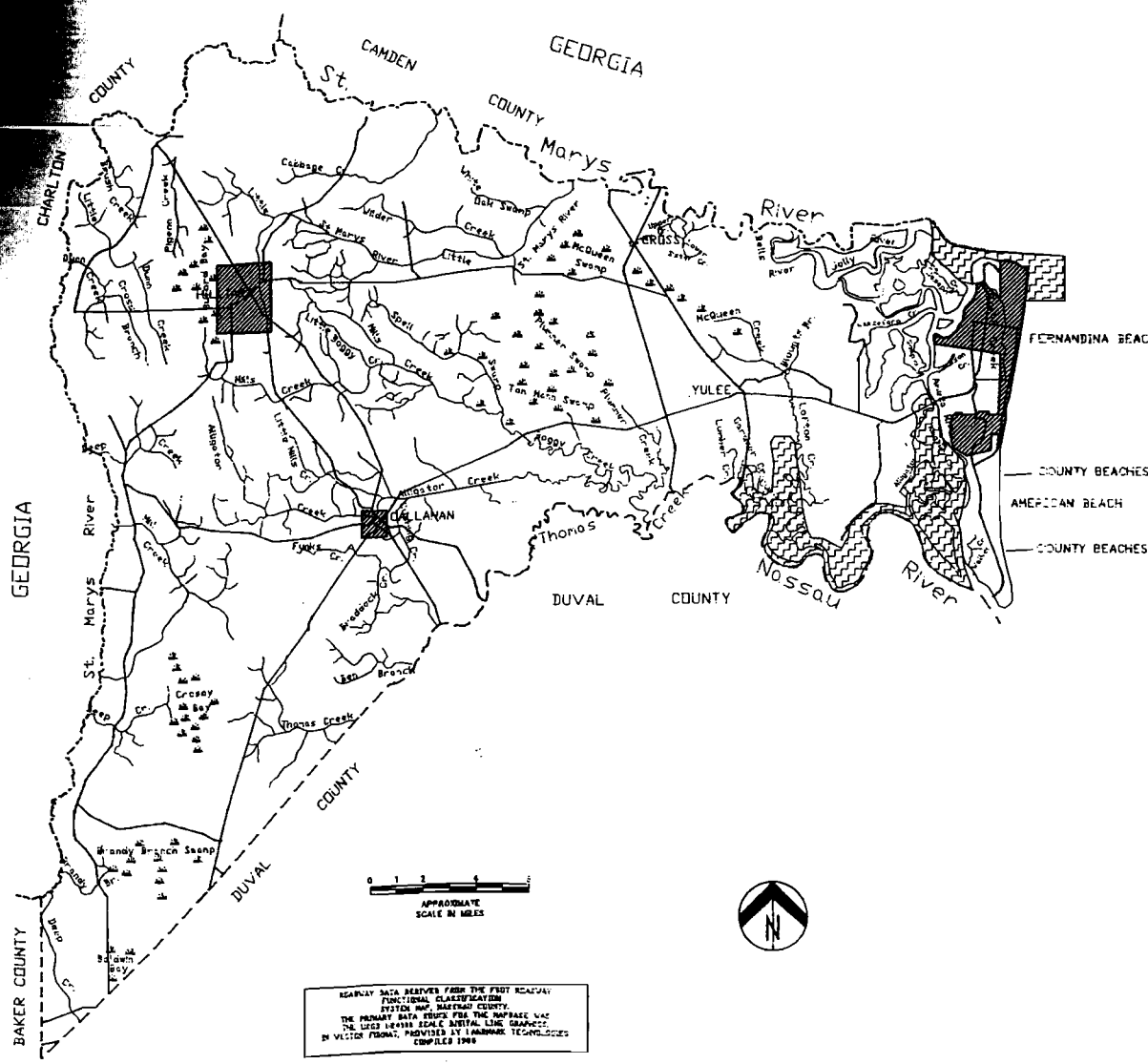
# ESTUARINE SYSTEMS BEACHES and SHORES

Figure F-4

## LEGEND

-  STATE BOUNDARY LINE
-  COUNTY BOUNDARY
-  CORPORATE LIMITS
-  AQUATIC PRESERVES
-  STREAMS AND RIVERS
-  MAJOR MARSHES AND SWAMPS

ATLANTIC OCEAN



Reprinted by the City of Fernandina Beach from the Nassau County Comprehensive Plan, Volume 1, Chapter 10, Section 10.1.1, dated 1990. The City of Fernandina Beach is a member of the Florida Department of Community Affairs.

ISSUE DATE:	PREPARED BY:	AW/WF
PRINT DATE:	STATUS:	
REVISION DATE:	FILE NAME:	MASBEACH.DWG

## COMPREHENSIVE PLAN FOR NASSAU COUNTY FLORIDA

PREPARED BY:  
NORTHEAST FLORIDA  
REGIONAL PLANNING COUNCIL

1990

ROADWAY DATA DERIVED FROM THE POST ROADWAY FUNCTIONAL CLASSIFICATION SYSTEM MAP, NASSAU COUNTY. THE PRIMARY DATA SOURCE FOR THE MAP WAS THE LATEST AVAILBLE SCALE DISTRICT LINE DRAWINGS IN VECTOR FORMAT, PROVIDED BY I&B MARINE TECHNOLOGIES, COMPILED 1989.

SOURCE: U.S.G.S. 1954, 1957 (PARTIALLY REVISED 1966)

TABLE F-1  
(CONTINUED)  
A PARTIAL SPECIES LIST OF NASSAU COUNTY

Protonotaria citrea	Warbler - Prothonorary
Quiscalus quiscula	Grackle - Common
Rallus alencans	Rail - King
Rallus longirostris	Rail - Clapper
Savornis phoebe	Phoebe - Eastern
Seiurus aurocapillus	Oven-bird
Sialia sialis	Bluebird
Sitta carolinensis	Nuthatch - White-breasted
Sitta pusilla	Nuthatch - Brownheaded
Speotyto cunicularia	Owl - Burrowing
Sphyrapicus varius (1)	Yellow-bellied sapsucker
Spizella passerina	Sparrow - Chipping
Spizella pusilla	Sparrow - Field
Squatorola squatorola	Plover - Black-bellied
Stelgidopteryx ruficollis	Swallow - Rough winged
Sterna albifrons	Tern - Least
Strix varia	Owl - Barred
Sturnella magna	Meadowlark
Sturnus vulgaris	Starling
Thalasseus maximus	Tern - Royal
Thryothorus ludovicianus	Wren - Carolina
Toxostoma rufum	Thrasher - Brown
Tringa solitaria	Solitary
Troglodytes aedon	Wren - House
Turdus migratorius	Robin
Tyrannus tyrannus	Kingbird - Eastern
Tyto alba	Owl - Barn
Vermivora celata	Warbler - Orange-crowned
Vireo griseus	Vireo - White-eyed
Vireo olivaceus	Vireo - Red-eyes
Zenaida macroura	Dove - Mourning
Zonotricha albicollis	Sparrow - White-throated

MAMMALS

Dasyopus novemcinctus	Armadillo
Didelphis virginiana	Opposum
Felis concolor	Panther - Florida
Geomys floridana	Gopher - Southeastern pocket
Glaucomys volans	Squirrel - Southern flying
Lutra canadensis	Otter - River
Lynx rufus	Bobcat

TABLE F-1  
(CONTINUED)  
A PARTIAL SPECIES LIST OF NASSAU COUNTY

Mephitis mephitis	Skunk - Striped
Mustela vison	Mink
Neofiber alleni	Rat - Florida water
Neotema floridana	Rat - Eastern wood
Odocoileus virginianus	Deer - White tail
Peromyscus floridanus	Mouse - Florida
Peromyscus gossypinus	Cotton mouse
Peromyscus polionotus	Mouse - Beach
Procyon lotor	Raccoon
Sciurus niger	Squirrel - Gray
Sciurus niger	Squirrel - Fox
Sigmodon hispidus	Shrew - Southeastern
Spilogala putorius	Skunk - spotted
Sylvilagus floridanus	Rabbit - Eastern cottontail
Sylvilagus palustris	Rabbit - Marsh
Urocyon cinerargenteus	Fox - Gray
Ursus americanus	Bear - Black

REPTILES

Eumeces inexpectatus	Skink-Southeastern five line
Farancia abacura	Snake - Mud
Gopherus polyphemus	Tortoise - Gopher
Heterodon plathyrhinos	Snake - Eastern hognose
Heterodon simus	Snake - Southern hognose
Kinosternon bauri	Turtle - Mud - Striped
Kinosternon subrubrum	Turtle - Mud
Lampropeltis doliata	Snake - Scarlet king
Lepodoscheys kempfi	Turtle - Atlantic Ridley
Lygosoma laterals	Skink - Ground
Malaclemys terrapin	Terrapin - Diamondback
Micrurus fulvius	Snake - Coral
Neoseps reynoldsi	Skink - Sand
Nerodia sipedon	Snake - Mangrove water
Compressicauda	
Nerodia taxispilota	Snake - Brown water
Opheodrys aestivus	Snake - Rough green
Ophisaurus compressus	Lizard - Island glass
Ophisaurus ventralis	Lizard - Eastern glass
Pitouphis melanoleucus	Snake - Florida pine
Sceloporus undulatus	Lizard - Southern fence
Sceloporus woodi	Lizard - Scrub pine

TABLE F-1  
(CONTINUED)  
A PARTIAL SPECIES LIST OF NASSAU COUNTY

<i>Seminatrix pygaea</i>	Snake - Black swamp
<i>Sistrurus militarius</i>	Rattlesnake - Pigmy
<i>Stilosoma extenuatum</i>	Snake - Short-tailed
<i>Storeria dekayi</i>	Snake - Florida brown
<i>Tantilla coronata</i> (1)	Snake - Florida crowned
<i>Terrapone carolina</i>	Turtle - Box
<i>Thamnophis sauritus</i>	Snake - Florida ribbon
<i>Thamnophis sirtalis</i>	Snake - Garter

---

Source: See Conservation Service, 1961.

TABLE F-2  
SPECIAL PROTECTION STATUS OF SPECIES IN NASSAU COUNTY

Species	Designated Status	
	FGFWFC	USFWS
<u>Fish</u>		
Shortnose sturgeon	E	E
<u>Amphibians and Reptiles</u>		
American alligator	SSC	T
Leatherback turtle	E	E
Atlantic green turtle	E	E
Atlantic hawksbill turtle	E	E
Atlantic ridley turtle	E	E
Atlantic loggerhead turtle	T	T
Blue-tailed mole skink	T	UR
Sand skink	T	UR
Atlantic salt marsh water snake	E	T
Short-tailed snake	T	UR
Eastern indigo snake	T	T
<u>Birds</u>		
Brown pelican	SSC	-
Wood stork	E	E
Bald eagle	T	E
Southeastern kestrel	T	UR
Arctic peregrine falcon	E	T
Florida sandhill crane	T	-
Roseate tern	T	UR
Least tern	T	-
Ivory-billed woodpecker	E	E
Red-cockaded woodpecker	T	E
Florida scrub jay	T	UR
Bachman's warbler	E	E
Cape sable seaside sparrow	E	E
Southeastern snowy plover	T	UR

TABLE F-2  
(CONTINUED)  
SPECIAL PROTECTION STATUS OF SPECIES IN NASSAU COUNTY

Species (1)	Designated Status	
	FGFWFC	USFWS
<u>Mammals</u>		
Goff's pocket gopher	E	UR
Silver rice rat	E	UR
Pallid beach mouse	E	UR
Florida mouse	SSC	UR
Florida black bear	T	UR
Florida panther	E	E
West Indian manatee	E	E
<u>Plants</u>		
Chapman's rhododendron	E	E
Harper's beauty	E	E
Godrey's blazing star	E	UR
Four-petal pawpaw	E	E
Pigmy fringetree	E	E
Sinkhole fern	E	E
Hidden orchid	E	E

E = Endangered; T = Threatened; SSC = Species of Special Concern;  
UR = Under Review (for possible listing); NL = Not Listed.

Source: Florida Game and Freshwater Fish Commission, 1987.

## MARINE HABITATS

### The Beach Zone

Beaches, dunes, and their associated vegetation are important in absorbing and moderating the influence of waves and wind on coastal areas. Of all the natural recreational resources of the state, beaches are the most in demand by the public. Wildlife values are also high and can coexist with recreational use under suitable management.

Dune stabilization is dependent upon the anchoring of vegetation. If the use of shallow wells lowers ground water below a critical level, the stabilizing plants will die. The vegetation is very fragile and vulnerable to trampling. Small jetties extending from the shore arrest the littoral drift and prevent the sand from supplementing the dunes.

The beach is tolerant to such uses as swimming, picnicking, shell collecting, fishing and sunbathing, but the primary dune is absolutely intolerant of heavy use. It cannot stand any trampling. It should be crossed on bridges. The trough is much more tolerant, and incidental development can occur; however, lowering of the groundwater can cause the vegetation to die.

The inland dune is the second line of defense and is as vulnerable as the primary dune. It is intolerant of and not suitable for development. The backdune has a more permissive location. It provides the most suitable environment on the coastal dune for man and development.

The final zone is the estuarine and bayshore environments, which are among the most productive aquatic areas in the world. Infants of the important fish species live here, and so do the valuable shellfish.

Beaches are dynamic systems, advancing into the sea and receding from it according to the influences of winds, waves, currents, and changes in sea level. These agents transport sand from an offshore bar to beach to dune and back again. They also move it up and down the coast (long-shore drift), causing erosion of one beach and accretion of another. Man's interference with this sand transport system, whether accidental or intentional, can have a great effect on beaches and dunes. The most important effect is the onset or acceleration of beach erosion. Inlets and jetties act as barriers to long-shore drift and starve downdrift beaches of their normal supply. A classic example of this is the 13 miles of beach in Nassau County where, due to the jetty construction and downdrift interruption, its northern end is highly eroded and the southern end is building oceanward.

The leveling or stabilization of dunes to provide suitable sites for development often involves sand from the beach sand transport system, thus denying the beach a portion of its sand reserves. The basic conflict is between the dynamic beach and dune system which is characterized by valuable vegetation and serves as magnificent wildlife habitat and the static, man-made system of buildings and roads. A beach renourishment plan for 4.3 miles of beach on north Amelia Island is currently under consideration

by Congress. Details of this plan can be found in the Coastal Element of the Nassau County Comprehensive Plan.

### Aquatic Preserves

Aquatic preserves occupy considerable acreage in the coastal areas of Nassau County. Approximately 11,326 acres of salt marsh and 16,180 acres of water are designated as aquatic preserves by the state of Florida. The aquatic preserves surround the northern tip of Amelia and the lower portion of the Nassau River, including the adjacent coastal marshes of the Intracoastal Waterway.

The west Indian manatee is known to use the Intracoastal Waterway as a migratory route and is present in the Amelia River in the summer season. There are no identified manatee sanctuaries in Nassau County at this time. There are two warm water outfall areas at Container Corporation and Rayonier's pulp mills located in Fernandina Beach on the intracoastal waterway. A freshwater source is utilized at the City of Fernandina Beach Municipal Sewage Outfall at Cook's Boatyard. Construction projects in the estuary should heed U.S. Fish and Wildlife Service guidelines for construction in manatee areas. Speed limits for powered craft should be posted in the Amelia River during summer months.

Five endangered or threatened marine species could occur along coastal Nassau County. The right whale is a rare migrant which should not be bothered by normal human activities in the area.

### VEGETATIVE COMMUNITIES

The primary vegetative communities in Nassau County relate to forest lands and wetlands. Based on the Florida Department of Transportation Remote sensing Center's analysis of 1985 Landsat Imagery, Table F-3, nearly 45.5 percent of the county is devoted to forest lands and nearly 34 percent is comprised of wetlands. The next largest type of land use, based on Level 1 of the Florida Land Use and Cover Classification System (FLUCCS), is urban land. All the acreages and percents relate to the total land and water area in Nassau County, including the municipalities.

The majority of the forest lands are in tree plantations. Silviculture, devoted to coniferous plantings, comprises 33.6 percent of the total land area in Nassau County. Nassau County has a significant amount of pine flatwoods, as well, comprising over 9 percent of the county. Longleaf pine, however, constitutes a relatively small area of the county, only 0.12 percent of the county.

As has been mentioned earlier, much of Nassau County is considered wetlands. The majority of these wetlands are river and lake swamp hardwood forests (over 21 percent). Another significant type of wetland is the tidal and saltwater marsh area. Saltwater marsh makes up over five percent of the county.

A natural areas inventory of the St. Marys River was completed in 1988 for the Nature Conservancy. Fourteen sites in Nassau County were identi-



RECREATION AND OPEN SPACE ELEMENT  
NASSAU COUNTY COMPREHENSIVE PLAN

Adopted

January, 1991

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

RECREATION AND OPEN SPACE ELEMENT  
NASSAU COUNTY, FLORIDA

TABLE OF CONTENTS

<u>Section</u>	<u>Description</u>	<u>Page</u>
14.0	RECREATION AND OPEN SPACE INVENTORY.....	G-1
14.01	EXISTING FACILITIES.....	G-1
14.01.01	Park Classification.....	G-1
14.01.02	State Parks.....	G-2
14.01.03	Nassau County Parks.....	G-2
14.01.04	Beach Access.....	G-3
14.01.05	Private Recreational Facilities.....	G-4
14.01.06	Municipal Park Facilities.....	G-4
14.01.07	Private, Non-Profit/Club.....	G-5
14.01.08	School Facilities.....	G-5
14.01.09	Open Space.....	G-5
14.01.10	Summary of Inventory.....	G-6
14.02	RECREATION AND OPEN SPACE ANALYSIS.....	G-11
14.02.01	Recreation Facilities.....	G-11
14.02.02	Parkland Standards.....	G-11
14.02.03	Population Base.....	G-11
14.03	FUTURE RECREATIONAL NEEDS.....	G-13
14.03.01	Recreation Demand.....	G-13
14.03.02	Parkland Acreage.....	G-13
14.03.03	Summary of Parkland Needs.....	G-14
14.03.04	Active Recreation Facilities.....	G-16
14.03.05	Active Recreation Facilities Needs.....	G-16
14.03.06	Summary of Active Recreation Facility Needs.....	G-17
14.04	FUTURE OPEN SPACE NEEDS.....	G-20
14.05	CAPITAL IMPROVEMENTS.....	G-20

RECREATION AND OPEN SPACE ELEMENT  
NASSAU COUNTY, FLORIDA

LIST OF FIGURES

<u>Number</u>	<u>Description</u>	<u>Page</u>
G-1	Existing and Future Recreation Facilities.....	G-10

LIST OF TABLES

<u>Number</u>	<u>Description</u>	<u>Page</u>
G-1	Recreation and Parks Inventory, Sh. 1 of 2.....	G-8
	Recreation and Parks Inventory, Sh. 2 of 2.....	G-9
G-2	Parkland Level of Service Standards.....	G-12
G-3	Existing Recreation Facilities, Level of Service by Acreage - 1990 to 2005.....	G-15
G-4	User oriented Outdoor Recreation Activities, Level of Service Standards.....	G-16
G-5	Future Recreational Needs.....	G-19

## 14.0 RECREATION AND OPEN SPACE INVENTORY

### 14.01 EXISTING FACILITIES

The service area identified for recreational open space levels of service is County-wide. A description of the public and private recreation facilities in Nassau County is provided herein. Recreational facilities in the County are operated by the State of Florida Department of Natural Resources (DNR), Nassau County, the City of Fernandina Beach, Towns of Hilliard and Callahan, Nassau County School Board and private developers. The locations of recreational facilities are shown in Figure G-1.

Table G-1 lists all the recreation facilities in Nassau County as provided by the Florida Department of Natural Resources, dated October 26, 1990 and reviewed by the Nassau County Planning Department. The table provides recreation use information and lists each facility by name, owner, class (i.e., neighborhood, community, regional parks), acreage and types of activities and/or facilities at each site.

#### 14.01.01 Park Classifications

In order to assess the impact of each park, each one has been classified by the purpose it serves or type of facilities included. A code is used under the "Class" column for each park and each one is defined as follows:

- "R" A large park, usually resource based, that serves the entire region. These are primarily state-owned and operated, including historical and natural activities.
- "D" An active or passive district park that is meant to serve the entire County. Though these parks are usually located so that a series of district parks will be near or between urbanized areas, their primary purpose is to serve countywide recreational needs.
- "C" These parks are meant to serve the community that they are in or near. They are usually owned and operated by either the County or a local municipality.
- "N" Neighborhood parks are just that. They are meant to serve a discreet distance or neighborhood, usually within a short car ride or walking distance. Primarily operated by a municipality or the school district they may serve part or all of the municipality.
- "T" These are "tot lots" or equipped play areas. They are operated by municipalities and are on small sites within walking of parents with young children. Each may be located so as to serve all or part of a neighborhood and are often incorporated into neighborhood parks.
- "P" These parks are passive urban open space. Usually owned by municipalities they may have plantings, walks and ornamental or monumental structures.
- "B" These are beach access locations which may be as small as the extended end of a street or in some cases an active park. Usual facilities may

include parking and bicycle racks. Changing and restroom facilities are sometimes available.

"SD" These are recreation facilities allied with schools or on school grounds, which are owned and operated by the Nassau County School Board. They may or may not be available to the community at large depending upon the needs, usage and policy of each school and the school board. Therefore, though they are included in the inventory of available recreation and parks facilities, Table G-1, they have not been included when calculating recreation and park facilities supporting the required level of service, Table G-3.

"Pvt" These are privately owned recreation and/or camping facilities of every description. They may or may not be opened to the public depending on the owner's needs and usage. Therefore, though they are included in the inventory of available recreation and parks facilities, Table G-1, they have not been included when calculating recreation and park facilities supporting the required level of service, Table G-3.

#### 14.01.02 State Parks

The Florida Department of Natural Resources operates the Fort Clinch State Park located on the north end of Amelia Island. The Division of Forestry, Department of Agriculture operates the Cary State Forest located in the western portion of the County on the Duval/Nassau County line.

Fort Clinch State Park consists of approximately 1,100 acres of land on the northern end of Amelia Island. Fort Clinch has areas for ocean swimming, restrooms and changing rooms, a maintenance building, historic buildings, including a pre-civil war fort, picnic areas with shelters, a camping area and a fishing pier extending into the St. Marys River.

Cary State Forest consists of 3,400 acres two thirds of which are located in Nassau County. The remaining acreage of the park is located in Duval County. Cary State Forest contains one open play field.

Both sites are mostly passive recreation areas and primarily undeveloped. They also serve as two major areas which provide open space for all of the County's residents.

In addition, DNR operates a site of over 200 acres on the southern tip of Amelia Island for future recreational activities which currently has a County-maintained boat ramp, parking for Nassau Sound bridge fishermen and a horse riding stable (operated privately).

Other state operated recreational facilities include rest areas and the Welcome Station on I-95, Brandy Branch, a small wayside park with picnic tables, the St. Mary's Canoe Trail, and the Nassau Erosion Control Beach.

#### 14.01.03 Nassau County Parks

In Nassau County, the Recreation Commission is a County-appointed commission which is responsible for the disbursement of funds for program activities. The commission, together with the Board of County Commissioners and County Planning Department, is responsible for the development of park improvement programs, site acquisition and design. The County Road Depart-

ment under the County Engineer is responsible for the maintenance and construction of the County-operated parks.

The following boat ramps are classified as parks operated by Nassau County: Nassau landing, Nassau Sound, Nassauville, Walkers landing, Cushing Creek, Wilson Neck, Tompkins Landing and Lofton Creek. All of these parks are approximately one or two acres in size. The main purpose of these "parks" is for use as public boat ramps. They do not contain any other facilities except for picnic tables and docks at some of them.

Yulee Ball Park is a 15.8-acre community park in the middle of the County. It contains a lighted youth baseball field, picnic area, play equipment and three lighted softball fields.

Holly Point Community Park is a 1.4-acre neighborhood park with a boat ramp and a 100-foot catwalk. It contains a picnic area with 3 sheltered tables, grills and restroom facilities.

Stein-Thompkins Sports Complex Located just southwest of the Hilliard Town Limits, the Stein-Thompkins Sports Complex is a recent addition to the recreation inventory of Nassau County and is a joint effort of County funding, private donations and volunteer labor. This ten (10) acre facility currently includes two (2) baseball fields and a football field. A third ball diamond and scoring booth/refreshment stand will be completed in 1990.

Callahan Community Park The Callahan Community Park is two miles west of Callahan and was used as the model for the Stein-Thompkins facility. This ten (10) acre community park is located adjacent to the Callahan Middle School and includes two (2) little league fields, one (1) softball field, one (1) football field, a scoring box/concession stand and tot lot/play area. This facility was a joint effort between the Callahan Pop Warner and Little League Association, Nassau County and grant assistance.

#### 14.01.04 Beach Access

Existing public beach access points in the area south of Fernandina Beach City Limits include:

Peters Point -- 11 acres, 329 parking, bathhouse, picnic shelters, vehicular beach access.

Scott Road -- 5 acres currently being relocated, 100 parking and vehicular beach access.

Mariners Walk -- 2.14 acres, offers neighborhood pedestrian access only, a paved bike trail and dune walkover.

Julia Street -- Offers dune walkover.

Burney Park -- 6.4 acres, 206 parking, future bathhouse, picnic shelters, and dune walkover.

Dunes Club -- Approximately .67 acre, 40 parking spaces and dune walkover.

Long Point -- Unimproved, future parking/dune walkover.

PLM East -- 4 acres, dune walkover (parking not yet installed).

Nassau Sound State Park -- minimal parking, primarily for fishing/boat ramp.

The County is currently developing the Peters Point and Burney Park beach accesses. Summer Beach Developers are constructing the relocated Scott Road access. These three (3) facilities are considered to be the major public access points in the unincorporated portion of Amelia Island and should be completed for the Summer of 1990.

Nassau County is currently preparing a park facilities plan for the Nassau Sound State Park. If approved by DNR, the County will develop additional public access to the beaches of Amelia Island.

#### **14.01.05 Private Recreational Facilities**

Providing private recreation facilities is becoming a component of the majority of development in the unincorporated portions of the County. The Nassau County Planning Department estimates that over 60 tennis courts have been constructed in developments on Amelia Island. Swimming facilities are also available at a majority of the developments. Three (3) golf courses are located at Amelia Island Plantation/Long Point and an additional 18-hole golf course is part of the Summer Beach development. In addition to the recreational amenities offered at the developments on Amelia Island, other private recreation facilities include:

- Fernandina Beach Marina (a leasehold from the city).
- Brick Yard Boat Ramp with one boat ramp.
- Charlie's Fish Camp with one boat ramp and camping areas.
- Deerfield Country Club with an 18-hole golf course and four un-lighted tennis courts.
- Fernandina Beach Country Club with a 27-hole golf course.
- 3R Fish Camp.
- The Gilman Paper Company's White Oak wildlife preserve and boat ramp.
- Marsh Lakes development with a stocked fishing lake, swimming pool, tennis and childrens play area.

#### **14.01.06 Municipal Park Facilities**

The municipalities of Hilliard, Callahan and Fernandina Beach provide a large proportion of the more intensive user-oriented facilities located within Nassau County. As an example, 100% of the pool facilities, 29% of the football/soccer fields, 48% of the baseball/softball fields, 45% of the basketball facilities and 79% of the tennis courts are provided by the municipalities.

It is anticipated that the municipalities will continue to provide a larger portion of the more intensive user-oriented recreational facilities due to the more urban environment and well defined recreation programs that the municipalities have in place. However, resource-based outdoor recreation facilities will continue to primarily be the responsibility of the County and private sector. As portions of Amelia Island and the area between Amelia Island and Yulee develop, additional neighborhood and community parks will be needed to supply the demand.

**14.01.07 Private, Nonprofit/Club**

A number of private nonprofit organizations and clubs provide recreational land and activities to their members and guests and in some cases to the public at large. No attempt was made to inventory these lands or facilities for inclusion in the County's level of service (LOS). However, the facilities provided by these organizations enhance the useable recreation resources in the County.

**14.01.08 School Facilities**

Public and private school, and church facilities help to supply play areas that fill part of the demand for recreational needs at the neighborhood and community levels. Church sites and private schools were not inventoried, but several of the churches, as well as Nassau Baptist Temple (private School), have improved ball diamonds, tot lots, open play areas and basketball facilities. Nassau Baptist Temple allows use of its gym for YMCA sponsored volleyball.

The Nassau County School Board adopted a formal policy in 1985 allowing some public use of school facilities and equipment (including buildings). Of the fifteen school sites inventoried, all have some level of user facilities for outdoor recreation use.

Negotiation of an interlocal agreement between the County and the School Board may offer a way to obtain additional use of some of the school sites.

**14.01.09 Open Space**

The availability of open space within Nassau County is abundant. Due to the rural nature of the County, much of the land is still open and undeveloped. Open space areas are usually undeveloped land whose physiographic features are unique and valued for conservation purposes, recreation areas, parks and urban shaping greenbelt areas.

The following is a list of the major open space and large parks in Nassau County. These areas were also listed in Table G-1 as part of the recreation inventory but do not include smaller areas or private, semi-private areas. Further information about the activities or facilities within each of the sites is also to be found in Table G-1.

Ft. Clinch State Park.....	1,100 acres
Cary State Forest.....	2,100 acres
Nassau Sound State Park (Amelia Island).....	228 acres

Other open space areas include the various beach accesses within the County, the Intracoastal Waterway, the Nassau and St. Mary's Rivers, Egans



#### 14.01.10 Summary of Inventory

The County provides major use facilities in or near each of the various communities. These include community ball parks in Hilliard, Callahan and Yulee and beach parks on Amelia Island.

In addition, the County provides assistance to the City of Fernandina Beach upon request. Most recently, the County provided manpower and equipment to develop Ybor Alvarez Park and cash funding to reconstruct the public pool at the Atlantic Recreation Center.

At the present time, the County has concentrated on providing boat ramp facilities, beach access and similar community related facilities. Neighborhood and smaller community facilities have been encouraged through the development order (DRI's and PUD's) approval process and acquisition via mandatory dedication of recreational park land during subdivision platting.

The current Subdivision Regulations require a mandatory dedication of 0.025 acres per lot (or 2.5 acres per 100 lots). If a useable parcel of at least two acres cannot be obtained due to the small size of the subdivision, the developer is required to provide its equivalent in funds to be used for county recreation land acquisition and capital improvements. Therefore, residents of the development receive a direct benefit from the funds collected. This revenue is being retained to fund the land acquisition and facility improvement program contained in this element and the Five-Year Capital Improvement Schedule of the adopted Nassau County Comprehensive Plan.

The County also funds the Recreation Commission. As has been discussed previously, this money is used primarily for equipment and maintenance on a County-wide basis. It is funded directly as a budget line item from the Board of County Commissioners. The 1989-90 funding was \$25,000. This money is utilized primarily for operating equipment purchases (balls, bats, goals, etc.) field lighting expenses and field maintenance. Those funds are generally equally distributed among the four community recreation facilities in Hilliard, Callahan, Yulee and Amelia Island (including the City of Fernandina Beach). Recreational activities in Fernandina Beach have generally received a larger portion of these operating funds due to additional lighting costs associated with a higher level of activity.

