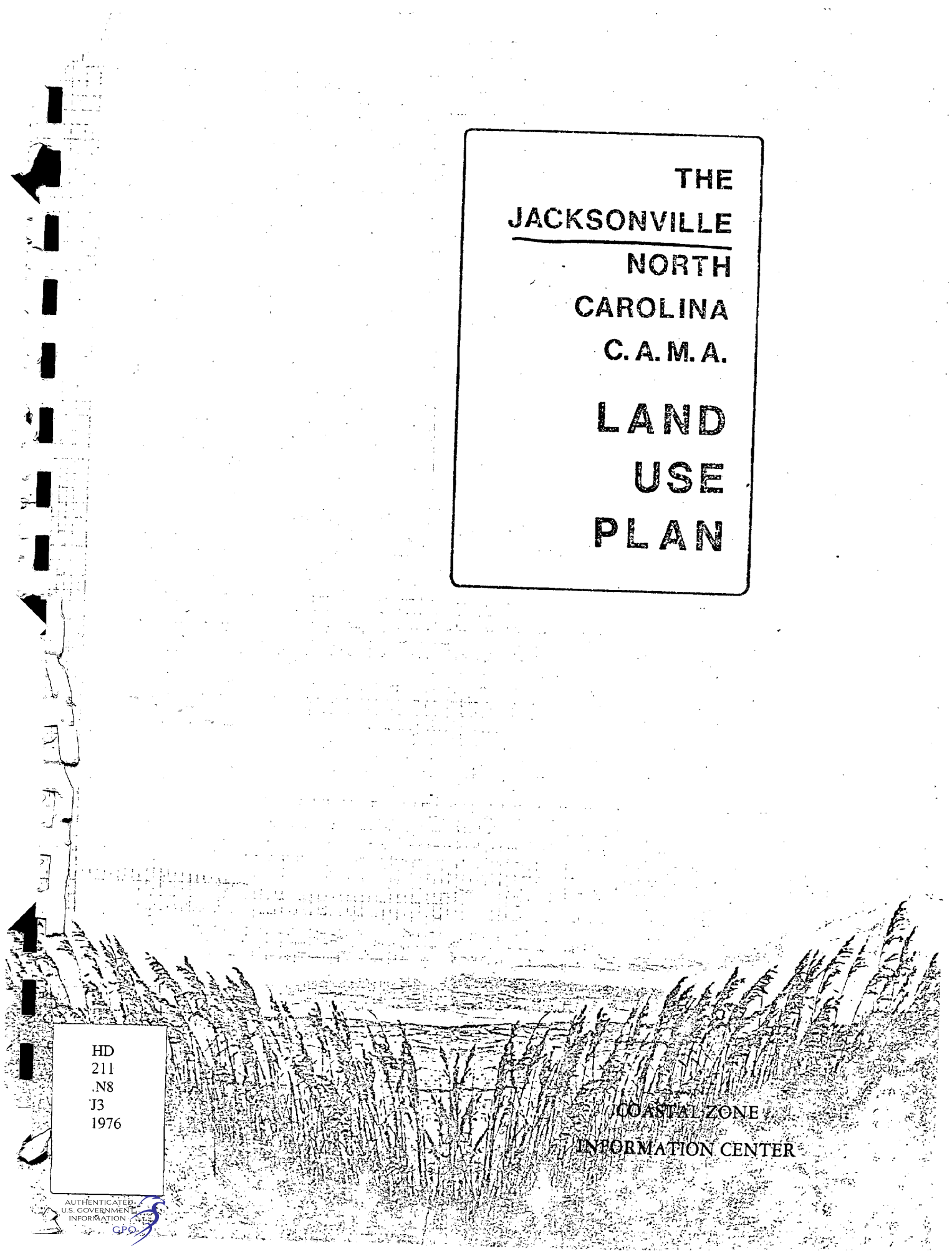
THE JACKSONVILLE NORTH CAROLINA C.A.M.A. LAND USE PLAN



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Chapter I

INTRODUCTION

WHY THIS PLAN?

In 1974, the North Carolina Legislature expressed concern about the state's coastal area, and in particular, the estuaries which are among the most biologically productive regions of this state and of the nation. In recent years, this coastal area has been subjected to increasing pressures which are the result of the often conflicting needs of a society expanding in industrial development, in population, and in the recreational aspirations of its citizens.

The Legislature stated that unless these pressures are controlled by coordinated management, the very features of the coast which make it economically, asthetically, and ecologically rich will be destroyed. To prevent this destruction, the Legislature passed the Coastal Area Management Act (CAMA) in 1974.

The Act established the Coastal Resources Commission (CRC), and charged it with the responsibility of identifying areas of environmental concern (AEC)--which would be land or water areas where uncontrolled or incompatible development might result in irreparable damage. For such areas, the Commission is to determine what types of use or development are appropriate.

The Act also called for coastal area management land use plans to be developed for the North Carolina cities and counties located in coastal areas, and provided financial assistance for local governments to undertake the work. Guidelines for the local land use plans were developed by the Coastal Resources Commission, and this plan for Jacksonville has been prepared to conform to the adopted guidelines.

AREA DESCRIPTION*[3,7,11]

Jacksonville is located in the southeastern portion of North Carolina, and is separated from the Atlantic Ocean by the Intra-Coastal Waterway System. Its location in relation to the southeastern United States is shown by Exhibit 1.1m. Washington, D.C. is 350 miles to the north, and Charleston, South Carolina, is 222 miles to the south.

Transportation

Jacksonville's transportation connections to the surrounding region, as shown by Exhibit 1.2m, include four federal or state highways, the Seaboard Coast Line Railroad, Ellis Airport, and the previously mentioned Intra-Coastal Waterway. New Bern is located 36 miles to the north via U.S. 17, Morehead City is 43 miles to the east via N.C. 24, Wilmington is 51 miles to the sourth via U.S. 17, and Kinston is 42 miles to the northwest via U.S. 258.

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*Note: References are not footnoted within the text of this report; rather, they are listed in Appendix "A" - Bibliography.

Land Area

Jacksonville is the County Seat of Onslow County, which is outlined in hash marks on Exhibit 1.2m. Onslow is the eleventh largest county in North Carolina, having a total surface area of 806 square miles, of which 756 square miles are land area, and the remaining 50 are water area. The 756 square miles of Onslow County land area is allocated as follows:

...19 square miles of incorporated area (2.5% of total land area)
...25 square miles of rural nonfarm, or non-incorporated urban area (3.3%)
...126 square miles of farm land (16.7%)
...417 square miles of commercial forest land (55.2%)
...169 square miles of U.S. military reservation, the U.S. Marine Corps Camp Lejeune (22.4%)

Geography

The county's topography varies from flat to gently rolling, with a high land elevation of 63 feet around Richlands in northwestern Onslow that eventually slopes downward to sea level. The county is bisected in a north-south direction by the New River, the only large stream in North Carolina to have both its headwaters and mouth in the same county. The White Oak River is along the county's northeastern boundary, and the Intra-Coastal Waterway runs along the southeastern boundary, parallel to the Atlantic Ocean.

Local Government

Onslow County is governed by five County Commissioners who are elected at-large, and who employ a County Manager. There are four incorporated places: Jacksonville, Holly Ridge, Swansboro, and Richlands. Jacksonville, the largest city (16,021 people and 4.5 square miles in 1970) is governed by a Mayor and four City Council members who employ a City Manager.

Jacksonville and Onslow County also are represented on the Neuse River Council of Governments that includes the nine-county area of Carteret, Craven, Duplin, Greene, Joues, Lenoir, Onslow, Pamlico, and Wayne Counties. This organization provides the member cities and counties with opportunities to better coordinate projects of mutual interest, better allocate their common resources, and obtain additional assistance in meeting local needs.

HISTORICAL DEVELOPMENT*[13]

Although the Onslow County area received its first settlers, three families, in 1706 on the site of what had once been an indian village, the year of 1734 generally is agreed upon as the date of the county's formation. It was granted precinct status in 1735 and, thereby, gained representation in the State

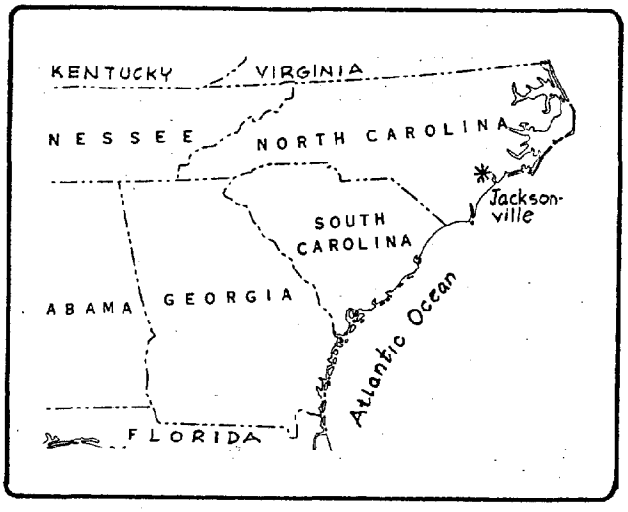
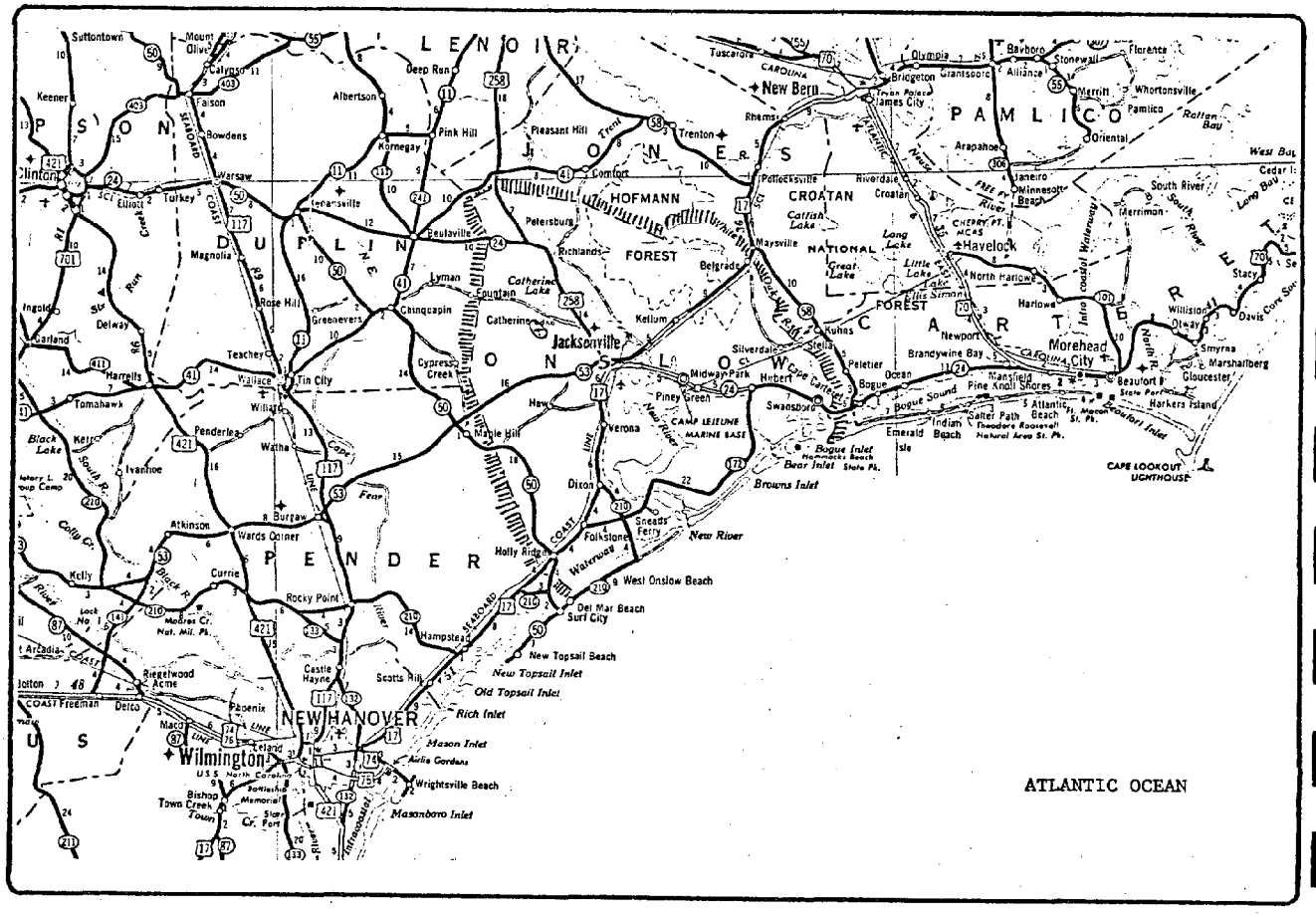


Exhibit 1.1m:

Jacksonville's Eastern Seaboard Location

Exhibit 1.2m: Jacksonville and Onslow County Related to Adjoining Areas



General Assembly. The county was named after a member of the British House of Commons who was an advocate of democratic government, even at a time when it was not popular in his country.

Two Wars

Although the people of Onslow County and North Carolina joined with other colonists in 1774 to express dissatisfaction with British policies, the state did not vote approval of the first draft of the Constitution in 1788, but rather approved its later revision in 1789 after the Bill of Rights had been added. Onslow citizens fought throughout the Revolutionary War from 1776 to 1782.

In the Civil War, North Carolina seceded from the Union in 1861 and Onslow volunteers fought throughout the war in five Confederate regiments.

Agricultural Development

For more than two centuries, Onslow's economy primarily consisted of farming and fishing. Lumbering was an important industry until the timber was exhausted in 1900. Farmers then turned to other crops, such as tobacco, which soon became the county's major money crop. The agricultural economy also included grains, vegetables, poultry, livestock and seafoods of several varieties.

Industrial Development

Until 1940, there was little nonagricultural employment in the Jacksonville area. The early settlers had established the turpentine industry, followed by lumbering and sawmills, which flourished until the early 1900's.

The area's economy was dramatically changed with the establishment of Camp Lejeune in 1941. Camp Lejeune, the largest all-purpose marine base in the U.S., contributed greatly to the nonmanufacturing segment of the local economy by means of providing direct employment, as well as base personnel purchasing of goods and services.

In the 1960's, local efforts were directed towards securing manufacturing establishments in order to bring more diversity into the industrial economy and to replace the subsiding military installation growth. By 1963, there were twenty-two manufacturing establishments in the county, and at least six more have been added since.

Camp Lejeune*[5,13]

Prior to 1940, the "town" of Jacksonville had less than 1,000 residents. The completion of Camp Lejeune in 1942, however, had an immediate growth effect on the town. By 1950, the town had changed its name to the City of Jacksonville, and by 1970, the City's population was slightly over 16,000.

The growth of Camp Lejeune has been the dominant generator for growth in Jacksonville and other parts of Onslow County.

Camp Lejeune is known as the "Worlds Most Complete Amphibious Training Base," and it has two missions: to provide housing, training facilities, and logistical support for Fleet Marine Force, or other assigned units; and to conduct specialized schools and other training or research. The major training activity is the Infantry Training Regiment at Camp Geiger.

The three major commands located at the base are the Marine Corps Base, the Second Marine Division, and the Force Troops, Fleet Marine Force, Atlantic. The New River Marine Corps Air Station is adjacent to Camp Lejeune, but it is under the command of the supporting Marine Air Corps Station located 52 miles to the east at Cherry Point, N.C. The main port of embarkation is located 45 miles east at Morehead City, North Carolina.

Camp Lejeune covers 22.4 percent of Onslow County, or 169.5 square miles, of which 41 square miles is water. The base perimeter measures 68 miles, and 14 of this is ocean frontage parallel to the Intra-Coastal Waterway.

Many of the base facilities are equal to that which would be provided for a city of 60,000 people, including police and fire protection, water supply, sewage disposal, and other services. The base administers 5,000 housing units and its own school system (under H.E.W. supervision) with an enrollment of approximately 4,400 students. The base contains about 6,000 buildings, including nine chapels, fifteen movie theaters, and 300 buildings to house troops. Also, there are five swimming pools, two golf courses, fifty miles of railroad, several miles of roadways and walkways, and a complete Naval Hospital. The main camp is located at Hadnot Point, with smaller camps at Courthouse Bay, the Rifle Range, Camp Geiger, and Montford Point.

Firsts*[5]

The dates at which certain things first happened in Onslow County include:

...1706 - First settler, William Brown
...1734 - Onslow County established
...1756 - First Courthouse at Jacksonville
...1814 - First post office at Courthouse
...1893 - First newspaper at Folkston (was Peanut)
...1904 - First graded elementary school, Richlands
...1906 - First high school, at Richlands
...1906 - First telephone
...1936 - First public library, Richlands
...1945 - First radio station, WJNC
...1971 - First commercial airport, J. Ellis Airport

Chapter II

SYNOPSIS OF THE PLAN

ISSUES

During the next ten years, some of the issues facing Jacksonville pertain to existing development, while others are pertinent to future growth that is expected to occur.

For existing development, the major issues appear to be:

..a need to maintain a high level of public services in those areas where citizens have expressed high satisfaction---such as fire protection, postal service, homes, water system, garbage collection, police protection, neighborhood, library, air quality, and newspapers.

..An opportunity to enhance the quality of services deemed as fair---such as street lights, shopping areas, telephone system, radio, sewage disposal, airport, electric supply, overall quality of living, television, schools, streets, storm water disposal, and industrial areas.

..a challenge to upgrade the only four areas with which citizens have shown dissatisfaction: sidewalks, parks, employment opportunities, and the Downtown area.

For future development, the major issues appear to be:

..a desire that the City continue to grow in population and land area.

..a desire for more industrial development and employment.

..a desire that any future growth be guided by, and in conformance with, a community land use plan.

GOALS AND OBJECTIVES

Some of the more important goals and objectives for Jacksonville include the following:

..Residential land - to make our homes and neighborhoods good places for a family to eat, sleep, play, live, and grow together--by providing a physical environment free from noise, odors, traffic hazards---and one that is surrounded by similar compatible uses. And, it must be an objective to make sound and decent homes equally available to all citizens, and to make a sincere effort to help secure proper housing for low income families.

..Commercial areas - to make them conveniently accessible to other areas without improperly intruding on residential neighborhoods; encouraging improved aesthetics in buildings, parking, and signs; and to encourage safe and efficient traffic patterns.

..Industry - to encourage additional industrial development in order that the City's economic base will become more diversified and offer additional job opportunities.

..Community facilities - to maintain or enhance existing facilities, and to plan for new ones to accommodate future growth, in order that all citizens will be properly served by parks, schools, libraries, and police and fire protection.

..Utilities - to maintain and enhance utility services to all existing and future development in order that all buildings will be properly and safely served by water, electricity, and telephone---and assured of proper removal and disposal of storm water, sewage, and solid waste.

..Transportation - to maintain and improve the safety and efficiency of our transportation system, especially in relation to walkways, bikeways, streets, and highways.

..Economy - to work towards establishing a more diversifeid and balanced economy in order to provide more job opportunities, and to make job training and assistance continually available to all citizens.

..Protection and conservation - to protect and conserve those parts of our community that are already assets---such as our natural environment, historical areas, and other areas of environmental concern.

..New growth - to guide and plan for new growth in order to assure that it will be a community asset.

GOAL EXPLANATION

The Jacksonville goals were established to provide one important means of insuring proper guidance for future community development. This should minimize the creation of new problems, and mazimize the chance that future development will reflect local desires and priorities.

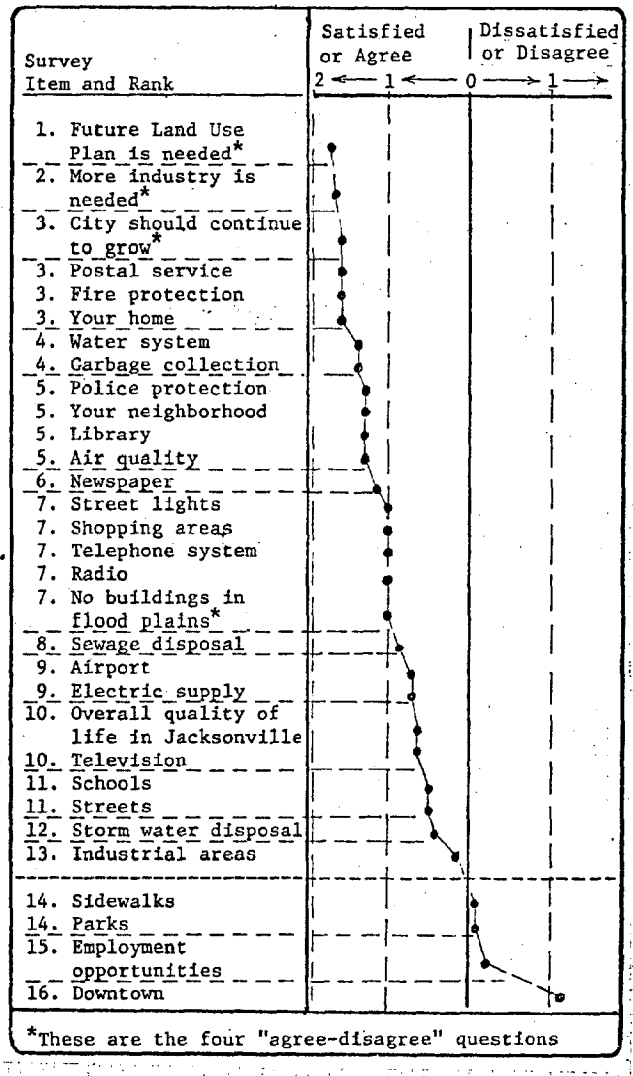
Organized groups that participated in the process included the City Council, the Planning Board, and a Citizen's Advisory Committee and a Technical Advisory Committee, both appointed by the Mayor and City Council. The Citizen Committee represented a community cross-section in terms of sex, age, race, income, and geographic location.