Funding for the Recreation Commission for FY 1988-89 was double that for FY 1989-90. In prior years the Recreation Commission was appointed by the State through a special act of the legislature. The special act required that of the race track funds that passed to the County and the School Board, \$25,000 would come from each to fund the Recreation Commission. When the special act was abolished in 1989 the School Board chose not to continue assistance to the Recreation Commission. A method needs to be identified to make up this shortfall or the various programs will suffer.

The County Commission through its Planning Board and various development commitments has made a concentrated effort to enhance the public's access to the beaches on Amelia Island. As new large scale developments threaten public access to the beach, the Planning Board and County Commission rose to the challenge. The County Commission has established a policy of obtaining public access at approximate one-half (1/2) mile intervals. This is

consistent with Corp of Engineers and FDNR's public access policies. The policy has provided an incentive and basis for the Planning Board to negotiate new access points and expand on existing ones.

**RECREATION AND OPEN SPACE ELEMENT - TABLE G-1**  
**NASSAU COUNTY RECREATION AND PARKS INVENTORY, Sheet 1 of 2**

01/31/91

Code No.	Recreation Facility	Class	Acres	Boat Ramp Lanes	Marinas Slips	Beach length Ln.Ft.	Catwalk Piers Ln.Ft.	Playing Fields			Outdoor Courts			Picnic		R.V./		Hist/ Arch Sites	Musm/ Intrap Sites	Pmmtv Acres	Hrsbk Riding Miles
								Sbftbl	Ftftl	Play Area	Recr. Cntr.	Bskt- ball	Ten- nis	Shuf- fle	Ta- bles	sh- lrs	Trlr Sites	Swrimg Pool			
<b>STATE OWNED</b>																					
S-1	Fernandina Plaza	P	0.83																1		
S-2	Fort Clinch St Park	R	10,084.79	1		3,600	2,500			2					107		62		3	1	1.50
S-3	Nassau Sound St Park	R	228.71	1		4,580															
S-4	St Mary's St Canoe Trl	H	( 51 Miles of Canoe Trail )																		4.5
S-5	Nassau Eros Cntrl Bch	R	116.99			20,365														5	5.00
S-6	Cary State Forest	R	2,179.00																		
S-7	I-95 Rest Area, North	R	1.91												8						
S-8	I-95 Fla Welcome Sta	R	6.00												25						
S-9	Brandy Branch Park	R	1.30												9						
	<b>STATE OWNED - TOTAL:</b>		<b>12,619.53</b>	<b>2</b>	<b>0</b>	<b>28,565</b>	<b>2,500</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>149</b>	<b>0</b>	<b>62</b>	<b>0</b>	<b>4</b>	<b>6</b>	<b>6.50</b>
<b>COUNTY OWNED</b>																					
C-1	Kings Ferry Bt Ramp	C	1.00	1			95														
C-2	Lofton Creek Bt Ramp	C	1.00	1											4						
C-3	Nassau Landing Bt Ramp	C	1.50	1																	
C-4	Prospect Landing Bt Ramp	C	0.50	1		50															
C-5	Tompkins Landing Bt Ramp	C	1.00	1																	
C-6	Walker Landing Bt Ramp	C	1.00	1																	
C-7	Wilson Neck Bt Ramp	C	2.50	1			50														
C-8	Burney Park Beach Access	B	6.42			200	300								7	2					
C-9	Dunes Club Beach Access	B	0.50			15	400														
C-10	Julia St. Beach Acc.	B	0.12			35	200														
C-11	Lewis St. Beach Acc.	B	0.09			25															
C-12	Mariners Walk Beach Acc	B	1.40			79	200														
C-13	PLM East Beach Access	B	4.00			100	300														
C-14	Peters Point Bch. Acc.	B	11.06			535	900								35	8					
C-15	Sadler Rd. Beach Acc.	B	0.21			60															
C-16	Scott Road Beach Acc.	B	2.13			150	300														
C-17	Amelia Island Beaches	C	36.00			58,080															
C-18	Bailey Road Comm. Bldg.	C	2.00																		
C-19	Callahan Comm. Bldg.	C	1.00																		
C-20	O'Neil Comm. Bldg.	C	0.60																		
C-21	Yulee Comm. Bldg.	C	1.67																		
C-22	Eight Flags Museum	D	0.50																		
C-23	Nassau Cnty Fair Grnds.	D	41.00																		
C-24	South Hilliard Pub Sq.	P	5.00																		
C-25	Benchmark Glen Park	N	3.05																		
C-26	Callahan Comm Park	D	10.00					3	1												
C-27	Eastwood Road Park	C	20.00																		
C-28	Holly Point Comm. Pk.	C	1.40	2			100								13	5					
C-29	Julia St. Park	C	2.00																		
C-30	Linda Hall Public Park	T	3.40																		
C-31	Little Berry Rd Park	C	9.00			350															
C-32	Minor Road Park	T	5.75																		
C-33	Nassau Lakes Park	N	2.00			200															
C-34	Nassau Lakes Park	T	0.50			180															
C-35	Oak Hills Nature Area	C	27.21																		
C-36	Oak Ridge Park	N	2.61						1												
C-37	River Road (Stokes) Park	N	8.60																		
C-38	Stein-Tompkins Spt Cmplx	D	10.00					3	1												
C-39	Yulee Ball Park	D	15.83					4	1	1	1	1	1		2	1					
	<b>COUNTY OWNED - TOTAL:</b>		<b>241.52</b>	<b>9</b>	<b>0</b>	<b>60,059</b>	<b>2,845</b>	<b>10</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>61</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.00</b>

Source: Florida Department of Natural Resources, October 26, 1990; As Reviewed by the Nassau County Planning Department

**RECREATION AND OPEN SPACE ELEMENT - TABLE G-1**  
**NASSAU COUNTY RECREATION AND PARKS INVENTORY, Sheet 2 of 2**

01/31/91

Code No.	Recreation Facility	Class	Acres	Boat Ramp Lanes	Marinas Slips	Beach length Ln.Ft.	Catwalk Piers Ln.Ft.	Playing Fields Bsbll Stbll	Fields Ftbl Soccer	Play Area	Recr. Cntr.	Bskt-ball	Tennis	Shuffle	Picnic tables	R.V./Trlr Sites	Swmng Pool	Hist/Arch Sites	Musm/Intrp Sites	Pmrtv Acres	Hrsbk Riding Miles	Excrs Trail Miles	
<b>MUNICIPALLY OWNED</b>																							
M-1	Ewing Mem. Park	N	5.00							1			5		5								
M-2	Fern. Beaches	C	25.00	2		12,120																	
M-3	Atlantic Av Recr Cntr	N	6.40					1		1	1	2		2	8		1						
M-4	Egan's Creek Park	C	2.00					1															
M-5	Highland Dr Ath Fld	N	5.00																				
M-6	Old Town Park	N	1.50												3								
M-7	Buccaneer Field	C	19.00					4	1	1		1	4	2	6								
M-8	Elm St Recr Cntr	C	5.60					3		1	1	4		3			1						
M-9	Oceanfront Park	D	12.00	4	28																		
M-10	Beh Acc/Dune Walkover	N	3.00																				
M-11	Islin Circle	P	0.50																				
M-12	Fern Bch Golf Course	D	200.00	( 2 Courses: One 18 Hole and One 9 Hole )							1												
M-13	Airport Recr Area	C	7.00																				
M-14	Airport Stbll Cmplx	C	7.00					4							3	3						1.00	
M-15	Atlantic Av Beh Acc	C	0.29			125																	
M-16	Peck/Gym Park	N	3.95					1		1		1											
M-17	N Oxford St Park	N	4.50					1									1						
M-18	Callahan Town Park	N	1.10																				
M-19	Fourth St Recr Cntr	N	6.10					1	1	1	1		2	1			1						
M-20	W Hilliard Pub Sq Pk	P	1.90					1															
<b>MUNICIPALLY OWNED - TOTAL</b>			<b>316.84</b>	<b>6</b>	<b>28</b>	<b>12,245</b>	<b>0</b>	<b>17</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>11</b>	<b>5</b>	<b>28</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1.00</b>
<b>SCHOOL DISTRICT OWNED</b>																							
D-1	Bryceville Elem. Sch.	SD	5.00							1		1											
D-2	Callahan Elem. Sch.	SD	8.00						1	1		1											
D-3	Callahan Mid. Sch.	SD	36.00						1	1		1											
D-4	Callahan Inter. Sch.	SD	50.00						1	1		1											
D-5	West Nassau H.S.	SD	31.00					1	1			1											
D-6	Fern. Bch. H.S.	SD	83.00					1	2	1		1	1										
D-7	Fern. Bch. Mid. Sch.	SD	22.00					1	1	1		1											
D-8	Southside Elem. Sch.	SD	13.00						1	2					1								
D-9	Emma Love Elem. Sch.	SD	13.00					1	2	2		1		1									
D-10	Hilliard Elem Sch	SD	10.00					1		1		2											
D-11	Hilliard H.S. Field	SD	7.00					1	1			2	1						1				
D-12	S. Nassau Cnty H.S.	SD	1.06						1			2											
D-13	Yulee Mid. Sch.	SD	19.00					1		1		1	1										
D-14	Yulee Elem. Sch.	SD	13.00						1			1											
D-15	Yulee Primary Sch.	SD	21.00							1													
<b>SCHOOL DISTRICT OWNED - TOTAL</b>			<b>332.06</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>13</b>	<b>13</b>	<b>0</b>	<b>16</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	
<b>COMMERCIAL/PRIVATELY OWNED</b>																							
P-1	Amelia Isl Plntn Rsr	Pvt	900.00			7,920	20	(3-9 HI Golf)		2	3		21				13					5.00	
P-2	Bow and Arrow Cmpgmd	Pvt	5.00							1	1	1			57		65	1					
P-3	Fourteenth St Marina	Pvt	1.00	1	46																		
P-4	Deerfield Lakes Club	Pvt	130.00					(1-18 HI Golf)			1		4				1						
P-5	Hidley's Trailer Park	Pvt	8.00							1					29		23						
P-6	Amelia Landings	Pvt	50.00										3		2	1							
P-7	Amelia Island Plntn	Pvt	11.50	1			20			2		1											
P-8	Brickyard Lndg Bt Rmp	Pvt	1.00	1																			
P-9	Orange Bluff Bt Rmp	Pvt	1.00	1																			
P-10	Crandall Park	Pvt	2.00																				
<b>COMM/PRVTLY OWNED - TOTAL</b>			<b>1,107.50</b>	<b>4</b>	<b>46</b>	<b>7,920</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>5</b>	<b>2</b>	<b>28</b>	<b>0</b>	<b>82</b>	<b>1</b>	<b>88</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0.00</b>	<b>5.00</b>

Source: Florida Department of Natural Resources, October 26, 1990; As reviewed by Nassau County Planning Department

FIGURE 1

MAP OF EXISTING RECREATION FACILITIES  
(See Land Use Map Series for both Existing  
and  
Future Recreation Facilities)

## 14.02 RECREATION AND OPEN SPACE ANALYSIS

### 14.02.01 Recreation Facilities

The inventory of park and recreation facilities throughout Nassau County shows that the majority of neighborhood parks are in the incorporated municipalities. Community and district parks and playfields also tend to cluster around the population centers, while regional facilities are located on the seashore and at historical locations. By far, the resorts and developments on Amelia Island have the lion's share of privately owned and operated recreational resources.

The recreation facilities used in the assessment of recreation infrastructure in Nassau County include state, county and municipal facilities, due to the fact that the County often aids in the construction and maintenance of municipal facilities. This intergovernmental action has resulted in a more efficient usage of available recreational facilities with less duplication of facilities and lower operating costs.

### 14.02.02 PARKLAND STANDARDS

Various sources of recreation standards were examined and compared with the Level of Service (LOS) provided in the study area. The standards evaluated included all facilities under the headings of neighborhood and community parks and district facilities such as ball parks and football fields. The standards reviewed included those recommended by the National Recreation and Parks Association, and the Urban Land Institute. The issue of recreation standards was also addressed in a report prepared for the Kings Bay Impact Coordinating Committee entitled "Recreation Master Plan for the Kings Bay Area Local Governments." In this report the Advisory Group also recommended standards which were considered appropriate for the area.

The recommended standards set by ULI, NRPA and the Advisory Group (AG) were compared with the LOS standards in "Outdoor Recreation in Florida - 1989", prepared by the Florida Department of Natural Resources. As a result of this review and assessment, it was determined that the standards set forth in the Florida Recreation Report were appropriate to use to determine the parkland acreage types and quantities to become the recreation level of service standards to be used in this element and for evaluating park acreage needs as a general category. These standards are described on Table G-2.

### 14.02.03 Population Base

In order to properly assess the Level of Service standards provided by these facilities the total infrastructure must be measured against the total population of the County, not just the population of the unincorporated areas. It is further assumed that the seasonal guests of the resorts on Amelia island will be served by the privately owned recreation facilities in these resorts and developments. Therefore, the total resident population of the County to be used for determining the Recreation and Open Space Level of Service will be as follows:

Projected County Population by Year:	1990.....	51,400
	1995.....	61,300
	2000.....	70,600
	2005.....	80,200

TABLE G-2  
 PARKLAND LEVEL OF SERVICE STANDARDS  
 SITE GUIDELINES FOR COMMUNITY RECREATION RESOURCES AND FACILITIES

Park Facility	Location	Service Area/ Pop. Served	Area/1000 Pop./Size	Facilities Provided
Equipped Play Area and Tot Lot	Neighborhood area adjacent to elem. sch. when feasible	2-3 block area/up to 2,500	1/2 acre (1/4 ac. to 1 ac.)	Play apparatus areas, benches and open space, landscaping, picnic tables opt.
Neighborhood Park	Neighborhood area adjacent to elementary school when feasible	1/4 - 1/2 mile/up to 5,000	2 acres (2 ac. to 5 ac.)	Play apparatus areas, recr. bldg., sports fields, paved courts sr. citizen, picnic open or free play area, landscaping
Community Park	Designed to serve residents of a group of neighborhoods adjacent to Jr. or Sr. high schools when feasible	1/2 - 3 miles/up to 5,000	2 acres (5 ac. to 20 ac.)	All facilities of a neighborhood park plus facilities for the entire family. pools, soft/baseball fields, tennis courts play, picnic areas, passive areas and recreation buildings
Community Passive Space	Urban Areas	1/4-1/2 mile	1 acre (Min. of 1/10 ac.)	Passive recreation area, trails and commemoratives opt.
District Park	In a large urban area or on its periphery	30 - 40 minutes driving time/one for each 50,000	5 acres (100 ac. to 200 ac.)	Play apparatus areas, restrooms, hiking and riding trails, nature center, boating, swimming, picnic areas & sports fields
Regional Park	On the periphery of an urban area	30 minutes to 1 hour driving time/over 100,000	20 acres (250 ac. to 1,000+ acres)	Nature, bridge paths picnicking, camping and other facilities not requiring intensive development
Beach Acc. w/Prkng.	W/in 1/4 mi. of Bch. 1 acc. / 1/2 mi. shore	--	1/2 acre Min. of 1 acre.	Walkways, parking and restrooms opt.

Source: Florida Department of Natural Resources, Division of Recreation and Parks, Outdoor Recreation in Florida, October, 1989; Northeast Florida Regional Planning Council.

## 14.03 FUTURE RECREATIONAL NEEDS

### 14.03.01 Recreation Demand

A draft study has been prepared for the Kings Bay Coordinating Committee by Urban Planning Services, Glen Mitchell and Associates and Fleet and Associates. The study, titled "An Impact Analysis of Recreation Within Camden and Nassau Counties" was funded by the Navy through the Kings Bay Impact Coordinating Office and was prepared to determine the impact of the military-related population on recreational facilities in the two-county impact area.

The preliminary findings indicate a growing demand for recreation due to several factors. First and foremost, is the increase in population especially during the last half of the 1980 decade. From 1980 to 1990 the population of Camden County, Georgia increased from 13,371 to an estimated 26,500. Nassau County's population increased from 32,894 to an estimated 48,900 during the same decade. Second is the locational shift in the population impact area. The population has become more urbanized, thereby demanding more activity-based recreation" (KBCC, 1990). Further, the study recommended Nassau County establish a full-time recreation department due to the number of both developed and undeveloped recreational sites.

### 14.03.02 Parkland Acreage

#### The County

An examination of the total of the state's, county's, municipalities' and school district's parks and recreation sites indicates an overall adequacy of acreage for the resident population. Table G-3 shows the total acreage needed per 1000 persons to meet the adopted Level of Service standard for each five-year increment of the study period compared with the number of existing acres in 1990 by use class or category. The 1990 surplus/deficit column gives the existing status of parkland recreational acreage for the County.

As can be seen, the play area/tot lot, neighborhood park and community passive space categories each show a present and growing deficit throughout the planning period, which must be addressed. Community parks which are often jointly supplied by municipal and County-owned facilities claim an adequate supply through the year 2005. District/area parks are usually County-owned and are meant to serve County-wide needs. These parks are generally large in size, contain several playfields and other activity centers, and are located near population centers. Though adequate acreage is now available, by 1995 there will be a deficit of over 17 acres.

The regional parks are all state-owned and operated to serve regional needs that go beyond the bounds of Nassau County. These parks show a large surplus of land both during and beyond the planning period, when measured against Nassau County needs. Beach access is adequate at present, but will not be by 1995 unless more land is acquired, and is also based on a policy of access points with parking, at approximately one-half mile intervals, where practicable.



### Amelia Island

The unincorporated area of Amelia Island has a significant amount of both public and private recreation activities and sites in the County. This is not surprising due to the various tourist attractions on the Island, as well as the fact that the majority of the County's population lives on the Island.

Approximately 1,802 acres of parkland and recreational sites are located on Amelia Island. This is almost one-half of the total of all the recreational acreage identified in the entire County. As seen in Table G-1, a large portion of this recreation acreage is due to the presence of Ft. Clinch State Park. It alone accounts for almost 1,100 acres. However, even without the State Park, Amelia Island would exceed all other areas in the amount of acreage devoted to neighborhood, community and district parks, and naturally, in beach related access points and facilities.

### Yulee

The Yulee area has a populace of around 14,000 in 1990. Almost 100 acres of land in the area could be used for recreation purposes. It is served by a major County district/area park and playfield. This is an area that must be watched as residential growth generated by overflow from the Kings Bay Submarine Base may overwhelm it with park acreage needs.

### Hilliard

The area centered around Hilliard has an estimated 1990 population of 7,613 persons and an estimated 131 acres of land available for recreation. Hilliard has both municipal and county neighborhood and community parks, and is also served by the Stein-Tompkins Sports Complex, a district park.

### Callahan

The Callahan region recorded a 1990 population of 14,691 persons, second largest (in terms of population) after Amelia Island. Due to the presence of the Cary State Forest (approximately 2,100 acres) the Callahan area has an abundance of passive regional acreage dedicated for recreational purposes. There are another 144 acres of neighborhood parks. Callahan also has a 35-acre district park in addition to its other parkland.

### 14.03.03 Summary of Parkland Needs

On an overall County basis, using the total resident County population (both existing and projected), the County will need to add parkland acreage to fill both existing and projected needs in certain categories of park use between now and 2005. Table G-2, Parkland Level of Service Standards, gives the minimum acreage criteria per 1,000 population or Recreational Level of Service, that will be acceptable to fulfill the comprehensive plan and concurrency management mandates for adequate recreational facilities.

The acreage amounts of each type of park needed during the next 15 years is that which must be acquired by Nassau County through purchase, donation or by other means to fill the deficits shown on Table G-3. The estimated total cost for acquisition of land for park purposes in the Five-Year Capital Improvements Schedule of the Capital Improvements Element may be as much as \$460,000 if no land is donated directly for park purposes.

**RECREATION AND OPEN SPACE-TABLE G-3  
 NASSAU COUNTY - EXISTING RECREATIONAL FACILITIES  
 LEVEL OF SERVICE BY ACREAGE - 1990 TO 2005**

01/31/91

Recreational Use Category	Recr. Class Code	Adopted LOS / 1000 Pop	Existing 1990 Acreage	Total Acreage Needed for Population Served *			
				1990 51,400	1995 61,300	2000 70,600	2005 80,200
Play Area/Tot Lot	T	0.5	9.65	25.70	30.65	35.30	40.10
Neighborhood Park	N	2	50.71	102.80	122.60	141.20	160.40
Community Park	C	2	175.34	102.80	122.60	141.20	160.40
Comm. Passive Space	P	1	8.23	51.40	61.30	70.60	80.20
District/Area Park	D	5	289.33	257.00	306.50	353.00	401.00
Regional Park	R	20	12,609.49	1,028.00	1,226.00	1,412.00	1,604.00
Beach Access	B	0.5	25.93	25.70	30.65	35.30	40.10
<b>TOTAL</b>		<b>31</b>	<b>13,168.68</b>	<b>1,593.40</b>	<b>1,900.30</b>	<b>2,188.60</b>	<b>2,446.10</b>
				<b>Surplus / Deficit</b>	<b>Surplus / Deficit</b>	<b>Surplus / Deficit</b>	<b>Surplus / Deficit</b>
Play Area/Tot Lot				(16.05)	(21.00)	(25.65)	(30.45)
Neighborhood Park				(52.09)	(71.89)	(90.49)	(109.69)
Community Park				72.54	52.74	34.14	14.94
Comm. Passive Space				(43.17)	(53.07)	(62.37)	(71.97)
District/Area Park				32.33	(17.17)	(63.67)	(111.67)
Regional Park				11,581.49	11,383.49	11,197.49	11,005.49
Beach Access				0.23	(4.72)	(9.37)	(14.17)

\* Population served is total county population including municipal population.

Recreation facilities include state, county and municipal park and recreation facilities.

Prepared by: Northeast Florida Regional Planning Council

#### 14.03.04 Active Recreation Facilities

The standards for active recreation facilities are predicated upon a set of needs that can vary dramatically depending upon the source material cited and the primary age groupings of the resident and projected population. Once again, NRPA, ULI and KBICC studies were reviewed and compared with the Florida Department of Natural Resource's Outdoor Recreation Report for 1989. It was decided that the minimum County level of service standards would be the present level of service found to exist, and except in the instance of tennis courts, the adopted LOS would not be less than the median activity resource guidelines found in the DNR report.

The level of service standards proposed for adoption by Nassau County for active user oriented resource facilities are as follows:

TABLE G-4  
LEVEL OF SERVICE STANDARDS  
USER ORIENTED OUTDOOR RECREATION ACTIVITIES  
NASSAU COUNTY, FLORIDA

Resource/Facility	Resource Unit per Nassau County	Population Served	
		FDNR Guideline *	
		Minimum	Median
Picnic Tables/Shelters	1: 1,500	1: 5,000	1: 6,000
Tennis Court	1: 4,000	1: 1,067	1: 2,000
Football/Soccer Field	1: 3,000	1: 4,000	1: 6,000
Basketball Court	1: 2,500	1: 500	1: 5,000
Baseball/Softball Field	1: 2,000	1: 2,000	1: 5,000
Swimming Pool	1:12,500	1: 1,000	1:25,000
Equipped Play Area	1: 2,500	1: 500	1:15,000
Boat Ramps	1: 5,000	1: 1,500	1: 5,000

\* Given for comparison purposes only.

#### 14.03.05 Recreation Facility Availability

In order to determine where the new facilities would best be located, the proposed County levels of service have been compared to each regional community's recreational inventory. This is a useful tool as it highlights those areas that are lacking in facilities within a reasonable service area as shown on Table G-2. Subsequent review and studies can more closely determine existing or projected system deficiencies during the planning period.

#### Nassau County

Of the different types of facilities in place, all but one category, tennis courts, meet or exceed the above standards. In the case of tennis courts, the County inventory falls short of the FDNR median guideline. However, the proposed level of service standard of one court per 4,000 population is far less than the one court 10,000 population maximum guideline of FDNR and should be adequate for the planning period.

Assessing the adequacy of play apparatus is difficult; however, some facilities should be made available in close proximity to unpaved playing fields

and near developed areas. Marinas, on the other hand, are dependent on water depths relative to types of boats accommodated and demand by boaters. There is no evidence of the need for additional facilities to be provided by the County. The marina in Fernandina Beach has just been leased for 40 years to a private operator. It is assumed that if there is still additional demand, private entrepreneurs will respond accordingly where space and regulating authorities permit.

Using the newly established LOS in Table G-4, a projection of the number and type of facilities needed during the first years of the planning period (1990-1995) is provided in Table G-5. Within the first 5 years of the planning period (1990-1995), the County will require twelve new facilities. By the year 2005, the County will need to add an estimated 57 new facilities to its inventory.

#### Amelia Island

About 55 percent of the inventoried facilities for active recreation are located on Amelia Island. In terms of LOS, this area meets or exceeds the County LOS in every category. When the population projections through the year 2005 are applied, the area should still exceed the LOS and therefore, no new facilities are now projected for construction.

#### Yulee

The extent of the recreational facilities in the Yulee community is limited when compared to the County LOS. Yulee appears to have an existing deficiency in all active recreational facilities except for boat ramps. Since these are really district wide in usage, that LOS is only meaningful on a County basis. The largest deficits seem to be a need for baseball/softball and football fields, picnic areas, and equipped play areas.

#### Hilliard

The Hilliard area meets the majority of the County's LOS for active recreational facilities except in two categories, picnic shelters and basketball courts. Facilities will be considered from among those proposed in the Five-Year Capital Improvements Schedule.

#### Callahan

The Callahan area shows an existing deficiency in several classes of facilities when the County LOS is applied to the recreation inventory in this community. Callahan is lacking in baseball/softball fields, picnic shelters, boat ramps, a swimming pool and tennis courts. Although there is a deficit in boat ramps, the community, due to its inland location, obviously cannot construct the same proportion of boat ramps as in other parts of the County.

#### 14.03.06 Active Recreation Facility Needs

On an overall County basis, using the total resident County population (both existing and projected), the County will need to add active recreation facilities to fill both existing and projected needs in certain categories of park use between now and 2005. Table G-4, Level of Service Standards, gives the minimum population criteria to be served by a recreational unit, that will be acceptable to fulfill the comprehensive plan and concurrency management mandates for adequate recreational facilities.

The number of units of each type of park facility needed during the next five years is that which must be acquired by Nassau County through purchase, donation or by other means to fill the proposed improvements as shown on Table G-5. The estimated total capital cost for these recreation facilities in the Five-Year Capital Improvements Schedule of the Capital Improvements Element may be as much as \$84,800 if no facilities are donated directly for park purposes.

**RECREATION AND OPEN SPACE-TABLE G-4  
 NASSAU COUNTY - FUTURE RECREATIONAL NEEDS  
 (PARKS) 1990 - 1995**

01/31/91

ACTIVITY	FISCAL YEAR	ESTIMATED COST
<b>1. Acquire Parkland</b>		
a. 6 acres	1990-91	\$60,000
b. 10 acres	1991-92	\$100,000
c. 10 acres	1992-93	\$100,000
d. 10 acres	1993-94	\$100,000
e. 10 acres	1994-95	\$100,000
<b>2. Basketball/Multipurpose</b>		
a. One court	1993-94	\$16,000
b. One court	1994-95	\$16,000
<b>3. Picnic Shelters</b>		
a. Three Shelters	1990-91	\$4,800
b. One Shelter	1991-92	\$1,600
c. Two Shelters	1992-93	\$3,200
d. One Shelter	1993-94	\$1,600
e. One Shelter	1994-95	\$1,600
<b>4. Tennis Courts</b>		
a. One court	1992-93	\$20,000
b. One court	1993-94	\$20,000
		-----
<b>TOTAL ESTIMATED COST:</b>		<b>\$544,800</b>

#### **14.04 FUTURE OPEN SPACE NEEDS**

The County has a sufficient amount of large open space areas to last throughout the planning period. However, Land Development Regulations should encourage the reservation of open space or recreation areas in future subdivisions, both urban and rural, for the creation of active parkland to serve the demonstrated deficiencies. This is an important method of enhancing the living areas of the new residents as well as providing for a buffer between inconsistent land uses.

#### **14.05 CAPITAL IMPROVEMENTS**

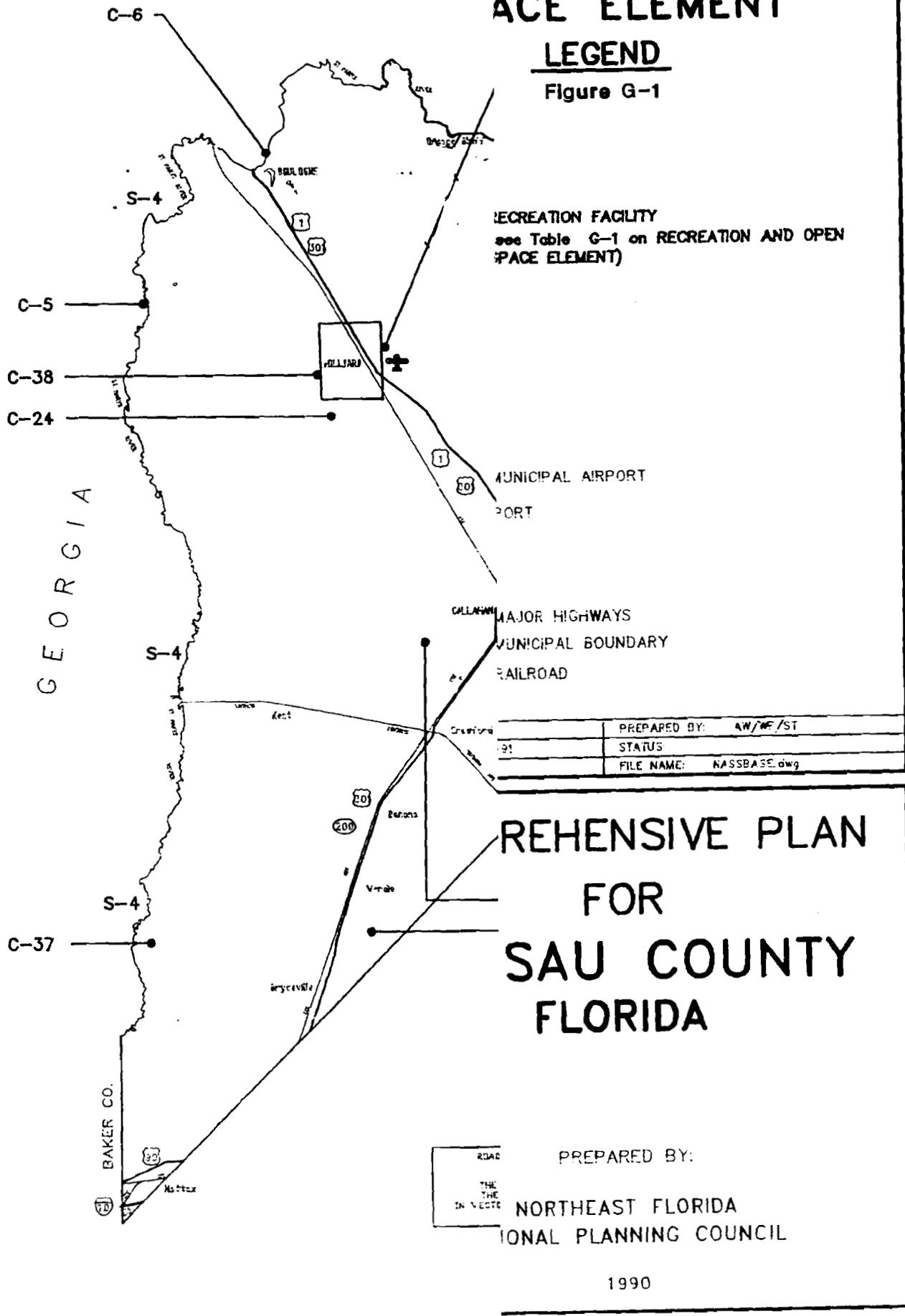
The required schedule of capital improvements for recreation purposes contains identified infrastructure for the years 1990 through 1995 in Table J-7 of the Capital Improvements Element. This table indicates a total five year cost of \$544,800. Most of the projects identified for the next five years are to be funded through impact fees and mandatory dedication of parkland for newly platted subdivisions, though voluntary donations and other interlocal agreements will also be sought.

# RECREATION AND OPEN SPACE ELEMENT

## LEGEND

Figure G-1

RECREATION FACILITY  
 see Table G-1 on RECREATION AND OPEN SPACE ELEMENT)



# RECREATION PLAN FOR SAU COUNTY FLORIDA



PREPARED BY:

NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL



**RECREATION AND OPEN SPACE ELEMENT**

**GOAL 7.0**

**THE COUNTY SHALL PROVIDE AND MAINTAIN SUFFICIENT PRIVATE AND PUBLIC PARKS, RECREATION FACILITIES, AND OPEN SPACE TO MEET THE HEALTH, SAFETY, AND WELFARE NEEDS OF COUNTY CITIZENS AND VISITORS.**

**OBJECTIVE 7.01**

ORC #4

Upon plan adoption, the County shall continue to adequately and efficiently develop and maintain the neighborhood and community recreation facilities listed in the plan through the year 2005, as well as the minimum necessary facilities to meet the adopted Level of Service standards.

**Policies**

#4

**7.01.01** The county shall develop and maintain an inventory of county owned or operated parks and those available to county residents through interlocal agreements, by function of park (neighborhood, community, or regional) and a general inventory of recreation facilities.

#4

**7.01.02** The County shall adopt the following Level of Service (LOS) standards for Recreation and Open Space. These standards shall also be adopted in the Capital Improvement Element.

**LEVEL OF SERVICE STANDARDS - RECREATION AND OPEN SPACE  
NASSAU COUNTY, FLORIDA**

<u>Facility</u>	<u>LOS: Units Per Number of Persons</u>
Picnic Tables/Shelters	1: 1500
Tennis	1: 4000
Football/Soccer	1: 3000
Basketball/Multi-Use	1: 2500
Ball Diamonds	1: 2000
Swimming Pool	1:12500
Play Apparatus	1: 2500
Boat Ramps	1: 5000
<u>Parkland and Open Space</u>	<u>LOS: Acres Per 1000 Population</u>
<u>Play Area /Tot Lot</u>	<u>0.5 Ac/1000</u>
<u>Neighborhood Park/Play field</u>	<u>2.0 Ac/1000</u>
<u>Community Park</u>	<u>2.0 Ac/1000</u>
<u>Community Passive Space</u>	<u>1.0 Ac/1000</u>
<u>District/Metro Area Parks</u>	<u>5.0 Ac/1000</u>
<u>Regional/State Parks</u>	<u>20.0 Ac/1000</u>
<u>Beach Access w/ Parking</u>	<u>0.5 Ac/1000</u>
<b>Total</b>	<b><u>31.0 Ac/1000</u></b>

7.01.03 The county shall project and generally locate recreation facilities based on the established LOS and the geographic service area.

7.01.04 Recreation impact and/or subdivision fees may be implemented and updated as a funding source for new parks and recreation facilities.

ORC #4 7.01.05 The County shall continue to assist in funding the improvement of recreation facilities located in Callahan, Fernandina Beach, and Hilliard since these facilities have a regional function serving County residents through interlocal agreements.

# 7 7.01.06 The County shall continue to encourage and create incentives for the dedication of recreational land beyond that required under concurrency management through PUD zoning and subdivision regulations.

7.01.07 The County shall pursue available grant sources for the acquisition and development of park and recreation areas, including but not limited to Department of Defense, Federal and State funding.

7.01.08 The County shall develop existing parks to their optimal level with consideration to the area's needs and the functional capacity of the parks.

7.01.09 The County shall consider the creation of a recreation department for County-wide park and recreation planning and management.

# 7 7.01.10 The County shall review large scale developments as to the need for public recreation facilities including neighborhood and community parks. Under concurrency management, public active and passive recreation areas to meet LOS standards shall be required as a condition to the development order.

# 4 7.01.11 To increase efficiency and convenience in the recreation system, the County will coordinate through interlocal agreements with other public agencies which have recreation areas in the County.

# 6 7.01.12 The County shall consider the use of closed land fills, floodplains, conservation areas and other similar areas for recreational land provided the use of these sites has been determined to not endanger the public health, safety, or welfare nor to create damage to environmentally sensitive lands.

7.01.13 Existing County-owned land, such as easements and small parcels, shall be used and upgraded, where feasible, to meet recreation and open space needs and especially to meet small passive type park needs.

7.01.14 Whenever possible, recreation sites should be established with multi-use purposes to provide both recreation facilities and to ensure preservation or conservation of environmentally sensitive lands.

- # 7 7.01.15 At a minimum, developments along navigable waterways will provide easements for, or the construction of, boat ramps and parking in accord with the LOS standards and as required under concurrency management.

**OBJECTIVE 7.02  
ACCESS TO RECREATION AREAS**

- # 3 Upon Plan adoption, the County shall assure the inclusion of vehicular, pedestrian, bicycle, boating, beach and shorefront access to all recreation areas and water bodies under County operation or requiring development approval at the time of development or addition to existing facilities.

**Policies**

- # 3 7.02.01 The County will provide for adequate vehicular parking and bicycle racks at all new County recreation areas and will ensure the installation of such facilities at the time of the reconstruction or additions to existing County recreation areas.
- # 8 7.02.02 Sidewalks, bicycle paths and multipurpose trails shall be provided at the time of construction or reconstruction as defined in the County Subdivision Regulations along public roads which provide access from neighborhoods to County parks.
- 7.02.03 The County will provide handicapped parking and barrier-free access to all types of County recreational facilities.
- # 3 7.02.04 The County shall require that public beach access be provided at an average of one-half mile intervals and as elsewhere provided in this Comprehensive Plan to all Atlantic Ocean beaches and shorefronts as a condition of development.
- # 8 7.02.05 As a condition of development approval, all developers constructing recreational facilities shall be required to provide adequate access of all kinds to recreational facilities and public water bodies to meet Objective 7.02.
- # 3 7.02.06 The County shall provide in the Land Development Regulations a requirement that any access to public beaches and shorelines or other recreational sites required as a condition of concurrency or development approval, shall be of sufficient size to accommodate adequate vehicular parking and bicycle racks.

OBJECTIVE 7.03  
OPEN SPACE

ORC #5  
Upon plan adoption, the County shall ensure the provision of open space as required in the County's Future Land Use Plan and where it is appropriate within developments to meet concurrency management.

Policies

#5  
#7  
7.03.01 The County shall adopt concurrency management and Land Development Regulations that include specific open space definitions and limited development standards for the provision and protection of open space. Conservation areas and wetlands on the FLUM shall be designated as open space, subject to DER and other responsible agencies' approvals for dredge and fill for conversion of open space to other "active" recreational uses. Spatial buffering between incompatible land uses is also considered open space.

#5  
#7  
7.03.02 The County shall regularly review the Land Development Regulations to upgrade current definitions of open space, and to maximize the preservation of open space.

#5  
#7  
7.03.03 The Land Development Regulations shall contain incentives as a mechanism to encourage developments to provide additional open space beyond that required by LOS standards and concurrency management.

#5  
#7  
7.03.04 PUD, cluster and other mixed use type developments shall be encouraged to provide large areas of open space and to provide recreation facilities beyond those necessary to be concurrent with the additional community needs they create.

**MONITORING AND EVALUATION PROCEDURES  
NASSAU COUNTY COMPREHENSIVE PLAN**

Adopted

January 28, 1991

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

**MONITORING AND EVALUATION PROCEDURES  
NASSAU COUNTY, FLORIDA**

**TABLE OF CONTENTS**

<u>Description</u>	<u>Page</u>
Introduction.....	1
Organizational Inventory.....	1
Sample Organizational Inventory Matrix.....	2
Draft Legislation.....	3
Sample Legislative Actions Matrix.....	3
Measureable Policy Inventory.....	4
Sample Policy Inventory and Monitoring Schedule.....	5
Monitoring and Evaluation Review procedure.....	6
Annual Implementation and Monitoring Report.....	10
Local Comprehensive Plan Evaluation and Appraisal Matrix.....	11
Citizen Participation.....	12
The Evaluation and Appraisal Report.....	14
Local Comprehensive Plan Evaluation and Appraisal Matrix.....	15

**NASSAU COUNTY COMPREHENSIVE PLAN**  
**MONITORING AND EVALUATION PROCEDURES**

Since the Evaluation and Appraisal Report, required at least every 5 years, is based on monitoring and evaluation procedures, guidelines for the implementation of these procedures is extremely important. The following procedures are seen as necessary to accomplish both monitoring and evaluation but are not necessarily all encompassing. It is recommended that after the initial implementation of these procedures, one year after adoption of the Plan, the procedures themselves be assessed as to their adequacy under prevailing county administrative regulations and practices. It will be especially important to determine whether the departments responsible for the implementation of specific Plan elements have the administrative and staffing capability to do so.

1. Organizational Inventory

In order to effectively monitor development activities in the County it will be necessary to initially develop an Organization and Management (O & M) framework which identifies the Plan. For example, it would include the Traffic Circulation Element, the Recreation and Open Space Element, the Housing Element, etc.

The statutory and functional responsibility will then have to be determined for each Element in order to identify the authorized and/or responsible operating entity. Objectives and policies for each Element will then be reviewed and summarized to identify those elements for which new enabling legislation or a resolution by the county Board of Commissioners is required. The operative date of the legislation, i.e., Florida Statute, ordinance or resolution, shall also be noted as stipulated for each respective Element.

A sample matrix follows.

NOTE: MOST INFORMATION IS OF AN EXEMPLARY NATURE  
THE FORMAT GENERALLY REPRESENTS WHAT WILL BE REQUIRED

SAMPLE

ORGANIZATIONAL INVENTORY MATRIX

Comprehensive Plan Element	Component	Responsibility Ord.	Res.
Future Land Use	land use inventory		
	Statutory	Plng. Comm.	84-36
	Functional	Plng. Dept.	84-148
	zoning		
	Statutory	Cnty. Comm.	Chapter 111, FS
	Functional	Plng. Comm.	84-36
Traffic Circ.	traffic counts		
	Statutory	=====	
	Functional	=====	
	level of service		
	Statutory	=====	
	Functional	=====	
	afford housing		
	Statutory	=====	
	Functional	=====	
Infrastructure	sanitary sewer		
	Statutory	=====	
	Functional	=====	
	solid waste		
	Statutory	=====	
	Functional	=====	
	drainage		
	Statutory	=====	
	Functional	=====	
Consvtn/Cstl Mgt	wetlands		
	Statutory	=====	
	Functional	=====	
Rec/Open Space	parks & beaches		
	Statutory	=====	
	Functional	=====	
Intergovernmental	State Gov't		
	Statutory	=====	
	Functional	=====	
Capital Improvements	deficiencies		
	Statutory	=====	
	Functional	=====	



## 2. Draft Legislation

With the organizational inventory in hand, a summary of enabling legislative actions required by the Board of County Commissioners and the date by which said actions will be required will have to be prepared. Once this has been accomplished, it will be necessary for the Local Planning Agency (LPA) to determine the most effective means of preparing the draft legislation. For example, a first draft could be prepared by the planning staff or by the existing functional authority and referred to the County Attorney for final action, or the LPA could simply request that the County Attorney prepare the draft documents without the preliminary work by other county staff.

Objective 10.02 Substandard Housing; and, Policy 10.02.01 which requires the County to "Establish a housing safety code ....." exemplify a typical set of Objectives and Policies found in the Plan.

### SAMPLE MATRIX FORMAT

#### LEGISLATIVE ACTIONS REQUIRED TO IMPLEMENT ADOPTED POLICIES

Comprehensive Plan Element	Requirement	Implementing Action
Housing	Objective 10.01. Housing Demand	
Policy		
10.01.03-review existing regulatory instruments		Amend, revise, repeal, enact
10.01.04-establish locational criteria elderly/institutional housing		Amend zoning ordinance
10.01.05-establish mobile home criteria for location/regulation		Amend zoning ordinance
Housing	Objective 10.02 Substandard Housing	
Policy		
10.02.01-establish housing safety code		Enabling ordinance
10.02.02-increase code enforcement		Resolution
Housing	Objective 10.04 Group Homes	
10.04.01-establish locational criteria and regulations for group homes		Amend zoning ordinance

### 3. Measurable Policy Inventory

The most expedient means for effecting the measurable policy inventory would be through the development of a Policies and Program Matrix. First, measurable policies for each Element will be identified by the staff. Second, the operational or enforcement mechanism will be identified for each of the policies identified. And, third, the task or tasks required to monitor or measure the success or failure of the policy would have to be identified. Generally, once the baseline data as found in the Plan itself has been noted, updating on an annual basis will be required to ascertain any change from the base year. The responsibility for the monitoring will be outside the purview of the planning staff. Where baseline data does not exist, such data will have to be collected.

An example of the type of actions which will have to be undertaken may be found in the Housing Element.

Policy 10.02.01 calls for "increased code enforcement activities..." in the county.

Such inspections could entail structural inspections performed by the Building Department or sanitary inspections where substandard housing conditions had been reported in the most recent housing survey. A recommended format for the policy inventory follows.

SAMPLE

POLICY INVENTORY AND MONITORING SCHEDULE

Traffic Circulation Element

Policy Summary 7.01.01:

Verify the fact that minimum acceptable levels of service are being maintained on all roads which fall under the functional classification system adopted by the County...

Responsible Agency: FDOT for State Roads; County Engineering Department for all facilities classified as County Roads...

Operations/Enforcement Mechanisms

Identify county roads for which annual traffic counts will be required; verify the adequacy of traffic counting stations of all FDOT facilities; on an annual basis, summarize traffic counts and undertake volume to capacity analyses to assess current levels of service; where deficiencies are noted, take appropriate action...

Performance Monitoring:

Compare current counts with baseline data; determine rate of growth for traffic; compare existing levels of service with the minimum acceptable LOS adopted in the Plan...

---

---

Housing Element

Increase enforcement of all codes applicable to the preservation of substandard housing units, all other housing units, and the construction of new housing units...

Responsible Agency: Housing Authority; Health Department; Building Department

Operations/Enforcement Mechanisms

Using base line data on substandard housing in the housing Element, undertake inspections to determine violations of existing codes and cite owners to correct deficiencies; continue field surveys on an annual basis to update data base; continue plan checking/field inspections of permitted new structures...

Performance Monitoring:

Maintain records of field inspections of substandard buildings; account for deficiencies have been corrected; update baseline data; inventory new "certificates of occupancy" and compare with the number of building permits issued annually.

## Monitoring and Evaluation Review Procedure

The role of monitoring and evaluation is vital to the effectiveness of any planning program and particularly for a Capital Improvement Element or a Capital Improvement Budget. This is largely because revenue and expenditure streams are subject to fluctuations in the market and in the economy. It is the behavior of these streams which is used to predict the fiscal trends in order to maintain the County's adopted levels of service or expected needs in all areas of government operations dealing with public facilities. Therefore a continuous program for monitoring and evaluation is required for both a capital improvement element as well as a capital improvement budget on an annual basis to ensure that the required fiscal resources are available to implement these development programs.

An annual review is needed and should be the responsibility of the Local Planning Agency (LPA) supported by the local planning staff. A designated staff member should be assigned to collaborate with the Finance Director in undertaking this analysis for the planning body charged with implementing the Comprehensive Plan. The Planning and Zoning LPA shall also participate in Budget Workshops when they are convened for the purpose of formulating the next year's budget. Once the findings have been evaluated, the local agency's recommendations should be presented to the Board of County Commissioners at a public meeting. The Commissioners will then direct the appropriate staff to take action deemed to be required based on the planning agency's findings and recommendations. The monitoring should include the following considerations coupled with an annual review of these same considerations to determine their validity:

1. any corrections, updates, and modifications of the element or capital improvement program concerning: costs, revenue sources, acceptance of facilities pursuant to dedications which are consistent with the element or program; and the dates of construction of any facility in the schedule; among the items to be considered are:
2. programmatic elements should be consistent with all the elements in Comprehensive Plan and their support of the Future Land Use Element;
3. the County's ability to provide public facilities and services within its jurisdiction in order to determine any need for boundary modification or adjustments to urban service areas, reserve areas and the like.
4. the priority assignment of existing public facility deficiencies or other components in the capital improvement program;
5. the County's progress in meeting those needs determined to be existing deficiencies;
6. a criteria used to evaluate programmatic elements in order to ensure the projects are being ranked in their appropriate order of priority should be adopted; the categories could include:

Priority A - projects currently underway for which the County is fully committed and/or are so urgently needed that implementation cannot be delayed. Only essential projects should be so classified.

Priority B - projects needed to maintain the department or function at the current level of service.

Priority C - projects needed as soon as funds can reasonably be made available, or projects which are desirable but needing further study.

Priority D - projects needed but can be safely deferred beyond the third year of the five year projection.

7. the County's effectiveness in maintaining the adopted LOS standards;
8. the County's effectiveness in reviewing the impacts of plans and programs of state agencies and water management districts that provide public facilities within the town's jurisdiction;
9. the ratio of outstanding indebtedness to the pledged revenues;
10. efforts made to secure grants or private funds, whenever available, to finance the capital improvements;
11. the criteria used to evaluate proposed plan amendments and requests for new development or redevelopment;
12. capital improvements needed for the latter part of the planning period, for inclusion in the 5 Year Schedule of Improvements; and
13. an assessment of the Capital Improvements Element and project listing in terms of its effectiveness of carrying out the goals, objectives and policies of the Comprehensive Plan.

Chapter 9J-5.016(3)(c), Florida Administrative Code, requires local governments to address programs and activities for eliminating existing public facility capacity deficits, considering locational needs based on projected growth patterns, accommodating new development and redevelopment facility demands, considering the level of service standards for public facilities. This Comprehensive Plan strives to accomplish this by:

1. adopting level of service standards (LOS) which have been developed to meet local conditions and which do not necessarily reflect LOS standards recommended by others. In adopting LOS the County has, to the extent feasible, made the standards consistent with the state and regional policy plan;
2. permitting temporary deviations from the adopted levels of service for roads or segments of roads for one period of not more than two fiscal years following a determination that the actual

LOS is below the adopted LOS. Such roads or road segments may operate one LOS below the adopted LOS for one such period;

3. permitting temporary deviations from adopted LOS for drainage, traffic, and recreation facilities by permitting final development orders to be issued if adequate capacity for these facilities will be available within 12 months of the issuance of the certificate of occupancy. Deviations will not be granted for water, sewer, and solid waste facilities which must be available prior to the issuance of certificates of occupancy to protect the health of the residents. Where other proposed deviations pose a threat to health and safety they will be denied.
4. establishing a five-year schedule of capital improvements which is 100 percent financed by revenue sources available to the local government under current law and which is designed to achieve adopted LOS, to the extent possible, in proscribed development areas.

To implement the statutory concurrency provisions of Chapter 9J-5, F.A.C. requires local governments to adopt policies and implementation strategies to assure that public facilities and services which meet the adopted level of service standards are available concurrent with the impacts of development, and that no development order will be issued which results in a reduction in the levels of service below the adopted standards. To achieve these mandates in a reasonable manner, the Comprehensive Plan directs the County to adopt land development regulations which:

1. provide for the review of applications for those types of development orders which would impact the adopted levels of service;
2. assure that no development order will be issued which results in a reduction of the level of service below that permitted by the Comprehensive Plan;
3. provide that for purposes of determining whether sufficient capacity of public facilities will be available concurrent with the impacts of permitted development, the review of applications for preliminary development orders shall provide that the preliminary development order shall be conditioned upon and subject to findings of adequate public facility capacity prior to the issuance of any final development order for the subject property.
4. provide for a review of applications for final development orders to assure that no final order or permit will be issued by the County unless there will be sufficient capacity of public facilities to meet the adopted level of service standards at the time of issuance of the building permit in the case of water, sewer, and solid waste facilities, and in the 12-month period following the issuance of the certificate of occupancy for roads, parks, and drainage;

5. provide for prioritization of competing applications for public facility capacity as follows:
  - a. previously approved development orders permitting redevelopment;
  - b. previously approved development orders permitting new development;
  - c. new development orders permitting redevelopment;
  - d. new development orders permitting new development.
6. provide for deferral or re-review of applications, in the event of inadequate public facility capacity, on the basis of rational criteria;
7. provide that development shall commence within a specified reasonable period of time after issuance of a development order or that the development order shall expire, and provide criteria for reasonable extensions of time; and
8. allow a developer to provide the necessary public facilities at the developer's own expense, provided the public facilities are consistent with the schedule of capital improvements in the Plan and that the County and the developer enter into an enforceable agreement which shall provide, at a minimum, a schedule for construction of the necessary public facilities and mechanisms for monitoring so that the public facilities will be available concurrent with the impacts of the development or the development will not be allowed to proceed.

#### 4. Annual Implementation and Monitoring Report

It is recommended that this report be prepared by the planning staff. The report should be transmitted to the LPA by July 1 of each successive Fiscal Year for the Agency's review and its consideration of the recommendations made by the planning staff. This specific point in time is considered appropriate because it will coincide with the preparation of the Annual Capital Improvements Budget and problems in meeting the Programs and Schedules adopted for the Capital Improvements Element are best resolved during this budget preparation period. The reporting period also follows the annual population estimates made on April 1 of each calendar which will permit an accurate update of current capacity analyses of all public facilities with adopted levels of service (LOS) as well as capital improvements schedule changes.

The annual report shall also include:

- a) A complete listing of all adopted goals, objectives, and policies for each relevant Element in the Comprehensive Plan. A matrix summary of the recommendations shall be included which will address revisions to be made in the context of the Plan supported by "Comments" which address the appropriate action to be taken i.e. "delete", "retain", or "modify" a discrete objective or policy. The recommendations shall be based on, among others, the analyses of the organizational inventory, progress made in the adoption of required resolutions or ordinances, and the changes in the measurable policies.
- b) Justification for situations where projects or programs were not completed as scheduled within the Comprehensive Plan. Programs which have not been implemented within the scheduled fiscal year should be considered for inclusion within the annual budget for the upcoming year or if necessary, a plan amendment made to reflect the change should be initiated.
- c) The annual report shall be prepared under the aegis of the Advisory Committee which shall, after making its review, transmit the report to the LPA by the date previously noted, July 1 of each year. The LPA in turn, after its review and recommendations, shall transmit the report to the Board of County Commissioners for their action prior to the adoption of the following year's budget.

It is proposed that the following sample "Appraisal Matrix" be used to summarize the condition (status) of the elements in the Plan as well as the recommended course of action to remedy deficiencies and shortfalls.



SAMPLE

THE LOCAL COMPREHENSIVE PLAN EVALUATION AND APPRAISAL MATRIX

Objectives Adopted in the Plan	Policies	Action Required Plan Revisions	General Comments
		Delete Retain Modify	
<b>FUTURE LAND USE ELEMENT</b>			
<b>Objectives</b>			
1.		M	Still desirable
2.		D	Priorities changed
<b><u>Policies</u></b>			
1.		M	Modify inventory
2.		D	procedures Not measurable

NOTE: COMMENTS SHALL WHERE APPLICABLE ADDRESS THE FOLLOWING

- 1) the location of major problems of development of those to which physical deterioration may be attributed to land uses; and the social and economic effects of such uses in the area,
- 2) a comparison of the condition (status) of each Plan Element at the time of adoption and date of the report,
- 3) the extent to which unanticipated and unforeseen opportunities have occurred between dates of adoption and report.

## Citizen Participation

### Background

The Nassau County Planning Commission consists of seven members and is designated as the Local Planning Agency (LPA) which shall prepare (update) the Comprehensive Plan for the County. The Commission has representation from Hilliard, Callahan, Yulee, and Fernandina Beach.

The Board of County Commissioners appointed members to 4 advisory committees for the 4 planning districts. The Planning District Advisory Committee (PDAC) were identified as the :

Amelia Island District Advisory Committee  
Yulee District Advisory Committee  
Callahan District Advisory Committee  
Hilliard District Advisory Committee

Each PDAC had a minimum of 5 members appointed by the County Commissioners. The member of the Nassau County Planning Commission representing a specific district served as an ex-officio member. One member for the cities of Callahan and Hilliard also served as ex-officio member for those district advisory committees.

### Future Recommendations

It is recommended that the four committees be dissolved and that one committee be formed from the nucleus of that membership. The newly formed committee shall be responsible for the monitoring and evaluation procedures adopted to evaluate and appraise the progress of the recently revised Plan once it is adopted. A membership of seven (7) is recommended.

The purpose of the newly restructured County Planning Advisory Committee (CPAC) will be to function in an advisory capacity to the County Planning Commission or LPA on matters pertaining to the update and implementation of the Plan. The CPAC shall also be responsible for convening public meeting, workshops, etc. during the preparation of the annual Evaluation and Appraisal Report (EAR).

The information prepared for this committee by the county staff and the results of any formal action taken by the CPAC will be transmitted to County Planning Commission for their evaluation and recommendations for action to the Board of County Commissioners.

The following procedures are intended as guidelines for the public participation process.

The CPAC shall elect a chairman, vice chairman, and secretary. The chairman shall conduct the meetings and report to the Planning Commission as necessary or required. The vice chairman will preside in the absence of the chairman, and the secretary shall be responsible for tape recording each meeting and preparing a summarization of the proceedings in the minutes for each meeting.

The CPAC shall review the reports of the staff concerning the monitoring and evaluation of Plan implementation as well as the EAR at meetings convened by the chairman.

The CPAC shall determine the location of each successive meeting and said location shall be in a public building with convenient access to the public.

Notices of the meetings shall be posted in a prominent place at the chosen venue, in the Nassau County Courthouse, the local newspaper, and, if appropriate, local tabloids or newsletters. Placement of such notices should precede the convening of the meetings by at least one (1) week.

All meetings shall be tape recorded to insure a permanent and accurate record. A summarization of the minutes should include pertinent comments and suggestions for consideration and response by the CPAC.

The chairman shall encourage the participation of citizens during the public meeting. For those who do not wish to speak publicly, the chairman shall encourage written comments or questions. If such written comments are not submitted at the meeting, the chairman shall allow such written comments or questions to be submitted one week following the meeting and these shall be incorporated as part of the minutes.

Comments, verbal or written, requiring replies from the CPAC shall be considered agenda items for the following regular public meeting and responses shall be recorded in the minutes as part of the permanent record.

Press releases and informational articles will be prepared for use by the news media to disseminate pertinent information and keep the public informed about the planning process.

The CPAC shall submit its summary minutes to the Nassau County Planning Commission.

The Planning Commission shall consider these minutes as an agenda item for discussion at its next regular meeting. Any conflict in the proposals or any comments or suggestions shall be addressed at this meeting and communicated to the CPAC.

Once the Board of County Commissioners has appointed the membership to the CPAC, it is recommended that a briefing session be held with the staff and the CPAC to familiarize the committee with its functions and duties.

Special emphasis must be placed on the fact that the county for planning purposes is divided into districts to allow better public participation but that each district plan must be consistent with the goals, objectives and policies of the whole county.

It is the ultimate responsibility of the Nassau County Board of County Commissioners to adopt the Comprehensive Plan after reviewing the recommendations from the County Planning Commission serving as the Local Planning Agency. Such adoption must follow the required public hearings held as prescribed by Chapter 163.3184 F.S. - PROCESS FOR ADOPTION OF COMPREHENSIVE PLANS OR AMENDMENTS THERETO.

## THE EVALUATION AND APPRAISAL REPORT

### Requirements

The Evaluation and Appraisal Report is required under Chapter 163.3191, F.S. at least once every 5 years.

The purpose of the Evaluation and Appraisal report is to determine the progress that has been made by the County in the implementation of the several elements which comprise the Comprehensive Plan adopted by the County Board of Commissioners.

Specifically, a determination has to be made relative to the progress made by the governing body in adopting enabling legislation, by ordinance or resolution, that may be required to effectuate, or put into effect the Local Comprehensive Plan adopted by the County Board of Commissioners. This will require:

- \* a summary of the goals, policies, and objectives which have been adopted as an integral part of the plan;
- \* an evaluation and appraisal of the success or failure of said ordinances or resolutions as an aid to meeting goals, objectives, and policies.

A determination will also have to be made regarding:

- \* progress in the areas of construction, reconstruction, or the provision of facilities and services required to satisfy existing deficiencies or expansion plans as outlined in the adopted Capital Improvements Schedule of Projects;
- \* the thrust of development during the 5 year planning period which has generally taken place within those designated development areas, urbanized areas and urban service districts outlined on the Future Land Use Map.

There are, of course, other measureable policies which are to be included but those cited are among the most critical.

The Evaluation and Appraisal Report shall also include a determination as to the extent to which unanticipated and unforeseen problems and opportunities occurred between the date of the adoption of the Plan and the date of the Evaluation and Appraisal Report. Finally, the report shall suggest changes needed to update the Plan, or elements or portions thereof, including reformulated goals, objectives, policies or LOS standards which the Board of county Commissioners shall adopt, as submitted or amended by said body, within 90 days of submission by the Local Planning Agency.

The Evaluation and Appraisal Report shall be based on specific monitoring and evaluation criteria. The methodology for undertaking and monitoring evaluation is documented under the Monitoring and Evaluation Procedures section of the Plan.

It is proposed that the following example of the "Determination Matrix" be used to summarize deficiencies in the Plan as well as the recommended course of action to remedy Plan deficiencies and shortfalls.

THE LOCAL COMPREHENSIVE PLAN EVALUATION AND APPRAISAL MATRIX

Goals Objectives Policies Adopted in the Plan	Action Required Plan Revisions	General Comments
	Delete Retain Modify	
<b>FUTURE LAND USE ELEMENT</b>		
<u>Goals</u>	R	Still feasible
Objectives		
1.		Still desirable
2.	D	Priorities changed
3.		
<u>Policies</u>		
1.		Modify inventory procedures
2.	D	Not measurable
3.		