A citizen opinion survey was prepared and reviewed with the local committees, and over 27,000 copies* distributed by newspaper and by hand. Only eighty were returned, and this was in-

sufficient to impute the findings as being representative of the entire community. The returns, however, were summarized and the result for each survey item was discussed with the local committee members, most of whom had filled out a form of their own. The summary of Exhibit 2.1t reflects not only the opinion of the 80 citizen responses, but also represents a consensus of the Jacksonville committees.

Other methods of public participation which were effectively employed included many meetings with the four local committees which were representatives for the entire citizenry. At each meeting, goals and other material were discussed and developed by members, then typed, distributed and reviewed. Newspaper and radio representatives attended all meetings and reported to their audience. Graphic display boards were prepared for presentations to the committees, and also used for speeches to classes at the Jacksonville High School. Although response to the opinion survey was far less than desired, proper opportunities were provided for the public to become informed and to contribute to the goal decision making.

Exh. 2.1t: Summary of the 80 Citizen Opinion Responses



*These are the four "agree-disagree" questions

*Only 6,000-8,000 of these were distributed to Jacksonville residents, however.

LAND USE TRENDS

As late as 1940, Jacksonville was a small community of less than 1,000 people. By 1975, however, the City had grown to 20,000 people, primarily due to the creation of the Marine Base, Camp Lejeune, on land adjacent to the City.

The City of Jacksonville, in 1975, contained 6.3 square miles of land, and three-fourths of this (or 4.8 sq. mi.) is devoted to urban activities to accommodate the needs of the City's 20,000 people. There were about 5,600 dwelling units to house the people, at an average of 3.5 persons per unit; and there were 73 miles of streets. A breakdown on the City's urban land use is given by Exhibit 2.2t and 2.3m.

Exhibit 2.2t: 1975 Urban Land Use In City

Urban Land Use Cateogry	Acres	% of Total
Total urban land use	3,056	100%
..Residential	1,795	59%
..Single Family	1,560	51%
..Apartments	227	7%
..Mobile Homes	7	0.2%
..Commercial	263	9%
..Industrial	34	1%
..Trans., Commun., & Util.	699	23%
..Streets	571	19%
..Rail & Utilities	128	4%
..Government & Institut.	242	8%
..Culture, Enter., & Recreat.	23	0.8%

The two major land users in 1975 were residential (59%), followed by transportation (23%); together accounting for over 80 per cent of all urban land area. Commercial and government uses each comprised about one-tenth of the land, while recreation and industrial were an extremely low one per cent.

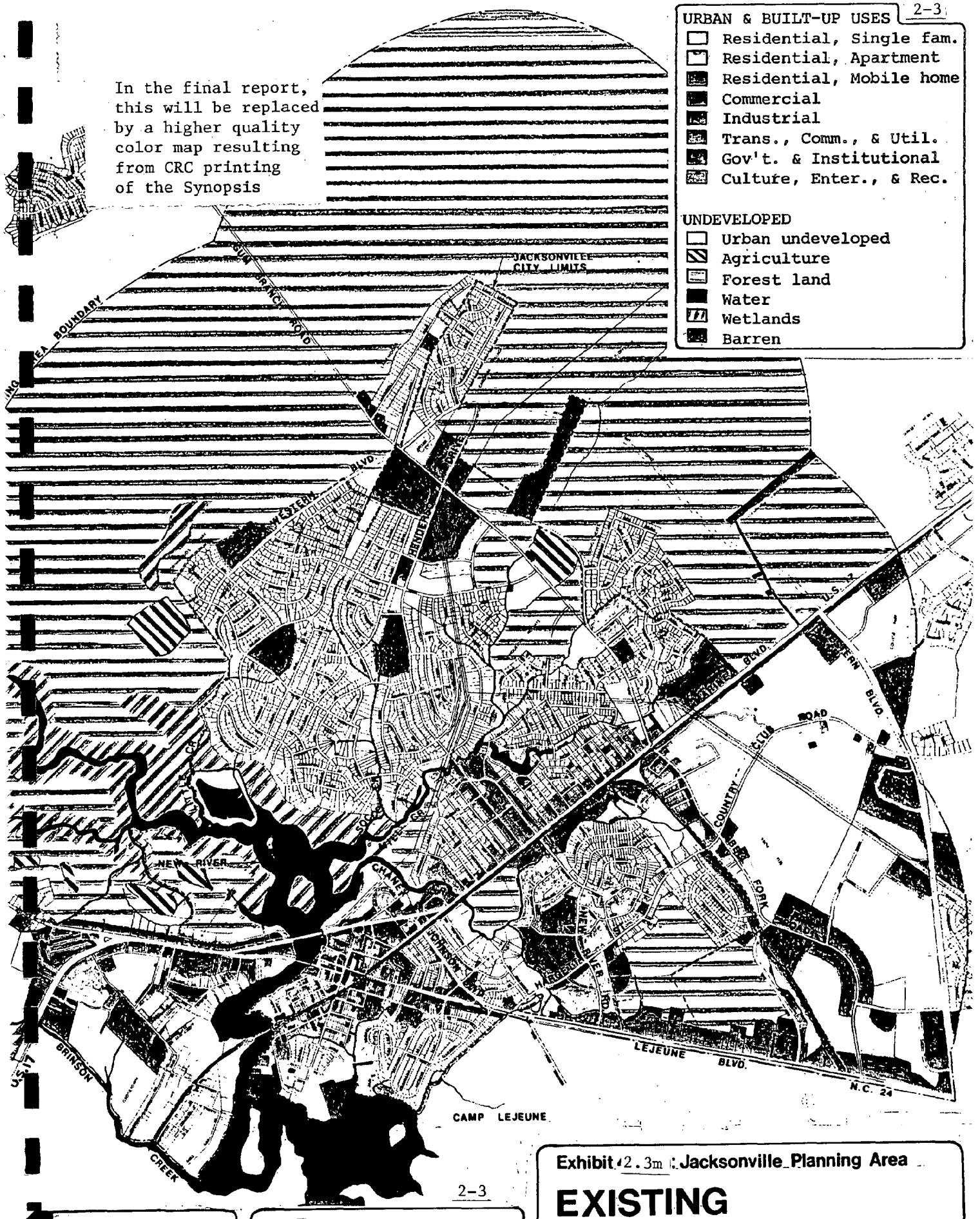
Outside the City, but within the one mile radius for the Jacksonville Planning Area, is an additional 12.5 square miles of land which is only 17 per cent urbanized (2.1 sq.mi.). Although the urban land in this area is less than half that in Jacksonville, it has:

..9 times more mobile home land
..about 30% more commercial land
..about 20% more industrial land, and
..6 times more urban-type vacant parcels ready for development.

LAND CAPABILITY

The capability of land in the Jacksonville area to sustain future growth will be restricted only by special attention which must be given to the local soil conditions. Most of the soil is ranked as having moderate or severe limitations for urban-type construction. This is caused primarily by the high water table or shrink-swell characteristics of the soil.

To overcome the high water table, extensive and expensive drainage facilities are necessary. And, overcoming the shrink-swell limitations requires



2-3

Exhibit 2.3m : Jacksonville Planning Area

EXISTING LAND USE

G REYNOLDS WATKINS CONSULTING ENGINEERS
LEXINGTON, KENTUCKY

NORTH

1000 0 1000 2000
SCALE IN FEET

expensive removal and replacement of unsuitable soils, or more stringent and expensive foundation construction methods.

Thus, as long as the appropriate construction techniques are used to overcome the soil limatations, the Jacksonville land is capable of accommodating future growth.

PAST POPULATION TRENDS

In the fifty years between 1920 and 1970, Onslow County grew from 14,703 people to 103,126---an increase of 88,423 or 600 per cent. In the same time period, the City of Jacksonville grew from 656 people to 16,021--an increase of 15,365 or 2,343%.

The tremendous growth was not equally distributed throughout this time period; but, rather was primarily concentrated in the twenty years from 1940 to 1960--- and, the major reason for this was the establishment of the Marine Base known as Camp Lejeune.

The 1970 U.S. Census of population showed that Jacksonville City contained about 16 per cent of the County population, while the Township represented 54 per cent (see Exhibit 2.4t). Overall, the military-related population accounted for 42 per cent of the total, and also pushed the percentage of males, and over-18-year-olds, above the state and national average.

Exhibit 2.4t: 1970 Onslow Population Breakdown

Area	Population and %	
Onslow County	103,126	100%
..Jacksonville Twp.	55,737	54%
..Jacksonville City	16,021	16%
..Camp Lejeune, CG, NR	22,534	22%
..Unincorporated area	17,182	17%
..Swansboro Twp.	20,800	20%
..Swansboro Town	1,207	
..Camp Lejeune	15,352	
..Unincorporated area	4,268	
..White Oak Township	13,472	13%
..Camp Lejeune	5,362	
..Unincorporated area	8,110	
..Stump Sound Twp.	5,545	6%
..Holly Ridge Town	415	
..Camp Lejeune	0	
..Unincorporated area	5,130	
..Onslow County	103,126	100%
..Military areas	43,248	42%
..Incorporated places	18,578	18%
..Unincorporated area	41,300	40%

PRESENT POPULATION ESTIMATES

Various sources have estimated the population of Onslow, Jacksonville Township, and Jacksonville City for the years 1973, 1974, and 1975. The estimates used in this plan for 1975 are:

...20,000 for Jacksonville City
...63,737 for Jacksonville Township
...112,000 for Onslow County.

POPULATION PROJECTIONS

The population projections to the year 2000, selected by the Jacksonville committees, show Onslow County increasing by over 26,000 people, or 26 per cent, with the majority of this growth located in Jacksonville Township (see Exhibit 2.5t).

Future growth for the City of Jacksonville will depend primarily on its annexation policy, since there is little undeveloped land remaining within the City's boundaries. As shown by Exhibit 2.4t, the "low" estimate for the year 2000 is 25,000 people, an increase of 9,000 or 56 per cent over 1970. This projection is based on assumptions that (1) no annexation takes place, but growth occurs on the City's remaining vacant land, or (2) the City only annexes land within its Planning Area containing 2,000 people plus the 3,000 people in Brynn Marr as of 1975.

The "high" estimate is for 41,000 people by 2000, an increase of 25,000 or 156 per cent. This is based on annexing all of Brynn Marr (+ 10,000 people ultimately) and much of the other developed land in the Jacksonville Planning Area. The projected population for the year 2020 is 56,000 people.

Exhibit 2.5t: Selected Population Projections

Year	Onslow County	Jacksonville Township	Jacksonville City Low	Jacksonville City High
At Year No.				
..1970	103,126	55,737	16,000	16,000
..1975	112,000	63,737	20,000	20,000
..1980	119,840	70,737	25,000	29,000
..1990	124,640	74,737	25,000	37,000
..2000	129,630	78,737	25,000	41,000
No. Change				
..1970-75	(8,847)	(8,000)	(4,000)	(4,000)
..1975-80	(7,840)	(7,000)	(5,000)	(9,000)
..1970-80	16,714	15,000	9,000	13,000
..1980-90	4,800	4,000	0	8,000
..1990-2000	4,990	4,000	0	4,000
..1970-2000	(26,504)	(23,000)	(9,000)	(25,000)
% Change				
..1970-75	(9%)	(14%)	(25%)	(25%)
..1975-80	(7%)	(11%)	(25%)	(45%)
..1970-80	16%	27%	56%	81%
..1980-90	4%	6%	0	28%
..1990-2000	4%	5%	0	11%
..1970-2000	(26%)	(41%)	(56%)	(156%)

FUTURE LAND NEEDS

The City's 1975 population of 20,000 was served by 4.8 square miles of urbanized land, which is an average of over 4,000 persons per square mile of urban land.

In the next ten years, it is estimated that the City could add anywhere from 5,000 to 13,000 people, which would require 1.25 to 3.25 square miles of new urban land if the 1975 ratio is extended.

In order to overcome past deficiencies in park and industrial land, however, it was decided that the 1975 ratio would not be used. Rather, a lower ratio

of 3,000 persons per square mile was used. At this ratio, the new land needs by 1985 would be 1.7 square miles if only 5,000 people were added, or 4.3 square miles if the higher projection of 13,000 were realized.

FUTURE SERVICES

To the extent that Jacksonville's future growth comes from annexing nearby land that is already developed, the amount of needed services may or may not, be at a minimum. For completely new growth, however, the full range of public services will be needed. Some of these services, and their ability to serve new growth, are described in the following:

..Schools - The Onslow County Board of Education projects no increase in school enrollment by 1980. As justification for this unusual situation, one may consider that the County was estimated to have grown by 12,000 people (or 12%) in the last five years---but the public school enrollment stayed fairly stable.

..Parks - The park needs for another 13,000 people would be 130 acres, the accepted standard of 10 acres of park land needed for each 1,000 people. At this ratio, there's also a deficiency of about 177 acres for the existing 20,000 Jacksonville residents. If both needs were to be met in the next 10 years, 307 acres of new park land would have to be acquired. The Montford Point area, if ever declared surplus, would make an excellent location for a large, Citywide park.

..Fire Protection - In view of the City's two existing stations, and a third one proposed on the east side of town, proper fire protection services should be available for new growth.

..Water Supply - The City's water supply system is undergoing an expansion from 2.15 million gallons per day (mgd) to 4.11 mgd, and later planned expansion to 4.55 mgd. It is estimated that only half of the 4.11 mgd capacity will be needed to serve the existing 20,000 population. This means that ample capacity should be available to accommodate another 13,000 people by 1985.

..Sewage Disposal - The City's two existing sewage treatment plants have a combined capacity of 3.08 mgd, and only 67 per cent of this capacity was being used in 1973 to serve an estimated 17,000 people.

Also, it has been proposed that the trickling filter plant be upgraded (and the lagoon facility abandoned) to a design capacity of 4.0 mgd, which could serve approximately 30,000 people. If the projected growth of 13,000 by 1985 is realized, it may mean that additional expansion will need to be considered for the early 1980's.

..Streets and Highways - In 1969, the North Carolina Highway Commission prepared a Thoroughfare Plan for Jacksonville. The plan called for improvements to existing facilities, as well as proposals for new facilities in order to better serve the existing population and to accommodate expected new growth. Some of the new proposals included a freeway south of Downtown and parallel to N.C. 24, another freeway to relieve U.S. 17, and completion of Western Boulevard as a loop arterial completely around the City to U.S. 17 on the west.

It is important that the cost implications of this future growth also be understood by local officials and citizens. Although certain costs will be borne, or shared, by developers and state and federal government...other major costs will accrue to the City.

LAND CLASSIFICATION

On the basis of all the work completed to this point, the Coastal Resource Commission guidelines now request that all land in the Jacksonville Planning Area be classified into five categories. It is felt that this classification will assist in improving future cooperation and coordination between the City, County, state, and federal governments. The classification scheme for Jacksonville is shown by Exhibit 2.6m, and briefly explained in the remainder of this section.

..Class #1: Developed - This is for land that is already fully developed, with a population density of at least 2,000 persons per square mile and be adequately served with public facilities. All of the urban area within Jacksonville falls into this category.

..Class #2: Transition - This is for presently undeveloped land that is expected to be urbanized in the next ten years with a density of at least 2,000 persons per square mile. The 4.3 square miles of new development estimated to be needed to serve another 13,000 people falls into this category, and is shown on Exhibit 2.6m to be located to the north and east.

..Class #3: Community - This is for existing or new clusters of low density development at a density of one person per acre. No land was placed in this classification.

..Class #4: Rural - This is for land intended for long term management for productive resource utilization, and land for future needs which are not currently recognized. For Jacksonville, two large areas to the north and northwest, now used for forestry, were grouped into this classificatio

..Class #5: Conservation - This identifies land which should be maintained essentially in its natural state, and where very limited, or no public services are provided. For Jacksonville, the only land placed in this category was the New River, its tributaries, and the flood plain areas adjacent to them.

Potential AREAS OF ENVIRONMENTAL CONCERN

The only potential areas of environmental concern in the Jacksonville area were the New River, its tributaries, and the adjacent flood plain. Within the flood plain, the only appropriate types of activities would be of an open character, such as yards, recreation areas, surface parking, farming, and similar uses.

Note: In final report, this map will be replaced by a colored version to be received from the CRC after they print the Synopsis.

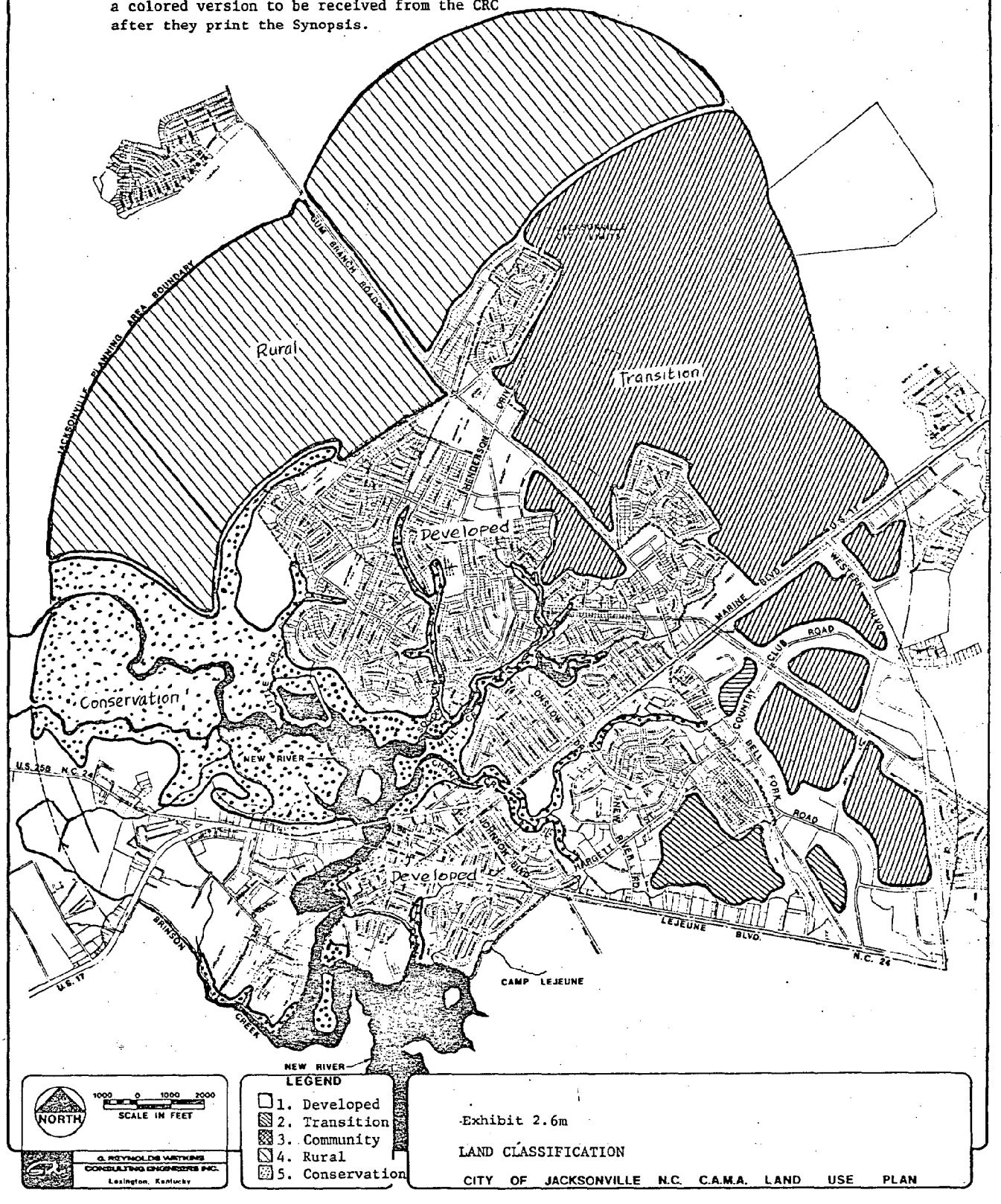


Exhibit 2.6m

LAND CLASSIFICATION

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

After hydrologic studies are made in the future, the flood plains may be divided into a floodway (that carries the heavy flow of a 100 year storm) and a flood fringe. Uses permitted in the floodway would be only the open type of activity. Within the flood fringe area, however, special permits could be requested for other limited types of activity.