The results of the annual monitoring and evaluation reports are the basis of the entries made in the Matrix. Once the Matrix has been completed, a summary of deletions and modifications will be prepared for public hearings held under the aegis of the Local Planning Agency (LPA). The summary will enlarge upon the reasons for these actions and after input from the public the Local Planning Agency shall vote on its recommendations to the Board of County Commissioners who shall then adopt or reject the recommendations within 90 days after receiving them from the LPA.

NASSAU COUNTY

RESPONSE TO THE POTENTIAL OBJECTIONS, RECOMMENDATIONS AND COMMENTS  
OF THE DEPARTMENT OF COMMUNITY AFFAIRS

MONITORING AND EVALUATION REQUIREMENTS

A. OBJECTIONS

1. 9J-5.005(7);

Although the transmittal letter states that the County intends to adopt the Monitoring and Evaluation Procedures, it is not clear which procedures the county intends to adopt. Monitoring and Evaluation Procedures are included following the Goals, Objectives and Policies section of the plan, as well as in the Capital Improvements Date and Analysis on page J-34.

Response

The monitoring procedures to be enacted are a combination of the matrix procedures at the end of the Goals, Objectives and Policies section of the Plan, with the monitoring and evaluation review operating procedures contained in the Capital Improvements Element. Each addresses different portions of the monitoring and evaluation requirements and have been combined to ensure that all portions of the process are covered. This will be adopted as a specific and independent section of the Plan.

CONCURRENCY MANAGEMENT SYSTEM

A. OBJECTIONS

1. 9J-5.0055

A concurrency management system which ensures that facilities and services needed to support development are available concurrent with the impacts of such development and that, prior to the issuance of a development order and development permit, the adopted level of service standards for facilities and services will be maintained is not included.

Response

A Concurrency Management System has been developed that meets the requirements and is now included in the adoption package.

2. 9J-5.0055(2)(e)

While the text includes general statements such as "All improvements for replacement, expansion or increase in capacity of facilities shall be compatible with the adopted level of service standards for the facilities" (Policy 4.01.02, page DD-2), the proposed concurrency management system does not include guidelines for interpreting and applying level of service standards to applications for development orders or permits.

Response

A Concurrency Management System has been developed that meets the requirements and need for applying the LOS standards to proposed new development. It has been included in the adoption package.

**CAPITAL IMPROVEMENTS ELEMENT  
NASSAU COUNTY COMPREHENSIVE PLAN**

**Adopted**

**January 28, 1991**

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs



**CAPITAL IMPROVEMENTS ELEMENT  
NASSAU COUNTY, FLORIDA**

**TABLE OF CONTENTS**

<u>Section</u>	<u>Description</u>	<u>Page</u>
16.0	J-1 Introduction.....	J-1
	J-2 Capital Improvements Inventory and Data.....	J-2
	Public Facility Needs Assessment.....	J-2
	Geographic Service Areas.....	J-6
	Inventory of Existing Revenue Sources and Funding Mechanisms.....	J-6
	J-3 Capital Improvements Analysis.....	J-11
	Local Policies and Practices.....	J-11
	Capital Improvements Costs.....	J-14
	Impact of New/Improved Public Educational and Health Care Systems.....	J-15
	Analysis of the Timing and location of Capital Improvements.....	J-15
	Fiscal Implications of Deficiencies and Future needs.....	J-16
	The County's Ability to Finance Capital improvements.....	J-17
	Comparison of Revenues and Expenditures.....	J-18
	Projection of Debt Capacity.....	J-19
	Issues and Recommendations.....	J-19
	J-4 Capital Improvements implementation.....	J-20
	J-5 Monitoring and Evaluation.....	J-21
	Goals, Objections and Policies.....	After Appendix

**CAPITAL IMPROVEMENTS ELEMENT  
NASSAU COUNTY, FLORIDA**

**LIST OF TABLES**

<u>Number</u>	<u>Description</u>	<u>Page</u>
J-1	Capital Improvements Identified in Plan Elements.....	J-3
J-2	Revenues by Fund by Source, 1984-85 to 1988-89.....	J-22
J-3	Outstanding Debt by Type, 1988 through 2004.....	J-9
J-4	Total Estimated Capital Improvements Cost Summary by Fiscal Year.....	J-15
J-5	Expenditures by Fund by Function, 1984-85 to 1988-89.....	J-23
J-6	Fiscal Growth and Estimates 1984-85 to 1995-96.....	J-24
J-7	Capital Improvements Schedule 1990-91 through 1994-95.....	J-25
J-8	Estimated Transportation Impact Fee Revenues 1990 - 1995.....	J-17
J-9	Comparison of pledged Revenues To Outstanding Debt, 1990-2005.....	J-28

**APPENDICES**

<u>Name</u>	<u>Description</u>	<u>Page</u>
Appendix "A"	Concurrency Management System.....	After J-28

## 16.0 CAPITAL IMPROVEMENTS INVENTORY

### J-1. Introduction

Upon the passage of the Local Government Comprehensive Planning and Land Development Regulations Act in 1985, the Comprehensive Plan and the planning process have become the focal point of growth management activity control. The Capital Improvement Element is a major portion of the Comprehensive Plan. It outlines both the timing and funding local units of government will provide for public facilities to support future development.

According to 9J-5.016 F.A.C., the purpose of the Capital Improvements Element is to:

- 1) evaluate the need for public facilities as identified in other elements of the Comprehensive Plan;
- 2) estimate the costs of improvements for which the local government has fiscal responsibility;
- 3) analyze the fiscal capability of Nassau County to finance and construct improvements;
- 4) adopt financial policies to guide the funding of improvements; and
- 5) schedule the funding and construction of necessary improvements.

The Capital Improvements Element must address both current deficiencies and future needs as identified in the other elements of the Comprehensive Plan for Nassau County. Therefore, the element is structured to discuss the following matters:

- 1) an inventory of capital improvement needs, financial resources, County policies and practices;
- 2) a fiscal assessment of revenues and expenditures;
- 3) goals, objectives and policies;
- 4) a 5-year schedule of projects to be implemented; and
- 5) a description of monitoring and evaluation strategies.

The intent of addressing capital improvements in this way is to ensure that public facilities are to be available concurrent with the impacts of development and in response to changes in the population.

It should be emphasized that the Capital Improvements Element does not cover all the County's capital improvements needs. The Capital Improvements Element is limited by statute to only those basic capital improvements derived from other elements of the Comprehensive Plan, including: sanitary sewer, solid waste, drainage, potable water, roads, and parks and open space facilities. It is used to demonstrate the economic feasibility of the entire Comprehensive Plan and focuses on capital outlays required to meet existing deficiencies and to maintain the adopted Level Of Service (LOS) standards used to determine the need for public facilities in the plan.

A major result of this study is the Capital Improvements Schedule. The Capital Improvements Schedule is a five-year minimum timing and cost listing of the capital improvements that shall be necessary to be constructed

if the County is to meet its LOS standards. It includes the capital outlay, phasing and financial sources that are projected to be needed to fulfill the plan. Each year, in accordance with 163.3177(3)(b) and 163.3187 F.S., the Capital Improvements Schedule is mandated to be updated one year and the first year is to become the basis for Nassau County's Annual Capital Improvement Budget.

The Annual Capital Improvements Budget may include other improvements in addition to those identified in the Five-Year Capital Improvements Element, such as public buildings or fire and rescue facilities.

## **J-2. Capital Improvements Inventory and Data**

The following section consists of three parts. The first part of the inventory includes both existing and needed capital improvements that were identified in the preceding elements of the Comprehensive Plan. The second part identifies the geographic service area and the location of major system components for public education and public health systems. The third part of the inventory identifies the existing revenue sources and potential funding sources, the County can use to finance identified capital improvements.

It should be noted that the Annual Financial Report of Units of Local Government submitted to the Department of Banking and Finance were used as the primary data source to compile most of the tables in this report. Information in these reports was augmented with information on long term loans and debt service requirements from the Annual Auditor's Report or Financial Statement.

### **Public Facility Needs Assessment**

One of the primary purposes for the other elements in the Comprehensive Plan is to identify infrastructure improvements that are required to correct existing deficiencies and satisfy future infrastructure needs. Estimates of future deficiencies are based on forecasts of population growth within the County. The elements which are addressed in this element include the following facilities: sanitary sewer, solid waste, drainage, potable water, roads, and parks and open space facilities.

The capital improvements identified in this element are defined to address physical assets which:

- 1) require an investment of \$25,000 or more for acquisition of land, construction, and/or installation of facilities as necessary;
- 2) are of relatively large scale and high cost;
- 3) may require multi-year financing; and
- 4) have nonrecurring costs.

Table J-1 lists those capital improvements as identified in the other plan elements.

Table J-1.  
NASSAU COUNTY  
Capital Improvements Identified in Plan Elements

**Traffic Circulation:**

FDOT Five-Year Work Program  
State Hwy System Primary Component (Construction):

Pid	Location	Project Description	Cost (in thou.)	Const. Year
A.	SR 200 at Southern Coastline RR crossing	New Road Construction	\$2,927	94/95
B.	SR 200 from Mickler to east of US 1	Add Lanes & Reconstruct	\$1,148	92/93
C.	A1A at Nassau Sound	Replace Bridge	\$8,446	95/96
D.	SR A1A and SR 200 @ Amelia Island	Add Right Turn Lanes	\$ 89	92/93
E.	US 90 from Baker Co. Line to Duval Co. line	Widen and Resurface	\$ 846	93/94
F.	SR 107 from the beginning of FDOT maintenance to SR 200	Resurface/ Repave	\$1,596	92/93
G.	SR 200/A1A from East of US 1 to I-95	Widen and Resurface	\$4,259	93/94
H.	US 17 @ SR A1A	Upgrade existing traffic signals	\$ 38	92/93
I.	SR A1A @ Piney Is. Drive	Add Right Turn Lanes	\$ 88	92/93
J.	US 17 from Duval Co. to I-95	Pave Shoulders and Resurface	\$5,234	95/96
K.	US 17 at St. Marys River	Bridge Replacement	\$3,757	95/96
L.	SR A1A from 8th St. to Fletcher Ave.	Repave and Resurface	\$ 728	93/94
M.	SR A1A from CR 105A to SR 200	Pave Shoulders and Resurface	\$ 312	91/92
N.	SR A1A from Amelia River to S of Lime St	Pave Shoulders and Resurface	\$1,227	94/95

Table J-1, (Cont'd.)  
 NASSAU COUNTY  
 Capital Improvements Identified in Plan Elements

**Traffic Circulation, (Cont'd.):**

NASSAU COUNTY Work Program

Pid	Location	Project Description	Cost (in thou.)	Const. Year
-----	----------	---------------------	-----------------	-------------

**TRAFFIC CIRCULATION FACILITIES**

1a.	14th St., 1000' North T.J. Courson to Sadler Rd.	Widen Road	\$2,000	1990-91
b.	and Sadler Road, from SR 200 to Susan Drive			

**PAVING UNIMPROVED ROADS**

3a.	Crawford Rd. (West) US 301 West	Grade and pave 2 lanes, 1.0 mi.	\$ 140	1990-91
3b.	Sandy Ford Rd. Haddock Rd. to US 301	Grade and pave 2 lanes, 1.0 mi.	\$ 140	1990-91
3c.	Lessie Rd. CR 108 to Coles Ferry Rd.	Grade and pave 2 lanes, 8.0 mi.	\$1,520	1990-91
3d.	Freddie Geiger Rd. Haddock Rd. to US 301	Grade and pave 2 lanes, 4.3 mi.	\$ 602	1990-91
3e.	SR 107 Rte. Acquis. Sr A1A/200-Santa Juana Dr.	Acquire Right-of-Way	\$ 250	1990-91
3f.	Middle/Griffin Rd. CR 108-Griffin Rd.	Grade and pave 2 lanes, 6.3 mi.	\$1,197	1990-91
3g.	Middle/Haddock Rd. Middle/Coles Ferry Rd.	Grade and pave 2 lanes, 5.5 mi.	\$1,045	1990-91
3h.	Tommy Ford Rd. to Duval Cty. Line	Grade and pave 2 lanes, 2.0 mi.	\$ 280	1990-91
3i.	Crawford/Ratliff Rd. US 301-Duval Cty. Line	Grade and pave 2 lanes, 5.4 mi.	\$1,026	1991-92
3j.	Bismark/Craig Marsh Rd. SR 115-SR 115	Grade and pave 2 lanes, 1.8 mi.	\$ 342	1991-92
3k.	Murrhee Rd. Cowins-Hampton Lake Rd.	Grade and pave 2 lanes, 1.6 mi.	\$ 304	1991-92
3l.	Hampton Lake Rd. Hampton Lake-Murrhee Rd.	Grade and pave 2 lanes, 2.1 mi.	\$ 399	1991-92

**Sanitary Sewer Facilities**

None

Table J-1, (Cont'd.)  
**NASSAU COUNTY**  
**Capital Improvements Identified in Plan Elements**

NASSAU COUNTY Work Program				
Pid	Location	Project Description	Cost (in thou.)	Const. Year
<b>Solid Waste Facilities</b>				
1.	West Nassau Landfill	Closure	\$4,000	1991-92
2.	West Nassau Landfill	Class I & III Constr.	\$5,000	1991-92
3.	Lofton Creek Landfill	Closure	\$5,000	1992-93
4.	Bryceville Landfill	Closure	\$3,000	1992-93
<b>Drainage Facilities</b>				
None				
<b>Potable Water Facilities</b>				
None				
<b>Recreation/Open Space Facilities</b>				
1a.	Countywide Parkland	Acquire 6 acres	\$ 60	1990-91
1b.	Countywide Parkland	Acquire 10 acres	\$ 100	1991-92
1c.	Countywide Parkland	Acquire 10 acres	\$ 100	1992-93
1d.	Countywide Parkland	Acquire 10 acres	\$ 100	1993-94
1e.	Countywide Parkland	Acquire 10 acres	\$ 100	1994-95
2a.	Various Locations	Basketball/ Multipurpose Court	\$ 16	1993-94
2b.	Various Locations	Basketball Multipurpose Court	\$ 16	1994-95
3a.	Various Locations	3 - Picnic Shelters	\$ 4.8	1990-91
3b.	Undetermined	1 - Picnic Shelters	\$ 1.6	1991-92
3c.	Various Locations	2 - Picnic Shelters	\$ 3.2	1992-93
3d.	Undetermined	1 - Picnic Shelters	\$ 1.6	1993-94
3e.	Undetermined	1 - Picnic Shelters	\$ 1.6	1994-95
4.	Undetermined	1 - Tennis Court	\$ 20	1992-93
5.	Undetermined	1 - Tennis Court	\$ 20	1993-94

Source: Nassau County Comprehensive Plan: 2005

### Geographic Service Areas

As required by 9J-5.002(2)(b), the geographic service area for both the public education and public health system is identified as coterminus with the county boundaries. These systems and their facilities presently offer countywide service and are adequately served by roads, sanitary sewer, solid waste, drainage, potable water, and recreation facilities.

### Public Education

There are fifteen public schools and eight private schools in Nassau County. Public schools are operated by the Nassau County School District, which is operated by an independently elected board that has separate taxing authority. Therefore, no direct school needs can be included in this budget. Private schools are also operated independently of the county government.

Infrastructure supplied by the County consists primarily of road access. Other needs are handled by the school district or private owners, through private or municipal facilities. No school needs are known to exist in the capital budgeting period that will impact county infrastructure.

### Public Health

The major public health facility in Nassau County is the Nassau General Hospital in Fernandina with a reported 54 beds. No demands are being made or contemplated that will affect county infrastructure necessary to serve this facility.

### Inventory of Existing Revenue Sources and Funding Mechanisms

In order to ensure that adequate funding is available to finance the identified capital improvements, it is necessary to assess the major sources of revenue available to the County. It should be noted that the following funding inventory includes all major financial resources available to the County and is not limited to those sources which will be used for capital improvement projects included in the Five-Year Capital Improvements Schedule. These currently utilized financial resources comprise the sources of funds (revenue sources) from which capital improvement projects may be funded. In addition, the current status of each revenue source is also discussed.

Table J-2 presents a summary of revenues generated in the General Fund and the Solid Waste Enterprise Fund between fiscal years 1984-85 and 1988-89.

### Property Taxes (Ad Valorem)

Property taxes are based on a millage rate (one mill is the equivalent of \$1 per \$1,000 of assessed value or 0.1%), which is applied to the total taxable value of all real property and other tangible personal property. Revenue from ad valorem taxes may be used to fund both operating costs and capital projects. State constitutional provisions require a 10-mill tax cap for counties. In extraordinary cases this may be exceeded through a local referendum for debt service or the provision of municipal-type services.

Current Status: As one of the major sources of revenue for Nassau County, the ad valorem tax traditionally accounts for approximately 44 percent of the County's annual revenue (Table J-2). This constitutes



an average for 1984-85 to 1988-89. Revenues derived from ad valorem tax has steadily increased, but has accounted for a decreasing portion of the overall revenue available to Nassau County. For instance, in 1984-85 ad valorem taxes accounted for 46.4 percent and declined to 36.1 percent in 1988-89. In 1986-87, the millage rate was set at 6.5015 (excluding the hospital millage of 0.07706). The annual Home-owners Exemption, creates a major reduction of revenues and less than adequate reimbursement for general governmental services. The exemption, especially in the case of mobile homes, leaves little assessed value as a basis for property taxes.

#### Sales and Use Taxes, Franchise Taxes and Utility Taxes

These are the only other tax revenues currently available to the County.

Current Status: Currently, the County is collecting the following major sales and use taxes: Tourist Development (\$0.02); Local Option Gas Tax (\$0.06); and Local Alternative Fuel Decal User Fee. The revenue generated by sales and use taxes has increased over the 5-year period, from less than 1 percent in FY's 1984-85 through 1986-87 to 11.3 percent in FY 1988-89. Of these tax sources the Local Option Gas Tax has accounted for the majority of revenue.

#### Licenses and Permits

This category includes professional and occupational licenses, building permits and other licenses which, for the most part, are beach permits.

Current Status: On average, these sources accounted for about three percent of the total revenue over the 5-year period.

#### Charge For Services

These charges are derived from the operation of government services.

Current Status: This source of revenue averaged over 5 years, accounted for about 9.5 percent of the total revenue. During FY 1988-89, this source of revenue accounted for 8.8 percent of the total, which represented a decrease of 12 percent from the previous fiscal year.

#### Miscellaneous Revenues

This category of revenue includes interest from various funds, rents and royalties, special assessments and impact fees, sale of county-owned property, and private contributions (real estate, gifts, donations, etc.) to the County.

Current Status: Over the five-year period from 1984-85 to 1988-89, this category of revenue has increased, accounting for a larger portion of the total amount of revenue generated. In FY 1988-89, this revenue category accounted for about 9.6 percent, though it only accounted for 3.5 percent in 1984-85. This increase is in large part due to the collection of impact fees, which amounted to about \$550,000 in 1988-89.

#### Special Sources of Revenue

Depending upon priorities assigned by the legislative body and the availability of other revenue sources, it may be necessary to seek additional

funding mechanisms. The following sources of revenue represent options available to finance required capital improvements.

1. **Impact Fees:** These fees are charged in advance of new development and are designed to pay for capital costs, but not operating costs, which directly result from and will directly benefit new development. Impact fees must be equitably allocated to the specific group(s) directly affected, and the assessment levied must fairly reflect the true costs of these improvements.

Current Status: The county has adopted impact fees for transportation, administrative buildings, police, fire and EMS.

2. **Special Assessments:** Like impact fees, special assessments are levied against residents, agencies, or districts who directly benefit from a new service or facility.

Current Status: Nassau County, as of March 29, 1988, has initiated special assessments on residential units for solid waste services.

3. **Borrowing:** The great cost of many capital improvements requires local governments to borrow for their construction, either through short-term or long-term financing. Short-term financing, often through local banks, is an option available to raise required funds for periods of, up to five years. A longer term method, however, is to authorize long-term bond issues, normally for 5 to 40 years. The following are common types of bonds and the status of each in Nassau County.

- (a) **General Obligation Bonds:** These bonds are backed by the full faith and credit of the local government, and are required to be approved by voter referendum. General obligation bonds offer lower interest rates than other bonds, as they are secured by the taxing power of the government. Revenues collected from the ad valorem taxes on real estate and other sources of general revenue are used to service the government's debt. Capital improvements financed through general obligation bonds should benefit the County as a whole rather than particular areas or groups.

Current Status: There is one General Obligation Bond issue outstanding. Issued in 1966 and maturing in 1997, the proceeds amounted to \$1,450,000 and were used to construct roads, the courthouse and jail. Funds reverting to the County from Racing Funds shared among counties by the state were pledged for repayment. As of September 30, 1987, there remains \$759,000 in principal and \$230,092 in interest to be repaid.

- (b) **Revenue Bonds:** Unlike general obligations bonds, revenue bonds are financed by those directly benefiting from the capital improvement. Funds obtained from the issuance of these bonds are used to finance publicly-owned facilities such as sewer facilities. Charges are collected from the users of these facilities to retire the bond obligation. In this respect, the capital

project is self-supporting. Interest rates tend to be higher than for general obligation bonds, and issuance of the bonds may be approved by the County Commission without voter referendum.

Current Status: The bond issue of 1974 for roads was in the amount of \$3.5 million due in 2004 and is fully secured by the State of Florida. Gasoline Tax Funds were pledged for repayment. As of September 30, 1987, \$2.78 million in principal and \$1.86 million in interest are outstanding.

In March 1989, a new bond issue of \$9.78 million was issued to support the requirements of the unified road maintenance program. It is to be repaid from revenues generated by the Local Option Gas Tax.

- (c) Industrial Revenue Bond: This type of bond is issued by a local government, but is actually assumed by companies or industries who use the revenue for construction of plants or facilities. The attractiveness of these bonds to industry is that they carry comparatively low interest rates due to their tax-exempt status. The advantage to the local government is that the private sector is responsible for retirement of the debt and that new employment opportunities are created in the community.

Current Status: An Industrial Revenue Bond of \$23.3 million was issued in 1989 for refinancing of the pollution control devices at ITT.

Long Term Debt Summary: The debt service needed to amortize long term debt outstanding as of September 30, 1987, and for the new bond issue for general government is shown in the following table.

Table J-3.  
Outstanding Debt by Type: 1988 through 2004

<u>Year ending, September 30</u>	<u>Principal Interest</u>
1988-1997 Series 1966	\$ 989,093
1988-2004 Series 1974	\$4,641,415
1990-2005 Series 1988	<u>\$14,215,103</u>
Total thru 2005	\$19,845,611

Source: Nassau County

#### State Sources

Like other counties and municipalities in Florida, Nassau County depends on annual disbursements from the State to supplement its operating and capital budget revenues. This section addresses those funds which are: a) generated locally, but collected and later returned by state agencies to the County; b) adopted as a local option tax or license fee, collected and returned by the state; or c) shared by the state in the form of grants to the local government, but originate from state general revenues. Amounts available

from these sources may vary widely from year to year, depending upon legislative actions.

Revenue Sharing Trust Fund: There are several components to this fund, which is disbursed to the County - the Cigarette Tax, the 8th Cent Gasoline Tax, Mobile Home Tax, Local Government 1/2 Cent Sales Tax, and the Alcoholic Beverage Tax.

#### Federal and State Grants and Loans

The U.S. State and Local Fiscal Assistance Act of 1972, which formerly provided for a system of federal general revenue sharing, has now been substantially modified. Federal funds are currently either: a) allocated to state agencies which administer block grants in accordance with the programs which they monitor; or b) reserved at the federal agency level and are disbursed as block grants directly to state and local agencies or other eligible organization and individuals. The purpose of the block grant program is to enable greater latitude by recipients in actual use of the funds, although recipients are still required to use the funds for specific categories of projects. These funds are not distributed by allocation, but rather, require competitive applications. Consequently, these grant monies are generally a nonrecurring source of funds, and as such cannot be accurately projected for budgeting purposes.

Other grants are administered at the state level, with state executive departments acting as "pass-through agencies" for federally-funded project grants. An example of a federally funded project grant program is the Community Development Block Grant (CDBG). The U.S. Department of Housing and Urban Development, which administers the program, allocates 70 percent of its CDBG funds for "entitlement communities," or the larger urban areas. These entitlement communities may apply for and receive grants for financing specific projects from a list of eligible activities outlined in Title I statutes, such as infrastructure improvements, housing projects, and commercial revitalization. The remaining 30 percent of the funds are disbursed to state pass-through agencies; in Florida's case, the Department of Community Affairs (DCA). DCA administers these grants for the same types of projects, but restricts their availability to "small cities" and counties.

In addition to block grants, several federal agencies offer direct loan programs, but their applicability to capital improvement projects is extremely limited. State loans, on the other hand, are usually available to finance such capital projects as land acquisition for low-income housing. The Department of Community Affairs' Bureau of Housing administers loans and grants for these purposes through eligible local governments.

Current Status: Between 1983 and 1987, Nassau County has received varying amounts of funds from Federal Revenue Sharing and Federal Grants. These combined sources averaged about \$450,000 over the 5-year period and amounted to about 4.5 percent of all revenues.

### J-3. Capital Improvements Analysis

This section of the Capital Improvements Element includes a discussion of the following:

1. current local practices that guide the timing and location of construction, extension or increases in capacity of each public facility;
2. the general fiscal implications of the existing deficiencies and future needs for each type of public facility, which is based on the needed improvements in the other elements and which addresses the relative priority of need among facility types;
3. the costs of needed capital improvements for mitigation of existing deficiencies, replacement and new growth needs;
4. the impact of new or improved public educational and public health care systems and facilities on the provision of infrastructure;
5. the use of timing and location of capital improvements to public facilities to support efficient land development; and
6. an assessment of the ability to finance capital improvements based on anticipated revenue projections.

#### Local Policies and Practices

This section describes current local policies and practices which are used to guide the timing and location of construction, extension, or increase in the capacity of public facilities. They are described in terms of their general concept and the circumstances which may warrant their use.

#### Level of Service Standards

Level of Service (LOS) Standards are the indicator of the extent or degree of service provided by, or proposed to be provided by a facility, based on and related to the operational characteristics of the facility. LOS indicates the desired capacity per unit of demand for each public facility. They are required to be included for public facilities addressed by local governments in their comprehensive plans. These LOS are to be used as the basis for issuing development orders or permits to ensure that adequate facility capacity will be maintained and provided for future use.

As a rule LOS standards affect the timing and location of development by encouraging development in areas where infrastructure facilities have unused or available capacity. On the other hand, future development will not be permitted unless needed facilities and services are provided to meet the adopted LOS standards. Such provision of services and development may occur in a phased sequence over time under a development order for the entire project.

**Current Status:** The County does not have any formally adopted LOS standards for public facilities in effect prior to the completion of this plan. Generally, planned unit developments or other developments large enough to be considered to have a regional impact are subjected to an analysis of the adequacy of infrastructure services needed to supply the development. Since the county does not provide water and sewer services, these services are often dependent on negotiations between the developer and local government or provided by the developer. Existing development infrastructure standards are based on minimum state requirements.

### Capital Improvement Program

A Capital Improvement Program is intended to set forth each capital project or other contemplated capital expenditure which the County plans to undertake and presents estimates of the full funding resources needed to finance each undertaking.

A capital Improvement Program must be consistent with the Capital Improvement Element of the Comprehensive Plan and shall reflect the goals, objectives, and policies of the element and its implementation strategies, including the Five-Year Capital Improvements Schedule. A Capital Improvement Program may also include funding for physical assets which are not required in the Plan, or which may be of relatively small scale, with lower cost than the \$25,000 minimum set for inclusion in the Capital Improvement Element's Five-Year Capital Improvements Schedule.

Time periods covered by a Capital Improvement Program may range up to 10 years, but are typically six year programs coinciding with the local government's fiscal year. The first year of the Capital Improvement Program is usually converted into the Annual Capital Improvements Budget with longer range expenditures outlined in the Five-Year Capital Improvements Schedule. The Annual Capital Improvements Budget encompasses enacting appropriations for projects concurrently with the General Fund Operating Budget. Like the Capital Improvements Element and Schedule, the Capital Improvement Program is reviewed and updated on an annual basis. Both functions can be performed as a single review process.

Current Status: The County does not currently prepare a Capital Improvement Program on an annual basis.

### Impact Fees

These are fees charged in advance and against new development. They are designed to pay for needed infrastructure physical assets, but not operating costs, which result from new development. These fees must be equitably allocated to specific development or groups which will directly benefit from the capital improvement, and the fee levied must fairly reflect the true costs of these improvements.

Current Status: The County has adopted impact fees for transportation, public buildings, police, fire and emergency medical service or EMS.

### Development Areas

These are areas delineated on the future land use map to designate the immediate or future intent of government to provide for public or private infrastructure facilities to support the area's existing and projected population.

Current Status: Development Areas have been proposed for the Future Land Use Plan. These are higher density residential areas where utility companies or municipalities are franchised to deliver water and sewer services and are intended to concentrate future development through higher density allocations.

### User Charges and Connection Fees

These charges are designed to pay for the costs of public facilities or services by directly charging those who use the facilities or services, usually in direct proportion to the amount used. User charges are employed to pay for many local government services. For example, bridge and highway tolls defray the cost of constructing or maintaining these facilities and are a common source of funds for paying off revenue bonds. The technique is usually applied to potable water usage, sanitary sewer and solid waste services and parking, to name but a few. These charges are often based on a sliding fee scale to compensate for the degree of service and/or the difficulty encountered in providing any given service.

Current Status: In Nassau County, tipping fees are assessed at the landfill for solid waste, i.e., commercial establishments and construction debris. As of March 29, 1988, Nassau County has initiated the collection of a special assessment or user fee on residential units for solid waste collection, disposal service, and landfill operation and improvements. In addition, a tipping fee for residential waste has been initiated at the landfill starting on November 1, 1990.

### Adequate Facilities Ordinance

This ordinance is a local legislative mechanism to control the timing and location of development by conditioning development approval upon a showing that sufficient facilities and services are or will be provided in order to maintain the adopted LOS standards. It may, in effect, implement the 1985 legislative concurrency management requirement which calls for public facilities to be available to support the impacts of development. The ordinance is enacted to make development approval contingent upon the availability of facilities and services in order to satisfy adopted LOS standards. Additionally, adoption of an adequate facilities ordinance offers the following benefits:

- (1) supports consistency of the Capital Improvements Element with the Future Land Use Element;
- (2) provides for the timely expansion of infrastructure facilities;
- (3) provides for concurrent capital improvements expenditures and taxing methodologies; and
- (4) reduces the possibility of damage to the environment from the operation of overburdened facilities.