IMPLEMENTATION

Responsibilities for implementing certain portions of this plan will include private enterprise, government, and governmental regulation of private actions.

In order to protect the flood plains, as an area of environmental concern, the City will comply with the provisions of the Federal Flood Insurance Act. All building permits, subdivision plats, and zone change requests will be reviewed by the City for conformance to flood plain requirements.

Development of the new residential, commercial and industrial areas primarily will be the responsibility of private enterprise. Provision of parks, fire protection, water supply, and sewage disposal will be the responsibility of the City.

Implementation of the major thoroughfare proposals will be the responsibility primarily of the State.

PLAN UPDATING

The Land Use Plan should be reviewed periodically, and revised to reflect any changes in life style or environmental or economic pressures. Such updating could possibly best be handled by a continuation of the organizational structure used for the preparation of this plan. This would include the cooperative efforts of the Mayor and City Council, Planning Board, Citizen's Advisory Committee and Technical Advisory Committee---with administrative coordination from the City Manager and staff support from the City Engineer.

DISTRIBUTION OF SYNOPSIS

In order to help the general public better understand the nature of, and the need for a Land Use Plan, a method for widespread distribution of the Synopsis is required. One of the most effective means for achieving this would be a one or two page spread in the local newspaper, to be delivered with the issue of widest circulation.

If this is not feasible, other methods which could be considered would be to print several thousand copies, and then distribute them:

..from City government buildings
..to the school population, for use at school and to take home for parents to review.
..by mail, especially if such would be coordinated with utility bill mailing.
..as an insert in the local newspaper for City distribution.

AVAILABILITY OF COMPLETE PLAN

This synopsis attempts to provide the reader with a general overview of the most important portions of the Jacksonville Coastal Area Management Land Use Plan. Anyone desiring to review a copy of the complete plan may do so by visiting the City Manager's office at the Jacksonville City Hall.

PLAN COORDINATION WITH COUNTY AND CAMP LEJEUNE

Throughout the preparation of the Jacksonville Plan, close coordination was maintained with the Onslow County Planning Staff through informal meetings, membership on the Jacksonville Technical Advisory Committee, correspondence, and review of partial drafts and the complete preliminary draft submitted to the Coastal Resources Commission. Special attention was paid to coordination for population breakdowns and projections, land use, land capabilities, areas of environmental concern, and the overall time schedule.

Similar coordination and contact was maintained with the Marine Base, Camp Lejeune, through membership on the Technical Advisory Committee and review and comments on all drafts. Studies prepared by Camp Lejeune personnel were most helpful in the areas of population, land use, traffic, and other areas.

Chapter III: STATEMENT OF LOCAL LAND USE

ISSUES, OBJECTIVES AND POLICIES

INTRODUCTION

The purpose of this chapter will be to establish a framework for the land use plan in terms of:

...Issues - What are the problems, or issues, that the community feels it will be faced with during the next ten years?

...Objectives - What are the objectives that the community desires to establish in order to describe that which it wishes to see accomplished during the next ten years?

...Policies - What are the official policies needing adoption by local government if the community objectives are to be achieved in coping with future issues or problems?

PROCESS USED TO DETERMINE LOCAL ISSUES, OBJECTIVES, AND POLICIES

The process used to determine local issues, objective and policies included the following types of public participation activity: (also see App. F)

...City Council - The Mayor and City Council of Jacksonville authorized the City's participation in the CAMA Land Use Plan process, appointed a Citizens Advisory Committee and a Technical Advisory Committee, authorized the City Manager to coordinate the involved groups as work progressed on the plan, and participated in the review, preparation, and public learning for the plan.

...Planning Board - The Jacksonville Planning Board, appointed by the Mayor and Council, made recommendations in regard to the plan, and participated in review and discussion sessions.

...Citizens Advisory Committee - This committee, appointed by the Mayor and City Council, included seventeen members who represented a community cross-section by geographical area, sex, race, age, and type of work. This committee held work review sessions and discussions, arranged for presentations to other groups, and acted as liaison with residents of their neighborhood areas.

...Technical Advisory Committee - This committee also was appointed by the Mayor and Council, and consisted of thirteen members representing the City, Onslow County, Neuse River Council of Governments, Coastal Resources Commission, Chamber of Commerce, Camp Lejeune, and the Weyerhaeuser Corporation. All of these members were professional people, knowledgable about the Jacksonville area, and capable of advice, and recommendations. The committee held work review sessions and discussions, and, between work sessions, continued additional assistance or arranged for special meetings.

...Other Meetings - Presentations were made to other groups, such as student classes at the Jacksonville Senior High School, and their suggestions and recommendations also were solicited. Meetings also were held with personnel of the City Fire Department, City Parks Department, City Engineer, County Planning Office, County School Board, the Soil Conservation Service, and the State Highway office---in order to secure information about their operations and solicit recommendations for future activities.

Information Distribution

In providing opportunities for the public to become better informed about the Jacksonville CAMA Land Use Plan process, meetings not only were held as previously described, but special information materials also were prepared and distributed. These materials included drafts of various sections and chapters of the Land Use Plan, large visual display maps and tables for group review and discussion, The CRC "Handbook on Public Participation," the CRC "Guide-Lines," the CRC "Display Posters," and the Jacksonville "Detailed Work Program."

Several interviews were held with the local newspaper and other media, and the information then transmitted to the general public by newspaper articles and radio and television newscasts.

Citizen Opinion Survey

Opportunities for the public to participate and contribute recommendations not only was effected by the previously described activities, but also was supplemented by a citizen opinion survey. This survey provided an opportunity for practically each Jacksonville citizen to express any opinions he desired about the community and its public services and future goals.

A survey form was designed (see Appendix "C" for a detailed description of form and survey results) that contained 27 questions that dealt with the citizen's satisfaction or dissatisfaction with several community characteristics and public services. Responses to these questions would help determine what problems and issues are felt to exist by the citizenry.

Four additional questions were included to determine citizen attitudes towards certain future growth policies. Information also was solicited to permit later analysis of responses by sex, age, income, geographic area of the City, or by a combination thereof.

The forms were distributed to citizens in three ways: 27,000 copies (of which 6,000-8,000 were in the City) in the local newspaper; approximately 400 copies were given to citizens who visited City Hall for other reasons; and about 100 copies were distributed by members of the Citizen's Advisory Committee to persons living in their neighborhood and to high school students.

Of the 8,000 City forms, only 80 were returned--- which represents one percent of the 20,000 people living in the City. Because of the small return, the response cannot be said to be representative of the attitudes of all the citizens of Jacksonville.

When the 80 forms were summarized, as shown by Exhibit 3.1t, they revealed far more positive than negative findings. For the four "agree-disagree" items on the form, the highest level of agreement was for "a future land use plan is needed," next was "more industry is needed," followed by "the City should continue to grow in area and population," and ending with "buildings should not be permitted in our flood plains."

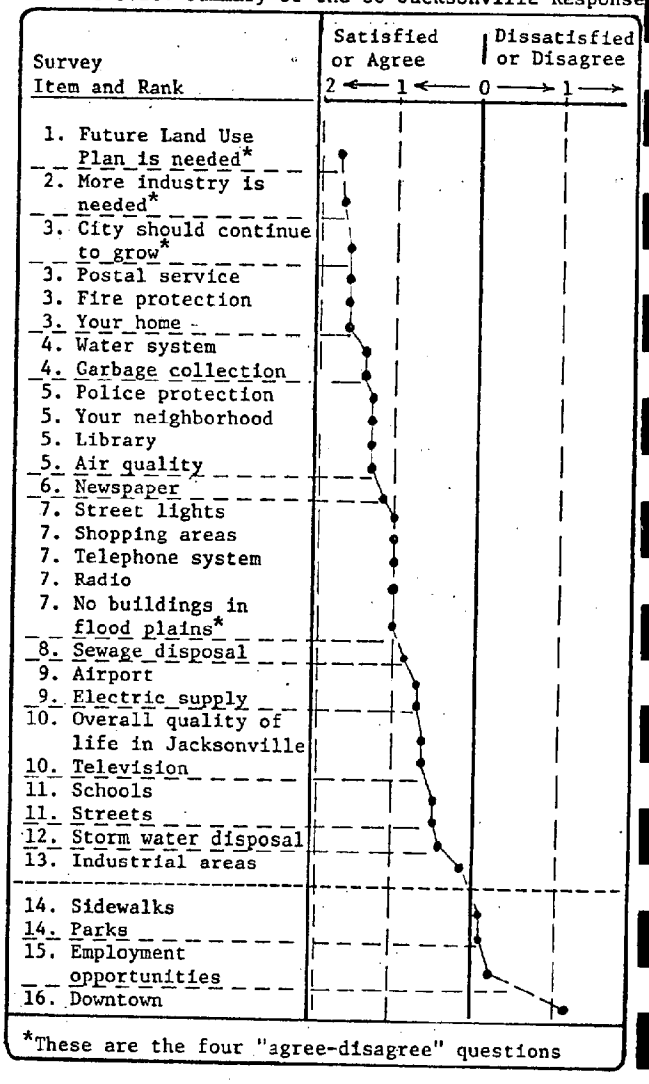
For the "satisfied-dissatisfied" questions, the highest degree of satisfaction was expressed with "postal service, fire protection, and your home." Items through #7 on the exhibit also ranked in the high satisfaction area, while items #8 through #13 ranked in the "fairly" satisfied area. On the dissatisfied side were only four items. Sidewalks, parks, and employment opportunities were ranked as "slightly dissatisfied," while Downtown was the only item to receive a "fully dissatisfied" ranking.

In terms of dominant characteristics, the eighty respondents were:

...74% male
...90% between 19 to 64 years
...83% earned over $10,000 per year
...80% live north of Marine Boulevard

Each survey item also was fully reviewed with the local committees, and in all cases a majority of the members agreed with the results and recommended their use in the Jacksonville Plan.

Exhibit 3.1t: Summary of the 80 Jacksonville Response



ISSUES DURING NEXT TEN YEARS

This section will discuss issues in terms of improvements for the existing community, as well as changes that will accompany new growth in the future.

Existing Development Issues

From the various public participation efforts, it would appear that the existing community catalogues its concern by three breakdowns:

1. Maintain present high qualities - A high level of satisfaction has been expressed generally for community characteristics such as postal service, fire protection, homes water system, garbage collection, police protection, neighborhoods, library, air quality, and newspapers. The challenge in these areas would appear to be that of continuing to perform the high level of service that has given the citizenry a feeling of high satisfaction.

2. Enhance present fair qualities - For some services and characteristics, a "fairly satisfactory" ranking has been achieved. Although this evaluation is on the positive side, it also indicates an opportunity for future enhancement of quality. Items included in this category would be street lights shopping areas, telephone system, radio, sewage disposal, airport, electric supply, overall quality television, schools, streets, storm water disposal, and industrial areas.

3. Upgrade areas of dissatisfaction - From those who have expressed opinions, it appears that four areas need major upgrading to overcome a present feeling of dissatisfaction. These include sidewalks, parks, employment opportunities, and the Downtown area.

Future Development Issues

From the public participation efforts, a majority feeling was expressed that "Jacksonville should continue to grow in area and in population" and that "more industry was needed." An even higher ranking was given to "the need for future growth to be guided by a land use plan."

The desire for future growth appears to be one that will be capable of achievement, since it has been estimated that Jacksonville could add anywhere between 5,000 and 13,000 people in the next ten years (1975-1985). This 25 to 65 per cent increase in population could come from two sources: annexing existing developed areas (5,000) and/or from future new development (8,000).

In 1975, the City's population of 20,000 was served by 3,056 acres of urban developed land. This is a ratio of 6.5 persons per urban acre, or 4,192 persons per square mile. If future population is accommodated at the same ratio, it would require another 1.2 square miles of urban development for 5,000 people or 3.1 square miles for 13,000 people.

The Coastal Resources Commission "Guidelines" note that the minimum ratio that should be considered for urban development is 2,000 persons per square mile---which is about half the density of Jacksonville. If, however, this ratio was applied to Jacksonville's estimated future growth, it would require another 2.5 square miles of urban development for 5,000 people, or 6.5 square miles for 13,000.

Thus, depending on the population growth and land/people ratio, Jacksonville's new urban development could range from 1.2 square miles to 6.5 square miles.

There is undeveloped land in the Jacksonville area capable of accommodating this potential growth, but it does have moderate and severe limitations for most aspects of urban development, as described in Chapter V. This does not mean the land cannot be developed; but, rather, that great care must be exercised and higher than normal construction costs will be experienced in order to properly overcome the limitations and provide quality construction.

Provision of Community Services

Whether Jacksonville's future growth amounts to 1.2 or 6.5 square miles, or something in between, there will still be the challenge and problem of providing all of the necessary community services and facilities. Some of the challenges included will be:

...Proper subdivison planning and zoning will be needed to insure good physical design and site planning, and inclusion of all needed infrastructure and community facilities.

...Proper construction of facilities, and coordination between local government, private utilities, and developers to insure the appropriate inclusion, design and construction for walkways, bikeways, curb, gutter, street paving, street name and traffic signs, water lines, fire hydrants, electric lines, storm water ditches, pipes, and inlets, sewer lines, telephone lines, cable television lines, street lights, street trees, or any other infrastructure item.

...Advance acquisition and/or reservation of needed public land for facilities such as parks, schools, streets, other utility rights-of-way, fire stations, recreation centers, other community service centers, and land needed for any other type of governmental facility. Reserving such needed land in advance of acquisition, and prior to subdivision development, can best insure minimum public cost as well as getting that location which can most efficiently service the citizenry.

...Expanding public services to incorporate the new growth areas, will be a need to be faced in terms of fire protection, police protection, garbage collection, recreation programming, building inspection, street cleaning and maintenance, fire hydrant inspection, street light and traffic sign maintenance, water line maintenance and meter reading, storm water facility maintenance, property assessment records, tax and utility billing, and other similar ongoing activities.

This partial listing of activities generated by new growth amply illustrates the increased workload that will be faced by many groups, but especially the City of Jacksonville---since it provides more services and facilities for its citizens than any other government in Onslow County. Under the low growth (5,000 people) assumption, the City would have the service responsibility for 25 per cent more people, and under the higher assumption (13,000 more people) the City service responsibility would increase to 65 per cent more people.

Conservation and Protection

Jacksonville's expected future growth will offer an opportunity for developing new community assets. At the same time, however, the community will face the responsibility of protecting and conserving its existing assets. Without careful planning, it is possible for the new to cancel the old, resulting in no net gain.

Thus, the community must be aware of its existing assets, such as natural resources, natural environment, historical areas, and cultural resources---in order to insure their future protection and conservation.

ALTERNATIVE APPROACHES TO ISSUES

There are various ways of approaching the issues and problems which have been previously described. One alternative would be a "minimum or back-off" approach, wherein the City would attempt to discourage the expansion of its land area or population, thereby giving it a chance to better consolidate and concentrate on existing community needs for services and facilities.

Another approach would be the exact opposite, and would fully encourage land area and population expansion wherever the opportunity occurred. This could be described as the "maximum alternative"

An "intermediate or moderate" alternative might be a well-thought out approach that would gear the amount of expansion to the community's existing and future capacity and capability for absorbing growth, and properly servicing such. This would help insure that expanded services would not detract from those provided to existing areas; but, rather, would have the opposite effect of improving such quality.

Of the three approaches, the "intermediate" alternative was preferred by the Jacksonville Committees.

It involves the concept of "planning ahead" or "prepare plans to guide the community's growth," which has been emphasized by the majority of the people who have participated in this study. Overall, this alternative could be implemented through the successful completion of four objectives:

1. Policy Adoption - by the Mayor and Council considering the adoption of policy statements in regard to the described growth issues.

2. Plan Preparation - by the Mayor, Council and City Manager overseeing the preparation of plans that will propose the means and methods for carrying out the policy statements.

3. Program Action - by the City Manager and City agencies coordinating or implementing the programs described in the planning process. One valuable tool to assist in this effort would be a "capital improvements program" that would attempt to foresee and schedule capital improvement needs over a six year period.

4. Continuous Updating - by monitoring all activities, and evaluating the results being achieved, the City would be in a position at all times to continue activities that are achieving the desired objectives, or to modify those which are not achieving the desired end. This type of continuing attention would provide good insurance for keeping the plans, programs, and other activities in the most current and up-to-date condition.

SELECTED OBJECTIVES AND THEIR PRIORITY

The community's overriding objective is that of trying to make itself a place where every person has the maximum opportunity to exercise his full potential in seeking to achieve worthwhile social, economic, and physical goals.

Man Objectives

Gaining a better understanding of man and his many and varying urban areas needs is probably our most difficult challenge--and a clearer understanding must be achieved before we can develop communities that serve him most properly. Although some needs are common to all men, others vary according to the differences that exist between people--differences such as age, sex, race, religion, education, income, social achievement or deviance, etc.

A good city is one that understands the needs implied by our differences, and builds to accommodate such needs. And, a good city will be a good place for man to search for knowledge, love, dignity, accomplishment, security and service to his fellow man.

Land Objectives

Another challenge lies with our land--not only of Jacksonville, but also the surrounding area. This is our basic physical resource and it comes in a fixed amount. If we waste it, or pollute it, there is no place to order a new supply, and we simply do without that which we've wasted and try to exist with the reuse of that which we've polluted.

Thus, we must try to more fully understand our land, and make much wiser use of the soil, rock, water, plants, air, and wildlife that exist as our community's replaceable and non-replaceable physical resources.

Once this is truly understood, we should then be able to appreciate the importance of the manner in which past generations handed it down to us--and become concerned with its condition and quality as we pass it on to our children and grandchildren. Our community development plans must work towards:

- ...eliminating pollution of our air, water, land, plantlife, and wildlife by man's waste products;
- ...eliminating the unwise allocation of land to various activities; and
- ...encouraging sound and wise policies for all of the many uses man makes of his land.

These objectives must receive our sincere and wholehearted attention in the years ahead.

For our agricultural areas, our objectives should be to insure that such land is not necessarily impinged upon by illogical urban residential, commercial, or industrial uses which can easily afford economic intrusion. Any pre-emption of agricultural lands for urban expansion should result only from logical community expansion without penalizing the remaining agricultural activities.

Building Objectives

Buildings are one of the two land innovations given to the world by man. Peculiar only to man, buildings serve only the purpose of acting as the physical housing for the performance of nearly all of man's productive activities: his eating, sleeping, living, playing, working, shopping, and pursuit of education and religion.

We must search for better ways of securing buildings which are beautiful, efficient, functional, and most conducive to the proper performance of man's activities. We also must find more workable patterns for relating buildings to one another--whether or not they house similar and dissimilar activities of man.

In certain situations, a sensitive physical and social design plan can group dissimilar activitiies in one or more buildings, and achieve complete harmony--too often, however, the result is chaos wherein the economically strong commercial and industrial activities nibble away, bit by bit, to destroy the residential and other economically weak activities. A good city must be able to properly accommodate both the strong and the weak "building" activities of man.

For our urban residential areas, our overriding objective should be that of making them good places for a family to eat, sleep, live, and grow together--by providing a physical enviornment that is free from disturbing noise and repulsive odors, that is safe and free from outside hazards (especially unnecessary vehicular traffic), and that is surrounded by compatible residential activity. Another objective would be to understand that sound and decent residential units are not equally available to all, and to make a sincere effort to help secure proper housing for the lower income families and persons who are unable to afford the acquisition of private housing.

In our urban commercial areas, our objectives should be to make them easily and conveniently accessible to all other areas, clustering them in concentrations rather than encouraging strip development along our highways, providing safe traffic patterns for their ingress and egress, and pursuing top quality physical design, especially to protect adjoining residential areas.

For our urban industrial areas, our objectives should be to provide a variety of sites in terms of size and access; to concentrate such activity, but in more than one urban location in order to make a more balanced use of our movement system; to provide convenient and safe vehicular access; and to insure compatibility of uses within industrial areas and proper landscaping separation from adjoining residential areas.

Intermingled with many of the residential, commercial, industrial, and agricultural buildings and areas already discussed are the needs for certain public activity buildings and land.

These public uses include schools, libraries, parks, fire protection, police protection, administrative buildings, and service buildings.

Educational Facilities - In order to prepare our young people for a future of productivity, accomplishment, and understanding--and to continue the education of older persons--our community has undertaken the provision of elementary, junior high, senior high and community college educational faciltiies.

For all of our educational buildings, a community objective should be to insure that they properly blend with adjoining buildings and land use areas, and do not unnecessarily emit noise, odor, or traffic problems which reduce or destroy the functioning of such adjoining areas---especially those of a residential character.

Whenever possible, our schools should be related to neighborhood to permit students to walk to school. Neighborhood locations also can serve as a cohesive force in tying together other social services and activities of a residential neighborhood.

Library Facilities - To provide continuing exposure to our citizens of special educational opportunities in terms of books, periodicals, music, painting, and other growth areas, our community must provide an adequate public library system.

Such a system might contain museums, main library, branch libraries, bookmobiles, or other facilities needed to offer educational enrichment opportunities to all of our Jacksonville citizens.

Parks and Recreation - To assist in the recreation and relaxation needs of our people, our community must have an objective of providing park, recreation, and open space facilities. The varying accessibility, size, and facility standards of each should be directed towards meeting community standards, and each should compliment and protect the use made of adjoining property.

Fire Protection - Our community's objective for its fire protection service is that of encouraging proper construction of new buildings to reduce fire damage potential, to encourage proper care of existing buildings to reduce fire hazard, and to fight whatever fires that still occur to reduce the loss of life and property.

In locating the necessary fire fighting facilities that our community requires, it should be our objective to provide such facilities in that location, and with that equipment and manpower, as will reduce our over-all fire insurance rates to the minimum and provide our people and buildings with the maximum reduction in loss of life and property from the actual occurrence of fires.

Police Protection - In order to protect ourselves from improper invasion of privacy, to protect our property, and to insure the proper performance of certain activities, our community has established a system of police protection. In providing facilities and services to meet these needs, it should be an objective of our community to provide the facilities and manpower as is necessary to protect person and property, and to enhance the common respect for the rights and property of others.

Other Public Facilities - For providing other services to the public, it is quite often necessary for city, county, state, or federal government to construct other facilities from which they provide services to our local community or a larger regional area. In any case, such facilities should be readily accessible to the public it serves, compatible with surrounding activities, and inspirational in its architecture and landscaping.

Movement System Objectives

Man generally finds it impossible to carry on his full range of activities efficiently within a given building unless the building is plugged into a telecommunications system which carries sounds and images to him from distant points; an energy supply system that provides him with water, heat, and mechanical energy; and a waste disposal system to carry away his biological, natural and commercial waste products.

Each of these systems eliminates the need for man to make physical trips from one place to another and, as such, mark notable achievements in man's movement technology. However, no means has yet been developed for moving MAN and most of his goods from one place to another by any manner other than transportation via walkway, bikeway, highway, airway, railway, and waterway systems.

Our community has certain objectives which are common to all of these movement systems:

..Availability - Since each of these movement elements is of great importance to the proper activity performance of almost all of our citizens, it must be our objective to see that all systems are available in our community, and, to the maximum extent possible, properly available to each person and place of activity in our community at all times, with the possibility of service interruption reduced to the minimum.

..Conservation - All of man's movement elements depend on an energy supply or other non-replaceable natural resources. Thus, a major objective of all should be to reduce wastefulness and increase conservation practices.

..Efficient Land Usage - Each movement system is a user of land in our community for various facilities for production, processing, transmission, and storage. Most of these facilities, within the urban area, are located within street rights-of-way and along property lines. It must be a community objective to always locate and concentrate these elements within the least possible amount of land area, making for a more efficient use of our space---and ALL movement agencies must better understand that their facilities exist SOLELY to serve man and his needs, and, therefore, must be located with a more sensitive appreciation of their effects upon man.

..Coordination Objective - As mentioned previously, most of the stationary physical parts of each movement system are located within the public street rights-of-way--in underground locations (water pipes, gas pipes, storm water pipes, sanitary sewage pipes, street light wires, and, at times, electric and telephone wires), at-grade locations (streets, curbs, fire hydrants, sidewalks), and overhead locations (telephone and electric poles and wires, street lights, and cable T.V.).

More often than not, a different agency may be responsible for each facility, so that the actual location and construction plans may not be known to the other concerned agencies. As a result, a high degree of coordination for constructing facilities is necessary. Otherwise, while installing a new sewage line, an existing water line may be broken.

Thus, another community objective must be to encourage the various agencies responsible for our movement systems to achieve a much higher degree of coordination for their construction, repair and expansion of facilities.

Telecommunication Objectives

Not too long ago, man's seeing, hearing, and speaking were limited to the physical capacity of his own mouth, eyes and ears--and, thus, he could see and hear only the world that lay within a few hundred yards of him. To see, or hear, more required personal travel---and the inefficiency, cost, and physical exertion of travel restricted most people to "knowing personally" only that world that existed within a few miles of their home.

Today, our community's telecommunications system permits each of us to sit at home and, within the span of only a few minutes, see and hear the world's championship rugby match as it is being played in London, and talk personally with a friend in San Francisco.

Without the home telephone, radio, and television, those same three experiences could have happened only after several days or weeks of travel, physical exhaustion, and a very high transportation bill.

Thus, it must be an objective of our community to understand that the telephone, radio, and television makeup of our local communications system are vital to the educational, entertainment, social, and economic wellbeing of all our citizens---and to encourage these areas of communication (along with our newspapers, telegraph service, and postal service) to continually strive for improvements and coverage in their service better compatibility with the other land uses of our community, and to search for new ways of reducing our movement time and cost.

Energy Supply System

Our citizens are not too far removed from the period in our local history when artificial light came only from candles and kerosene lamps, heat from a log fire, water from a well or stream, and air conditioning from a shade tree.

Today, our local buildings are plugged into an electric or gas system for the supply of energy to hear and cool the air, to heat our water, to provide artificial light--with electricity also providing mechanical energy to run our radio, television, and countless home and office appliances and equipment. And, each building is connected to a continuous water supply system that enables us to wash ourselves and our possessions, cook our food, replenish our body, carry away certain of our waste materials, and lubricate our industrial plants.

Without this underground pipe system of water supply, we would be dependent upon wells or water carried to us by trucks--and our urbanized society probably could not exist.

Thus, it must be an objective of our community to realize that the electric supply, gas supply, water supply, and central heating and cooling supply components of our energy supply system are vital to all aspects of our community's welfare, and to encourage each supply agency to continually work towards service improvements which will provide a better supply of heat, water, light, and mechanical energy that is available to all, that is free of interruption, that is at its lowest cost, and offers improved compatibility with all other land uses and activity needs of our people.

Waste Disposal System Objectives

Urban civilizations of the past often disposed of their wastes by tossing garbage and excretement into the streets and waiting for the rain to wash it away--or, now and then, the wagons to pick it up. Needless to say, the resulting disease and plague kept the average life span to about 35 years.

Although our storm water disposal, sanitary sewage disposal, and refuse disposal systems are far more efficient and safe, our tremendous capacity to produce "waste" materials dwarfs any previous situation in man's history. Today, man almost stands literally in the position of being completely engulfed by the waste products he generates--and the only other thing that matches the quantity of our waste production is the general apathy and unconcerned attitude that most of us, as citizens, have towards the whole situation.

For the future, our community must establish objectives of:

-understanding that the waste materials we produce cannot, as yet, be vaporized and forgotten;

-becoming actively concerned in supporting governmental attempts to cope with the problem;
-supporting proposals to utilize the best means available to cope with waste needs, and not settling for mediocre solutions; and
-encouraging continuing search for better methods of coping with the problem.

Transportation System Objectives

In the beginning, man walked and carried--this was his only form of transportation. Slowly, he took a step forward and tamed the animal, attached a cart with wheels to the animal, floated a boat on the water powered only by the wind and water currents, developed an engine to move the boats and carts, placed the carts on rails, lifted the cart into the air--and, finally, today we enjoy the fruits of this historical progression--a transportation system for moving man and most of his goods, which is composed of our walkways, bikeways, highways, airways, railways, and waterways.

And, we should give special thanks to those who developed our present means of communication, energy supply, and waste disposal--for, without their provision by air, wire, and pipe, the only other means of securing them would be via our already overloaded transportation system.

For the waterways transportation of our community, we must look to the New River and consider any existing or future potential it may hold for meeting a portion of our transportation needs--and not permit such potential to be lost or pre-empted.

For our railways system, our community must realize that some of the physical goods we consume and produce are brought-into and carried-out by our railroad system. We must encourage the continuing improvement and upgrading of these facilities, and also encourage cooperative efforts to eliminate those conflicts which may exist that reduce the efficiency of such carriers or conflict with the travel or productive activities of our own citizens.

For quick movement of our people and goods, especially to distant points, no other element of our transportation system can match our airways. And, as the pace of urban activity continues to increase, so does the importance of our airways system grow. For the future, our community must have the objective of providing that type of airport facility that will:

-permit us to take maximum advantage of the continuing advancements in air transportation; and,
-recognize its obligation to the people of our community, and continue to develop facilities, services, and programs which meet our citizen and business needs, and are compatible with the other activities and land uses of our community.

In terms of frequency and intensity of use and daily awareness, no other transportation element comes close to our highway system--the system that carries people and goods around in autos, taxis, buses, and trucks.

For all of our vehicles which carry people and goods over our highway and street channels, it must be our objective to:

-understand that streets are not alike in appearance or function, and that some should be designed for through traffic (with no driveway intersections), while others can serve local or nonthrough traffic, and have driveway intersections:
-expressways, as our highest through street in terms of speed permitted and number of cars moved safely and efficiently;
-arterials, as the only other type of through street, which should establish the boundaries of residential neighborhoods, and other land use activity areas;
-collectors, as non-through streets, which are intended to collect traffic within neighborhoods and other activity areas, and carry it to arterial streets; and
-locals, as non-through streets, which carry the least amount and slowest traffic, but are the means of reaching the final building destination whether it be home, office, or industry.
-understand that none of our citizens live, work, or carry on any other "productive" human activity on our highway system and, therefore, continually strive towards reducing the amount of time spent in highway travel;
-locate highways in relation to man's important "productive" activity areas so as to not decrease, but enhance, the productive use of his land; and, finally, to
-encourage recognition of the great interdependence of all elements of our movement system, and to plan highways to offer maximum support of, and integration with, all other movement elements.

Bikeways have only recently begun to receive any serious attention as a viable means of transportation. They now are eligible for federal aid, and most states also will assist cities in their planning and financing. Especially in view of the gasoline supply crunch, Jacksonville must have an objective of giving proper consideration to bikeways as the community continues to grow.

Walkways are the oldest element in our transportation system, but in recent decades, our love affair with the private auto has greatly decreased the attention given to the need for good sidewalks and other types of pedestrian walkways. The Jacksonville citizen opinion survey illustrated the concern that some citizens had in this regard. Thus, another transportation objective, must be to provide and maintain a proper walkway system in existing and future developed areas.

Employment and the Economy Objectives

The use we make of our own abilities and talents along with our land, buildings, and movement system, establishes our economy. We must strive to use these talents and resources in the most efficient and proper manner, giving each of our citizens an equal opportunity to use his maximum ability to become a productive member of our society.

Maintenance and development of the various sectors of our economy should be encouraged, and we should work to establish the most balanced and diversified economy that is possible. Some persons in our labor force are in need of special job training, or re-training, to develop skills needed by our expanding economy.

And, as pointed out in the citizens opinion survey, we must have a strong objective of trying to develop more and varied employment opportunities for all of our citizens who are, or desire to be, a part of our work force.

Society Objectives

The social system that we have established to govern our relationships to each other probably is in need of as much attention as any physical aspect of our community. Our social advancements, when compared to our technical achievements, quickly indicate that man has advanced much faster in his relationships with machines than he has with other men.

In all facets of our society, we must work to reduce the needless and destructive rebellions toward our civilized laws, decrease our adult crime and juvenile delinquency, and search continuously for improved justice and respect for the laws of our society.

For those among us who have lacked in opportunity, we must search for proper and respected means of removing illiteracy, securing comfortable housing, eliminating prejudice, and increasing opportunities for enjoying a good life.

Protection and Conservation Objectives

For the people, buildings, land and movement elements which are now in good condition and are assets, it should be a community objective to recognize their valuable nature and do whatever is possible to enhance, maintain, conserve, and encourage their continued existence.

Renewal Objectives

Human renewal, land renewal, building renewal, and renewal of movement elements--all must become an objective of our community to offer means of correcting and bringing new vigor and productivity to these facets of our community which are obsolete, not fully productive, or suffering from other deficiencies which prevent them from becoming a full-fledged participant in, and asset to, our community. One example of an area needing such attention was pointed out in the public participation efforts as being Downtown Jacksonville.

New Growth Objectives

For the new people who will join us, for the open land we will settle, for the new buildings to be constructed, and for the new elements of movement which will serve us--it should be a community objective to provide well-thought out plans and programs which will properly guide their development.

A Sensitive Place

To some extent, we are a people reared in the country who have moved to the city--and who have brought with us the expectations of a degree of privacy, individuality, and freedom of action that is possible only in areas of few people and a lot of nature.

Our city is a place of many people, and the degree and type of privacy and freedom of action that was possible in the country simply is not possible of attainment in the city. On the other hand, a good city can make up for these lost qualities by offering many attributes unavailable in the country--wider economic opportunities, more personal contacts for social growth, and a greater variety of means to become educated to the world around us.

A healthful and fortunate citizen will make the transition--an unfortunate citizen will become anxious, frustrated, and react in anger and despair. It must be our objective to become a sensitive community--sensitive to the rightful and unmet needs of some of us, and act to make the transition a healthy change before it strikes out in frustration and hopelessness.

The active pursuit of these objectives can improve our chances of seeing a pleasing, rather than an ugly environment; of breathing and drinking pure not polluted, air and water; of hearing wanted, rather than unwanted, sound; and of pursuing days of accomplishment and satisfaction, rather than suffering days of frustration or despair. Whatever else a city may be, it should be, first of all, a place of, and for, man.

Priorities

The priorities recommended by the Jacksonville committees include :

...Any future community development should be guided by, and in conformance with, a Jacksonville Community Development Plan.

...Encouraging the City to grow in both population and land area.

...Encouraging more industrial development and more employment opportunities.

...Acquiring additional park land and improving parks with proper recreational facilities.

Chapter IV: Data Collection and Analysis for

PRESENT CONDITIONS

INTRODUCTION

The purpose of this chapter is to provide past and present information on, and analysis of the.....

.....Population,

.....Economy,

.....Land Use, and

.....Plans and Policies

for the Jacksonville area.

POPULATION

INTRODUCTION

Population for Jacksonville and other pertinent areas will be discussed in terms of past trends, present population estimates, and future population forecasts.

PAST TRENDS IN POPULATION CHANGES

The population growth of a city not only is dependent upon new people moving into the city, but also upon the city's expansion of its boundaries to include existing families who had been living outside the city. Too often, a city is viewed as an inhabited oasis, surrounded by thousands of square miles of uninhabitated territory. Much of the time, the opposite is true. That is,the area within the city is mostly developed with urban-type activities, but the adjoining land is not completely rural or agriculturally oriented; rather, it contains other incorporated areas or small urban-type subdivisions, or suburban-type development. And, if the city, for various reasons, should expand its boundaries, it could show population growth without any real population change occurring in the general area.

Thus, this section of the study will report on the population growth of Jacksonville and the surrounding area.

Jacksonville Growth

As shown by Exhibit 4.1t, Jacksonville has experienced an unusually high population growth in the 60 years between 1910 and 1970. The majority of this growth, after 1940, was generated by the creation of the U.S. Marine Base, Camp Lejeune. Although the Marine Base developed outside the city, a great deal of its impact spilled over into the city of Jacksonville, helping to explain the growth from 505 people in 1910, to 16,021 in 1970, an increase of 15,516 people or 3,072 percent.

Originally, Jacksonville was known as a "town", and the change to "city" was effected in 1950.

Camp Lejeune and Jacksonville

Population comparisons of Camp Lejeune and Jacksonville are shown by Exhibit 4.2t. As neighbors, they are the two largest urban concentrations in Onslow County, accounting for 49 percent of the County's population.

Exhibit 4.1t: Jacksonville Population Growth*7

Year	Population
1910	505
1920	656
1930	783
1940	873*
1950	3,960*
1960	13,491
1970	16,021
1910-70 No. Changes	15,516
1910-70 % change	3,072%

*Parts of Jacksonville Township were annexed to Jacksonville town in 1943, 1945, and between 1950-60.

The Camp Lejeune figures, however, do not include Camp Geiger and the New River Air Station, which have a population of 8,699. When these are included, the 1970 population of the Marine Base would be 43,248, or 42 percent of the County population. Added to Jacksonville, the two areas would account for 58 percent of the county's total.

The exhibit also shows the unusually large number of persons housed in group quarters, which is almost completely accounted for by the Marine barracks.

Exhibit 4.2t: Jacksonville-Camp Lejeune Population*

Living quarters type	Onslow County 1970 Number	Onslow County % of Co.	Jacksonville 1970 Number	Jacksonville % of Co.	Camp Lejeune 1970 Number	Camp Lejeune % of Co.
Total	103,126	100	16,021	16	34,549	33
..Households	77,403	75	15,999	16	14,862	14
..Group Quart.	25,723	25	22	-	19,687	19
..Institution	383	.4	9	-	346	.3
..Other	25,340	25	13	-	19,341	19

Jacksonville Trends Compared to Other Areas

In the fifty years between 1920 and 1970, the population of North Carolina and the United States doubled, as shown by Exhibit 4.3t. During the same time period, however, the population of:

...Jacksonville City increased by 2,342%
...Jacksonville Township grew by 1,728%
...Onslow County increased by 600%, and
...Onslow towns (and city) grew by 1,000%.

Swansboro Township experienced the next highest growth of any of the county areas, gaining over 18,000 people for a 818 percent increase.

The third largest growth area in the county was White Oak Township, which experienced a gain of over 11,000 people, for a 45% increase.

Comparisons by Decade

The fluctuation in growth rates by decade are shown in Exhibit 4.4t for Jacksonville and some other areas. During this time, the range in the rates was:

..11% to 354% for Jacksonville City
..5% to 304% for Jacksonville Township
..3% to 154% for Onslow County
..12% to 23% for North Carolina, and
..7% to 18% for the United States.

Exhibit 4.4t: Growth Rates by Decade *7

Area	1920-1930	1930-1940	1940-1950	1950-1960	1960-1970
Jacksonville City	1%	11%	354%	241%	19%
Jacksonville Twp.	5%	23%	148%	304%	31%
Onslow County	3%	17%	134%	105%	20%
North Carolina	23%	12%	13%	12%	12%
United States	16%	7%	14%	18%	13%

Population Density

The changes in population density (average number of persons per square mile) are shown by Exhibit 4.5t. In the fifty year period, Jacksonville has gone from a density of 205 to 5,007 persons per square mile.

Exhibit 4.5t: Changes in Population Density *7

Year	Jacksonville City	Onslow County
	persons/sq. mile	persons/sq. mile
1920	205	19
1930	238	20
1940	273	24
1950	1,238	56
1960	4,210	114
1970	5,007	136

Exhibit 4.3t: Jacksonville Population Trends Compared to Other Areas, 1920-1970.

Area	1920	1930	1940	1950	1960	1970	1920-1970 Changes	
							Number	%
ONSLOW COUNTY	14,703	15,289	17,939	42,047	86,208	103,126	88,423	600%
..Onslow towns, city	1,624	1,680	2,015	6,748	16,405	18,578	16,954	1,000
..Remainder	13,079	13,609	15,924	35,569	69,803	84,548	71,469	546
Jacksonville Twp.	3,104	3,282	4,059	10,089	40,834	55,737	52,633	1,728%
..Jacksonville City	656	783	873	3,960	13,491	16,021	15,365	2,342
..Remainder	2,448	2,499	3,186	6,129	27,343	39,716	37,268	1,522
..Richlands Township	4,772	5,156	5,626	6,928	7,331	7,572	2,800	5%
..Richlands Town	548	503	688	877	1,079	935	387	71
..Remainder	4,224	4,653	4,938	6,051	6,252	6,637	2,413	57
..Stump Sound Twp.	2,143	2,427	3,096	4,391	5,486	5,545	3,402	159%
..Holly Ridge Town	-	-	-	1,082	731	415	-	-
..Remainder	2,143	2,427	3,096	3,309	4,755	5,130	-	-
..Swansboro Township	2,266	2,106	2,455	11,662	21,678	20,800	18,534	818%
..Swansboro Town	420	394	454	559	1,104	1,207	787	187
..Remainder	1,846	1,712	2,001	11,103	20,574	19,593	17,747	961
..White Oak Township	2,418	2,318	2,703	9,607	10,879	13,472	11,054	457%
North Carolina (add 000)	2,559	3,170	3,572	4,062	4,556	5,082	2,523	99%
United States (in millions)	106m	123m	132m	151m	179m	203m	97m	92%

while Onslow County has increased from 19 to 136 persons per square mile. The 1970 Jacksonville density is very close to that of the average urbanized, or built-up, area of many American cities. This indicates that most of any future growth will have to occur only after additional land is incorporated by the city.