Typically, an adequate facilities ordinance interacts with the development approval process by preconditioning zoning, subdivision, or planned unit development (PUD) approval on demonstrated compliance with the adopted LOS standards. The ordinance may function at both the subdivision and the individual building permit stage depending upon the size of the proposed development. The ordinance may, in this context, control development in areas that are already approved as subdivisions, but not as yet built out, such as pre-platted lands.

Current Status: No adequate facilities ordinance is currently in effect in Nassau County. However, there is an ad hoc procedure employed by the county relative to conditioning subdivision, or planned unit development (PUD) approval, based on the stipulated provision of facilities or services by a developer.

### Mandatory Dedications or Fees In Lieu Of

Such exactions are required as a condition of plat approval and entail developers dedicating a certain portion of the land in the development to be used for public purposes. The dedication of land for these needs, such as roads, parks, and schools, is made necessary by the development itself. Therefore, it is only fitting that the developers compensate the county for their fair share of the cost engendered by the infrastructure impact of the development. Dedication of lands necessary for these public purposes may be made to the County, or with the County's permission, to a private group such as homeowners association.

In the case of recreation and schools, where a subdivision is too small, or topographical conditions are such that a land dedication cannot be reasonably required, the county may require the subdivider to pay a fee in lieu of dedication, which is equivalent to the value of the amount of land that would otherwise have been required to be dedicated by the developer. The fee shall be deposited into a separate account for future use toward the provision of a facility serving the need the fee was collected for.

Current Status: The "Road Construction and Subdivision Regulations" of Nassau County include mandatory "dedications" or "fees in lieu" of, for park purposes. This procedure, though similar in intent, does not replicate the Impact Fee Ordinance already in effect, since that only deals with transportation, administrative space, police and fire and EMS infrastructure needs.

### Moratoria

A moratorium is a stop-gap ordinance or other device which temporarily suspends or freezes development for a specified period of time on an emergency basis. It may be imposed on building permits, development approvals, or governmental services such as potable water or sanitary sewer connections. Moratoria are generally imposed for a "reasonable length of time" to allow for the study and completion of necessary planning activities pending comprehensive plan or land development regulation preparation, adoption, or amendment. Among the considerations in adopting moratoria are:

- (1) determining the legal status of existing permit applications and approvals to determine the extent of "vested rights" for developments approved prior to ordinance adoption;
- (2) specifying the geographic extent of the moratorium;
- (3) specifying the time frame and conditions under which the moratorium will be imposed; and
- (4) ensuring its equal applicability to all development proposals of a certain class.

Current Status: The County is not presently imposing any moratoria.

### Capital Improvements Costs

Needed capital improvements from the other elements are identified in Table J-1. The capital costs and phasing associated with each capital improvement are also given. These timing and cost estimates were developed to help identify potential funding shortfalls.



The estimates from the Table J-1 have been organized by fiscal year to show the total cost for each budget year from 1990-91 to 1994-95 in Table J-6.

Table J-4.  
Total Estimated Capital Improvements Cost Summary  
by Fiscal Year: 1990-91 through 1994-95

Category	(Thousands of Dollars)				
	1990-91	1991-92	1992-93	1993-94	1994-95
Traffic Circulation	\$5,607	\$3,438	0	0	0
Sanitary Sewer	0	0	0	0	0
Solid Waste	0	3,000	9,000	5,000	0
Drainage	0	0	0	0	0
Potable Water	0	0	0	0	0
Recreation	64.8	101.6	123.2	137.6	117.6
Total:	\$5,671.8	\$6,539.6	\$9,123.2	\$5,137.6	\$117.6

Source: Nassau County Comprehensive Plan: 2005

**Impact of New/Improved Public Educational and Health Care Systems**

New public educational or health care facilities are not anticipated to be needed before 1995. It is also determined that the educational systems and facilities in the County are now and will continue to be adequately served by roadways, potable water, sanitary sewer, solid waste, storm drainage, and recreation facilities. None of the scheduled improvements will adversely impact either the public education system or the public health system.

**Analysis of the Timing and Location of Capital Improvements**

The timing and location of capital improvements are two important tools that can influence future land development in Nassau County and further the goals, objectives and policies of the comprehensive plan. These infrastructure improvements are effective means to promote: compact development, infill development and appropriate development in undeveloped areas with excess public facility capacity, as well as to discourage: "leap-frog" development, and development in environmentally sensitive areas.

There are many benefits to the proper timing and location of public facilities, including maximizing the use of existing facilities, providing for efficient growth, and providing for the cost-effective provision of public services and facilities. The use of the Capital Improvements Schedule and the Capital Improvement Program are complementary ways to control the timing of capital improvements. They can be used to prioritize improvements and schedule them in light of available fiscal resources and both existing and projected needs.

In addition to Nassau County, state and regional agencies also provide some public facilities within Nassau County, with the Florida Department of Transportation and the St. Johns Water Management District as two prime examples. It is imperative that the County coordinate with these, and other state agencies, to ensure that their plans for capital improvements are coordinated with the Capital Improvement Schedule and the planned growth outlined in the Future Land Use Element. Presently known plans of state agencies or the water management district will not affect the recommended LOS standards either now or through 1996.

#### **Fiscal Implications of Deficiencies and Future Needs**

Of the estimated \$26,589,800 needed for capital improvements based on the Comprehensive Plan Elements, \$1,800,000, or 6.8 percent, is earmarked for the widening of 14th Street and another \$7,245,000, 27.2 percent, is for paving unimproved roads.(Table J-1). However, the major single infrastructure cost to be met by the County is the closure, monitoring and new opening of county landfill facilities for solid waste disposal. These activities have been so protracted that FDER is seriously threatening to fine the county unless immediate and positive steps are taken. Estimates of the cost of landfill activity are \$17,000,000 over the next four fiscal years to meet existing need deficits.

The outstanding Transportation Improvements Bonds are to be retired by the pledge of the Local Option Gasoline Tax. The primary purpose of these bonds is to pay for a paving program for unpaved county roads. The proceeds for the 1990-91 fiscal year is estimated to be around \$1,751,000 at the six cents per gallon tax rate.

Funding for solid waste needs will come from tipping fees and solid waste collection and disposal assessments levied against residential development. Projected annual revenues range from \$1.5 to \$1.9 million over the life of this schedule.

The scheduled improvements for recreation capital needs are more than the county currently spends on recreation. As of December 31, 1990 there was \$200,867.24 in the Recreation and Parks Fund as a result of the subdivision requirement that 2.5 acres of land per 100 housing units or its equivalent in money be donated to the County for recreation needs. Historically, funds have been accumulating at the rate of \$57,390 annually. If this rate continues over the life of the improvement schedule, another \$258,255 should be available. However, funds being collected from this source are the subject of court action by the developers who wish their return.

Therefore, in the event that the County loses this suit, alternative funding sources of revenue should be considered, such as a general obligation bond or a recreation impact fee, to cover the costs associated with recreational capital improvements. Funds for recreational projects may also include state and federal aid and grants, user fees, taxes, assessments, and a Municipal Service Taxing Unit (MSTU). Recreational roadway improvements can also be dependent on impact fees and surplus funds from the transportation bond issue's pledged source of revenue.

### The County's Ability to Finance Capital Improvements

In order to determine the ability of Nassau County to fund the required capital improvements as identified in the Comprehensive Plan, it is necessary to project revenues and expenditures over the next five years.

Projected Revenues As stated earlier, taxes have historically generated the majority of the revenue available to the County. Table J-6 illustrates the amount of revenue generated from all tax revenue sources including ad valorem taxes, and assumes that the County's assessment ratio is 100 percent throughout the period.

Impact Fees Impact fees are another revenue source which Nassau County can use to fund capital projects over the next five years. Currently, the County imposes impact fees for transportation, police, Fire/EMS, and public administrative buildings. The fees for transportation, police, and Fire/EMS are collected and allocated on a district basis, while fees collected for administrative buildings is allocated on a countywide basis.

Impact fees for transportation on Amelia Island have been levied since February 16, 1987. The impact fees for the rest of the county, excluding incorporated areas, have been levied since January 30, 1989, with collections beginning February 14, 1989.

Since the impact fee for transportation is the only one to fall under the comprehensive plan it is the only one that will be considered here. the amount of revenue expected to be generated from this impact fee can be generally estimated for the next five years, and is shown on Table J-8. As mentioned, this impact fee is collected on a district basis and may therefore only be used for projects within the base district. For this reason, though projections were prepared on a county average basis, use of the funds generated will be somewhat restricted geographically.

Table J-8  
NASSAU COUNTY  
Estimated Transportation Impact Fee Revenue; 1990 - 1995

Land Use Category	Increase in No. of Units or SF	Impact Fee per Unit or per 1,000 SF	Estimated Total Fee
<b>RESIDENTIAL</b>			
Single Family(Det.)	1,072 units	\$ 530	\$ 568,160
Mobile Homes	1,536 units	533	818,688
Multi-Family	504 units	372	187,488
Hotel/Motel - Room	460 rooms	585	269,100
<b>INDUSTRIAL/WAREHOUSE</b>	210,000 SF	\$ 207	43,470
<b>OFFICE AND FINANCIAL</b>	460,000 SF	\$ 690	317,400
Retail	60,000 SF	1,237	74,220
Restaurant	40,000 SF	1,871	74,840

Based on averaged impact fee and assuming one-third development in districts 501 & 502.

Using this basis for impact fee generation and the growth estimated in the comprehensive plan, a total of \$2,353,366 in transportation impact fees could be reasonably expected to be paid to the county over the next five years, or about \$470,673 per year for capital improvements to the road system. This sum will partially defray the funding required for road improvements detailed in the Capital Improvements Schedule, Table J-7.

Subdivision Exactions Lands are dedicated and improved as required by county subdivision specifications for roads into and in subdivisions. In addition, 2.5 acres of land or its equivalent in money is required to be donated to the county for every one hundred homes developed. Since it is estimated that another 2,608 homes will be built between 1990 and 1995, this should result in 65.2 acres of land donated to the county for park purposes. This amount should be adequate to serve the park land and facility needs as outlined in the Capital Improvements Schedule, Table J-7.

Projected Expenditures The second part of the analysis to determine the ability of Nassau County to fund the required capital improvement projects is to project what the expenditures will be over the next five-year period. And in order to do that, it is necessary to first analyze the historical expenditure patterns. Table J-5 presents the expenditures from 1984-85 through 1988-89. As indicated, most expenditure categories have steadily increased over the last five years. Table J-6 presents the projected expenditures from 1990-91 through 1994-95 and compares them with other county fiscal activities.

Projection of Operating Costs Operating costs are implicit in the expenditure projections. Regarding the itemization of expenditures, it should be noted that operating costs pertaining to each functional category are included in the data. The operating costs include personal services, operating expenses and present capital or debt service outlay as differentiated from capital projects. These costs, which are implicit in the analysis of existing expenditures, are assumed to maintain the same proportion of the projected expenditures.

Between 1984-85 and 1988-89, expenditures increased by almost 60 percent, from \$9,478,291 to \$14,894,432 (Table J-5).

#### Comparison of Revenues and Expenditures

Table J-6 compares fiscal growth of revenues with expenditures during the 5-year period.

There were no deficits during this period insofar as direct revenues and expenditures are concerned. In 1986 and 1987, revenues exceeded expenditures by about \$790,000 and \$280,000, respectively. Over the 5-year period revenues exceeded expenditures by nearly \$750,000, which averages out to an excess of \$150,000 a year for the 5-year period. The ratios, which can also be read as percentages, indicate that revenues ranged between 2 and 21 percent more than expenditures with 1987 showing the smallest amount in the positive column.

Between 1984 and 1989, the annual average increase for revenues was \$2,220,000 per year and expenditures increased by \$1,546,800 annually. In terms of percentages, the average rates of growth were 8.33 percent for

revenues and 8.65 percent. Population, on the average, increased by about 4.9 percent each year.

It should be stressed that the expenditure projections, for the most part, maintain existing levels of service. This does not leave much margin for major additions in the area of capital improvements unless additional sources of revenues are envisioned. The impact fees must be earmarked for capital facilities to support new growth only. Raising levels of service above what exists requires funds from other sources.

### Projection of Debt Capacity

The pledged revenues are the Voted Six Cent Gas Tax and Race Track Revenues. The bonds supported by these revenues are the 1988 and 1974 Gas Tax Series and the 1966 Race Track Series. The overall ratio of pledged revenues to debt services is estimated to be growing much stronger during the planning period, increasing from 1.42 to 3.58 (Table J-9). This means that over the 5-year period as debt increases the revenues available will more than double in relationship to debt service requirements if no additional debt is incurred. The debt service capacity ratio will only make major increases after the 1966 series race track bonds are retired in 1996. However, the increases in population and assessed valuation with corresponding increases in sales revenues offers a good base for the borrowings necessary to fund infrastructure capital improvements.

### Issues and Recommendations

#### Issue 1.

A clear-cut policy regarding the sources and uses of certain revenues which are generated through the state's revenue sharing program is not in evidence. This condition, if resolved, would assist department heads within county government in making much more informed decisions regarding the selection and source of funding of projects to be included in both the Capital Improvements Schedule and the annual Capital Improvements Budget.

#### Recommendations:

1. The Director of Finance should prepare and submit to the Board of County Commissioners annual estimates of the anticipated proceeds from state revenue sharing sources taking into account the amounts already encumbered for debt service of existing bond issues.
2. Guidelines, based on previous experience, indicating which revenue sharing sources and the estimated amount of funds from these sources could be earmarked as a source of funding for capital improvements. These guidelines, subject to Commission amendment, and approval would then become the basis for departmental planning, programming and budgeting.

#### Issue 2.

While the state has clear-cut guidelines regarding the use of gas tax revenues returned to the county, there is no factual evidence that the county has formally stipulated the use of other transportation revenues, except

for debt service, which are generated through taxes and other user fees. The funding sources for maintenance and capital improvements appear to be interchangeable as far as the aforementioned revenue sources are concerned.

**Recommendations:**

1. Use the state guidelines which set apportionment criteria for transportation generated revenues relative to operations, maintenance and capital improvements.

The following proposals contained in the Comprehensive Plan are also recommended for action by the Board of County Commissioners:

2. The adoption of development areas to indicate the areas in which the county would encourage compact growth through higher densities.
3. The adoption of an adequate facilities ordinance to interact with the development approval process by conditioning zoning, subdivision, or planned unit development upon public facility provision. Its purpose is to ensure the provision of public facilities necessary to support land development in a formalized, uniform manner as opposed to site specific negotiations.

**Issue 3.**

The Capital Improvement Element of the adopted comprehensive plan must be reviewed on an annual basis, 163.3177(3)(b) F.S., and may be modified as necessary. The provision of, "All public facilities shall be consistent with the capital improvements element." requires that the element be carefully used as a guideline for annual capital expenditures. This is also spelled out under 9J-5.016(5)F.A.S.

**Recommendations:**

1. The Capital Improvements Schedule, Table J-7, which must be adopted as part of the Comprehensive Plan, should be used as the basis for the annual capital improvement portion of the County budget. This can be accomplished by adopting the first year of the schedule in the budget and extending the schedule one year further into the future.
2. Use the data resulting from implementation of the recommendations under Issues 1 and 2 to form the basis for decisions as to need priority and funding sources to be used to maintain the required levels of service through the addition of capital improvements to the County's infrastructure.

**J-4. Capital Improvements Implementation**

The Five-Year Schedule of Capital Improvements as shown in Table J-7, compiles the capital projects needed to correct existing and future deficiencies as outlined in each element. The Schedule also includes data on the project location and cost, the primary revenue source to be used to finance

each project, and a determination of whether or not the subject capital project is consistent with the Comprehensive Plan elements.

This Schedule shall be adopted as part of the Nassau County Comprehensive Plan and shall be updated annually in accord with state law.

#### **J-5. Monitoring and Evaluation**

The role of monitoring and evaluation is vital to the effectiveness of any planning program and particularly for a Capital Improvement Element or a Capital Improvement Budget. This is largely because revenue and expenditure streams are subject to fluctuations due to the condition of the market and in the economy.

It is the behavior of these streams which create the fiscal trends developing the amount funding available to maintain the County's adopted levels of service or expected needs in government operations dealing with public facilities. Therefore, a continuous program for monitoring and evaluation is required for both a capital improvement element as well as a capital improvement budget on an annual basis to ensure that the required fiscal resources will be available to implement these development programs.

An annual review is needed and should be the responsibility of the Local Planning Agency (LPA) supported by the local planning staff. A designated staff member should be assigned to collaborate with the Finance Director in undertaking this analysis for the planning body charged with implementing the Comprehensive Plan. The Planning and Zoning LPA shall also participate in Budget Workshops when they are convened for the purpose of formulating the next year's budget.

Once the findings have been evaluated, the local agency's recommendations should be presented to the Board of County Commissioners at a public meeting. The Commissioners will then direct the appropriate staff to take action deemed to be required based on the planning agency's findings and recommendations. The monitoring shall be in accord with the Monitoring and Evaluation procedures contained in the Adoption Document portion of the Comprehensive plan.

CAPITAL IMPROVEMENT ELEMENT: TABLE J-2

02/01/91

**NASSAU COUNTY-REVENUES BY FUND BY SOURCE**

FISCAL YEARS 1984-85 TO 1988-89

Source	FY 1984-85	FY 1985-86	FY 1986-87	FY 1987-88	FY 1988-89
General Fund					
Taxes					
Ad Valorem	4,633,925	5,521,614	5,620,360	5,955,837	6,481,316
General Sales and Use	0	0	0	1,310,471	2,032,125
Franchise Fees	14,688	14,716	24,663	41,877	38,207
Utility Service	8,995	9,269	6,519	172	0
Total	4,657,608	5,545,599	5,651,542	7,308,357	8,551,648
Licenses and Permits	219,980	411,665	401,962	478,857	402,142
Intergovernmental	3,549,241	3,648,746	3,702,698	4,396,937	5,285,087
Charges from Services	759,068	838,119	1,313,052	1,791,681	1,576,753
Fines and Forfeitures	455,044	382,639	433,414	365,281	417,030
Miscellaneous	346,584	354,989	343,090	278,625	1,721,526
<b>Total</b>	<b>9,987,525</b>	<b>11,181,757</b>	<b>11,845,758</b>	<b>14,619,738</b>	<b>17,954,186</b>

Solid Waste Fund

1,493,595

Source: Annual Financial Reports, FY 1984-85 through 1988-89



CAPITAL IMPROVEMENT ELEMENT: TABLE J-5

02/01/91

**NASSAU COUNTY-EXPENDITURES BY FUND BY FUNCTION**

FISCAL YEARS 1984-85 TO 1988-89

Function	FY 1984-85	FY 1985-86	FY 1986-87	FY 1987-88	FY 1988-89
General Government Services	2,251,840	2,700,401	3,140,867	3,754,947	3,957,873
Public Safety	3,236,208	3,407,671	3,750,078	4,677,734	5,403,373
Physical Environment	95,877	90,811	140,465	914,604	119,246
Transportation	2,662,205	2,861,831	2,900,957	3,218,166	3,434,879
Economic Environment	6,078	13,508	32,619	514,993	76,120
Human Services	524,425	552,340	648,432	813,495	898,074
Culture/Recreation	312,783	376,024	567,241	578,638	325,275
Debt Service	388,875	387,884	386,474	98,800	679,592
<b>Total</b>	<b>9,478,291</b>	<b>10,390,470</b>	<b>11,567,133</b>	<b>14,571,377</b>	<b>14,894,432</b>
Solid Waste Fund					955,615

CAPITAL IMPROVEMENT ELEMENT: TABLE J-6

02/01/91

NASSAU COUNTY - FISCAL GROWTH AND ESTIMATES (COMPARISON UNADJUSTED & ADJUSTED DATA)

FISCAL YEARS 1984-85 TO 1995-96

		EXISTING DATA					ESTIMATED GROWTH							ANNUAL GROWTH FACTOR
		1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	
POPULATION (Uninc. Area Only)		26,578	28,411	30,087	31,931	33,289	35,311	38,550	40,035	41,520	43,005	44,490	45,975	
ANNUAL GROWTH		N/A	6.90%	5.90%	6.13%	4.25%	6.07%	9.17%	3.85%	3.71%	3.58%	3.45%	3.34%	
TAXABLE ASSESSED VALUE (Millions of Dollars)	UNADJ.	\$751	\$802	\$896	\$997	\$1,078	\$1,332	\$1,465	\$1,612	\$1,773	\$1,950	\$2,145	\$2,360	10.00%
	ADJ.	\$684	\$710	\$767	\$816	\$847	\$997	\$1,048	\$1,098	\$1,148	\$1,203	\$1,257	\$1,330	
ANNUAL GROWTH	UNADJ.	N/A	6.81%	11.75%	11.25%	8.18%	23.50%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	
	ADJ.	N/A	3.79%	8.11%	6.42%	3.68%	17.77%	5.12%	4.75%	4.59%	4.77%	4.52%	5.77%	
MILLAGE RATE (1)		6.388	7.100	6.501	6.244	6.244	6.486	6.506	6.526	6.546	6.566	6.586	6.686	2.00%
ANNUAL CHANGE	UNADJ.	N/A	11.15%	-8.44%	-3.95%	0.00%	3.88%	0.31%	0.31%	0.31%	0.31%	0.30%	1.52%	
	ADJ.	N/A	9.86%	-7.22%	-3.24%	0.00%	2.90%	0.22%	0.21%	0.20%	0.19%	0.18%	0.86%	
ANNUAL REVENUE (+000)	UNADJ.	\$9,988	\$11,182	\$11,846	\$14,620	\$19,467	\$21,089	\$22,847	\$24,750	\$26,813	\$29,047	\$31,468	\$34,090	8.33%
	ADJ.	\$9,096	\$9,896	\$10,142	\$11,974	\$15,280	\$15,785	\$16,342	\$16,860	\$17,366	\$17,919	\$18,445	\$19,214	
(2)														
ANNUAL EXPENDITURE (+000)	UNADJ.	\$9,487	\$10,390	\$11,567	\$14,571	\$15,850	\$17,221	\$18,711	\$20,329	\$22,088	\$23,998	\$26,074	\$28,329	8.65%
	ADJ.	\$8,640	\$9,195	\$9,903	\$11,934	\$12,441	\$12,890	\$13,384	\$13,848	\$14,305	\$14,805	\$15,284	\$15,967	
DEBT SERVICE (+000)	UNADJ.	\$388.9	\$387.9	\$386.5	\$98.8	\$679.6	\$1,000.4	\$1,321	\$1,321	\$1,319	\$1,321	\$1,321	\$1,321	
	ADJ.	\$354.2	\$343.3	\$330.9	\$80.9	\$533.4	\$748.8	\$945.0	\$899.7	\$854.3	\$814.8	\$774.1	\$744.3	
DEBT CAPACITY (+000) (As 10% Of Tax Base)	UNADJ.	\$75.1	\$80.2	\$89.6	\$99.7	\$107.8	\$133.2	\$146.5	\$161.2	\$177.3	\$195.0	\$214.5	\$236.0	10.00%
	ADJ.	\$68.4	\$71.0	\$76.7	\$81.6	\$84.7	\$99.7	\$104.8	\$109.8	\$114.8	\$120.3	\$125.7	\$133.0	
IMPLICIT PRICE DEFLATOR (Base Year: 1982-83 = 100)		109.8	113.0	116.8	122.1	127.4	133.6	139.8	146.8	154.4	162.1	170.6	177.4	4.00%

NOTE: UNADJ. = Data or Estimate not adjusted for inflation.

ADJ. = Data or Estimate adjusted to reflect constant dollars; (Base Year 1982-83 = 100).

(1) Annual Revenue includes all impact, use and enterprise fund fees.

(2) Annual Expenditure includes enterprise fund operating costs.

SOURCE: Annual Local Government Financial Report, State of Florida.  
Northeast Florida Regional Planning Council

**CAPITAL IMPROVEMENT ELEMENT: TABLE J-7  
 NASSAU COUNTY, FLORIDA  
 CAPITAL IMPROVEMENTS SCHEDULE, (Sheet 1 of 3)**

01/31/91

FACILITY	YEAR REQUIRED	CONSISTENT W/ OTHER ELEMENTS	PROJECT EXPENSE *	Capital Improvements Element Projects						IMPROVEMENT FUNDING SOURCE		
				FY 90-91	FY 91-92	FY 92-93	FY 93-94	FY 94-95	FY 95-96	INTER- GOVERN- MENTAL REVENUE	PLEGDED COUNTY ENTERPRISE REVENUES	PLEGDED COUNTY IMPACT FEES
FLORIDA DEPARTMENT OF TRANSPORTATION FIVE-YEAR WORK PROGRAM (10/17/90)												
1. SR A1A from CR 105A to SR 200 Pave Shoulders and Resurface	1991-92	Yes	\$312,000		\$312,000							
2. SR 200 from Mickler to east of US 1 Add Lanes and Reconstruct	1992-93	Yes	\$1,148,000			\$1,148,000						
3. SR A1A and SR 200 Susan Drive to south Add Right Turn Lanes	1992-93	Yes	\$89,000			\$89,000						
4. SR 107 from the beginning of FDOT Maintenance to SR 200 Resurface/Repave	1992-93	Yes	\$1,596,000			\$1,596,000						
5. US 17 at SR A1A Upgrade Existing Traffic Signals	1992-93	Yes	\$38,000			\$38,000						
6. SR A1A at Piney Island Add Right Turn Lanes	1992-93	Yes	\$88,000			\$88,000						
7. US 90 from Baker Co. Line to Duval Co. Line Widen and Resurface	1993-94	Yes	\$846,000				\$846,000					
8. SR 200/A1A from East of US 1 to I-95 Widen and Resurface	1993-94	Yes	\$4,259,000				\$4,259,000					
9. SR A1A from 8th St. to Fletcher Ave. Resurface/Repave	1993-94	Yes	\$728,000				\$728,000					
10. SR 200 at Southern Coastline RR Crossing New Road Construction	1994-95	Yes	\$2,927,000					\$2,927,000				
11. SR A1A from Amelia River to South of Lime St. Resurface/Pave Shoulders	1994-95	Yes	\$1,227,000					\$1,227,000				
12. A1A at Nassau Sound Replace Bridge	1995-96	Yes	\$8,446,000						\$8,446,000			
13. US 17 from Duval Co. to I-95 Resurface/Pave Shoulders	1995-96	Yes	\$5,234,000						\$5,234,000			
14. US 17 at St. Marys River Replace Bridge	1995-96	Yes	\$3,757,000						\$3,757,000			
<b>FDOT FIVE-YEAR WORK PROGRAM SUBTOTAL:</b>			<b>\$30,695,000</b>	<b>\$0</b>	<b>\$312,000</b>	<b>\$2,959,000</b>	<b>\$5,033,000</b>	<b>\$4,154,000</b>	<b>\$17,437,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

FUNDING SOURCE:  
  
 STATE OF FLORIDA  
  
 DEPARTMENT OF TRANSPORTATION  
  
 FIVE-YEAR WORK PROGRAM  
  
 FOR NASSAU COUNTY  
  
 ADOPTED: OCT. 17, 1990

\* Estimates to be Revised based upon Availability of more Precise Information  
 Cost Estimates are in 1990 Dollars

**CAPITAL IMPROVEMENT ELEMENT: TABLE J-7  
 NASSAU COUNTY, FLORIDA  
 CAPITAL IMPROVEMENTS SCHEDULE, (Sheet 2 of 3)**

01/31/91

FACILITY	YEAR REQUIRED	CONSISTENT W/ OTHER ELEMENTS	PROJECT EXPENSE *	Capital Improvements Element Projects					IMPROVEMENT FUNDING SOURCE		PLEGGED COUNTY IMPACT FEES
				FY 90-91	FY 91-92	FY 92-93	FY 93-94	FY 94-95	COUNTY TRANSPORTATION FUND REVENUE	LOCAL OPTION GAS TAX BONDS	
<b>TRAFFIC CIRCULATION FACILITIES</b>											
1a. Widen 14th Street from 1,000' north of T.J. Courson to Sadler Road and b. widen Sadler Road from SR200 to Susan Drive	1990-91	Yes	\$1,800,000	\$1,800,000						\$800,000	\$1,079,486
<b>PAVING UNIMPROVED ROADS</b>											
3a. Crawford Rd. (West) US 301 West	1990-91	Yes	\$140,000 **	\$70,000	\$70,000				\$70,000	\$70,000	
3b. Sandy Ford Rd. US 301 West	1990-91	Yes	\$140,000 **	\$140,000					\$70,000	\$70,000	
3c. Lessie Rd. CR 108 - Coles Ferry Rd.	1990-91	Yes	\$1,520,000 **	\$760,000	\$780,000					\$1,520,000	
3d. Freddie Geiger Rd. CR 108 - CR 115	1990-91	Yes	\$602,000 **	\$602,000					\$301,000	\$301,000	
3e. SR 107 Rte. Acquisition SR A1A/200 - Santa Juana Dr.	1990-91	Yes	\$250,000 **	\$250,000						\$250,000	
3f. Middle/Griffin Rd. CR 108 - Griffin Rd.	1990-91	Yes	\$1,197,000 **	\$800,000	\$397,000					\$1,197,000	
3g. Middle/Haddock Rd. Middle Rd. - Coles Ferry Rd.	1990-91	Yes	\$1,045,000 **	\$1,045,000						\$1,045,000	
3h. Tommy Ford Rd. To Duval Cty. Line	1990-91	Yes	\$280,000 **	\$140,000	\$140,000				\$140,000	\$140,000	
3i. Crawford/Ratliff Rd. US 301 - Duval Cty. Line	1991-92	Yes	\$1,026,000 **		\$1,026,000					\$1,026,000	
3j. Blarney/Craig Marsh Rd. SR 115 - SR 115	1991-92	Yes	\$342,000 **		\$342,000					\$342,000	
3k. Murrhee Road Cowins Rd. - Hampton Lake Rd.	1991-92	Yes	\$304,000 **		\$304,000					\$304,000	
3l. Hampton Lake Rd. Hampton Lake - Murrhee Rd.	1991-92	Yes	\$399,000 **		\$399,000					\$399,000	
<b>COUNTY TRANSPORTATION SUBTOTAL</b>			<b>\$9,045,000</b>	<b>\$5,607,000</b>	<b>\$3,438,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$581,000</b>	<b>\$7,484,000</b>	<b>\$1,079,486</b>

\* Estimates to be Revised based upon Availability of more Precise Information  
 Cost Estimates are in 1990 Dollars.

\*\* Contingent upon Right-of-Way acquisition.

Source: Office of the Nassau County Engineer, Jan., 1991.