1970 POPULATION

The Onslow County area is divided into townships, incorporated places, unincorporated areas, and the Marine Base areas. The population of each, by township, is shown by Exhibit 4.6t.

Exhibit 4.6t: 1970 Population by Township *7

Area	1970 population
Onslow County	103,126 - 100%
..Jacksonville Twp.	55,737 - 54%
..Marine areas	22,534
..Camp Lejeune (pt.)	(13,835)
..New River Air Sta.	(3,799)
..Camp Geiger	(4,900)
..Jacksonville city	16,021
..Unincorp. area	17,182
..Richlands Township	7,572 - 7%
..Richlands Town	935
..Unincorp. area	6,637
..Stump Sound Twp.*	5,545 - 6%
..Holly Ridge Town	415
..Unincorp. area	5,130
..Swansboro Twp.	20,800 - 20%
..Camp Lejeune (pt.)	15,352
..Swansboro Town	1,207
..Unincorp. area	4,268
..White Oak Twp.	13,472 - 13%
..Camp Lejeune (pt.)	5,362
..Unincorp. area	8,110

*Although part of Camp Lejeune is located within Stump Sound Township, there is no Marine population listed as residing in that area.

Parts of Camp Lejeune are located in four different townships, and Camp Geiger and the New River Air Station are completely within Jacksonville Township.

Population by Military or Nonmilitary Area

In terms of location, 42 percent of the Onslow County population is in the military areas of Camp Lejeune, Camp Geiger, and the New River Air Station, as shown by Exhibit 4.7t.

The non-military areas, accounting for the remaining 58 percent of the 1970 population, is divided into incorporated and unincorporated places. The four incorporated places contain 18 percent of the county population, and the unincorporated areas accommodate the remaining 40 percent.

Exhibit 4.7t: Population by Military/Non-Military

Area	1970 Pop. and %
Onslow County	103,126 - 100%
..Military Areas	43,248 - 42%
..Camp Lejeune	34,549
..New River Air Station	3,799
..Camp Geiger	4,900
..Non-Military Areas	59,878 - 58%
..Incorporated Places	18,578 - 18%
..Jacksonville City	16,021
..Richlands Town	935
..Swansboro Town	1,207
..Holly Ridge Town	415
..Unincorporated Areas	41,300 - 40%
..Jacksonville Twp.	17,182
..Richlands Twp.	6,637
..Stump Sound Twp.	5,130
..Swansboro Twp.	4,241
..White Oak Twp.	8,110

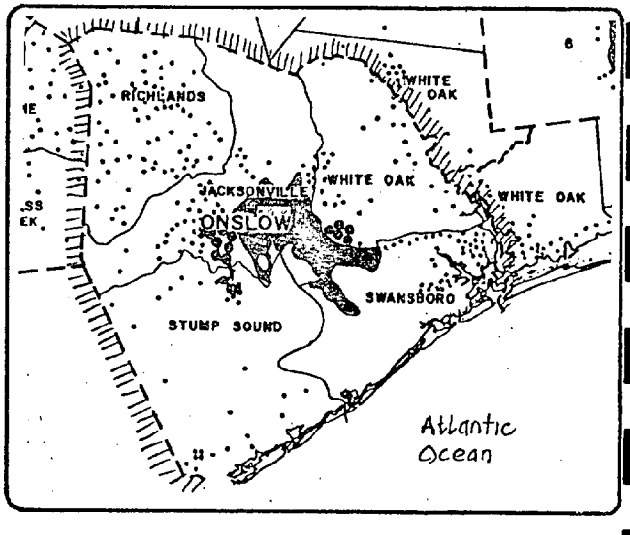
The Jacksonville Township population is almost equally divided into three parts, with:

..16,021 people in Jacksonville
..17,182 people in unincorporated area, and
..22,534 persons in the military portion of the township.

Population Distribution

The population distribution within Onslow County is shown by Exhibit 4.8m. The five townships are named and delineated, and each small dot shown represents 100 people. The larger dots indicate concentrations of 1,000 people, and the solid area contains the urban concentration of 59,000 people, comprised of Jacksonville and the adjacent military area.

Exhibit 4.8m: Population Distribution 1970*14



Population Distribution Within Jacksonville Township, 1970

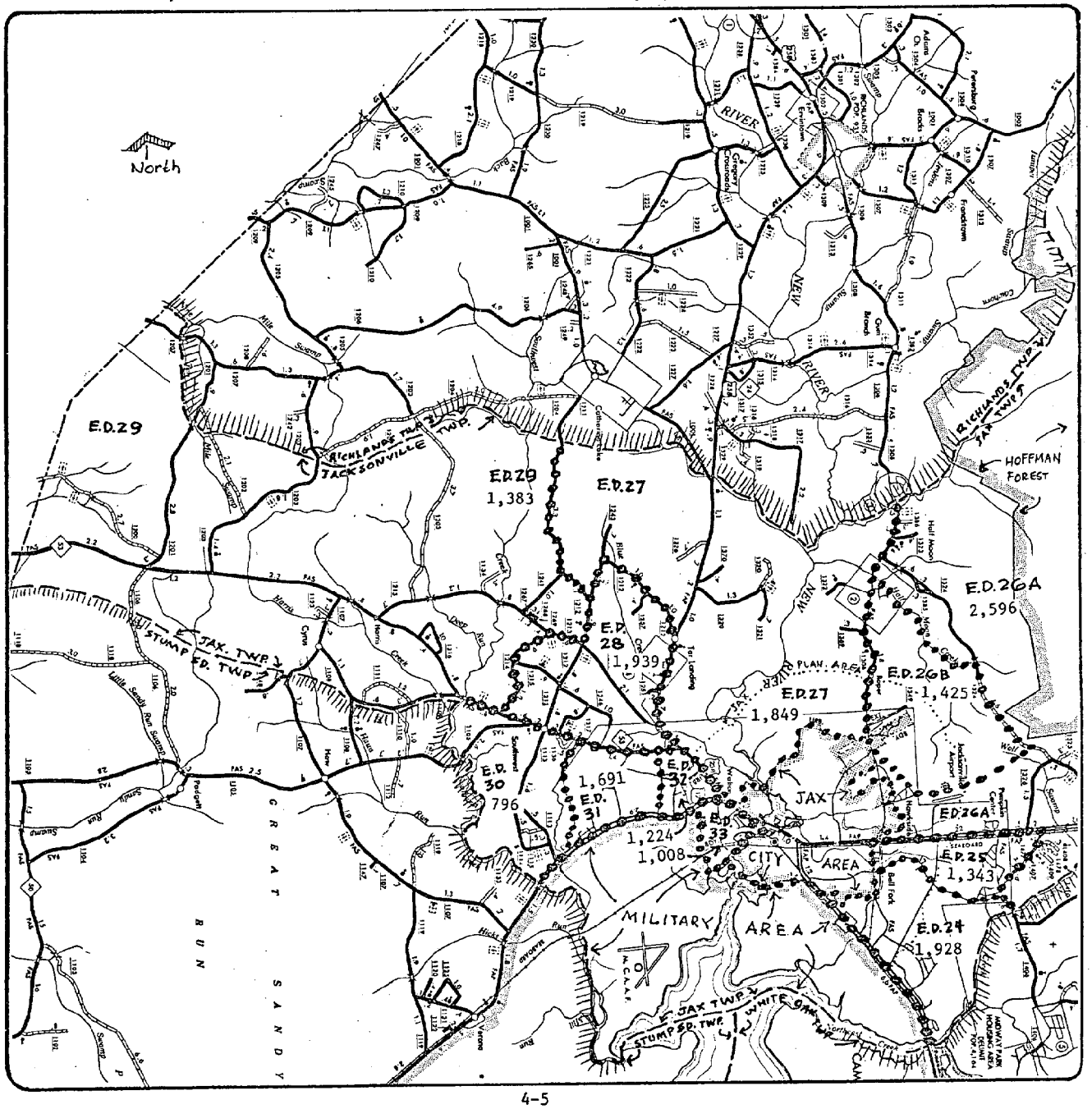
The 1970 population of Jacksonville Township was distributed by governmental boundaries as follows:

..55,737 Jacksonville Township total population
..22,534 population in military area
..16,021 population in city of Jacksonville
..17,182 population in unincorporated areas

Each of these three areas was further subdivided into "enumeration districts (ED)" by the 1970 Census, and Exhibit 4.9m shows the ED's (#24-33) for the unincorporated area of Jacksonville Township, and the population of each. The Jacksonville City ED's are #1-20, and the military ED's in the township are #21-23, although these ED boundaries are not shown on the exhibit.

The ten unincorporated area ED's vary in population size from 796 people in ED 30 to 2,596 people in ED26A. A portion of ED26A is not shown by the exhibit, but it primarily is the Hoffman Forest area. It appears that 3,000 to 4,000 people resided in the Jacksonville Planning area outside the city.

Exhibit 4.9m: Population Distribution Within Jacksonville Township by Enumeration District, 1970



Population Distribution Within City of Jacksonville, 1970

In the 1970 U.S. Census of population, the City of Jacksonville was subdivided into eighteen "enumeration districts" (see Exhibit 4.10m) in order to provide population counts for areas smaller than the entire city.

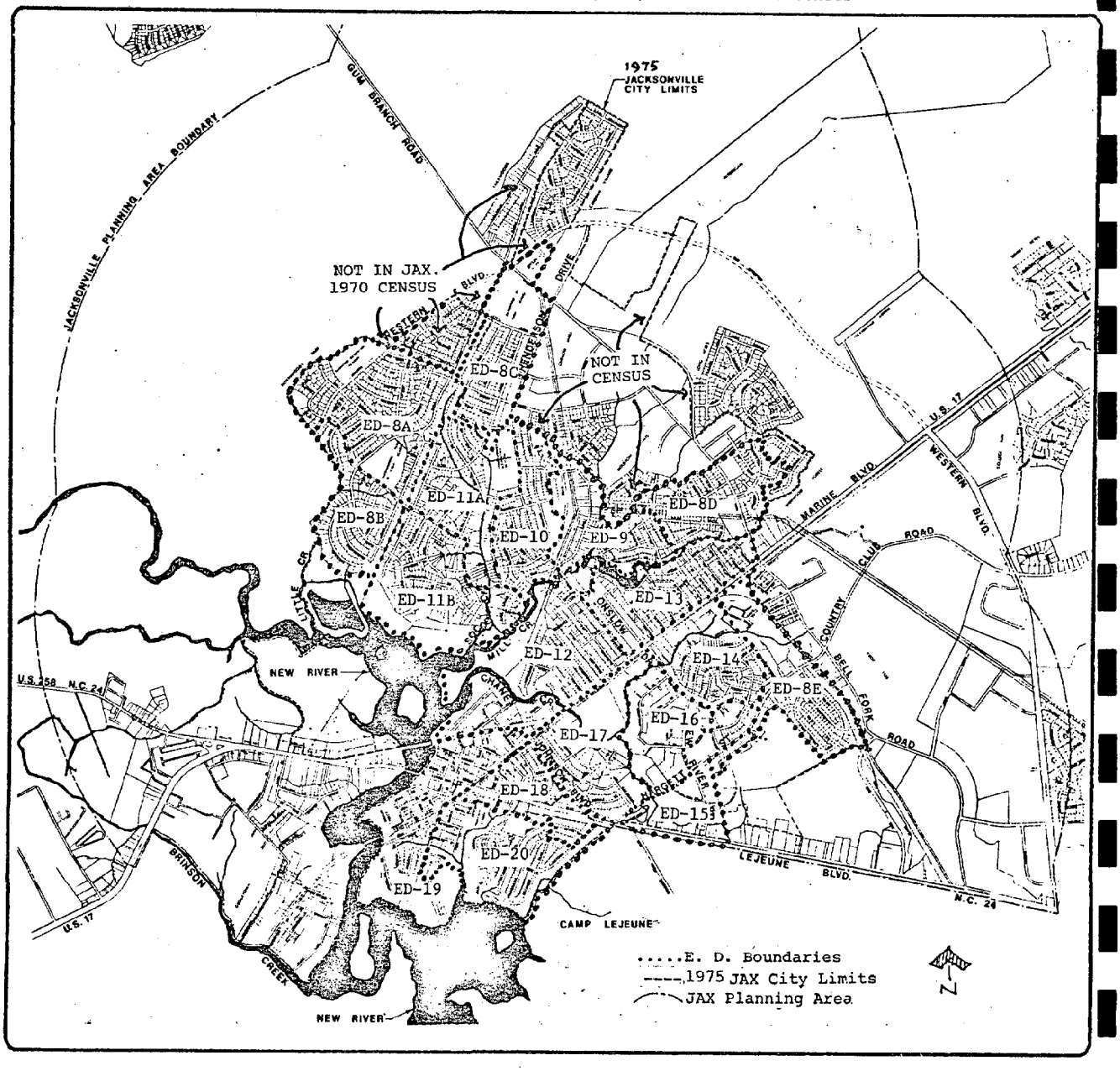
The exhibit uses a 1975 Jacksonville base map to delineate the 1970 ED's and this emphasizes the Jacksonville areas developed since the 1970 Census.

The enumeration district with the largest population count was ED-8A, while the smallest count was for ED-17. Population for each enumeration district is shown by Exhibit 4.10t.

Exhibit 4.10t: Jacksonville Population by 1970 E.D.

Enumeration district	Population	Enumeration district	Population
ED-8A	1,405	ED-12	1,050
ED-8B	550	ED-13	1,006
ED-8C	471	ED-14	837
ED-8D	950	ED-15	1,145
ED-8E	874	ED-16	707
ED-9	965	ED-17	387
ED-10	1,090	ED-18	542
ED-11A	929	ED-19	827
ED-11B	1,091	ED-20	1,195
		18 ED's	16,021

Exhibit 4.10m: City of Jacksonville Enumeration Districts (ED's) for 1970 U.S. Census



Breakdown by Sex, 1970

Population age group breakdowns by sex and race are shown in Exhibits 4.11t through 4.14t for Jacksonville City and the larger areas of which it is a part--Jacksonville Township, Onslow County, and the state of North Carolina.

In the exhibits, Onslow County and Jacksonville Township are shown to have a much larger number of males than females, where the other areas have the more usual situation of a slightly larger female population. For instance, the 1970 Census counted 2 percent more females than males for the nation as a whole, the state of North Carolina (see Exhibit 4.15t) showed 2.2 percent more females, and the city of Jacksonville had 3.6 percent more females. The location of the high male military population showed up in Jacksonville Township, with over 17 percent more males, and Onslow County with over 23 percent more males. For the entire military population within Onslow County, there were 58 percent more males than females.

Exhibit 4.15t: Sex Percentages, 1970 Census

Area	Female %	Male %	Female minus male
North Carolina	51.1%	48.9%	2.2%
Onslow County	38.3%	61.7%	-23.4%
Jacksonville Twp	41.3%	58.7%	-17.4%
Jacksonville City	51.8%	48.2%	3.6%
Military total	20.9%	79.1%	-58.2%

Exhibit 4.16t shows the location of the military population by township, as well as providing an age and sex breakdown. A majority of the total military population is located in Jacksonville Township (22,500 out 43,200). By sex, almost half the males and two-thirds of the females are located in Jacksonville Township.

If the male military population in group barracks were subtracted from the population, there would be a 1 to 2 percent majority of females in Onslow County and each of the townships*5, closely matching state and national figures.

Age Breakdown, 1970

The large concentration of male Marines (almost 29,000 as shown by Exhibit 4.16t) in group quarters substantially affects age breakdowns, especially the grouping of 18 to 64 years. As shown by Exhibit 4.17t, Onslow County and Jacksonville Township have a higher percentage of population in the 18-64 years of age group than does the state as a whole, or the city of Jacksonville. As would be expected, this means that the percentage under 18 years and over 65 years in the county and township are lower than the state and Jacksonville City.

Exhibit 4.17t: Age Percentages, 1970 U.S. Census*5

Area	Under 18	18-64	65 yrs +
North Carolina	*1,761-35%	*2,907-57%	*414-8%
Onslow County	33,305-32%	67,417-65%	2,404-2%
Jax Township	18,814-34%	35,868-64%	1,055-2%
Jax City	6,199-39%	9,330-58%	492-3%
Military total	9,656-22%	33,592-78%	0-0%

*add 000

However, if the 43,248 military personnel, and their dependents living on military bases are deducted from the population figures, the revised percentages show very little difference between the County and its two subdivisions (Exhibit 4.18t). In comparison to the state, all three have about five percent fewer persons under 18, and about five percent more persons over 18 years of age.

Exhibit 4.18t: Age Percentages Without Military *5

	Under 18	Over 18	Total
North Carolina	*1,761-35%	*3,321-65%	*5,082-100%
Onslow County	23,649-40%	36,229-60%	59,878-100%
Jax Township	13,162-40%	20,041-60%	33,203-100%
Jacksonville	6,119-39%	9,822-61%	16,021-100%

*add 000

Exhibit 4.16t: Military Population by Age and Sex for Townships, 1970 U.S. Census*5

Area Breakdown	Under 18 years			Over 18 years			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
..% of total	13%	10%	22%	66%	11%	78%	79%	21%	100%
Military total	5,542	4,114	9,656	28,668	4,924	33,592	34,210	9,038	43,248
..Camp Lejeune total	4,725	3,473	8,198	22,171	4,180	26,351	26,896	7,653	34,549
..Jax Township	2,230	1,964	4,194	6,893	2,748	9,641	9,123	4,712	13,835
..Swansboro Twp.	962	45	1,007	14,120	225	14,345	15,082	270	15,352
..White Oak Twp.	1,533	1,464	2,997	1,158	1,207	2,365	2,691	2,671	5,362
..New River-Geiger (Jax)	817	641	1,458	6,497	744	7,241	7,314	1,385	8,699
Jax Township total	3,047	2,605	5,652	13,390	3,492	16,882	16,437	6,097	22,534

Exhibit 4.11t: City of Jacksonville Age Breakdown by Sex and Race, 1970 U.S. Census

Age Breakdown	White		Negro & Others		Totals			
	Male	Female	Male	Female	Male	Female	Both	%
Total	6,775	7,117	948	1,181	7,723	8,298	16,021	100
..Under 5 yrs	701	654	118	135	819	789	1,608	10
..5 - 14 yrs	1,536	1,489	284	311	1,820	1,800	3,620	23
..15 - 24 yrs	1,579	1,688	168	205	1,747	1,893	3,640	23
..25 - 34 yrs	935	1,004	137	220	1,072	1,224	2,296	14
..35 - 44 yrs	827	926	109	152	936	1,078	2,014	13
..45 - 54 yrs	715	751	55	54	770	805	1,575	10
..55 - 64 yrs	310	345	52	69	362	414	776	5
..65 and over	172	260	25	35	197	295	492	3

Exhibit 4.12t: Jacksonville Township Age Breakdown by Sex and Race, 1970 U.S. Census

Age Breakdown	White		Negro & Others		Totals			
	Male	Female	Male	Female	Male	Female	Both	%
Total	27,307	18,698	5,286	4,346	32,593	23,044	55,637	100
..Under 5 yrs	2,475	2,322	515	647	2,990	2,969	5,959	11
..5 - 14 yrs	4,029	3,841	1,044	1,074	5,073	4,915	9,988	18
..15 - 24 yrs	13,284	5,338	2,315	925	15,599	6,263	21,862	39
..25 - 34 yrs	3,446	3,002	636	752	4,082	3,754	7,836	14
..35 - 44 yrs	1,965	1,814	340	448	2,305	2,262	4,567	8
..45 - 54 yrs	1,200	1,249	196	208	1,396	1,457	2,853	5
..55 - 64 yrs	571	648	129	169	700	817	1,517	3
..65 and over	337	484	111	123	448	607	1,055	2

Exhibit 4.13t: Onslow County Age Breakdown by Sex and Race, 1970 U.S. Census

Age Breakdown	White		Negro & Others		Totals			
	Male	Female	Male	Female	Male	Female	Both	%
Total	53,640	32,677	10,009	6,800	63,649	39,477	103,126	100
..Under 5 yrs	4,056	3,772	880	901	4,936	4,673	9,609	9
..5 - 14 yrs	7,508	7,077	1,720	1,732	9,228	8,809	18,037	17
..15 - 24 yrs	28,006	8,442	5,078	1,401	33,084	9,843	42,927	42
..25 - 34 yrs	5,761	5,152	928	1,086	6,689	6,238	12,927	13
..35 - 44 yrs	3,923	3,429	583	737	4,506	4,166	8,672	8
..45 - 54 yrs	2,304	2,317	356	391	2,660	2,708	5,368	5
..55 - 64 yrs	1,223	1,382	259	318	1,482	1,700	3,182	3
..65 and over	859	1,106	205	234	1,064	1,340	2,404	2

Exhibit 4.14t: State of North Carolina Age Breakdown by Sex and Race, 1970 U.S. Census*5

Age Breakdown	White		Negro & Others		Totals			
	Male	Female	Male	Female	Male	Female	Both	%
Total	1,915,709	1,975,801	571,683	618,866	2,487,392	2,594,667	5,082,059	100
..Under 5 yrs	161,002	152,811	61,876	63,366	222,878	216,177	439,055	9
..5 - 14 yrs	369,059	352,257	147,791	146,533	516,850	498,790	1,015,640	20
..15 - 24 yrs	382,938	352,177	124,158	124,387	507,096	476,564	983,660	19
..25 - 34 yrs	257,329	261,642	59,456	66,241	316,785	327,883	644,668	13
..35 - 44 yrs	231,660	241,099	51,264	63,391	282,924	304,490	587,414	12
..45 - 54 yrs	217,807	232,010	51,333	59,513	269,140	291,523	560,663	11
..55 - 64 yrs	161,177	187,389	40,499	47,800	201,676	235,189	436,865	9
..65 and over	134,737	196,416	35,306	47,635	170,043	244,051	414,094	8

Race Breakdown for 1970

By racial composition, whites accounted for 77 to 86 percent of the total population for Jacksonville Township and City, Onslow County, and the state as a whole. Negroes ranked next, ranging from 13 to 21 percent, and "other" races accounted for 1 to 2 percent of the population (see Exhibits 4.11t - 4.14t, and 4.19t).

When negroes and others are grouped by governmental unit, the following percentages result:

..14% in the city of Jacksonville
..18% in Jacksonville Township
..16% in Onslow County
..23% in the state of North Carolina

Exhibit 4.19t: Race Breakdown for 1970*[5]

Area	Population	% of Pop.
Jacksonville City	16,021	100%
..White	13,892	86%
..Negro	1,957	13%
..Other	172	1%
Jacksonville Twp.	55,637	100%
..White	46,005	82%
..Negro	8,822	16%
..Other	910	2%
Onslow Co. total	103,126	100%
..White	86,317	84%
..Negro	15,387	15%
..Other	1,422	1%
North Carolina	5,082,059	100%
..White	3,891,510	77%
..Negro	1,137,664	22%
..Other	52,885	1%

RECENT POPULATION ESTIMATES

Population estimates of Onslow County and its incorporated places have been made by the North Carolina Dept. of Administration (D.O.A.), the U.S. Census Bureau, and the Onslow County Office of Manpower Planning (see Exhibit 4.20t).

D.O.A. Estimates for 1973

The D.O.A. estimate for Onslow County shows a 9 percent, or 8,926, decrease in population in the three years since 1970. For the incorporated places, however, a 5 percent increase is shown--meaning that any population loss primarily was experienced by the remainder of the county.

U.S. Census Estimates for 1973

The U.S. Census Bureau estimates are similar to those of D.O.A., except that they show a higher loss for the county (-10%) and for the nonincorporated areas (-17%). In both estimates, Jacksonville was the incorporated place with the highest population gain--6%, or 939 people, by D.O.A., and 26%, or 4,226, by the Census Bureau.

Manpower Estimates for 1974*[3]

The Onslow County Office of Manpower Planning prepared estimates of the 1974 county population. The Manpower estimates are 17,800 higher than those by the state, and 18,922 higher than those prepared by the U.S. Census. The Manpower figures were based on four factors:

(1) The civilian labor force growing from 18,500 in 1970 to over 22,500 in 1974 (N.C.E.S.C.);
(2) the active duty military strength in December of 1974 was at its highest recorded level since the base opened in 1942;
(3) the number of electric meters installed since 1970 in residential units totaled 7,000; and
(4) births and deaths have followed the 1960-70 pattern.

1975 Flood Insurance Estimate

The February, 1975, flood insurance application submitted to the federal government by the city, estimated the city's population at 16,962, based on a count of 5,601 dwelling units, at about three persons per unit. This would be an increase of 941 people, or 6% since 1970.

Exhibit 4.20t: Current Population Estimates

Area	1970 Actual Population	Population Estimates			1970-73 Changes				'70-'74 change	
		1973 N.C. Dept. of Adminis.	1973 N.C. Census Bureau	1974 Onslow Manpwr.	D.O.A. No.	D.O.A. %	US Census No.	US Census %	Manpower No.	Manpower %
Onslow County	103,126	94,200	93,078	112,000	-8,926	-9%	-10,048	-10%	8,874	9%
..County, ex. incorp. places	84,548	74,700	70,216	-	-9,848	-12%	-14,322	-17%	-	-
..Incorpor. places	18,578	19,500	22,862	-	922	5%	4,284	23%	-	-
..Jacksonville	16,021	16,960	20,047	*16,962	939	6%	4,226	26%	*941	*6%
..Holly Ridge	415	380	461	-	-35	-8%	46	11%	-	-
..Richlands	935	950	1,040	-	15	2%	105	11%	-	-
..Swansboro	1,207	1,210	1,3.4	-	3	-	107	9%	-	-

*City of Jacksonville estimate in 1975 flood insurance application.

1975 D.O.A. Estimate for Jacksonville

In May of 1975, the Jacksonville City Engineer prepared a listing of all areas annexed to the City of Jacksonville since the 1970 U.S. census. During this five year period, it was found that:

...17 annexations had taken place

...894 acres was the annexed land area

...949 occupied housing units were located in the annexed areas and

...3,426 was the estimated annexed population, at the national average of 3.53 persons per housing unit, plus adding 80 persons who were in group quarters in the newly annexed areas.

...19,715 was the 1975 estimated population of the City of Jacksonville..1970 population of 16,289 plus 3,426 persons in the areas annexed to Jacksonville since 1970.

It should be noted that the estimated increase in Jacksonville's population was based exclusively on annexed areas, and did not take into account any new growth within the old City limits. If this growth had been included, the 1975 estimate probably would have been at least 20,000 persons -- more closely approximating the U.S. census estimate of 20,047 for Jacksonville in 1973.

The Jacksonville information on the annexed areas was submitted to the North Carolina Department of Administration (D.O.A.). In August of 1975, the D.O.A. certified Jacksonville's population as 19,720.

1975 Jacksonville Township Estimate

In the 1970 U.S. census, Jacksonville Township had a population of 55,737 people, or 54 percent of Onslow County's total 103,126 population. Planning research recently completed by the Marine Corps estimates that 68 per cent of the County's 1975 population resides in Jacksonville Township, but without any of this growth having occurred in the Marine portion of the Township.

On this basis, the 1975 population of Jacksonville Township would be 76,160 people, or 68% of the 112,000 people estimated for 1974 for Onslow County by the Manpower agency. In the five year period:

...Jax Twp. would have increased by 20,263 persons, or 36%;

...The remainder of Onslow County would have lost 11,389 persons, or a 24% decrease; and

...Onslow County would have increased by 8,874, or 9%.

For this tremendous increase to have occurred within the Township, in a five year period, all of the County's estimated real growth would have had to locate in the Township -- plus over 11,000 people would have had to move from the other Onslow Townships into Jacksonville Township. Unless further detailed substantiation can be secured, it appears that the 1975 Township estimate of 76,160 (or 68% of the County's total) is excessive and a far more conservative estimate would be preferable. If one assumed that most of the County's estimated growth occurred in Jacksonville Township, the 1970-75 increase would be approximately 8,000 persons (or 14%), for a total of 63,737 people.

An increase of 8,000 persons for the Township could be divided between:

...Jacksonville City, with a 3,426 increase
...Brynn Marr, with a 3,000 increase, and
...The Twp. remainder, with a 1,574 increase.

Estimates To Be Used For 1975

After reviewing the various 1975 estimates for the County, Township, and City, it was decided to use those shown in Exhibit 4.21t.

Exh. 4.21t: Population Estimates To Be Used For 1975

Area	1970		1975		1970-75	
	No.	%	No.	%	No.	%
..Onslow Co.	103,126	100	112,000	100	8,874	9
..Co. remain.	47,389	46	48,263	43	874	2
..Jax. Twp.	55,737	54	63,737	57	8,000	14
..Jax City	16,021	16	20,000	18	3,979	25
..Marines	22,534	22	22,534	20	0	0
..Unicorp.	17,182	17	21,203	19	4,021	23

The Onslow County estimate of 112,000 people in 1975 approximates the estimate of the county Manpower office for 1974.

The Jacksonville Township figure of 63,737 people estimates that about 8,000 persons were added between 1970-75, while only 874 persons were added in the remainder of the county.

The Jacksonville City estimate of 20,000 is based on the recently approved D.O.A. figure. The population in the Marine Corps portion of Jacksonville Twp. is estimated not to have changed, and the unincorporated area (which would include Brynn Marr) is estimated to be 21,203 persons. Each of these three subdivisions of the township account for about one-third of the Township's total population.

THE JACKSONVILLE AREA ECONOMY

INTRODUCTION

The economy of the Jacksonville area had always been oriented to agriculture and fishing until the development of the Marine Base in the 1940's and 1950's. The military operations not only created civilian jobs on the base, but also generated the need for increased services of many kinds outside the base.

One effect of the Marine Base on the Jacksonville economy is emphasized by the per capita income in past years for Onslow County:

..$1,932 in 1959,
..$2,210 in 1965, and
..$3,364 in 1968.

In each of these years, this was the highest per capita income of any of the eastern North Carolina counties.

EMPLOYMENT BY INDUSTRY, 1960

In 1960, the influence of the Marine Base also was evident in terms of the Onslow County employment distribution by type of industry, as shown by Exhibit 4.22t. Whereas the state had only 13 to 16 percent of its employment in retail trade, Jacksonville and Onslow County ranged between 21 and 31 percent.

Exhibit 4.22t: 1960 Employment by Industry*

Industry group	North Carolina %		Onslow County %	Jacksonville %
	Urban	Total		
Agriculture, forestry/fish.	1.0	13.0	12.1	0.0
Mining and quarrying	0.1	0.2	0.1	0.0
Construction	5.5	6.1	7.3	4.0
Manufacturing	31.3	31.7	8.8	8.4
Transportation, communication, and utilities	5.9	4.6	4.2	5.6
Wholesale trade	3.7	2.7	1.7	2.0
Retail trade	15.9	13.3	21.5	30.8
Finance, insurance, and real estate	4.0	2.7	2.5	6.0
Service industries	32.6	25.7	41.8	43.2

*U.S. Census of Population, 1960, North Carolina General Social and Economic Characteristics.

Employment in service industries showed a similar relationship, with Jacksonville and Onslow County ranging from 42 to 43 percent, while the state range was much lower at 26 to 33 percent.

In a reverse way, the employment figures again emphasized local dependence upon the military facilities. Although the state averaged about 31 percent of all employment representing manufacturing jobs, Jacksonville and Onslow County had only 8 to 9 percent of its jobs accounted for by manufacturing.

LABOR FORCE TRENDS

Past labor force trends are shown by Exhibit 4.23t. In the five years between 1965 and 1970, the labor force grew by 2,839 or 18%--the number employed increased by 2,451 or 17%--and unemployment grew by 388 or 48%.

Exhibit 4.23t: Labor Force Trends for Onslow County

Item	Number and Percent		
	1965	1967	1970
Civilian Labor Force	15,620-100	17,749-100	18,459-100
..Employed	14,808-94.8	16,844-94.9	17,259-93.5
..Unemployed	812-5.2	905-5.1	1,200-6.5

1970 EMPLOYMENT BY INDUSTRY

Onslow County's 1970 employment was dominated by nonmanufacturing, with trade and services each accounting for about one fourth of the total (Exhibit 4.24t.

Exhibit 4.24t: Employment by Industry, 1970

Industry	Number	%
Total Employment	17,259	100%
Agricultural	889	5%
Nonagricultural	16,370	95%
..Manufacturing	1,738	10%
..Nonmanufacturing	14,632	85%
....Construction	1,190	7%
....TCU*	1,169	7%
....Trade	4,610	27%
....FIRE**	781	5%
....Services	3,774	22%
....Other	775	5%
....Government	2,333	14%

*Transportation, Communication, and Utilities
**Finance, Insurance, and Real Estate

EXISTING LAND USE*

INTRODUCTION

To accommodate the needs of its 20,000 citizens and others in 1975, the City of Jacksonville has:

...5,600 dwelling units (3.5 persons per unit)
... 73 miles of streets (or 20 feet per person)
...and almost 5 square miles of urban development.

The different uses made of the land in Jacksonville City, as well as that for the area outside the City and the Jacksonville Planning Area, are shown by Exhibits 4.25t and 4.26m. The delineation of the three areas is shown by Exhibit 4.27m.

*The technical procedure used to make the land use measurements, and other detailed land use data is included in Appendix "B".

Three-fourths of the land in Jacksonville is developed with urban activities. Of the remaining undeveloped land, about half is water or wetland and the other half is forest or vacant urban parcels.

In the portion of the Planning Area outside Jacksonville, however, 83 percent of the land is undeveloped and is mostly classified as forest land.

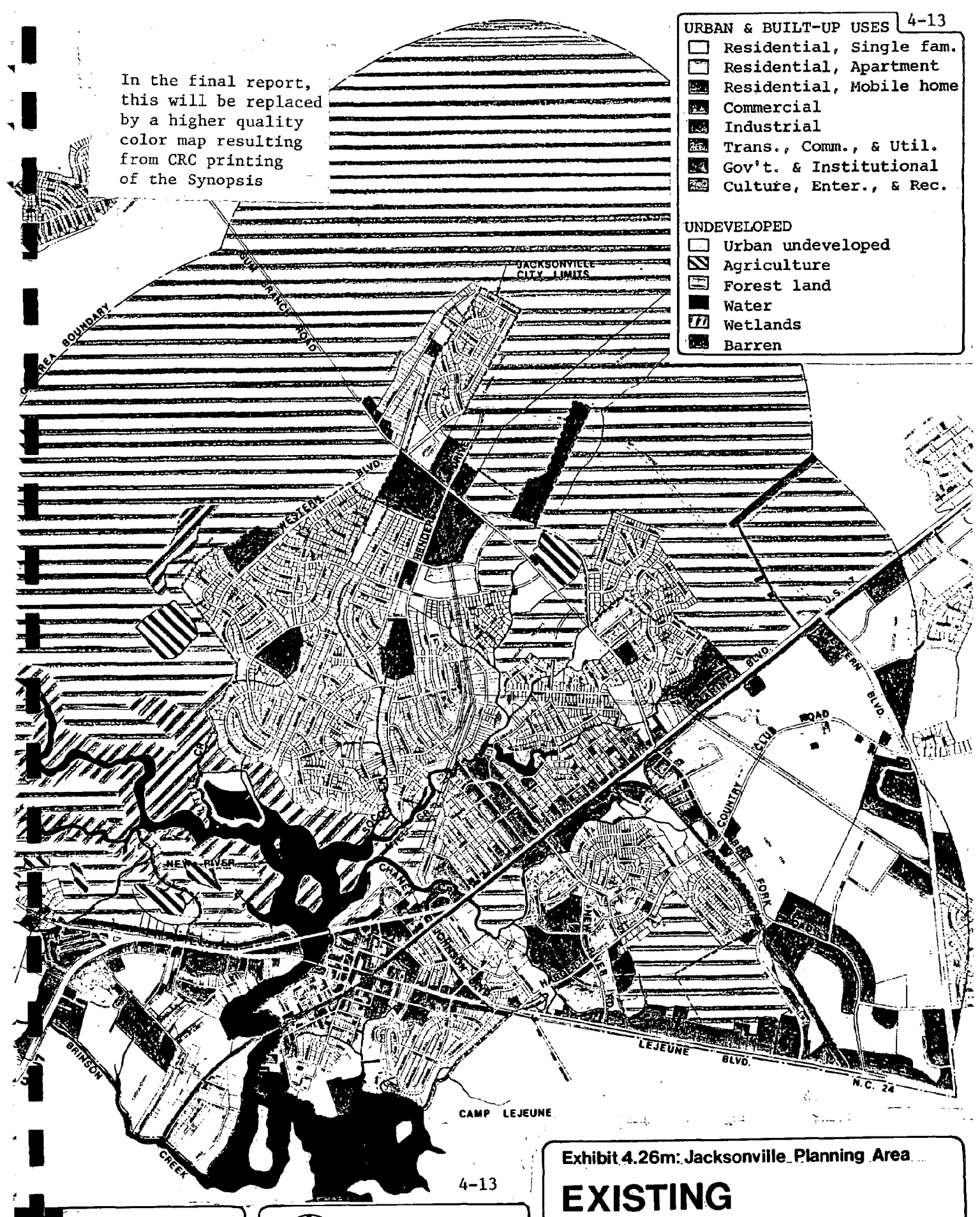
Jacksonville has over twice as much urbanized land and four times more residential land than the adjoining area, but it is interesting to note that t adjacent "outside" area has:

...9 times more mobile home land
...about 30% more commercial land
...about 20% more industrial land
...6 times more urban-type vacant parcels ready for development

Exhibit 4.25t: Land Use for Jacksonville Planning Area, 1975

Land Use Category	Acres			% of each area			% of Plan. Area Tota		
	Jackson-ville City	Ouside Jackson-ville	Total Plan. Area	Jackson-ville City	Outside Jackson-ville	Total Plan. Area	Jackson-ville City	Outside Jackson. ville	Total Plan. Area
TOTAL LAND USE ACRES	4,006	7,971	11,977	100%	100%	100%	33%	67%	100%
..TOTAL URBAN DEVEL.	3,056	1,349	4,405	76	17	37	26	11	37
..Residential Total	1,795	442	2,237	45	6	19	15	4	19
..Single Family	1,560	347	1,907	39	4	16	13	3	16
..Apartments	227	34	261	6	0.4	2	2	0	2
..Mobile Homes	7	61	68	0.2	1	1	0	1	1
...Commercial	263	338	601	7	4	5	2	3	5
...Industry	34	34	68	1	1	1	0	0	1
....Trans, Comm, & Util.	699	361	1,060	17	5	9	6	3	9
.....Streets	571	299	870	14	4	7	5	2	7
.....Rail & Util.	128	62	190	3	1	2	1	1	2
....Govt., Institu.	242	173	415	6	2	3	2	1	3
....Culture, Entertainment & Recre.	23	2	25	1	0	0.2	0	0	0
..TOTAL UNDEVELOPED	950	6,622	7,572	24	83	63	8	55	63
....Undeveloped	194	1,269	1,463	5	16	12	2	11	12
....Agricultural	18	33	42	0.2	0.4	0.4	0	0	0
....Forest Land	333	4,929	5,262	8	62	44	3	41	44
....Water	228	162	390	6	2	3	2	1	3
....Wetland	153	228	381	4	3	3	1	2	3
....Barren	35	0	35	1	0	0.3	0	0	0

In the final report, this will be replaced by a higher quality color map resulting from CRC printing of the Synopsis



4-13

Exhibit 4.26m: Jacksonville Planning Area

EXISTING LAND USE

G REYNOLDS WATKINS CONSULTING ENGINEERS
LEXINGTON, KENTUCKY

NORTH
1000 0 1000 2000
SCALE IN FEET

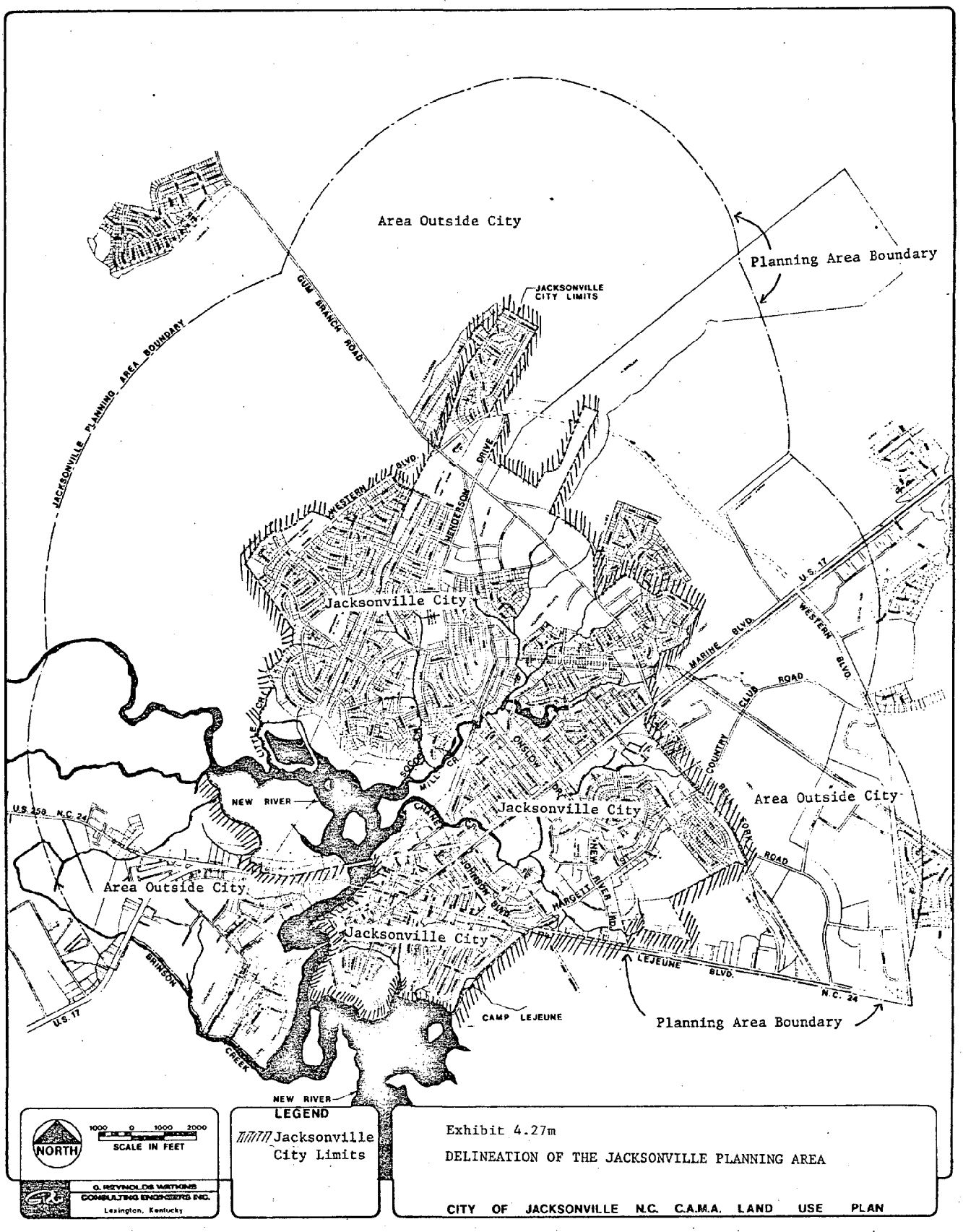


Exhibit 4.27m

DELINEATION OF THE JACKSONVILLE PLANNING AREA

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

OVERALL LAND USE ANALYSIS

In the overall analysis of land use, each category (as shown in Exhibit 4.25t) will be discussed in relation to the Jacksonville Planning Area and its two subdivisions: the City of Jacksonville and the area outside the City.