Prepared By: NORTHEAST FLORIDA REGIONAL PLANNING COUNCIL

CAPITAL IMPROVEMENT ELEMENT: TABLE J-7  
 NASSAU COUNTY, FLORIDA  
 CAPITAL IMPROVEMENTS SCHEDULE, (Sheet 3 of 3)

02/01/91

FACILITY	YEAR REQUIRED	CONSISTENT W/ OTHER ELEMENTS	PROJECT EXPENSE *	Capital Improvements Element Project					IMPROVEMENT FUNDING SOURCE			
				FY 90-91	FY 91-92	FY 92-93	FY 93-94	FY 94-95	COUNTY GENERAL FUND REVENUE	INTER- GOVERN- MENTAL REVENUE	PLEGGED COUNTY ENTERPRISE REVENUES	PLEGGED COUNTY SUBDIVISION EXACTIONS
SANITARY SEWER FACILITIES												
None												
SOLID WASTE FACILITIES												
1. West Nassau Landfill Closure	1991-92	Yes	\$4,000,000		\$1,000,000	\$3,000,000					\$4,000,000	
2. West Nassau Landfill Class I & III Construction	1991-92	Yes	\$6,000,000		\$2,000,000	\$3,000,000					\$5,000,000	
3. Lofton Creek Landfill Closure	1992-93	Yes	\$5,000,000			\$2,000,000	\$3,000,000				\$5,000,000	
4. Bryceville Landfill Closure	1992-93	Yes	\$3,000,000			\$1,000,000	\$2,000,000				\$3,000,000	
SANITARY SEWER FACILITIES SUBTOTAL			\$17,000,000	\$0	\$3,000,000	\$9,000,000	\$5,000,000	\$0	\$0	\$0	\$17,000,000	\$0
DRAINAGE FACILITIES												
None												
POTABLE WATER FACILITIES												
None												
RECREATION / OPEN SPACE												
1. Acquire Parkland												
a. 6 acres	1990-91	Yes	\$60,000	\$60,000								\$60,000
b. 10 acres	1991-92	Yes	\$100,000		\$100,000							\$100,000
c. 10 acres	1992-93	Yes	\$100,000			\$100,000						\$100,000
d. 10 acres	1993-94	Yes	\$100,000				\$100,000					\$100,000
e. 10 acres	1994-95	Yes	\$100,000					\$100,000				\$100,000
2. Basketball/Multipurpose												
a. One court	1993-94	Yes	\$18,000				\$18,000					\$18,000
b. One court	1994-95	Yes	\$18,000					\$18,000				\$18,000
3. Picnic Shelters												
a. Three Shelters	1990-91	Yes	\$4,800	\$4,800								\$4,800
b. One Shelter	1991-92	Yes	\$1,600		\$1,600							\$1,600
c. Two Shelters	1992-93	Yes	\$3,200			\$3,200						\$3,200
d. One Shelter	1993-94	Yes	\$1,600				\$1,600					\$1,600
e. One Shelter	1994-95	Yes	\$1,000					\$1,000				\$1,000
4. Tennis Courts												
a. One court	1992-93	Yes	\$20,000			\$20,000						\$20,000
b. One court	1993-94	Yes	\$20,000				\$20,000					\$20,000
RECREATION / OPEN SPACE SUBTOTAL			\$544,800	\$64,800	\$101,600	\$123,200	\$137,600	\$117,600	\$0	\$0	\$0	\$544,800

\* Estimates to be Revised based upon Availability of more Precise Information  
 Cost Estimates are in 1990 Dollars

## NASSAU COUNTY-COMPARISON OF PLEDGED REVENUE TO OUTSTANDING DEBT

FISCAL YEARS: 1990-91 THROUGH 2005-06

Fiscal Year	Pledged Revenues			Debt Service			Estimated Debt Service Coverage Ratio	
	Six Cent Gas Tax	Race Track Funds	Total	Series 1988 Six Cent Gas Tax	Series 1974 Six Cent Gas Tax	Series 1966 Race Track Funds		Total
1990-91	\$1,778,296	\$100,000	\$1,878,296	\$948,452	\$273,024	\$99,680	\$1,321,156	1.42
1991-92	1,856,459	100,000	1,956,459	947,852	273,024	99,940	1,320,816	1.48
1992-93	1,938,057	100,000	2,038,057	946,022	273,024	99,980	1,319,026	1.55
1993-94	2,023,242	100,000	2,123,242	947,932	273,024	99,800	1,320,756	1.61
1994-95	2,112,171	100,000	2,212,171	948,212	273,024	99,400	1,320,636	1.68
1995-96	2,205,009	100,000	2,305,009	946,977	273,024	99,780	1,319,781	1.75
1996-97	2,301,928	100,000	2,401,928	939,207	273,024	112,885	1,325,116	1.81
1997-98	2,403,106		2,403,106	949,535	273,024		1,222,559	1.97
1998-99	2,508,732		2,508,732	947,935	273,024		1,220,959	2.05
1999-00	2,619,000		2,619,000	949,180	273,024		1,222,204	2.14
2000-01	2,734,115		2,734,115	948,077	273,024		1,221,101	2.24
2001-02	2,854,289		2,854,289	944,597	273,024		1,217,621	2.34
2002-03	2,979,746		2,979,746	948,710	273,024		1,221,734	2.44
2003-04	3,110,717		3,110,717	944,655	273,024		1,217,679	2.55
2004-05	3,247,445		3,247,445	947,760	273,024		1,220,784	2.66
2005-06	3,390,182		3,390,182	947,250			947,250	3.58
<b>Total</b>	<b>\$40,062,494</b>	<b>\$700,000</b>	<b>\$40,762,494</b>	<b>\$15,152,353</b>	<b>\$4,095,360</b>	<b>\$711,465</b>	<b>\$19,959,178</b>	

**APPENDIX "A"**

---

**CONCURRENCY MANAGEMENT SYSTEM  
NASSAU COUNTY COMPREHENSIVE PLAN**

Prepared by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

**CONCURRENCY MANAGEMENT SYSTEM  
NASSAU COUNTY, FLORIDA**

**TABLE OF CONTENTS**

<u>Description</u>	<u>Page</u>
Introduction.....	1
Relationship of the Concurrency Management System to the Comprehensive Plan.....	1
Definitions.....	2
Procedures for Application and Evaluation.....	3
A. Application.....	3
B. Criteria for Concurrency Evaluation.....	4
Determination of Concurrency Finding (Exhibit B).....	6
A. Schedule of Availability.....	6
B. Finding of Deficiency.....	8
C. Finding of Concurrency.....	8
Period of Concurrency Validation.....	8
A. Schedule of Reserved resources.....	8
B. Expiration of Concurrency Approval.....	9
Operating Procedures of the Concurrency Management System.....	10
A. Maintaining Level of Service Records.....	10
B. Monitoring.....	10
C. Exceptions.....	10
EXHIBIT A: Nassau County Land Use Amendment Change Request....	i
EXHIBIT B: Nassau County Capacity Determination Form.....	ii



NASSAU COUNTY  
PROCEDURES AND GUIDELINES FOR A CONCURRENCY MANAGEMENT SYSTEM  
AS IT RELATES TO  
THE ISSUANCE OF DEVELOPMENT PERMITS WITHIN NASSAU COUNTY;  
PROVIDING FOR: LEVELS OF SERVICE; THRESHOLD CAPACITY LIMITS;  
CONDITIONS OF APPROVAL AND EXEMPTIONS

Introduction

Chapter 163.3202, Florida Statutes, requires that local governments adopt land development regulations within one year after submission of its revised comprehensive plan; and that the local land development regulations contain specific and detailed provisions necessary or desirable to implement the adopted comprehensive plan.

The land development regulations shall provide that public facilities and services meet or exceed the standards established in the Capital Improvements element and are available in accordance with the minimum requirements for concurrency specified in Section 9J-5.0055(2)(a), (b) and (c). According to Florida Statute, a local government shall not issue a development permit which results in a reduction in the level of services for the affected public facilities below the level of services provided in the comprehensive plan.

The Concurrency Management System is designed to measure the potential impact of any development permit application upon the established minimum acceptable levels of service (LOS) and shall control the issuance of development orders/permits dependent upon the ability of the infrastructure (potable water, sanitary sewer, drainage, roads and recreational facilities) to support the proposed development.

Relationship of the Concurrency Management System to the Comprehensive Plan

The Concurrency management System implements the following Goals, Objectives and Policies of the Nassau County Comprehensive Plan - 2005, adopted January, 1991.

(a) Future Land Use Element:

Objective 1.01	Policy 1.05.03
Policy 1.01.02	Policy 1.06.04
Policy 1.01.04	Objective 1.07
Policy 1.01.05	Policy 1.07.01
Policy 1.01.06	Policy 1.07.02
Policy 1.01.07	Policy 1.08.04
Policy 1.03.04	Policy 1.08.07
Policy 1.03.05	Policy 1.08.09
Policy 1.04A.03	
Policy 1.04A.04	

(b) Traffic Circulation Element:

Objective 2.01	Policy 2.04.03
Policy 2.01.01	Objective 2.05
Objective 2.02	Policy 2.05.01
Policy 2.02.03	Policy 2.05.02
Objective 2.03	Policy 2.05.03
Policy 2.03.03	Policy 2.05.04
Policy 2.03.04	Policy 2.05.05
Policy 2.03.05	

(c) Public Facilities Element:

Objective 4.01	Policy 4.03.04
Policy 4.01.01	Policy 4.03.06
Policy 4.01.02	Policy 4.05B.03
policy 4.01.03	Policy 4.05B.06
Objective 4.03	Policy 4.05B.07
Policy 4.03.02	

(d) Recreation and Open Space Element:

Objective 7.01	Objective 7.02
Policy 7.01.01	Policy 7.02.05
Policy 7.01.02	Policy 7.02.06
Policy 7.01.04	Policy 7.02.07
Policy 7.01.06	Objective 7.03
Policy 7.01.10	Policy 7.03.01
Policy 7.01.15	Policy 7.03.03
	Policy 7.03.04

(e) Capital Improvements Element

Policy 9.01.07	Policy 9.05.02
Objective 9.02	Policy 9.05.04
Policy 9.02.03	Policy 9.05.05
Policy 9.02.04	Policy 9.05.06
Policy 9.02.05	Objective 9.06
Objective 9.05	Policy 9.06.01
Policy 9.05.01	Policy 9.06.03
	Policy 9.06.04

Definitions

- (a) "Availability" or "Available", with regard to the provision of facilities and services concurrent with the impacts of development, means that at a minimum the facilities and services will be provided in accordance with the standards set forth in Rule 9J-5.0055(2), Florida Administrative Code.
- (b) "Capital Improvement" means physical assets constructed or purchased to provide, improve or replace a public facility and which are large scale and high in cost. The cost of a capital

improvement is generally nonrecurring and may require multi-year financing. For the purposes of this rule, physical assets which have been identified as existing or projected needs in the individual Comprehensive Plan elements shall be considered capital improvements.

- (c) "Certificate of Concurrency" is a document prepared by the office of the building official which certifies that sufficient infrastructure resources are available to meet the requirements of a proposed development.
- (d) "Concurrency" means that the necessary public facilities and services to maintain the adopted level of service standards are available when the impacts of development occur.
- (e) "Concurrency Management System" means the procedures and/or process that the local government will utilize to assure that development orders and permits are not issued unless the necessary facilities and services are available concurrent with the impacts of development.
- (f) "Development Order" includes building permits, Approved DRIs, Approved subdivision plans.
- (g) "Impact" means the effect of development on infrastructure resources.
- (h) "Infrastructure" includes potable water, sanitary sewer, drainage, roads and recreational facilities.
- (i) "Level of Service" (LOS) is the amount of an infrastructure resource established by the Comprehensive Plan as the minimum amount acceptable by the County to support citizen needs.

#### Procedures for Application and Evaluation.

##### A. Application

1. Application for a Concurrency Evaluation concurrent with a request for a Land Use Change Amendment.

Any party requesting a change of land use must provide the County with sufficient information to determine the practicality of effecting such a change. The party making such a request must provide the following information to the County Building Official, on a form provided by the County (Exhibit A) and pay such fee as may be established by resolution of the Board of County Commissioners:

- a. Applicant name, address and telephone number.
- b. Owner name, address and telephone number.
- c. General location of parcel.
- d. Number of acres or fraction thereof.

- e. Existing Land Use designation.
- f. Proposed Land Use designation.
- g. Number of units to be developed, by type.
- h. Roads serving site.
- i. Recreational facilities serving site.
- j. Will site be served by central water? sewer?
- k. Is site in 100 year flood zone?
- l. Does site contain critical habitat for endangered/threatened species?
- m. Will proposed change affect beach accessibility?
- n. State reason for requested change.

Approval of an application for a land use change amendment to the Comprehensive Plan does not reserve infrastructure capacity for future development.

- 2. Application for a Certificate of Concurrency prior to approval of a site plan, subdivision plat or building.

Any party requesting a Certificate of Concurrency in conjunction with or prior to application for site plan, subdivision plat or building permit approval, must provide the County Building Official with the information required with an application for a change of land use, plus the following information, and pay such fee as may be established by resolution of the Board of County Commissioners.

- a. Legal description of the property.
- b. Current zoning.
- c. Where potable water/sanitary sewer is to be provided by the County or other public/private centralized system, the applicant must provide sufficient information for the County to determine gallon-per-day demand on the available facilities to meet development requirements.

Once a "certificate of concurrency" is issued for a proposed development, the development must proceed at a level consistent with the information on which the concurrency evaluation was based. If, during any stage in the development process, the applicant increases the density or intensity of the development, or creates any other substantial deviation from the approved development, the certificate of concurrency will be cancelled and an additional fee must be paid for the County to conduct a new concurrency evaluation and issue a new certificate of concurrency based upon the revised application.

#### B. Criteria for Concurrency Evaluation

The following criteria shall be applied to determine whether levels of service available for the five critical components of infrastructure (potable water, sanitary sewer, drainage, recreation and roads) are adequate to support the proposed development:

1. Traffic Circulation (Roads):

- a. The capacity for transportation facilities shall be evaluated using the table: "Maximum Peak Hour Volume for each LOS by Facility Type", as adopted by FDOT and published in the Level of Service Standards and Guidelines Manual, Florida Highway System Plan; latest edition.
- b. The impact on the transportation network shall be determined using the trip generation standards cited in the ITE Trip Generation Manual (latest edition).
- c. The impact of traffic generated by a development on local roads shall be evaluated for its impact on the nearest point of ingress/egress to a road designated as "the system" in the Nassau County Comprehensive Plan.
- d. The calculation of infrastructure demand impact for purpose of issuing a "Certificate of Concurrency" shall be based upon 100 percent buildout of the proposed development. A Certificate of Concurrency may be issued for a single (or more) phase of development if the development order specifies a phased development schedule.

2. Sanitary Sewer:

- a. The impact of a proposed development on available public/private sanitary sewer facilities shall be calculated by first establishing available capacity which is to be determined by subtracting the currently committed capacity (those demands already on-line, plus demands for which a Certificate of Concurrency already has been issued) from the design capacity of the collection and wastewater treatment facilities; and second, subtracting the anticipated demand of the proposed development from available capacity to determine impact.
- b. The impact on the wastewater treatment plant shall be determined utilizing the County's current LOS standard for sanitary wastewater.
- c. Where septic tanks are to be utilized for sanitary sewer effluent disposal pending hook-up to a central sanitary sewer system, the Nassau County Health Services Division shall utilize the standards of Chapter 10 D-6 F.A.C. to determine acceptability of the application. The applicant shall submit a certificate from the Nassau County Health Department that certifies the site is or can be made suitable for septic tank operation before a Certificate of Concurrency may be issued.

3. Potable Water:

- a. The impact of a proposed development on available public/private centralized potable water facilities shall be calculated in a manner as described in 2.1. for sanitary sewer determination.
- b. The impact on the treatment plant shall be determined utilizing the County's current LOS standard for potable water.
- c. Where private wells are to be utilized, the standards of the St. Johns River Water Management District and applicable state regulations shall apply and proof of compliance with these regulations shall be required prior to the issuance of a Certificate of Concurrency.

4. Drainage Facilities:

The adequacy of stormwater drainage facilities for proposed developments shall be determined at the time of the engineering review based upon the current Nassau County LOS criteria for drainage.

5. Recreation Facilities and Open Space:

- a. The adequacy of open space shall be based upon the current Nassau County Recreation and Open Space LOS criteria. In no event, shall the open space provided be less than that required in the Nassau County Road Construction and Subdivision Regulations, Ordinance No. 87-18, as amended.

The need for developed recreational facilities shall be based upon the number and availability of recreational facilities as required by the LOS in the County's Comprehensive Plan Recreation and Open Space Element.

- b. The impact of a proposed development on the County's Open Space or Recreation LOS shall be calculated in a manner as described in 2.a. for sanitary sewer determination.

Determination of Concurrency Finding (Exhibit B)

A. Schedule of Availability

In order to pass the test of concurrency, components of infrastructure must be available to the proposed development in accordance with the following schedule taken from Chapter 9J-5.0055:

1. 9J-5.0055(2)(a) -- For potable water, sanitary sewer, solid waste and drainage, at a minimum infrastructure must satisfy the following standards to meet the concurrency requirement:
  - a. The necessary facilities and services are in place at the time a development permit is issued; or
  - b. A development permit is issued subject to the condition that the necessary facilities and services will be in place when the impacts of the development occur; or
  - c. The necessary facilities are under construction at the time a permit is issued; or
  - d. The necessary facilities and services are guaranteed in an enforceable development agreement that includes the provisions of Rules 9J-5.0055(2)(a)1.-3. An enforceable development agreement may include, but is not limited to, development agreements pursuant to section 163.3220, Florida Statutes, or an agreement or development order issued pursuant to Chapter 380, Florida Statutes. The agreement must guarantee that the necessary facilities and services will be in place when the impacts of the development occur.
  
2. 9J-5.0055(2)(b) -- For open space and recreation the proposed development must satisfy the following standards to meet the concurrency requirement:
  - a. Comply with the standards defined above for potable water, sanitary sewer, solid waste and drainage; or
  - b. At the time the development permit is issued, the necessary facilities and services are the subject of a binding executed contract which provides for the commencement of the actual construction of the required facilities or the provision of services within one year of the issuance of the development permit; or
  - c. The necessary facilities and services are guaranteed in an enforceable agreement which requires the commencement of the actual construction of the facilities or the provision of services within one year of the issuance of the applicable development permit. An enforceable development agreement may include, but is not limited to, development agreements pursuant to Section 163.3220, Florida Statutes, or an agreement or development order issued pursuant to Chapter 380, Florida Statutes.
  
3. 9J-5.0055(2)(c) -- For roads designated in the adopted Comprehensive Plan, the proposed development must meet the standards identified in 1. and 2. above.

B. Finding of Deficiency

If the concurrency evaluation test finds that a proposed development will cause a deficiency on any public facility or service for which a LOS has been established, the County reserves the authority to take any of the following actions:

- deny or defer the development proposal,
- cause the development request to be modified to achieve consistency with the County's minimum LOS, or
- process the application as a conditional development permit subject to later review and modification.

C. Finding of Concurrency

If the concurrency evaluation test finds the proposed development meets concurrency requirements a "Certificate of Concurrency" is issued by the Building Official and the request for development approval may proceed through to site plan, subdivision or building permit approval.

Period of Concurrency Validation

A. Schedule of Reserved Resources

When a Certificate of Concurrency is issued, the infrastructure resources required by the proposed development are removed from the "available" category and placed in the "reserved" category of infrastructure resources. This reservation of resources is approved for a limited period in accordance with the schedule presented below:

1. For a site development plan approval, the finding shall remain valid for a period not to exceed 6 months, except where the intensiveness of the approved use on the most recent concurrency evaluation is exceeded. In the latter instances, another concurrency evaluation test shall be required. However, the validity period may be extended administratively for two 6 month periods upon a showing of a good faith effort to proceed. The standards for establishing a good faith effort to proceed shall be subsequently established by Resolution by the Board of County Commissioners.
2. For a residential subdivision, or phase, or unit thereof, including residential subdivision phases of planned unit developments, the finding shall remain valid for a period not to exceed 60 months from the date of the construction permit's approval, providing the work authorized proceeds in a timely manner as prescribed by the Board of County Commissioners.



3. For an individual single-family lot or parcel, the finding shall remain valid for 24 months, provided a construction building permit is obtained within that time, and the work authorized proceeds in a timely manner. Lots included within subdivisions which have not passed a concurrency evaluation or where the concurrency evaluation and vesting period have expired are included in this category.
4. For a commercial, industrial or multi-family building permit, the finding shall remain valid for 36 months, provided a construction building permit is obtained within that timeframe, and work authorized proceeds in a timely manner.

B. Expiration of Concurrency Approval

Where any of the applicable time periods, as set forth in A.1, 2, 3 or 4 above, expire, a new concurrency evaluation shall be required with all applicable fees once again paid to the County.

Operating Procedures of the Concurrency Management System

A. Maintaining Level of Service Records

The Concurrency Management System shall maintain a cumulative record of the level of service capacity which is (1) in use, (2) in reserve, or (3) available. This record shall be available to the public at the office of the County Building Official.

B. Monitoring

The Building Official shall maintain all records of the status of infrastructure commitment. Records will be reviewed quarterly to ensure that developments having committed use of resources remain functional and that projects having reserved use of resources are proceeding within allocated schedules. When committed resources are no longer required or when projects with reserved resources are not proceeding on schedule, these resources will be returned to the category of "available" resources.

C. Exceptions

The following development activities are exempt from the provisions of this Ordinance:

1. Construction of public transportation, potable water, sanitary sewer, solid waste, drainage, roads, and/or recreational facilities which serve the general public or any development determined by the Board of County Commissioners as providing for public health, safety or welfare;
2. Accessory structures to established principal land uses provided the principal land use in place and functional; and

3. Any on-going Development of Regional Impact or other vested development as determined by the Board of County Commissioners on advice of legal counsel.

**EXHIBIT A  
NASSAU COUNTY LAND USE AMENDMENT CHANGE REQUEST**

DATE: \_\_\_\_\_

1. Application Number: \_\_\_\_\_

2. Applicant Name: \_\_\_\_\_

Address: \_\_\_\_\_

3. Agent Name: \_\_\_\_\_

Address: \_\_\_\_\_

4. Owner Name(s): \_\_\_\_\_

Address: \_\_\_\_\_

5. General Location: \_\_\_\_\_

6. Number of Acres or Fraction Thereof: \_\_\_\_\_

7. Location Map: (Attachment A) \_\_\_\_\_

8. Legal Description: (Attachment B) \_\_\_\_\_

9. Current Zoning Map: (Attachment C) \_\_\_\_\_

10. Proposed Land Use Change

a) Current Designation: \_\_\_\_\_

b) Proposed Designation: \_\_\_\_\_

11. Population Assumptions

a) Maximum population of site now under current land use:

\_\_\_\_\_

b) Maximum population under proposed land use: \_\_\_\_\_

12. Traffic Circulation

a) Facilities immediately serving site:

Road	Current ADT	Projected ADT
_____	_____	_____
_____	_____	_____
_____	_____	_____

13. Recreation and Open Space

a) Facilities immediately serving site:

---

---

---

b) Is this site within a targeted Park Land? (Y/N) \_\_\_\_\_

14. Water/Sewer

Provided On-Site: \_\_\_\_\_

Provided by Off-Site Utility (Name): \_\_\_\_\_

Water: \_\_\_\_\_

Sewer: \_\_\_\_\_

Letter of Confirmation for projected capacities: if provided by Utility System. (Attachment D)

15. Conservation

a) Does site contain critical habitat for endangered/potentially endangered species? (Y/N): \_\_\_\_\_

b) If yes, identify species and show location on site map.

c) Is site in a flood zone?: (Y/N): \_\_\_\_\_

16. Coastal

a) Will proposed change impact evacuation times: \_\_\_\_\_

1) If yes, describe impact: \_\_\_\_\_

b) Will proposed change affect beach accessibility?: \_\_\_\_\_

---

17. Additional Comments: \_\_\_\_\_

---

---

---

---

EXHIBIT B  
 NASSAU COUNTY CAPACITY DETERMINATION FORM

RECORD No. \_\_\_\_\_

DATE OF CONCURRENCY  
 TEST STATEMENT USED: \_\_\_\_\_

(Please record this Record Number  
 with all subsequent development  
 orders issued for this parcel)

Status of Facility/Service:

Traffic            SEE ATTACHED TRANSPORTATION CONCURRENCY  
 Circulation       ANALYSIS REPORT

Water Supply	Acceptable _____ Unacceptable _____ Not Applicable _____	Service Provider _____ Service Area _____
-----------------	--	--

Sanitary Sewer	Acceptable _____ Unacceptable _____ Not Applicable _____	Service Provider _____ Service Area _____
-------------------	--	--

Solid Waste	Acceptable _____ Unacceptable _____
----------------	--

Representative Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE OF ISSUE \_\_\_\_\_

An acceptable determination means that Nassau County has reviewed the applicant's capacity request for the indicated facility/service, and has determined that, as of the date of the applicant's request, capacity for the indicated facility is available. **This determination addresses capacity only, it does not guarantee that water taps, sewer taps, or other infrastructure is readily available.** This reservation will be good for the period of time specified by the Concurrency Management System. Failure to obtain any development orders/permits within the required time limits will cause this capacity reservation to become invalid.

**CAPITAL IMPROVEMENTS  
GOAL 9.0**

The Board of County Commissioners through its designated local planning agency shall ensure the orderly and efficient provision of all public facilities necessary to serve existing and future local population needs.

**OBJECTIVE 9.01**

#7  
#11  
Upon plan adoption, capital improvements shall be provided to: correct existing deficiencies, accommodate desired future growth and replace worn-out or obsolete facilities as indicated in the Five-Year Schedule of Improvements. Capital improvements in the context of the Comprehensive Plan shall include the traffic circulation system, potable water, sewage, solid waste, drainage, and recreation and open space facilities.

**Policies**

#9  
9.01.01 Capital improvements in the context of the Comprehensive Plan shall be defined as those improvements which are limited to a one time minimum expenditure of \$25,000 including land and do not include expenditures for equipment, operations and maintenance costs. The funding of improvements of less than the minimum stipulated amount shall be included in the Capital Improvements Program and are subject to the criteria established in formulating that specific program.

#12  
9.01.02 By May 1, 1991, the County shall maintain and annually inventory a Five-Year Capital Improvements Schedule detailing the expenditures necessary for each new or renovated public facility, ranked in a list of need priorities and then compared with estimated funds available for debt service. The inventory shall include all deficiencies as well as projected capital improvements requirements to satisfy deficiencies and meet projected demands in the referenced subject areas of the Comprehensive Plan.

#9  
#12  
#13  
#15  
9.01.03 Review all current deficiencies reported in the Comprehensive Plan and identify facility needs in accordance with the following criteria.

1. Facilities that are needed to protect, or that eliminate a hazard to, the public health, welfare or safety.
2. Facilities that must be upgraded to eliminate existing capacity deficits.
3. Facilities required to serve development areas that have vested development approval prior to the adoption of the plan.
4. Facilities required to serve redevelopment areas identified in the comprehensive plan.
5. Facilities needed to provide service to new development in accord with the land use element of the plan.
6. Facilities that will serve the identified needs in future plans of the St. Johns River Water Management District and other state agencies that may provide public facilities within the County.

- # 12  
# 11      9.01.04      Review projects with each department and appropriate consultants or other sources to provide best cost and time estimates for each proposed facility.
- # 9      9.01.05      Include all identified facility needs identified in the Public Facilities, Recreation and Traffic Circulation Elements.
- # 9      9.01.06      Review the Nassau County budget and other available revenue sources and estimate future funds available for public facility debt service.
- # 18      9.01.07      Review outstanding land development orders to ensure public facility impacts of development are included in the capital budgeting process annually.
- # 9      9.01.08      Review all proposed new capital facilities against the criteria contained in the various Comprehensive Plan Elements to ensure that the proposed facilities are in conformance with the planned goals and objectives of Nassau County.
- # 14      9.01.09      Include adoption of a Five Year Capital Budget with an annually updated Five Year Schedule of Improvements (Table J-7) at the time of the adoption of the annual governmental budget of Nassau County.
- # 14      9.01.10      There shall be no limitation placed on the use of revenue bonds as a percentage of the total public debt of Nassau County.
- # 14      9.01.11      The maximum debt service that may be outstanding for capital improvement bonds in any given year shall not exceed the total of ten (10) percent of the general fund revenues and there shall be no limitation placed on the use of enterprise fund revenues for debt service as estimated to be collected by the County in that year.
- # 14      9.01.12      The ratio of outstanding capital improvement bonded indebtedness shall not exceed ten (10) percent of the total nonexempt real property just value (ad valorem tax base) of the County.

**OBJECTIVE 9.02  
LEVEL OF SERVICE (LOS) STANDARDS**

The County shall adopt Level of Service (LOS) standards against which the adequacy and deficiencies of facilities may be measured.

**Policies**

- # 16      9.02.01      Upon plan adoption, the Level Of Service (LOS) standards which the County shall ensure are provided for new development, and which the County shall meet within the planning period, where existing deficiencies are noted shall be in accordance with the following criteria:

PUBLIC FACILITY CATEGORY

COUNTY STANDARD

**Roadways:**

Principal Arterials - State	LOS "D" AADT LOS "E" PKHR
Minor Arterials - State	LOS "D" AADT LOS "E" PKHR
Collectors - County	LOS "C" AADT LOS "D" PKHR

**Sanitary Sewer Facilities**

Fernandina Beach	Level of Service Standard 172 gallons per capita per day with 1.2 peak factor
Southern States	76.8 gallons per capita per day with 1.2 peak factor
Sunray	85 gallons per capita per day with 1.2 peak factor

**Solid Waste Facilities**

Average Solid Waste Generation Rate	5.12 pounds per capita per day
	<u>0.78 pounds per capita per day at Sandhill</u>
	<u>4.34 pounds per capita per day at West Nassau</u> <u>(Both will be combined at the new West Nassau</u> <u>facility as shown in Table D-4)</u>

**Drainage Facilities**

<u>Water Quality</u>	<u>Applicable local standards as well</u> <u>as water quality standards</u> <u>specified by Chapter 17-3, Sec-</u> <u>tion 17--3.051, F.A.C. shall apply.</u>
<u>Wetland Stormwater Discharge</u>	<u>Permits for Wetland stormwater</u> <u>discharge shall follow F.A.C. 17-</u> <u>25.042.</u>
<u>Stormwater Discharge Facilities</u>	<u>Permits for construction of new</u> <u>stormwater discharge facilities</u> <u>shall follow F.A.C. 17-25.040.</u>
<u>Closed Conduits</u>	<u>10-year frequency, 24-hour duration;</u> <u>IDF curve Zone 5, DOT Drainage</u> <u>Manual 1987.</u>
<u>Open channels</u>	<u>25-year frequency, 24-hour dura-</u> <u>tion; IDF curve Zone 5, DOT Drain-</u> <u>age Manual 1987.</u>



Potable Water Facilities	Average Water Consumption Rate
Florida Public Utilities	170.9 gallons per capita per day with 1.6 peak factor
Southern States	81 gallons per capita per day with 1.5 peak factor
Sunray	100 gallons per capita per day with 2.0 peak factor

Recreation Resource/Facility	Resource Unit per Population Served
Picnic Tables/Shelters	1: 1,500
Tennis Court	1: 4,000
Football/Soccer Field	1: 3,000
Basketball Court	1: 2,500
Baseball/Softball Field	1: 2,000
Swimming Pool	1:12,500
Equipped Play Area	1: 2,500
Boat Ramps	1: 5,000
Parkland and Open Space	Acres Per 1000 Population
<u>Play Area /Tot Lot</u>	<u>0.5 Ac/1000</u>
<u>Neighborhood Park/Play field</u>	<u>2.0 Ac/1000</u>
<u>Community Park</u>	<u>2.0 Ac/1000</u>
<u>Community Passive Space</u>	<u>1.0 Ac/1000</u>
<u>District/Metro Area Parks</u>	<u>5.0 Ac/1000</u>
<u>Regional/State Parks</u>	<u>20.0 Ac/1000</u>
<u>Beach Access w/ Parking</u>	<u>0.5 Ac/1000</u>
# 17 (a) Total	<u>31.0 Ac/1000</u>

# 17 (a) 9.02.02 The County shall continually review the established local capital improvement LOS criteria on the basis of consistency with the Five-Year Capital Improvements Schedule, local comprehensive planning activities, cost feasibility and effectiveness, relative magnitude and term of need, the ability to use other jurisdictional capital improvements through interlocal agreements, and overall budget impacts.

# 17 (b) 9.02.03 In accordance with the requirements of 9-J5.0055(2)(c)F.A.C., the County may permit a temporary deviation of one LOS below the adopted levels of service for roads or segments of roads for one period of not more than three fiscal years, where the transportation project is included: in the first three years of the applicable adopted FDOT Five-Year Work Program, or in the first three years of a County Five-Year Capital Improvements Program with the estimated date of commencement and a provision that a plan amendment would be required to eliminate, defer or delay construction.

# 17 (b) 9.02.04 In accordance with the requirements of 9-J5.0055(2)(b)F.A.C., the County may permit temporary deviations from the adopted LOS for recreation facilities by permitting final development orders to

be issued if the necessary facilities and services are subject to a binding contract and will be available or under construction within 12 months of the issuance of the development permit.

- 9.02.05 In accordance with the requirements of 9-J5.0055(2)(a), F.A.C., deviations will not be granted for potable water, sewer, solid waste and drainage facilities, which must be in place and available for use prior to the issuance of certificates of occupancy.

#### OBJECTIVE 9.03

The County shall establish a system for prioritizing the scheduling of capital improvements to mitigate existing or projected deficiencies.

#### Policies

- #15 9.03.01 Upon plan adoption, improvements scheduled in the Capital Improvement Element to eliminate existing public facility deficiencies, shall be predicated on the following criteria to ensure that the projects are ranked in an appropriate order of need:

Priority A - projects currently underway for which the County is fully committed and/or are so urgently needed that implementation cannot be delayed. Also included, are expansions of existing systems for which revenue bonds have been issued.

Priority B - projects needed to maintain a department or function at the adopted level of service.

#15 Priority C - projects not necessary to maintain an adopted level of service, but desirable as soon as funds can reasonably be made available, or projects which need further study.

Priority D - projects which are desirable, but can be safely deferred beyond the third year of the five year projection in the Schedule of Capital Improvements.

- 9.03.02 Nassau County shall continually review the established capital improvement prioritizing criteria on the basis of: the maintenance of LOS standards, the Concurrency Management System - Appendix "A", County comprehensive planning activities, cost feasibility and effectiveness, relative magnitude and term of need, intergovernmental agreements to use other jurisdictional capital improvements and overall budget impacts.

#### OBJECTIVE 9.04

# 8 Upon the adoption of Land Development Regulations, the County shall limit the expenditure of public funds that subsidize development in coastal high hazard areas (CHHA).

Policies

- #8 9.04.01 Public expenditures in high hazard coastal areas shall be limited to the maintenance of existing infrastructure and those improvements included in the Coastal Management Element.
- #8 9.04.02 Only those public expenditures necessary for the health, safety and welfare of the residents of these areas as well as such improvements as are deemed to be required to facilitate use of the public natural open space and recreation areas may be funded.

OBJECTIVE 9.05

#9 Upon plan adoption, the County shall coordinate development or redevelopment proposal approval to require construction to occur consistent with existing services availability, or for development impacts to come into effect only when concurrent with the programmed provision of required infrastructure in the Five-Year Capital Improvements Schedule, so as to maintain the adopted Level of Service.

Policies

- #9 9.05.01 The County shall adopt, as a Land Development Regulation, an "Adequate Facilities Ordinance" to guide the development approval process by conditioning: zoning, subdivision, planned unit development, construction and other development permitting, upon the availability of public facilities at the adopted Level of Service, in accord with the provisions of the Concurrency Management System - Appendix "A".
- #9 9.05.02 The County shall utilize existing and improved development permitting procedures to review development proposals for compliance with the County's adopted LOS, and where appropriate, the time frame for implementation of additional facility improvements shall be determined.
- #9 9.05.03 To the extent practicable, the County shall channel all development into the development area as outlined in the Land Use Element.
- #9 9.05.04 County approval of proposed development or redevelopment projects shall be based on the condition that project related infrastructure is available at the adopted level of service standards, in accordance with the time schedule specified by 9J-5.0055 (2) a, b and c.
- #9 9.05.05 Where appropriate, the County shall allow for the phasing of development related infrastructure improvements, which must be available for operation at the time project demand impacts the facility.

9.05.06 Land use decisions and timing shall be reviewed against existing and future facilities as proposed in the adopted Five-Year Capital Improvements Schedule for maintenance of the adopted Level of Service.

#### OBJECTIVE 9.06

#10 By May 1, 1991, the County shall adopt Land Development Regulations that require private developers to pay their fair share of public facility improvement costs necessary to maintain the level of service standards adopted as part of the Comprehensive Plan.

#### Policies

#10 9.06.01 The County shall require the construction and/or performance bonding of project related infrastructure improvements necessary to accommodate the development of vacant parcels or substantial redevelopment of existing properties.

#10 9.06.02 The County may require the actual construction of off-site site road improvements in lieu of required fair share or impact fee payments.

#10 9.06.03 Set a fair share exaction, where necessary, by evaluating the impact of new development against the adopted level of service, the capacity of existing facilities and the fair share cost of improving infrastructure capacity to maintain the adopted level of service.

#10 9.06.04 Collect a fair share exaction in those cases where the new development will create the necessity that Nassau County construct new capital facilities or expand an existing capital facility to maintain a required level of service.

#### OBJECTIVE 9.07

The County shall manage its fiscal resources to ensure the provision of needed capital improvements for previously issued development orders and for future development and redevelopment.

#### Policies

9.07.01 The County shall consider a range of revenue and project cost projections based on varying assumptions with regard to the local property tax base, shared tax revenues, inflation, contingency costs and the level and sources of shared project funding commitment by other jurisdictions.

#19 # 21(c) 9.07.02 Nassau County's adopted Five-Year Capital Improvements Schedule shall incorporate specific funding sources for specific projects or project categories.

9.07.03 The Director of Finance shall prepare annual estimates of anticipated proceeds from state revenue sharing source.

- 9.07.04 The County shall adopt guidelines which set apportionment criteria for transportation generated revenues relative to operations, maintenance and capital improvements after debt service has been met.
- 9.07.05 The County shall continue to adopt a Five-Year Capital Improvement Schedule and annual capital budget as part of its budgeting process.

**OBJECTIVE 9.08**

The responsible authority under law shall enact all rules, regulations and ordinances necessary to implement the Comprehensive Plan by May 1, 1991.

**Policy**

- 9.08.01 The Goals, Objectives and Policies, the Five-Year Capital Improvements Schedule - Table J-7, and the Concurrency Management System - Appendix "A" in the Capital Improvements Element of the Comprehensive Plan shall become effective from the date of Comprehensive Plan adoption.

INTERGOVERNMENTAL COORDINATION ELEMENT

NASSAU COUNTY COMPREHENSIVE PLAN

Adopted January, 1991

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

# INTERGOVERNMENTAL COORDINATION ELEMENT

## Table of Contents

	Page
DATA COLLECTION.....	H-1
County Government.....	H-1
County Boards.....	H-2
Regional Agencies.....	H-3
State Agencies.....	H-4
Federal Agencies.....	H-5
Local Government Coordination.....	H-6
Coordination with Utility Providers.....	H-6
Cooperative Agreements.....	H-6
Other Intergovernmental Coordination.....	H-7
ANALYSIS.....	H-8
Future Land Use Element.....	H-8
Traffic Circulation Element.....	H-9
Housing Element.....	H-10
Sanitary Sewer, Potable Water, Drainage, Solid Waste and Aquifer Recharge Element.....	H-10
Coastal Management Element.....	H-12
Conservation Element.....	H-13
Recreation and Open Space Element.....	H-14
Comprehensive Regional Policy Plan.....	H-15
Development Plans Relating to the Area of Concern.....	H-15

## NASSAU COUNTY

### INTERGOVERNMENTAL COORDINATION ELEMENT

#### DATA COLLECTION

##### County Government

The Board of County Commissioners consists of 5 members, elected by district by the qualified voters of the county.

The County Attorney is appointed by the County Commissioners. The attorney acts as legal advisor to and attorney for the Commissioners and all county departments, offices and agencies and represents the county in all legal proceedings and performs other duties prescribed by the charter or by ordinance.

The Ex-Officio Clerk is elected by the qualified voters of the County. The clerk is responsible for the financial and accounting aspects for the purposes of establishing and maintaining the county budget as well as correspondence as it relates to the business of the County Commissioners. He is also responsible for organizing and preparing agenda material that will be presented to the Board at their official meetings.

The County Engineer is appointed by the Board of County Commissioners. He is charged with overseeing the disposal of solid waste for the county, and enforcing the subdivision regulations. He is responsible for the implementation of the impact fees ordinance which provides for various infrastructure needs (i.e., law enforcement, education, road systems, fire, rescue, parks and recreation, and utilities) which arise from the increasing growth rate in the county.

Both the Zoning Administrator and Building Official are directed by the County Engineer. The Zoning Administrator is responsible for the enforcement and administration of zoning ordinances for the county and the Building Official regulates the process of obtaining building permits and inspects buildings to ensure compliance with building and other related codes.

The County Engineer is also responsible for the construction and maintenance of roads throughout the county as well as the Animal Control Officer.

The Department of Emergency Services is responsible for providing assistance in the event of manmade or natural disasters and other emergencies as they may arise. It is responsible for coordination of the civil defense and the communication system within the county government, including a new emergency 911-SALI system. It provides emergency medical services to both incorporated and unincorporated areas of the county. Currently, there are 5 rescue units throughout the county that provide 24-hour service.

The office is also responsible for the coordination as well as the provision of some funding to the volunteer fire department in the county.



## County Boards

Affirmative Action Advisory Board - consists of the Affirmative Action/Equal Employment Opportunity Officer and such other persons as the Chairman of the Board of Commissioners shall designate. The Committee is responsible for reporting to the Board the status of contractors, vendors, and suppliers of service, visually ascertaining that they are Equal Opportunity Employers.

Municipal Service Benefit Unit ( MSBU) - consists of 8 members including the Board of County Commissioners and one member of each City Commission within Nassau County. Its primary purpose is to promote the health and welfare of the county by providing for the safe and effective management and disposal of solid waste.

Tourist Development Council - consists of 9 members appointed by the Board of County Commissioners. It is responsible for the expenditure of revenue received from the levy and imposition of a tourist development tax. Said tax will be used directly to market Amelia Island as a visitor destination.

Nassau County Contractors Review Board - consists of 9 members appointed by the County Board of Commissioners. Five of the appointees shall consist of state registered or certified professional contractors while the remaining 3 members are citizens of Nassau County who are not associated with the construction industry. The purpose is to approve applications of persons desiring to take examinations for certification to install, maintain or repair structures and systems within the unincorporated areas of Nassau County.

Animal Control Authority - consists of at least 7 members appointed by the Board of County Commissioners. Its purpose is to regulate and license the keeping of dogs as well as providing for the taking up and impoundment of dogs and other animals, including livestock found running or roaming at large.

Local Planning Agency - consists of the Zoning Board of Nassau County. It is responsible for the design and implementation of a local comprehensive plan and land use plan for Nassau County.

County Correctional Planning Committee - consists of six members: the state attorney, the public defender, the chief circuit judge, the chief county judge, the chief correctional officer and the chairman of the Board of County Commissioners. The committee is mandated by Chapter 951.26, Florida Statutes, for the purpose of assessing the population status of all correctional facilities owned by the county to ensure the authorizing of capacities of the facilities, as established by the Department of Corrections, are not exceeded.

Property Appraisal Adjustment Board - consists of 5 members, 3 of whom are members of the Board of County Commissioners and 2 from the school board. The purpose of the Board is to hear petitions relating to assess-

ments filed, homestead exemption complaints, appeals or disputes from exemptions denial or granted and appeals concerning ad valorem tax deferrals and classification.

Joint Local Planning Agency - this agency consists of eleven members appointed by the County and Fernandina Beach and represents citizens of Fernandina Beach and Amelia Island outside the city. This group is responsible for developing the comprehensive plan for all of Amelia Island, Florida.

Nassau County Board of Education - This board is responsible for the provision of all public education in Nassau County. It coordinates with the municipalities with regard to applicable zoning regulations, building permits, etc., in the event of locating a school facility within the individual city/town corporate limits.

### Regional Agencies

St. Johns River Water Management District (SJRWMD) is one of five water management districts in the State of Florida. It is responsible for managing water and related land resources in Northeast Florida. It is made up of all or part of 19 counties. The water management districts came about as a result of the Water Resources Act of 1972 by the state legislature. The SJRWMD promotes the conservation, development and proper utilization of surface groundwater, through regulation and research. The SJRWMD requires permits for water well construction, management, and storage of surface water (including stormwater), consumptive use, works of the district, and wells for artificial recharge. In addition, the district has the authority to declare and implement water shortage warnings, water shortages, and water use restrictions. The SJRWMD also has the authority to acquire land for flood control, water storage, water management, and preservation of wetlands, streams, and lakes.

State Attorney - the state attorney for the Fourth Judicial Circuit serves Duval, Nassau and Clay counties. While the state attorney ordinarily relies on police and other investigative agencies for investigation of alleged criminal acts, he may initiate, within his own office, the investigation of suspected illegal activity, when necessary. The decision to institute criminal proceedings is primarily his responsibility. His office screens all cases in deciding whether criminal charges should be filed, exploring the availability of non-criminal disposition, including programs of rehabilitation.

Public Defender - the public defender, a constitutional officer under Article V of the state constitution, serves the Fourth Judicial Circuit of Florida. He represents indigent persons charged with felonies, misdemeanors or violations of city ordinances prosecuted in the county courts, and indigent juveniles alleged to be delinquent children. He employs assistant public defenders, investigators, a court reporter and clerical personnel to assist in representing his clients in the various division of the circuit and county courts.

Northeast Florida Regional Planning Council (NEFRPC) is a seven-county regional planning board. It is funded by local government contributions, state grants, and fees. The NEFRPC is charged with, among other things, addressing and planning solutions for greater-than-local problems, providing technical assistance to local governments, and reviewing applications for state and federal grants. It is responsible for regional reviews of DRIs and addressing regional issues. The NEFRPC will review local government comprehensive issues. It is also responsible for designating regional hazardous waste transfer stations and has conducted studies of regional issues including hazardous waste.

### State Agencies

Florida Department of Transportation (DOT) is responsible for building and maintaining state roads and the drainage facilities for these roads.

Department of Highway Safety and Motor Vehicles (DHSMV) is responsible for vehicle registration and driver licensing. This includes registration of mobile homes. The Florida Highway Patrol, under DHSMV, is responsible for patrolling state highways.

Florida Housing Finance Agency is an independent agency housed in DCA that uses the sale of tax exempt bonds to provide affordable housing to low and moderate income renters and first-time buyers. In homeownership, the agency provides below-market mortgages. For rental housing, developers are required to set aside a set percentage of rental units for low and moderate income families in order to use the tax exempt financing to build their multi-family project.

Department of Community Affairs (DCA) is the state land planning agency. DCA will review local government comprehensive plans against established state criteria expressed in Rule 9J-5, F.A.C., and will provide an initial review to assure that local plans are consistent with the State Plan. DCA is also responsible for state review of DRIs assisting local governments with activities related to managing coastal and estuarine areas. It provides state assistance for the National Flood Insurance Program by promoting floodplain management and flood hazardous mitigation. DCA is also responsible for the Model Energy Code, which establishes minimum standards for thermal efficiency in buildings.

DCA administers highway safety and criminal justice grants and assesses public safety needs and develops corrective programs.

DCA operates housing assistance programs as well as programs that affect the provision of affordable housing. DCA administers the Section 8 Housing Assistance program; operates the rural housing program, which provides grants and loans to local governments, housing authorities, and nonprofit organizations to help pay the predevelopment costs for housing for rural residents and farmworkers; conducts research; administers the Small Cities CDGB program; provides weatherization assistance; establishes minimum building standards; and certifies manufactured housing that meets safety standards.

Florida Department of Education, for grades K-12, funds and administers certain programs and projects (such as some school construction), coordinates other services such as guidance and psychological services, monitors education service provision according to broad curriculum and graduation guidelines, and provides assistance through the development and dissemination of education modules for use in the schools. These programs are coordinated by the Nassau County School Board.

The Florida Department of State, through the Division of Cultural Affairs, oversees and administers programs affecting the arts in Florida, and through the Division of Archives, History and Records Management is responsible for locating and preserving historic and archaeological sites.

Public Service Commission is responsible for energy utilities regulation, including monitoring utilities' mandatory energy conservation programs.

Board of Trustees of the Internal Improvement Trust Fund (The Governor and Cabinet) holds title to all state lands and is the policy body that makes major land management decisions regarding state lands and sovereign lands.

Florida Department of Environmental Regulation (DER) is responsible for surface and groundwater quality. DER regulates various activities that can affect water quality, and required permits for actions such as dredge and fill, the construction or upgrading of wastewater treatment plants, discharge of industrial waste, and landfills. It is also responsible for administering statutes and rules related to the Florida Coastal Management Program concerning water quality. Thus, DER regulates discharge of domestic and industrial waste into state water bodies, and its Stormwater Rule attempts to eliminate the effects of non-point pollution on the state water bodies. It is also responsible for enforcing the air quality standards established by the state and regulating disposal sites such as landfills. It also is the agency charged with the state's hazardous waste cleanup programs.

Game Fresh Water Fish Commission (GFWFC) has an interest in conservation, particularly as it relates to wildlife management, and in regulating activities related to wildlife management, and in regulating activities related to hunting and fishing. GFWFC administers the Florida Endangered and Threatened Species Act and coordinates with the U.S. Fish and Wildlife Service, which operates similar national programs.

### Federal Agencies

U.S. Department of Housing and Urban Development (HUD) provides funding and regulates state administered programs such as Section 8 Housing Assistance (rent subsidies for qualified low and moderate income families) and Small Cities Community Block Grants (which can be used for housing rehabilitation, among other things).

U.S. Department of Education regulates and provides pass-through funding to the state for specified programs.

U.S. Army Corps of Engineers is responsible for maintaining navigable waterways and flood control process and, when feasible, is authorized to dispose of beach compatible sand in areas slated for beach renourishment. The Corps has developed rules regarding permitting wetlands, and requires dredge and fill permits.

U.S. Environmental Protection Agency (EPA) coordinates government action to protect the environment by controlling pollution. U.S. Environmental Protection Agency (EPA) is also responsible for air quality and has designated six pollutants that, in high concentrations, can have adverse human and environmental impacts.

### Local Government Coordination

Nassau County, through the County Commission, maintains effective coordination with all the following adjacent local governments:

City of Fernandina Beach  
Town of Hilliard  
Town of Callahan  
Duval County  
Camden County, Georgia  
Charlton County, Georgia  
Baker County

### Coordination with Utility Providers

The County Commission, having ultimate coordination responsibility, directs various County departments to maintain effective coordination with the following utility and public service providers, boards and agencies:

Sun Ray	Water and sewer
Southern States	Water and Sewer
Florida Public Utilities	Water and electric
City of Fernandina Beach	Sewer
Southern Bell	Telephone and Cable TV
ALLTel	Telephone
Town of Hilliard	Sewer
Town of Callahan	Sewer
Sandhill Landfill	Solid waste
Rayland, Inc.	Easement for wells
Lofton Landfill	Solid waste
County School Board	Use of lands and facilities
Division of Forestry	Forester assessment - contract for firefighting in Nassau County
Continental Cablevision	Cable TV
Century Cable	Cable TV
Rifkin	Cable TV

### Cooperative Agreements

Animal Control - A mutual aid in animal control agreement has been signed between Nassau County and Fernandina Beach. This agreement agrees that the Animal Control Authority of Nassau County shall pick up, on a daily basis,

all animals collected by the Animal Control Officer of Fernandina Beach, and shall impound them in the county animal shelter for not less than seven days. The animal control officer of Fernandina Beach shall, upon request of a resident of the unincorporated area of Amelia Island, pick up any dog that is without tag, unlicensed or found running at large and shall hold such animal for pick up by the county.

Library Services - The City of Jacksonville (Duval County, Florida) and Nassau County entered into an agreement for provision of library services to the City of Fernandina Beach. The City of Jacksonville will be reimbursed for these services through funding from State Aid monies, funds from Nassau County, as well as the City of Fernandina Beach.

Emergency Telephone System - The county has signed an Interlocal Agreement to allow Southern Bell Telephone and Telegraph Company to proceed with preliminary implementation of a data based management emergency telephone system for Nassau County. This system is commonly known as "E-911 SALI Emergency Number System" and is to be implemented and maintained throughout Nassau County, including the incorporated as well as unincorporated areas.

Recreation - The county provides some funding and services for the ball park and recreation facilities located on the municipal airport property by informal agreement with Fernandina Beach.

Sheriff of Nassau County - The Sheriff's Office has a written agreement with the City of Fernandina Beach Police Department whereby each of the agencies may request and render law enforcement assistance to the other in such law enforcement intensive situations as specified in the agreement.

There is a verbal agreement with the Town of Hilliard for police protection in which the Sheriff's Office provides routine patrol and investigation services. The Town of Callahan has a written agreement with the Sheriff's Office for law enforcement assistance whereby the Callahan Police Department will assist in misdemeanor cases as needed.

Fire Protection - The county has a mutual agreement with the City of Fernandina Beach to assist each other on a temporary basis in the fighting of fires in the Amelia Island area north of the airport.

#### Other Intergovernmental Coordination

Committee of 100 - The county has a written agreement with the Committee of 100 whereby the Committee agrees to encourage business entities to settle in the county and promote the interests of the county.

Council on Aging - The county has a written agreement with the Council on Aging to provide a variety of services for aging residents of the county.

Northeast Florida Community Action Agency (NFCAA) - The county has a written agreement with the NFCAA to provide services for the economically deprived citizens of the county.

Association of the Retarded Citizens (ARC/Nassau) - The county has a written agreement with the ARC/Nassau to perform services for the mentally retarded citizens of the county.

Mental Health Center - The county has a written agreement with the Mental Health Center which agrees to maintain a mental health inpatient and outpatient services program for the residents of Nassau County.

Episcopal Child Day Care Centers (Day Care) - the Day Care provides, through a written agreement with the county, quality child care for the county's low income children and parents.

CAP Sundown Patrol - The Patrol agrees to provide help to anyone who may get in trouble on the water.

West Nassau Chamber of Commerce (WNCC) - The WNCC agrees to devote its efforts to the promotion of West Nassau County and Nassau County and encouraging business entities to settle in Nassau County.

Chamber of Commerce - The Chamber has agreed to perform services that will promote the interests of Fernandina Beach and Amelia Island as well as encourage business entities to settle in Nassau County.

Medical Examiner - Nassau County has a written agreement with the City of Jacksonville, whereby the City agrees to pay the annual salary of the district medical examiner for Clay, Duval and Nassau Counties, and Nassau County agrees to reimburse the City for all investigations, examinations, scene visits, autopsies, court appearances and depositions arising from cases.

## **ANALYSIS**

The following is an analysis of specific coordination or interlocal problems and needs discussed in each of the Comprehensive Plan elements of this Plan.

### **Future Land Use Element**

Several issues regarding future land use include the minimization of urban sprawl, encouraging development in areas where water and sewer service is available or planned, eliminating incompatible land uses along shared boundaries, and implementing environmental constraints to protect sensitive lands (i.e., marshlands, waterways, aquifer recharge areas and wetlands).

Currently there are four planning advisory committees, one for each of the Nassau County planning districts. It is recommended that these committees continue to meet on a regular basis to ensure consistency in future land use decisions.

### **Needs Assessment**

The County's zoning office should establish a formal agreement with each municipality concerning proposed developments along shared boundaries. This action would enable each government entity a chance to review and

comment on proposed developments for land use compatibility, prior to the development being built.

The effect of urban sprawl can be costly and inefficient. The County should have agreements with municipalities for extension of public facilities where efficient and cost effective to encourage contiguous developments.

The protection of environmentally sensitive areas in the County should be the priority of the planning districts, municipalities as well as the County since the destruction of these areas, ultimately, affect all of the residents. Each of these agencies should have formal agreements to guarantee the protection and preservation of these areas.

Toward the protection of its historical and archaeological resources, the County needs to coordinate with the Department of State, Division of Historical Resources. The Building Official should review available site inventory materials prior to issuing a building permit or other development order to determine whether the proposed project will impact an identified historical or archaeological site.

#### Traffic Circulation Element

The most prevalent roadway need in Nassau County relates to roadway physical conditions. A number of roadways which are part of the major road network, serving minor arterial or collector functions, are unpaved. Also, some of the paved major roads have narrow pavement widths or have pavement surfaces in poor condition. While traffic volumes are currently operating at acceptable levels of service, some identified road segments are projected to be deficient by 1995.

All principal arterial roadways and some minor arterial roadways within Nassau County are owned and maintained by the Florida Department of Transportation. The balance of the roadway system collectors and local roads are owned by either Nassau County or the incorporated cities within Nassau County. The office with primary responsibility at the county level is the County Engineer.

#### Needs Assessment

There are no long range improvements envisioned for any County roads on the mainland necessitated by increased traffic. The Nassau County citizens have recently approved an additional optional gasoline tax to provide for improvements of the existing network. No additional intergovernmental coordination is needed or expected to be needed during the planning period.

Objective 2.06 and its implementing policies of the Traffic Circulation Element recommend the County's regular coordination with the Florida Department of Transportation and their development programs. Transportation activities are to be accomplished by the minimum standards of the FDOT. Continued and regular coordination with the Amelia Island Joint Advisory Planning Committee and the Fernandina Beach City Council are mandated.



## Housing Element

The Florida Department of Community Affairs (DCA) operates housing assistance programs including programs that affect the provision of affordable housing. Many of the programs provide grants or loans to local governments, housing authorities and non-profit organizations for rural residents and farmers. Currently, Nassau County does not have a Housing Authority.

Affordable housing has become more scarce in Nassau County as in most areas of Florida. In 1980 almost 48 percent of households had excessive rent-burdens (rent exceeded 25 percent of household income) while 23 percent of owner-occupied households had excessive housing costs burdens. One growing trend of Nassau County residents has been a greater increase in mobile home use for housing needs.

## Needs Assessment

Projected need for renter-occupied housing units is greater for medium to high income families while the need for owner-occupied housing units will be greater for families of low to medium incomes.

While there is sufficient developable land available for residential use, infrastructure is limited and there are numerous environmental constraints.

The Housing Element Goals, Objectives and Policies recommend that the County conduct a survey in cooperation with the Florida Department of State, Division of Historical Preservation, to identify all residential structures with historical significance and ensure their registration on the State Master Site File.

Other coordination efforts regarding housing issues involve the County in continuing to pursue available state and federal grant revenues for rehabilitation and demolition programs.

## Sanitary Sewer, Potable Water, Drainage, Solid Waste & Aquifer Recharge Element

The County does not own or operate a public sanitary sewer system nor does it provide water service to its residents. Public sanitary sewer systems are limited to the incorporated cities of Fernandina Beach, Hilliard and Callahan, while portions of unincorporated areas of Amelia Island are served by private utility companies. The Towns of Hilliard and Callahan have public water service for their residents and an additional three private utilities serve designated areas in the county.

The Florida Department of Environmental Regulation (DER) permits package treatment plants, sets potable water standards and monitors the water quality of supply sources. The Florida Department of Health and Rehabilitative Services (HRS) issues septic tank permits and the St. Johns River Water Management District (SJRWMD) has jurisdiction over the issuance of permits for water well construction, management and storage of surface water, stormwater discharge, consumptive use and wells for artificial recharge.

The Florida Department of Transportation (DOT) coordinates with the County Engineer's offices on drainage requirements for road projects. The Florida Department of Environmental Regulation (DER) is responsible for surface water quality and stormwater regulation.

The St. Johns River Water Management District (SJRWMD) coordinates with the county in the development of surface water management plans. It has the authority to acquire land for flood control, water storage and preservation of wetlands, streams and lakes.

The county currently uses one landfill site for the disposal of non-hazardous solid waste for the entire county. The Florida Department of Environmental Regulation (DER) is responsible for permitting landfills and the St. Johns River Water Management District issues a stormwater management permit for landfills. The Army Corps of Engineers issues dredge and fill permits for landfills.

The Nassau County Engineer is responsible for overseeing the disposal of solid waste for the county. The Municipal Service Benefit Unit is made up of members from the Board of County Commissioners and each town or city commission in the county. Its primary purpose is to provide input concerning the safe and effective management and disposal of solid waste.

#### Needs Assessment

The county should enter into an informal agreement with its municipalities to establish sanitary sewer extension policies which will ensure that services will be provided where needed and economically feasible. These policies should work to discourage the use of septic tanks, especially in coastal flood plains, and encourage the extension of municipal sewer lines and services to adjacent areas.

The county has discontinued using 2 of its landfills and uses only the West Nassau landfill site for all of its solid waste disposal. It is currently working with DER in the monitoring of groundwater for contamination from the 3 sites. All 3 of the landfills needed extensive changes to provide environmentally safe solid waste disposal systems and therefore is operating only the West Nassau site until a new site can be constructed.

Objectives and policies in the Solid Waste Sub Element of the Plan include plans for the County to correct facility deficiencies and work more closely with permitting agencies and the County's municipalities.

The county should continue cooperating with DER in such matters as recommended for the proper closure of the Bryceville and Lofton Creek landfills, the monitoring of groundwater at all 3 sites, and the proper remedial procedures needed at the West Nassau site.

Among coordination activities recommended in the Goals, Objectives and Policies of the Public Facilities Element is a recommendation that the County Engineer be charged with the responsibility to determine where the potential exists for Nassau County to improve its providing public facilities through coordinating County efforts with adjacent county/municipality system planning and to recommend to the County Commission such

intergovernmental agreements that will promote improved services and thereby discourage urban sprawl.