TOTAL LAND USE AREAS

Within the entire planning area, there are 11,977 acres (or 18.7 square miles) of land and water surface area. Of this total, one-third (4,006 acres or 6.3 square miles) is located within the City of Jacksonville, and the remaining two-thirds (7,971 acres or 12.5 square miles) is located in the area outside the City.

Total Urban Developed

Of the total Planning Area, only 37 per cent (4,405 acres or 6.9 square miles) is developed with urban types of activities, such as homes, apartments, stores, industry, parks, schools, streets, and similar activities. The remaining 63 per cent of the land is not urbanized, but, rather, is either water, wetland, barren, or used for forestry or agricultural purposes.

Of the land which is urbanized, over two-thirds is located within the City. The 3,056 acres (or 4.8 square miles) of City urban development represents three-fourths (76%) of the City's total area.

Outside the City, only 17 per cent of the land is urbanized. This amounts to 1,349 acres or 2.1 square miles.

Residential Land Use

About one-fifth of the land (2,237 acres or 3.5 square miles) in the Planning Area is used for residential activities, and the majority of this use is located in the City...which has 1,795 acres or 2.8 square miles, as opposed to 442 acres or 0.7 square miles of residential located outside the City.

When residential activities are subdivided by single-family detached, apartments, and mobile homes, the following results:

..Single family detached - 16 per cent, or 3 square miles, of the Planning Area is devoted to single family detached residential---and over four-fifths of this is located in the City. The City contains 2.4 square miles (39 per cent of the City's total area) of single family, while the outside area contains 0.6 square miles (or 4 per cent of the total land outside Jacksonville).

As shown by Exhibit 4.26m, the majority of the single family dwellings are located in the northern part of the community bounded by Marine Boulevard, Gum Branch Road, Western Boulevard, and New River.

..Apartments - Only 2 per cent, or 0.4 square miles, of the Planning Area is occupied with apartment residential units (including townhouses, duplexes, fourplexes, etc)---and the majority of these are in the City (227 acres) as opposed to the outside area (34 acres).

The largest concentrations of apartment units are located in the vicinity of the Onslow and New River shopping centers (see Exhibit 4.26m).

..Mobile Homes - Less than 1 per cent (68 acres) of the Planning Area accommodates mobile homes, and the majority of this activity is located outside Jacksonville (61 acres), with only 7 acres existing in the City. Most of the mobil homes are located at Sherwood Forest on Marine Boulevard, northeast of Gum Branch Road; or near U.S. 17 and 258, west of New River.

Commercial Land Use

About 5 per cent (601 acres) of the land in the Planning Area is devoted to commercial use, with two-fifths of it being located in the City and three-fifths located outside.

Commercial land use generally is located, as shown by Exhibit 4.26m, according to one of three patterns:

...As strip development along arterial streets, such as Marine Boulevard (US17), Lejeune Blvd. (NC24), Bell Fork Road, and part of Henderson Drive.

...As planned shopping centers, such as Onslow and New River Malls. Onslow Drive, north of Marine Blvd. exhibits a combination of strip and planned center development.

...Or, as part of the Downtown area.

Industrial Land Use

Less than 1 per cent (68 acres) of the Planning Area's land is used for industrial activities, and it is locationally distributed equally, at 34 acres each, for the City and the outside area.

As shown by Exhibit 4.26m, most of the industrial activity is located along the railroad tracks, either in the general Downtown area, northeast of Onslow Drive along Marine Blvd., or along Marine Blvd. northeast of Western Blvd.

Transportation, Communication, and Utilities

Most of these land uses are linear, ribbon-like strips of land that are used for streets, railroads, or utility rights-of-way. Except for residential uses, this activity is the community's largest land user---occupying 9 per cent (1,060 acres or 1.7 square miles) of the land in the Planning Area.

About two-thirds of this land use is located within the City (699 acres) where the most extensive urbanization exists. On Exhibit 4.26m, streets have not been colored and they are seen as long, thin ribbons of white. Railroads and utilities (electric transmission lines) are shown as long thin ribbons

in gray color. Within the Planning Area, streets account for over 80 per cent of the land in this overall category.

In addition to acreage in street use, another important characteristic is the street mileage needed to serve an urban area. Within the Planning Area are 870 acres of streets, divided between the City (571 acres) and the outside area (299 acres).

In terms of lineal miles of street, there are 106 miles in the Planning Area, with 73 miles being in the City and 33 miles located outside the City (see Exhibit 4.28t). In the exhibit, a separation is made between the 100 foot right-of-way arterial

Exhibit 4.28t: Planning Area Street Mileage Breakdown

Street Right-of-Way		Planning Area Total	Jacksonville City	Outside Jacksonville
Total	miles	105.9miles	72.6m.	33.2m.
	%	100%	69%	31%
..60 ft. ROW	miles	85.3miles	63.8m.	21.4m.
	%	81%	60%	20%
..100 ft. ROW	miles	20.6miles	8.8m.	11.8m.
	%	19%	9%	11%

streets which should be carrying all of the through traffic, and the 60 foot right-of-way local streets for service to non-through traffic.

The arterial streets are primarily the federal and and State designated routes such as U.S. 17 (Marine Blvd.), N.C. 24 (Lejeune Blvd.), and U.S. 258. Other included streets would be Onslow-Henderson Drives, Hargett St.-Country Club Road, Gum Branch Road, Bell Fork Road, and Western Blvd. Within the Planning Area, 19 per cent of the streets are of the arterial type, with Jacksonville accommodating 9 per cent, and the remaining 11 per cent being located outside the City.

Local streets are those used primarily by vehicles as they are about to reach their destination. Their traffic volumes and permitted speed are lower than for arterials, and driveway intersections are quite frequent (whereas they should not exist, generally speaking, along arterials). Within the Planning Area, 81 per cent of the streets are of the local type, with 60 per cent of these located in the City.

Government and Institutional Use

These land uses include buildings for City, County, State, or Federal use; schools, churches, cemeteries, hospitals, etc. About 3 per cent (415 acres) of the Planning Area is occupied by these activities---of which, 242 acres is located within the City, and 173 is outside the City.

As shown by Exhibit 4.26m; these uses are dispersed throughout the Planning Area, with the most apparent land uses being elementary, junior high, and senior high schools.

Cultural, Entertainment, and Recreational Use

These land used include libraries, museums, golf courses, parks, tennis courts, swimming pools, and similar uses.

Within the Planning Area, there are only 25 acres devoted to these activities, with 23 acres being located inside the City, and 2 acres outside. Exhibit 4.26m shows these locations primarily to be park sites dispersed throughout the area.

Total Undeveloped Land

Undeveloped land is considered to be any area not yet urbanized with buildings and streets, within the Planning Area, the majority of the land (63% or almost 12 square miles) is of this character. Most of this is forest land (44% or 8 square miles) or urban type-undeveloped land (12% or 2.3 square miles).

Of the 12 square miles of undeveloped, or non-urbanized land, only 1.5 square miles are within the City of Jacksonville---and 0.6 square miles of this is devoted to water (New River and its tributaries) or wetland use. This leaves only 569 acres (slightly less than a square mile) of potentially developable land within the City -- which might be sufficient to accommodate another 4,000 to 5,000 people. Thus, if the City is to add any significant future growth, it must occur through the process of annexing additional land to the existing City.

Urban-Type Undeveloped Land Use

Within the Planning Area, 12 per cent (2.3 sq. mi.) of the surface area falls into the undeveloped category. Most of this urban type undeveloped land is either south of Marine Blvd., between Bell Fork Road and Western Blvd.; or south of Marine Blvd., between New River and Brinson Creek.

This type of land includes vacant subdivision lots, and any other land ready for buildings to be placed thereon. It does not include land that is "open" and being used for agricultural purposes.

Agricultural Land Use

Only 42 acres of land are used for cropland or farming in the Planning Area, and the majority of this (33 acres) is outside the City.

Forest Land

As shown by Exhibit 4.26m, the majority of the Planning Area's undeveloped land is used for Forestry purposes (8.2 sq. miles), and generally is owned by Weyerhauser Corporation. This type of land use is located primarily west, north and east of the existing urbanized area.

Water Area

Slightly over 3 per cent of the Planning Area is devoted to water areas, primarily the New River. Over half of this is within the City limits of Jacksonville.

Wetland Area

Wetlands include marshes, swamps, and other areas receiving overflow or topographic support from the following stream water areas. As shown by Exhibit 4.26m, most of these areas are adjacent to the banks of New River. Of the 381 acres in this category, 153 are in the City and 228 are outside the City.

Barren Area

Barren areas, by definition of the Coastal Resources Commission, includes beaches, quarries, and graded land for building construction---which offers some conflict with the urban-type undeveloped land category. Regardless, there is only 35 acres of this land use in the Planning Area, and all of it is located within the City on the old section of Gum Branch Road.

SPECIAL LAND USE ANALYSIS

The purpose of this section is to identify any significant land use compatibility problems, any problems resulting from unplanned development, any areas expected to experience major land use changes in the future, and any areas of environmental concern.

Land Use Compatibility Problems

When different types of land uses (homes, stores, industries, streets, etc.) can exist without harming each other in a mixed or adjacent environment, they can be assumed to be compatible. They are incompatible, however, if the presence of one deteriorates or harms the environment of another.

There is no standard formula that can be applied in all situations in order to secure the desired compatibility. At times, all uses can be mixed in a sensitive physical, social, and economic design that will produce an acceptable level of compatibility. At other times, complete failure and incompatibility result from the smallest of efforts to integrate only two dissimiliar land use activities.

Generally speaking, manufacturing and processing types of industrial uses are the urban activities which can exist in, and create a more harsh environment than residential or commercial-service activities. In more recent years, however, some industrial plants have been developed in planned industrial subdivisions, with a park type of atmosphere, making them very acceptable as neighbors.

The most sophisticated, or highest economic return land use activities are retail sale of goods and provision of services. In serving the public they strive for locations that are highly visible and highly accessible to large volumes of auto traffic--especially along arterial streets and at freeway intersections. In many instances, commercian establishments that cater to the auto in one way or another (auto repair, auto junkyards, drive in theaters and restaurants, etc.) often exist in, and help create, a more harsh environment than do many industrial activities.

The low man on the land use economic totem-pole is residential, since its land value generally is lower than that for industrial and commercial use. Residential uses generally demand an environment that is the opposite of the previous two land uses. The function of a residential area is to provide places for families and others to sleep, eat, play, raise children, entertain, etc; and these activities are best performed in an area that is free of noise and air pollution, that has low volume and low speed traffic, has much plantlife and is surrounded by similar uses.

Commercial and industrial uses, on the other hand, often require or create an opposite environment. Thus, too often when residential uses are unproperly mixed with commercial and industrial activities or arterial streets, the results are a reduction in the livability quality of the residential uses.

Thus, Jacksonville's land use compatibility problems are the same as those experienced by practically every other city in the United States. They include:

...improper street design that forces through traffic onto local residential streets (Henderson, for instance);

...improper street and commercial area design that permits commercial driveway intersections every fifty feet or so along arterial streets, thereby making the arterial much more susceptible to unnecessary auto accidents and reducing its capacity to effectively move traffic (Marine, or Lejeune Blvds., for instance);

...improper location of residential units along arterial streets and permitting frequent driveway access. Generally speaking, the owners of these residential units sooner or later will request a change to commercial zoning, noting that the City's high volume of traffic on the adjacent arterial as having made their property unsafe and unlivable for residential purposes. (Henderson, Western Blvd., or Johnson Blvd., for instance);

...improper conservation of the natural environment whenever urbanization replaces open or agricultural land. Buildings in any of the Jacksonville Flood Plains illustrate this incompatability whenever heavy rains flow down the natural drainage lines and, in the process, flood properties and buildings which have encroached upon the flood plain. In some recent development, more attention has been given to preserving trees, other plantlife, flood plains, etc.

Problems Resulting From Unplanned Development

The Coastal Resource Commission guidelines also ask for a recitation of problems resulting from unplanned development. Again, this kind of problem in

Jacksonville would be similar to that of most U.S. cities---since the original question asks "do you have problems that have resulted from some development not conforming to the community's adopted plans---or a lack of plans?"

Very few American communities have up-to-date and comprehensive community development plans---so, there often are no plans to which new development can even attempt to conform. At other times, any existing plans are incomplete, out-of-date, or forgotten about---so that, again, there are no active guidelines for new development to follow or disregard.

To the extent that development has occurred with no reference to non-existing community plans, there are resulting problems in the Jacksonville area which are similar to other American cities. They include the land use compatability problems previously described, as well as:

...a lack of neighborhood parks within walking distance of all residential units;

...a need for larger community parks within a ten to fifteen minute maximum driving time of residents;

...pressure created on the original Downtown Area in Jacksonville by the development of new shopping centers and strip commercial along arterial streets, as well as the lack of Downtown action policy;

...the development of areas adjacent to, or near, the City---but with the City having no jurisdictional control over the type of development. This fragmentation of jurisdiction between City, Township, County, and Marine Corps presents an extreme challenge to Jacksonville officials in trying to properly guide its future growth in respect to land use, transportation, community facilities, and utilities; and

...the problem of housing and services for families of insufficient income to be able to privately purchase adequate housing within the community.

Quality Features To Recognize

On the other hand, it should be recognized that there are numerous features in the community that describe good or high quality development, such as:

...a good recreational program for the facilities in existence;

...good programs and facilities for police and fire protection;

...a liberal distribution of elementary, junior high, and high school facilities within the Jacksonville area, provided by the County School Board. Cooperation with the City's recreation program also contributes to good community quality.

...numerous local streets with proper curb, gutter, and sidewalk to help control storm water, provide for pedestrian safety, minimize cost of repairs and maintenance, and add to the aesthetic qualities of the community;

...facilities for water supply and sewage disposal, either in existence, under construction, or under active planning preparation.

...large scale planned development for adjacent, or nearby, land that offers better opportunities for meeting the comprehensive needs of new citizens than does the old piecemeal and small development approach;

...cooperation of the Marine Base with City and County officials in numerous areas in recognition of the vital relationship between the military and civilian responsibilities to achieve mutual benefits; and

...increasing cooperation and coordination between the City and County in recognition of the mutual interdependency applying to the welfare of the citizens in each jurisdiction.

Areas Expected To Undergo Major Land Use Changes In Future

The areas expected to undergo major land use changes in the future would be, primarily, the land which at present is vacant, open, or in forestry use as shown by Exhibit 4.26m.

In the future, it is estimated that this land will be transformed into urbanized areas with homes, streets, business, schools, parks, and similar uses in order to accommodate a growing population. The undeveloped areas expected to undergo this change are shown by generalized location on Exhibit 4.29m.

Areas of Environmental Concern

The areas of environmental concern within the Jacksonville Planning Area would include, primarily, the flood plain areas for the discharge of storm water, and one historic building in the Downtown area. This will be discussed more fully in Chapter V: "CONSTRAINTS TO DEVELOPMENT."

Any impact of development on estuarine water resources primarily would relate to additional storm water runoff and sewage treatment plant effluent entering the New River and flowing into the estuary. Such effects should be minimized, however, by implementation of the 201 Plan proposals and by administration of the Flood Plain and Land Subdivision regulations.

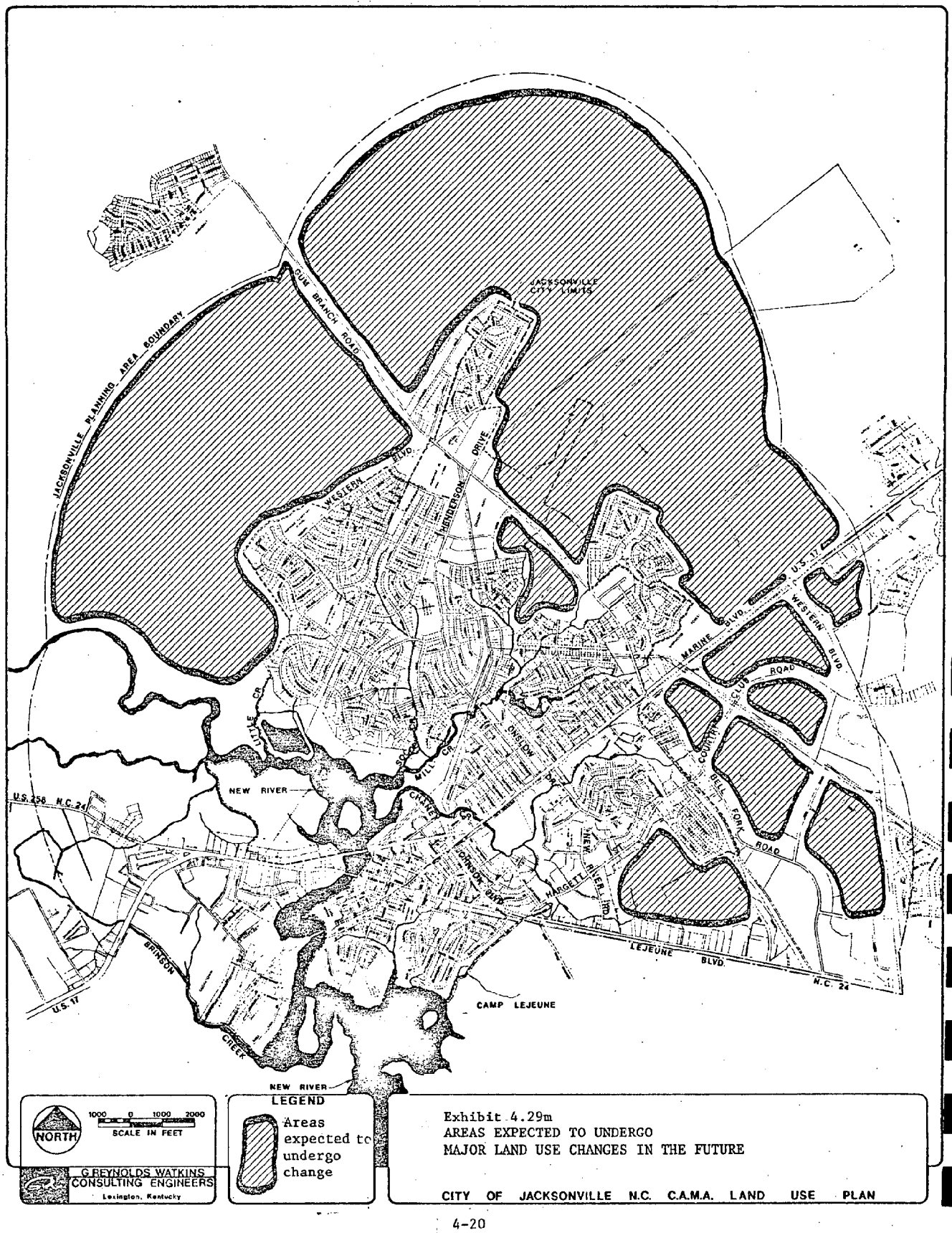


Exhibit 4.29m
AREAS EXPECTED TO UNDERGO
MAJOR LAND USE CHANGES IN THE FUTURE

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

CURRENT PLANS & POLICIES

INTRODUCTION

The purpose of this section is to list and summarize existing plans and policies, to list and describe existing means of enforcing any land use regulations, and to list and summarize relevant State and federal regulations affecting coastal land and water resources.