Also, the County Engineer shall maintain regular contact with and inventories of all currently operating public facilities and annually report to the County Commission locations required to support future development needs and provide estimated costs or other possible means for acquisition.

Toward an objective to conserve potable water resources, the County will coordinate efforts with the Water Management District to identify and map prime natural groundwater aquifer recharge areas. Another coordination issue the County will pursue with the Water Management District is the protection of natural groundwater recharge areas. As they become available from the District, the County shall acquire area maps which define the location of significant groundwater recharge areas in the County.

The County, in cooperation with DER and the Water Management District, under the SWIM program, identify all known point and non-point sources of pollution within the County.

### Coastal Management Element

The County's Coastal Management Element identifies existing conditions and needs relating to public beach access, dune preservation, beach restoration, hurricane evacuation and emergency management, post disaster redevelopment, hurricane evacuation and sheltering, protection from high hazard, coastal preservation, dredge and fill activities, estuarine environmental quality, protection of historic resources, and related level of service standards.

Goals, objectives and policies in the Element define the actions the County will take to maintain and improve, where necessary, the management, use, conservation and protection of the County's coastal resources along with protecting human life from natural disasters.

### Needs Assessment

Coordination and interlocal agreement-related policies to be adopted in the Plan include:

- Cooperating with DNR to develop a beach access and parking plan;

- Applying to State DNR and the Army Corps of Engineers to acquire grant funding for the restoration of altered beaches or dunes on Amelia Island;

- Coordinating development and maintenance of Post Disaster plans and programs with the relevant local, regional and state governments, districts and agencies;

- Cooperate with FDER to improve and maintain water quality at the appropriate designated state standards;

Establish coordinating procedures with adjacent counties and municipalities related to efforts in preventing estuarine pollution, controlling surface water runoff and protecting living marine resources; and

Requesting the FDNR and the Florida Game and Fish Commission to review its Coastal Management Element and provide recommendations for improving County protection of aquatic preserve resources.

### Conservation Element

There are several conservation issues in Nassau County that require attention in order to maintain both natural resources and healthy environments for the county's population. The effect of increasing population creates a multitude of problems that alter most aspects of everyday life for residents.

The soils in Nassau County, for the most part, offer severe limitations for the use of septic tanks and landfills. Only small portions of the county are serviced by sewer systems while the remaining areas utilize septic tanks.

Water quality is effected by urban and industrial pollution, septic tanks and often sewage treatment plants (STPs). There are instances where STPs pollute the water by discharging directly into water bodies. Another problem noted is excessive groundwater withdrawal from heavy industrial use in Fernandina Beach causing saltwater intrusion during times of drought.

There is a considerable amount of fresh and saltwater marsh in the county which requires constant protection from development and pollution. These areas serve an important role in the ecological system, such as flood control, water quality protection, and safe habitats for wildlife and vegetation.

Beach erosion is also a major concern along the coastal areas of Amelia Island. The coast experiences, on average, a loss of 250,000 cubic yards of beach material yearly and is susceptible to hurricane events which also cause heavy erosion.

### Needs Assessment

The County Engineer's office is responsible for planning, building codes, enforcement of the floodplain ordinance, as well as engineering. This ordinance qualifies residents for low cost federally subsidized flood insurance. The National Oceanic & Atmospheric Administration (NOAA) and the Army Corps of Engineers (ACOE) are currently working on a Storm Surge Atlas to assist in estimating the extent of coastal and inland flooding for mild to severe hurricanes.

The Zoning Board serves as the Local Planning Agency (LPA) and through its zoning department, plays a vital role in the protection of important conservation areas. The LPA is responsible for the implementation of the county comprehensive plan which should contain specific guidelines for the type and location of new development.

The County and the City of Fernandina Beach continue their formal agreement through the Joint Local Planning Agency whereby both agree to monitor both the amount and type of development which has the potential of destroying the county's vital natural resources in the Amelia Island planning area. There should also be similar agreements with the municipalities in the county that will guarantee the protection of water quality, wildlife, wetlands and so forth.

Coordination mechanisms required by the Goals, Objectives and Policies in the Conservation Element include the County, Fernandina Beach and industry to develop and initiate implementation of an analysis to determine the need for alternative water supplies to help meet future demands. The study is to consider using various water supply alternatives. The County needs to coordinate with the State of Florida and the SJRWMD to uniformly collect and analyze water use data every two years to determine water use trends.

Toward an objective to protect and conserve natural resources, the County should coordinate with the Florida Department of Community Affairs to utilize the Community Trust Fund monies to establish a land acquisition fund within one year after Plan adoption. The County needs to request the Florida Division of Forestry, the Florida Game and Fresh Water Fish Commission, the U.S. Fish and Wildlife Service, the Water Management District and other appropriate agencies to work together with owners of tracts of land to ensure wise management of endangered and threatened species of plants, fish, wildlife and their habitat.

### Recreation and Open Space Element

The majority of County-owned recreational facilities consist of boat ramps. The County does contribute some funding and services to local governments for recreational purposes although it would be considered sporadic and inconsistent, at best.

It is believed that growth stemming from Kings Bay Submarine Base in adjacent Camden County, Georgia, will have a greater impact on Nassau County's recreational facilities than originally thought. The Kings Bay Impact Coordinating Committee (KBICC), made up of local, regional, state and federal government officials, has sent out requests for proposals to study the extent of impact on both Camden County and Nassau County in regards to natural resource-based recreation.

### Needs Assessment

The County should consider the creation of a recreational department for county-wide park and recreation planning. Once established, it should initiate formal agreements with the municipalities as well as coordinate with the public agencies such as schools, to improve the type and amount of facilities. In lieu of creating a department, the County might agree to contribute to the recreation departments of the municipalities annually through a formal agreement.

The County will need to maintain impact fees to accommodate new growth. It could also improve the areas surrounding the boat ramps by adding items such as covered and non-covered picnic areas.

### Comprehensive Regional Policy Plan (CRPP)

The elements of the Nassau County Comprehensive Plan have been developed to be consistent with the CRPP and the State Comprehensive Plan. The Goals, Objectives and Policies of each element have been reviewed to ensure consistency with the CRPP

A recent policy of the CRPP has been added to the Future Land Use Element of this Plan and therefore to the Intergovernmental Coordination Element. This policy commits the County to adopting an ordinance that requires that a "Memorandum of Agreement" be established between the County and any adjacent local government that may be affected by siting of an undesirable land use (LULU) within two miles of the County's jurisdictional border with that government. The agreement shall include the conduct of meetings, workshops with the affected local government as well as a plan for mitigating the conflict.

All of the additional planning coordination mechanisms and efforts recommended in each of the elements of this Plan are consistent with and further the goals and policies of the CRPP and the State Plan.

### Development Plans Relating to the Area of Concern

Nassau County has continuing coordination with the local governments of municipalities within the County boundaries and with all adjacent local governments. Objectives and policies to be adopted in the County Plan include improving interlocal agreements and providing copies of the Plan and subsequent amendments of the Plan to all adjacent local governments and reviewing development plans of those local governments to ensure consistency in land use development within the area of concern.

INTERGOVERNMENTAL COORDINATION ELEMENT

NASSAU COUNTY

GOAL 8.0

ESTABLISH PROCESS AMONG THE VARIOUS GOVERNMENTAL AGENCIES TO COORDINATE ALL DEVELOPMENT ACTIVITIES TO PRESERVE AND ENHANCE THE QUALITY OF LIFE AND ENSURE THE EFFICIENT USE OF AVAILABLE RESOURCES.

OBJECTIVE 8.01

Upon Plan adoption, the County shall implement new interlocal coordination mechanisms or continue existing agreements with all adjacent local governments, regional and state government agencies, County School Board and public facility providers that share responsibility for land use development and urban development patterns.

Policies

ORC #8(a) 8.01.01 The County shall provide a copy of the Plan to all adjacent local governments, the County School Board, all permitting agencies, and all utility providers for their review and comments.

ORC #8(b) 8.01.02 The County shall direct the Planning Director to implement a formal and regular meeting schedule of all County planning boards and commissions.

ORC #12 8.01.03 The County shall implement a formal process for intergovernmental coordination with the county's municipalities via a memorandum or letter of agreement which establishes specific coordination activities to occur between the County and each municipality on a regular basis.

8.01.04 The County shall adopt an ordinance that requires that a "Memorandum of Agreement" be established between the County and any adjacent local government that may be affected by siting of an undesirable land use (LULU) within two miles of the County's jurisdictional border with that government. The agreement shall include the conduct of meetings, workshops with the affected local government as well as a plan for mitigating the conflict.

ORC #13 8.01.05 The County shall continue to coordinate with appropriate agencies to prohibit or limit marinas and prohibit discharges under applicable law in Outstanding Florida Waters, Class II Waters, Wild and Scenic Rivers, and other sensitive areas designated for protection.

## OBJECTIVE 8.02

Ensure that planning activities projected in the comprehensive plan for Fernandina Beach are coordinated with the comprehensive plans for Amelia Island and the remainder of the county as well as those in adjacent counties.

### Policies

- 8.02.01 The Joint Local Planning Agency for Amelia Island should continue its service after the adoption of the comprehensive plans to provide the coordination needed between the two planning programs.

## OBJECTIVE 8.03

Coordinate levels of service standards throughout the County.

- ORC # 8(a) 8.03.01 Public and private central sewage treatment systems and package systems shall be brought into full compliance with applicable state regulations and permit conditions by October 1991. Where noncompliance with applicable law continues, the County will seek enforcement in conjunction with state agencies to alleviate adverse environmental impacts.

- ORC # 10 8.03.02 The County shall enter into formal agreements with County municipalities to establish sanitary sewer and potable water extension policies to provide these services where needed and economically feasible.

- 8.03.03 Establish formal liaison with state and federal agencies that have permitting responsibilities in Fernandina Beach and Nassau County.

- 8.03.04 All volunteer fire fighters shall take the required training necessary to become State certified as volunteer fighters.

- 8.03.05 Where sufficient services and resources are not available, new and expanding development and industry shall be required to proportionally contribute, on a fair share basis, toward the cost of providing fire protection and emergency services, including the dedication of land for fire stations to serve new development.

- 8.03.06 When water for fire hydrants are available within one-quarter (1/4) mile of any new development, the developer will be required to extend the water supply and provide fire hydrants as required by the Department of Emergency Services Director.



ORC # 7

OBJECTIVE 8.04

Upon Plan adoption, the County shall ensure that proposed development in its Plan is in compliance with plans of adjacent local governments, and regional and state plans.

Policies

8.04.01 The County, through the Planning Director, shall review the adopted County Plan and subsequent amendments to ensure that proposed development is consistent with plans of adjacent local governments, the Regional Policy Plan and the State Comprehensive Plan. The Planning Director shall regularly report to the County Commission on the status of the Plan consistency.

8.04.02 The County shall use the Northeast Florida Regional Planning Council as a mediator when development issues cross jurisdictional boundaries and cannot be resolved by the County and any other local governments so involved.

8.04.03 The County shall continue to conduct annexation activities in accordance with established state laws and regulations.

ORC # 9

ORC # 11

**CONCURRENCY MANAGEMENT SYSTEM  
NASSAU COUNTY COMPREHENSIVE PLAN**

**Adopted**

**January 11, 1991**

Prepared by

Prosser, Hallock & Kristoff, Inc.  
8101 Phillips Highway, Suite One  
Jacksonville, Florida

Revised by

The Northeast Florida Regional Planning Council  
9143 Phillips Highway, Suite 350  
Jacksonville, Florida

Preparation of this document was aided through financial assistance received from the State of Florida under the Local Government Comprehensive Planning Assistance Program authorized by 86-187, Laws of Florida, and administered by the Florida Department of Community Affairs

CONCURRENCY MANAGEMENT SYSTEM  
NASSAU COUNTY, FLORIDA

TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
Introduction.....	1
Relationship of the Concurrency Management System to the Comprehensive Plan.....	1
Definitions.....	2
Procedures for Application and Evaluation.....	3
A. Application.....	3
B. Criteria for Concurrency Evaluation.....	4
Determination of Concurrency Finding (Exhibit B).....	6
A. Schedule of Availability.....	6
B. Finding of Deficiency.....	8
C. Finding of Concurrency.....	8
Period of Concurrency Validation.....	8
A. Schedule of Reserved resources.....	8
B. Expiration of Concurrency Approval.....	9
Operating Procedures of the Concurrency Management System.....	10
A. Maintaining Level of Service Records.....	10
B. Monitoring.....	10
C. Exceptions.....	10
EXHIBIT A: Nassau County Land Use Amendment Change Request....	i
EXHIBIT B: Nassau County Capacity Determination Form.....	ii

**NASSAU COUNTY  
PROCEDURES AND GUIDELINES FOR A CONCURRENCY MANAGEMENT SYSTEM  
AS IT RELATES TO  
THE ISSUANCE OF DEVELOPMENT PERMITS WITHIN NASSAU COUNTY;  
PROVIDING FOR: LEVELS OF SERVICE; THRESHOLD CAPACITY LIMITS;  
CONDITIONS OF APPROVAL AND EXEMPTIONS**

Introduction

Chapter 163.3202, Florida Statutes, requires that local governments adopt land development regulations within one year after submission of its revised comprehensive plan; and that the local land development regulations contain specific and detailed provisions necessary or desirable to implement the adopted comprehensive plan.

The land development regulations shall provide that public facilities and services meet or exceed the standards established in the Capital Improvements element and are available in accordance with the minimum requirements for concurrency specified in Section 9J-5.0055(2)(a), (b) and (c). According to Florida Statute, a local government shall not issue a development permit which results in a reduction in the level of services for the affected public facilities below the level of services provided in the comprehensive plan.

The Concurrency Management System is designed to measure the potential impact of any development permit application upon the established minimum acceptable levels of service (LOS) and shall control the issuance of development orders/permits dependent upon the ability of the infrastructure (potable water, sanitary sewer, drainage, roads and recreational facilities) to support the proposed development.

Relationship of the Concurrency Management System to the Comprehensive Plan

The Concurrency management System implements the following Goals, Objectives and Policies of the Nassau County Comprehensive Plan - 2005, adopted January, 1991.

(a) Future Land Use Element:

Objective 1.01	Policy 1.05.03
Policy 1.01.02	Policy 1.06.04
Policy 1.01.04	Objective 1.07
Policy 1.01.05	Policy 1.07.01
Policy 1.01.06	Policy 1.07.02
Policy 1.01.07	Policy 1.08.04
Policy 1.03.04	Policy 1.08.07
Policy 1.03.05	Policy 1.08.09
Policy 1.04A.03	
Policy 1.04A.04	

(b) Traffic Circulation Element:

Objective 2.01	Policy 2.04.03
Policy 2.01.01	Objective 2.05
Objective 2.02	Policy 2.05.01
Policy 2.02.03	Policy 2.05.02
Objective 2.03	Policy 2.05.03
Policy 2.03.03	Policy 2.05.04
Policy 2.03.04	Policy 2.05.05
Policy 2.03.05	

(c) Public Facilities Element:

Objective 4.01	Policy 4.03.04
Policy 4.01.01	Policy 4.03.06
Policy 4.01.02	Policy 4.05B.03
policy 4.01.03	Policy 4.05B.06
Objective 4.03	Policy 4.05B.07
Policy 4.03.02	

(d) Recreation and Open Space Element:

Objective 7.01	Objective 7.02
Policy 7.01.01	Policy 7.02.05
Policy 7.01.02	Policy 7.02.06
Policy 7.01.04	Policy 7.02.07
Policy 7.01.06	Objective 7.03
Policy 7.01.10	Policy 7.03.01
Policy 7.01.15	Policy 7.03.03
	Policy 7.03.04

(e) Capital Improvements Element

Policy 9.01.07	Policy 9.05.02
Objective 9.02	Policy 9.05.04
Policy 9.02.03	Policy 9.05.05
Policy 9.02.04	Policy 9.05.06
Policy 9.02.05	Objective 9.06
Objective 9.05	Policy 9.06.01
Policy 9.05.01	Policy 9.06.03
	Policy 9.06.04

Definitions

- (a) "Availability" or "Available", with regard to the provision of facilities and services concurrent with the impacts of development, means that at a minimum the facilities and services will be provided in accordance with the standards set forth in Rule 9J-5.0055(2), Florida Administrative Code.
- (b) "Capital Improvement" means physical assets constructed or purchased to provide, improve or replace a public facility and which are large scale and high in cost. The cost of a capital

improvement is generally nonrecurring and may require multi-year financing. For the purposes of this rule, physical assets which have been identified as existing or projected needs in the individual Comprehensive Plan elements shall be considered capital improvements.

- (c) "Certificate of Concurrency" is a document prepared by the office of the building official which certifies that sufficient infrastructure resources are available to meet the requirements of a proposed development.
- (d) "Concurrency" means that the necessary public facilities and services to maintain the adopted level of service standards are available when the impacts of development occur.
- (e) "Concurrency Management System" means the procedures and/or process that the local government will utilize to assure that development orders and permits are not issued unless the necessary facilities and services are available concurrent with the impacts of development.
- (f) "Development Order" includes building permits, Approved DRIs, Approved subdivision plans.
- (g) "Impact" means the effect of development on infrastructure resources.
- (h) "Infrastructure" includes potable water, sanitary sewer, drainage, roads and recreational facilities.
- (i) "Level of Service" (LOS) is the amount of an infrastructure resource established by the Comprehensive Plan as the minimum amount acceptable by the County to support citizen needs.

#### Procedures for Application and Evaluation.

##### A. Application

1. Application for a Concurrency Evaluation concurrent with a request for a Land Use Change Amendment.

Any party requesting a change of land use must provide the County with sufficient information to determine the practicality of effecting such a change. The party making such a request must provide the following information to the County Building Official, on a form provided by the County (Exhibit A) and pay such fee as may be established by resolution of the Board of County Commissioners:

- a. Applicant name, address and telephone number.
- b. Owner name, address and telephone number.
- c. General location of parcel.
- d. Number of acres or fraction thereof.

- e. Existing Land Use designation.
- f. Proposed Land Use designation.
- g. Number of units to be developed, by type.
- h. Roads serving site.
- i. Recreational facilities serving site.
- j. Will site be served by central water? sewer?
- k. Is site in 100 year flood zone?
- l. Does site contain critical habitat for endangered/threatened species?
- m. Will proposed change affect beach accessibility?
- n. State reason for requested change.

Approval of an application for a land use change amendment to the Comprehensive Plan does not reserve infrastructure capacity for future development.

- 2. Application for a Certificate of Concurrency prior to approval of a site plan, subdivision plat or building.

Any party requesting a Certificate of Concurrency in conjunction with or prior to application for site plan, subdivision plat or building permit approval, must provide the County Building Official with the information required with an application for a change of land use, plus the following information, and pay such fee as may be established by resolution of the Board of County Commissioners.

- a. Legal description of the property.
- b. Current zoning.
- c. Where potable water/sanitary sewer is to be provided by the County or other public/private centralized system, the applicant must provide sufficient information for the County to determine gallon-per-day demand on the available facilities to meet development requirements.

Once a "certificate of concurrency" is issued for a proposed development, the development must proceed at a level consistent with the information on which the concurrency evaluation was based. If, during any stage in the development process, the applicant increases the density or intensity of the development, or creates any other substantial deviation from the approved development, the certificate of concurrency will be cancelled and an additional fee must be paid for the County to conduct a new concurrency evaluation and issue a new certificate of concurrency based upon the revised application.

#### B. Criteria for Concurrency Evaluation

The following criteria shall be applied to determine whether levels of service available for the five critical components of infrastructure (potable water, sanitary sewer, drainage, recreation and roads) are adequate to support the proposed development:

1. Traffic Circulation (Roads):

- a. The capacity for transportation facilities shall be evaluated using the table: "Maximum Peak Hour Volume for each LOS by Facility Type", as adopted by FDOT and published in the Level of Service Standards and Guidelines Manual, Florida Highway System Plan; latest edition.
- b. The impact on the transportation network shall be determined using the trip generation standards cited in the ITE Trip Generation Manual (latest edition).
- c. The impact of traffic generated by a development on local roads shall be evaluated for its impact on the nearest point of ingress/egress to a road designated as "the system" in the Nassau County Comprehensive Plan.
- d. The calculation of infrastructure demand impact for purpose of issuing a "Certificate of Concurrency" shall be based upon 100 percent buildout of the proposed development. A Certificate of Concurrency may be issued for a single (or more) phase of development if the development order specifies a phased development schedule.

2. Sanitary Sewer:

- a. The impact of a proposed development on available public/private sanitary sewer facilities shall be calculated by first establishing available capacity which is to be determined by subtracting the currently committed capacity (those demands already on-line, plus demands for which a Certificate of Concurrency already has been issued) from the design capacity of the collection and wastewater treatment facilities; and second, subtracting the anticipated demand of the proposed development from available capacity to determine impact.
- b. The impact on the wastewater treatment plant shall be determined utilizing the County's current LOS standard for sanitary wastewater.
- c. Where septic tanks are to be utilized for sanitary sewer effluent disposal pending hook-up to a central sanitary sewer system, the Nassau County Health Services Division shall utilize the standards of Chapter 10 D-6 F.A.C. to determine acceptability of the application. The applicant shall submit a certificate from the Nassau County Health Department that certifies the site is or can be made suitable for septic tank operation before a Certificate of Concurrency may be issued.



3. Potable Water:

- a. The impact of a proposed development on available public/private centralized potable water facilities shall be calculated in a manner as described in 2.1. for sanitary sewer determination.
- b. The impact on the treatment plant shall be determined utilizing the County's current LOS standard for potable water.
- c. Where private wells are to be utilized, the standards of the St. Johns River Water Management District and applicable state regulations shall apply and proof of compliance with these regulations shall be required prior to the issuance of a Certificate of Concurrency.

4. Drainage Facilities:

The adequacy of stormwater drainage facilities for proposed developments shall be determined at the time of the engineering review based upon the current Nassau County LOS criteria for drainage.

5. Recreation Facilities and Open Space:

- a. The adequacy of open space shall be based upon the current Nassau County Recreation and Open Space LOS criteria. In no event, shall the open space provided be less than that required in the Nassau County Road Construction and Subdivision Regulations, Ordinance No. 87-18, as amended.

The need for developed recreational facilities shall be based upon the number and availability of recreational facilities as required by the LOS in the County's Comprehensive Plan Recreation and Open Space Element.

- b. The impact of a proposed development on the County's Open Space or Recreation LOS shall be calculated in a manner as described in 2.a. for sanitary sewer determination.

Determination of Concurrency Finding (Exhibit B)

A. Schedule of Availability

In order to pass the test of concurrency, components of infrastructure must be available to the proposed development in accordance with the following schedule taken from Chapter 9J-5.0055:

1. 9J-5.0055(2)(a) -- For potable water, sanitary sewer, solid waste and drainage, at a minimum infrastructure must satisfy the following standards to meet the concurrency requirement:
  - a. The necessary facilities and services are in place at the time a development permit is issued; or
  - b. A development permit is issued subject to the condition that the necessary facilities and services will be in place when the impacts of the development occur; or
  - c. The necessary facilities are under construction at the time a permit is issued; or
  - d. The necessary facilities and services are guaranteed in an enforceable development agreement that includes the provisions of Rules 9J-5.0055(2)(a)1.-3. An enforceable development agreement may include, but is not limited to, development agreements pursuant to section 163.3220, Florida Statutes, or an agreement or development order issued pursuant to Chapter 380, Florida Statutes. The agreement must guarantee that the necessary facilities and services will be in place when the impacts of the development occur.
  
2. 9J-5.0055(2)(b) -- For open space and recreation the proposed development must satisfy the following standards to meet the concurrency requirement:
  - a. Comply with the standards defined above for potable water, sanitary sewer, solid waste and drainage; or
  - b. At the time the development permit is issued, the necessary facilities and services are the subject of a binding executed contract which provides for the commencement of the actual construction of the required facilities or the provision of services within one year of the issuance of the development permit; or
  - c. The necessary facilities and services are guaranteed in an enforceable agreement which requires the commencement of the actual construction of the facilities or the provision of services within one year of the issuance of the applicable development permit. An enforceable development agreement may include, but is not limited to, development agreements pursuant to Section 163.3220, Florida Statutes, or an agreement or development order issued pursuant to Chapter 380, Florida Statutes.
  
3. 9J-5.0055(2)(c) -- For roads designated in the adopted Comprehensive Plan, the proposed development must meet the standards identified in 1. and 2. above.

B. Finding of Deficiency

If the concurrency evaluation test finds that a proposed development will cause a deficiency on any public facility or service for which a LOS has been established, the County reserves the authority to take any of the following actions:

- deny or defer the development proposal,
- cause the development request to be modified to achieve consistency with the County's minimum LOS, or
- process the application as a conditional development permit subject to later review and modification.

C. Finding of Concurrency

If the concurrency evaluation test finds the proposed development meets concurrency requirements a "Certificate of Concurrency" is issued by the Building Official and the request for development approval may proceed through to site plan, subdivision or building permit approval.

Period of Concurrency Validation

A. Schedule of Reserved Resources

When a Certificate of Concurrency is issued, the infrastructure resources required by the proposed development are removed from the "available" category and placed in the "reserved" category of infrastructure resources. This reservation of resources is approved for a limited period in accordance with the schedule presented below:

1. For a site development plan approval, the finding shall remain valid for a period not to exceed 6 months, except where the intensiveness of the approved use on the most recent concurrency evaluation is exceeded. In the latter instances, another concurrency evaluation test shall be required. However, the validity period may be extended administratively for two 6 month periods upon a showing of a good faith effort to proceed. The standards for establishing a good faith effort to proceed shall be subsequently established by Resolution by the Board of County Commissioners.
2. For a residential subdivision, or phase, or unit thereof, including residential subdivision phases of planned unit developments, the finding shall remain valid for a period not to exceed 60 months from the date of the construction permit's approval, providing the work authorized proceeds in a timely manner as prescribed by the Board of County Commissioners.

3. For an individual single-family lot or parcel, the finding shall remain valid for 24 months, provided a construction building permit is obtained within that time, and the work authorized proceeds in a timely manner. Lots included within subdivisions which have not passed a concurrency evaluation or where the concurrency evaluation and vesting period have expired are included in this category.
4. For a commercial, industrial or multi-family building permit, the finding shall remain valid for 36 months, provided a construction building permit is obtained within that timeframe, and work authorized proceeds in a timely manner.

B. Expiration of Concurrency Approval

Where any of the applicable time periods, as set forth in A.1, 2, 3 or 4 above, expire, a new concurrency evaluation shall be required with all applicable fees once again paid to the County.

Operating Procedures of the Concurrency Management System

A. Maintaining Level of Service Records

The Concurrency Management System shall maintain a cumulative record of the level of service capacity which is (1) in use, (2) in reserve, or (3) available. This record shall be available to the public at the office of the County Building Official.

B. Monitoring

The Building Official shall maintain all records of the status of infrastructure commitment. Records will be reviewed quarterly to ensure that developments having committed use of resources remain functional and that projects having reserved use of resources are proceeding within allocated schedules. When committed resources are no longer required or when projects with reserved resources are not proceeding on schedule, these resources will be returned to the category of "available" resources.

C. Exceptions

The following development activities are exempt from the provisions of this Ordinance:

1. Construction of public transportation, potable water, sanitary sewer, solid waste, drainage, roads, and/or recreational facilities which serve the general public or any development determined by the Board of County Commissioners as providing for public health, safety or welfare;
2. Accessory structures to established principal land uses provided the principal land use in place and functional; and

3. Any on-going Development of Regional Impact or other vested development as determined by the Board of County Commissioners on advice of legal counsel.

**EXHIBIT A  
NASSAU COUNTY LAND USE AMENDMENT CHANGE REQUEST**

DATE: \_\_\_\_\_

1. Application Number: \_\_\_\_\_

2. Applicant Name: \_\_\_\_\_

Address: \_\_\_\_\_

3. Agent Name: \_\_\_\_\_

Address: \_\_\_\_\_

4. Owner Name(s): \_\_\_\_\_

Address: \_\_\_\_\_

5. General Location: \_\_\_\_\_

6. Number of Acres or Fraction Thereof: \_\_\_\_\_

7. Location Map: (Attachment A) \_\_\_\_\_

8. Legal Description: (Attachment B) \_\_\_\_\_

9. Current Zoning Map: (Attachment C) \_\_\_\_\_

10. Proposed Land Use Change

a) Current Designation: \_\_\_\_\_

b) Proposed Designation: \_\_\_\_\_

11. Population Assumptions

a) Maximum population of site now under current land use:

\_\_\_\_\_

b) Maximum population under proposed land use: \_\_\_\_\_

12. Traffic Circulation

a) Facilities immediately serving site:

Road	Current ADT	Projected ADT
_____	_____	_____
_____	_____	_____
_____	_____	_____

13. Recreation and Open Space

a) Facilities immediately serving site:

---

---

---

b) Is this site within a targeted Park Land? (Y/N)\_\_\_\_\_

14. Water/Sewer

Provided On-Site:\_\_\_\_\_

Provided by Off-Site Utility (Name):\_\_\_\_\_

Water:\_\_\_\_\_

Sewer:\_\_\_\_\_

Letter of Confirmation for projected capacities: if provided by Utility System. (Attachment D)

15. Conservation

a) Does site contain critical habitat for endangered/potentially endangered species? (Y/N):\_\_\_\_\_

b) If yes, identify species and show location on site map.

c) Is site in a flood zone?: (Y/N):\_\_\_\_\_

16. Coastal

a) Will proposed change impact evacuation times:\_\_\_\_\_

1) If yes, describe impact:\_\_\_\_\_

b) Will proposed change affect beach accessibility?:\_\_\_\_\_

---

17. Additional Comments:\_\_\_\_\_

---

---

---

---

**EXHIBIT B  
NASSAU COUNTY CAPACITY DETERMINATION FORM**

RECORD No. \_\_\_\_\_

DATE OF CONCURRENCY  
TEST STATEMENT USED: \_\_\_\_\_

(Please record this Record Number  
with all subsequent development  
orders issued for this parcel)

Status of Facility/Service:

Traffic            **SEE ATTACHED TRANSPORTATION CONCURRENCY**  
Circulation       **ANALYSIS REPORT**

Water Supply	Acceptable _____ Unacceptable _____ Not Applicable _____	Service Provider _____ Service Area _____
--------------	--	--

Sanitary Sewer	Acceptable _____ Unacceptable _____ Not Applicable _____	Service Provider _____ Service Area _____
----------------	--	--

Solid Waste	Acceptable _____ Unacceptable _____
-------------	--

Representative Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE OF ISSUE \_\_\_\_\_

An acceptable determination means that Nassau County has reviewed the applicant's capacity request for the indicated facility/service, and has determined that, as of the date of the applicant's request, capacity for the indicated facility is available. **This determination addresses capacity only, it does not guarantee that water taps, sewer taps, or other infrastructure is readily available.** This reservation will be good for the period of time specified by the Concurrency Management System. Failure to obtain any development orders/permits within the required time limits will cause this capacity reservation to become invalid.