EXISTING PLANS AND POLICIES

Utilities in a community generally are considered to be those which provide electricity, gas, water, and telephone supply, as well as sewage and storm water disposal.

These services are privately provided for telephone, gas, and electricity---and these private utility companies maintain policies of trying to provide their service to anyone requesting such.

The City of Jacksonville provides the utility services for water supply, and sewage and storm water disposal. For water supply (which will be described in more detail in Chapter V), the City is presently carrying out a construction program to greatly strengthen this service. For sewage disposal, a long range "201" plan is presently under preparation to coordinate the needs for Jacksonville, as well as a much larger surrounding area. For storm water management, the City has submitted a "Flood Insurance Application" to the U.S. Department of Housing and Urban Development (HUD). As part of this program, the City will regulate future building development or redevelopment to prevent the creation of new flooding problems or intensification of flooding problems in existing areas.

Policies are being studied for the City owned utilities in terms of extending services to non-City areas, with or without annexation. In mid-1975, for instance, the City had 5,581 connections to their Water Supply System, but only 432 (about 8%) were outside the City.

The existing plans and studies for the Jacksonville area are listed in the Bibliography of Appendix "A". These reports include:

...Soil studies by the Soil Conservation Service

...Population studies or reports by the N.C. Dept. of Administration and Dept. of Natural and Economic Resources, the Onslow County Planning Department and Manpower office, and the Neuse River Council of Governments.

...Community development plans for Jacksonville by the N.C. Dept. of Community Planning, and for Onslow County by the County Planning Board.

...Water quality management plans for the Jacksonville 201 Study Area, and for Region "P" of which Onslow County is a part.

...Thoroughfare plans for Jacksonville by the North Carolina State Highway Commission.

...Preliminary Flood and Drainage Plan for Onslow County, prepared by the Office of County Manager.

...Recreation Studies for Jacksonville by the Mayor's Recreation Study Commission and Conservation District, for Onslow County by the County Planning Department and the Soil Conservation Service, and the State's outdoor recreation plan.

...Water Supply System Improvement Plan for the City of Jacksonville, prepared by G. Reynolds Watkins Consulting Engineers.

MEANS TO ENFORCE LAND USE REGULATIONS

If plans and policies are to be of practical assistance to a community, methods must be established to enforce their implementation. In the Jacksonville Area, some of the means employed to enforce land use regulations include the following:

...Zoning Ordinance - a Zoning Ordinance helps to implement community plans and policies primarily in regard to the private uses made of land (residential, commercial, and industrial). The map portion of the Zoning Ordinance divides the community into zones or districts, and thereby establishes what property may be used for residential, commercial or industrial purposes.

The text portion of the Zoning Ordinance describes, for each zone, the specific type of land use permitted, what size lot is required, the portion of the lot's ground area that can be built upon and the portions that must remain open, the permitted height and bulk of any building constructed on the lot, and the permitted population density (in terms of the number of dwelling units permitted per acre). Additional text provisions may apply to parking, sign, landscaping, and other requirements.

The Jacksonville City Ordinance also has extraterritorial jurisdiction that extends one mile beyond the City limits. Enforcement is by the Dept. of Public Works Inspection Office.

...Land Subdivision Regulations - As new land in the community is developed with streets, buildings, utilities, and other urban features, Land Subdivision Regulations may require that proposals for subdividing land be submitted to, and approved by, a Planning Board, before lots can be sold or any type of construction begins.

These regulations offer an opportunity for the City to insure that its plans and policies are implemented for new streets, curbs, gutters, sidewalks, utilities, and acquisition of needed public land for parks, schools, etc. Enforcement by Dept. of Public Works Inspection Office.

...Flood Plain Regulation - Flood plain regulations can help to implement community plans or policies for protecting their natural flood plains from building encroachment that would not only expose the building occupants to flood hazard, but also intensify downstream flood potential.

The City of Jacksonville has applied to the U.S. Department of Housing and Urban Development (HUD) for flood insurance coverage. This coverage makes flood insurance available to property owners at subsidized premium rates, and covers building and building content damages from flooding.

As part of the application, the Jacksonville Council adopted a resolution to the effect that all building permits and subdivision plans would be reviewed to insure that flood plains would be protected from improper building encroachment. Enforcement by the Department of Public Works Inspection Office.

...Building Code - The building code coverage for Jacksonville enforces local policies to help protect the public health and safety in building construction. This is achieved through regulations designed to insure that all elements of the building construction (including structure, electrical system, heating system, plumbing system, etc.) are installed in such a manner that the resulting building will be safe for human occupancy and that the needed heat, light, and energy will exist. Enforcement is by the Building Inspector.

...Septic Tank Permits - The Onslow County Health Department oversees regulation of septic tank permits to insure that such installations have sufficient septic field and soil conditions to properly absorb sewage effluent.

...Sedimentation and Soil Erosion Control Ordinance is in effect, as per the North Carolina State model. When land clearance is proposed for more than one acre of land, this ordinance requires the securing of a permit to insure safeguard controls for sedimentation and soil erosion.

...Nuisance controls are part of the Jacksonville City Code.

ZONING ORDINANCE IMPORTANCE

The zoning ordinance is of special importance in the field of land use regulations because it controls the use that can be made of any land parcel, and it controls the density or number of dwelling units that can be constructed on a given land parcel. Since this ordinance will be Jacksonville's prime instrument to regulate future land use development, additional review will be provided in this section.

The Jacksonville Zoning Ordinance establishes nine zoning districts:

Residential Districts

1....RA-7 Residential District, which primarily permits single family detached dwellings (although not specifically worded in this manner), as well as schools, churches, and similar uses, and home occupations.

2....RA-6 Residential District, which permits same uses as RA-7, plus apartments, boarding houses, lodges, and similar uses.

3....RA-5 Residential District, which permits the same uses as RA-6, plus mobile home parks, clinics, and charitable institutions.

4....RA-5s Special Residential District, which permits the same uses as in the RA-7 zone, but has dimensional requirements primarily from the RA-5 zone; and is especially oriented to grouped single family residential development.

Apartments and Office

5....A & O Apartments and Office District, which permits offices and apartments, and is especially oriented to transitional areas around existing business districts.

Business Districts

6....NB Neighborhood Business District, primarily for business that serves people in the immediate area, with the building floor area restricted to a maximum of 5,000 square feet. It also seems to permit the RA-5 residential uses.

7....B-1 Business Zone #1, for uses with a greater variety of services than those in NB zone, including shopping center type uses, auto repair, newspaper offices, etc. Residential also permitted, as per RA-5 and A & O.

8....B-2 Business Zone #2, intended as a highly concentrated building area, permitted B-1 uses, as well as freight terminals, storage, light processing, and similar uses. Residential also permitted as per RA-5 and A & O.

Industrial

9....I Industrial District, for warehousing, metal and woodworking, bulk petroleum, and similar activities. Residential also permitted as per RA-5 and A & O.

Note: There is no agricultural, or other type of non-urban, zoning district. Newly annexed land falls under RA-7 zoning until further action is taken.

Zoning Map

The zoning districts are shown on the map portion of the Zoning Ordinance, and an official copy of the zoning map can be reviewed in the City Engineer's office at the Jacksonville City Hall. Exhibit 4.30m attempts to show a generalized delineation of these districts. No one should attempt to determine the zoning of specific property by reference to the exhibit; rather, only the official zoning map at City Hall should be used for this purpose.

Residential Zoning Density

The maximum density (number of dwelling units per acre) permitted by the Jacksonville Zoning Ordinance, as shown by Exhibit 4.31t, ranges from 5 dwelling units per acre (or 9,600 people per square mile) to over 16 d.u.'s per acre (or almost 31,500 people per square mile). Although the Zoning Ordinance provides no density requirements for dwelling units in non-residential zones, it would appear that two to three times more units could be built per acre than in the residential zones.

Existing residential development in Jacksonville City, however, does not reflect the relatively high

Exhibit 4.31t: Residential Zoning Maximum Density

Zoning Dist. & dwelling	Min. Lot Size Sq.Ft.	D.U.'s Per Gross Acre	Net Acres* D.U.'s Per Acre	D.U.'s Per Sq.Mi.	Pers./ Sq. Mile*3	AC./ 1,000 D.U.
RA-7	7,000	6.2	5.0	3,200	9,600	200
RA-6						
1 d.u.	6,000	7.3	5.8	3,712	11,136	172
2 d.u.	8,000	10.9	8.7	5,568	16,704	115
3 d.u.	11,000	11.9	9.6	6,144	18,432	104
4 d.u.	16,000	10.9	8.7	5,568	16,704	115
10 d.u.*	34,000	12.8	10.3	6,592	19,776	97
20 d.u.	64,000	13.6	10.9	6,976	20,928	92
40 d.u.	124,000	14.1	11.2	7,168	21,504	89
RA-5						
1 d.u.	5,000	8.7	7.0	4,480	13,440	143
2 d.u.	7,000	12.5	10.0	6,400	19,200	100
3 d.u.	9,000	14.5	11.6	7,424	22,272	86
4 d.u.	13,000	13.4	10.7	6,848	20,544	93
10 d.u.*	25,000	17.4	13.9	8,896	26,688	72
20 d.u.	45,000	19.4	15.5	9,920	29,760	65
40 d.u.	85,000	20.5	16.4	10,496	31,488	61
Mobile home park		8.0	-	-	-	-
RA-5s						
1 d.u.	5,000	8.7	7.0	4,480	13,440	143

The A&O, NB, B-1, B-2, and I zoning districts permit residential development, but no minimum lot size or other land area per dwelling unit requirement is given.

* For RA-6, any additional dwelling unit (d.u.) above 4 d.u.'s requires an additional 3,000 sq. ft. of lot area; in RA-5, this requirement is 2,000 sq. ft.

*1 Gross acres is based on total acreage (43,560 sq. ft. per acre) with nothing deducted.

*2 Net acres deducts 20 per cent (8,712 sq. ft. from each acre), leaving 80 per cent (34,848 sq. ft.) as the "net" residential acreage.

*3 Assumes average of 3 persons per dwelling unit

density permitted by the zoning ordinance. For instance, the land use inventory (see Exh. 4.25t) showed 1,795 acres of land used for all types of residential to accommodate the needs of an estimated 20,000 population. This would average out to:

....slightly over 11.2 persons per net residential; or
....slightly over 7,100 persons per square mile; or
....about 3.7 dwelling units per acre (at 3 persons per d.u.)

This would indicate that the majority of Jacksonville residential development has occurred on lots much larger than the minimum permitted by the zoning ordinance.

Future Considerations

In the near future, the Planning Board may want to study certain sections of the Zoning Ordinance in order to determine if they would like to recommend any amendments to the Jacksonville City Council. Any such changes would be oriented towards giving the City a better opportunity to manage its future growth, and to help insure quality development.

Some of the areas that might be studied include the following:

1. "Single family detached" - The RA-7 residential zone is designed to permit only "single family detached dwelling units." However, this is not stated in the ordinance. Rather, Section 25-3 states only that..." the RA-7 zone is primarily intended for residential use."

It is suggested that the following be studied to replace the present wording: "In the RA-7 zone, the only type of residential use permitted shall be single-family detached dwelling units". Similar consideration might be given to Section 25.5B that deals with the RA-5 Special Residential Zone.

2. "Exclusive residential zones" - The only two exclusive residential zones are RA-7, which permits only single-family detached units on 7,000 square foot parcels, and RA-5s which permits the same, but on a minimum lot area of 5,000 square feet.

RA-6 permits single-family detached, townhouses, duplexes, and any type of apartment development--- with lot size related to the number of dwelling units. RA-5 permits the same uses (with a lower lot area requirement), in addition to permitting mobile homes.

A different way of establishing residential zones is to make each pertain exclusively to a specific type of residential use, thereby permitting the City to better gauge the number of people who will need City services such as water, supply, sewage disposal, fire protection, etc.

...R-1A* could be only for single-family (SF) detached units, with lot area minimum of 10,000 square feet (or whatever the dominant lot size might be in a given area).

...R-1B* could be for the same SF purpose, but with a smaller lot minimum of 7,000 sq. ft.

...R-1C could be the same, except permitting a 6,000 sq. ft. lot.

...R-1E could be the same, except permitting a 5,000 sq. ft. lot.

...R-2* could be only for duplexes (two-family units), with a 7,000 sq. ft. or other minimum lot size.

...R-3 could be only for townhouses, with three or more single-family units attached at the side, with a minimum lot area of 2,000 to 3,000 square feet, with other requirements for open space, parking, etc.

*The "1" in R-1A, R-1B, etc. signifies that these are one-family or single-family dwelling unit zones. R-2 signifies that duplexes, or two-family units are permitted; and R-3 could permit three or more family units; etc.

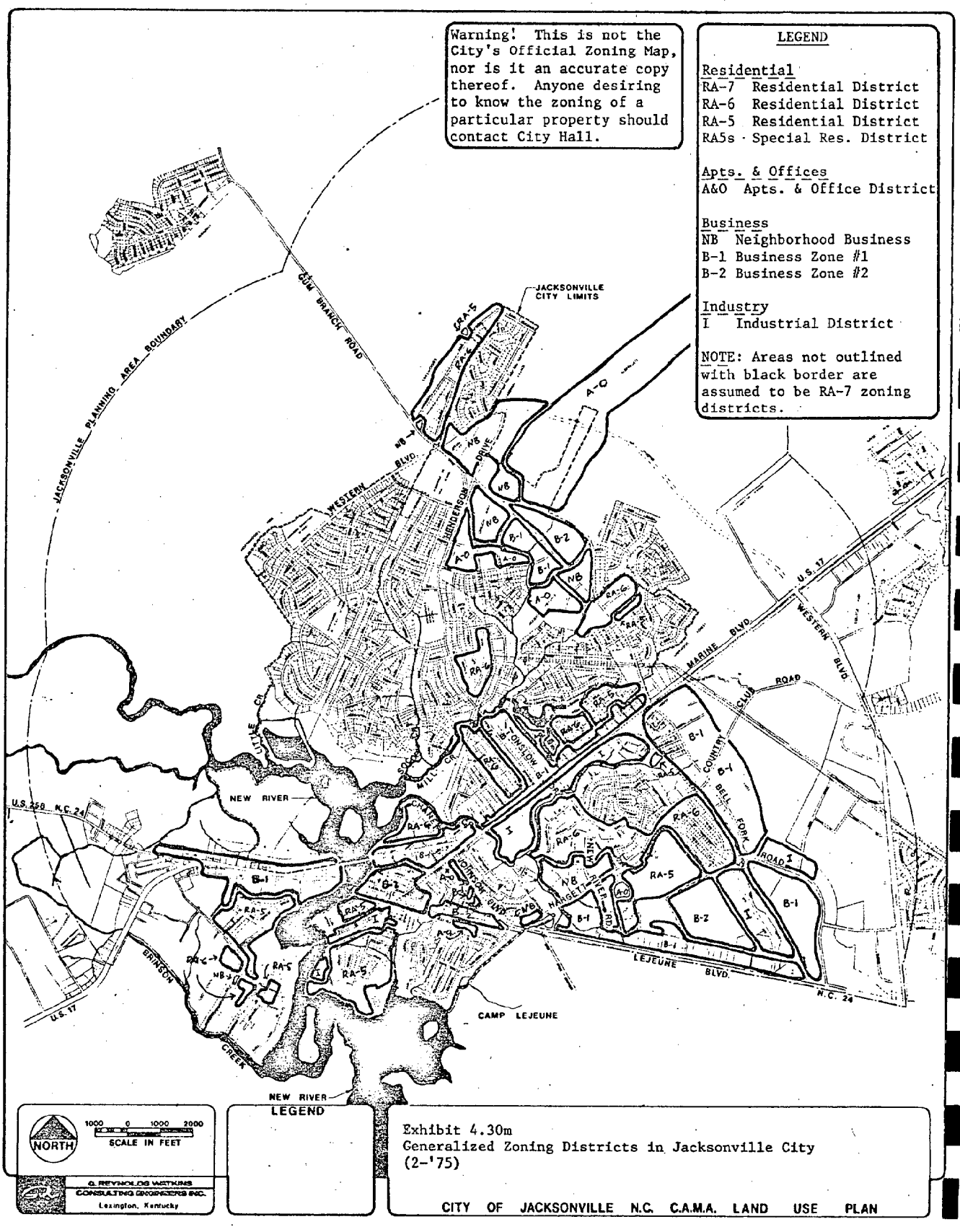


Exhibit 4.30m
Generalized Zoning Districts in Jacksonville City
(2-'75)

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

...R-4 could be only for apartment buildings containing four or more dwelling units, with lot area related to the number of units.

...R-MH could be only for mobile home parks, with special dimensional and density requirements.

3.."Exclusive Commercial and Industrial Zones" - At present, the Zoning Ordinance appears to permit any type of residential use in the commercial and industrial zones. Generally, it is felt that there is a definite conflict between the needs of these activities, and they should be separated by exclusive zoning districts.

In a few cases, a sensitive design could result in an excellent residential-commercial combination (such as a specialty shopping area), but any such proposals should require submittal of detailed plans and require special approval of the Planning Board and/or Board of Adjustment.

4.."Residential Lot Size in Commercial Zones" - If residential uses are to continue as permitted uses in commercial and industrial zones, consideration should be given to specifying minimum lot areas per dwelling unit.

5."Agricultural Zone" - At present, there is no zoning district for agricultural or other non-urban uses. All land in the planning area is zoned for residential, commercial, or industrial activities. Land that is used for agriculture, forestry, or similar uses generally is zoned RA-7.

Thus, if an RA-7 type of subdivision is proposed for development outside the City limits but within the planning area, the City has no direct legislative control to insure proper development. This is because zoning has already been granted, and the developer will not have to appear before the Planning Board and City Council for a zone change---plus, the City cannot require a subdivision plat since they do not have extraterritorial jurisdiction for their Subdivision Regulations.

A practical checkpoint does exist, however, in the form of the availability of the City's water and sewer service for an area outside the City that is being contemplated for development. Before granting such service, the City can require the property to be annexed and that its development conform to City requirements.

In order to provide direct legislative control, the City and the Planning Board may want to consider the creation of an "agricultural zoning district" that would apply to all of the agricultural, open, vacant, or now-urbanized land within the planning area. Then, before any type of urban development could take place, a request for a zoning amendment would have to be processed through the Planning Board and the City Council. This would provide both groups an opportunity to work with the developer to insure proper development and conformance to community plans.

The zoning ordinance text provisions for an "agricultural zone" might read somewhat like the following:

"Section 25-9A. A-Agricultural Zone - The principal permitted uses in this zone shall be agriculture, farming, dairying, stock-raising, horticultural services, hunting, fishing, forestry, and substantially similar activities.

"Other uses shall be permitted when they are customarily accessory, clearly incidental, and subordinate to the principal permitted uses. Such accessory uses could include a single-family detached residence, tennant homes, agricultural barns, and stables.

"The dimensional requirements of this zone shall include (1) a ten acre minimum lot size, (2) a 250 foot minimum lot frontage, and (3) all buildings shall be located at least fifty feet from any adjoining right-of-way."

6.."Automatic Zoning of Additional Land" - Study might be given to adding a new section to the zoning ordinance to the effect that:

..."Any land under the jurisdiction of the Jacksonville Zoning Ordinance that is not specifically shown to be a part of a zoning district on the official zoning map, shall be considered as an A-Agricultural Zone, until such time as official action is taken by the Jacksonville City Council to amend the zoning ordinance. This applies to any land annexed to the City of Jacksonville, as well as to any property that is within a one mile radius of the City limits and, therefore, within the Jacksonville Planning Area."

7.."Planning Area Coverage" - At frequent intervals, it might be desirable to check the official zoning map to make certain that all property within the Planning Area is designated as being in the proper Zoning district.

8.."Development Plans - The present zoning requirements for a mobile home park include the submission and approval of a plan that shows characteristics of the proposed development.

The Planning Board and the City might want to discuss extending this "development plan" requirement to include other zoning districts, especially where the Land Subdivision Regulations are not applicable.

9.."Subdivision extraterritorial jurisdiction" - If the present North Carolina enabling legislation for local planning does not authorize extraterritorial jurisdiction for land subdivision regulations (as it does for zoning), the City may want to discuss the possibility of requesting the State legislature to consider making such an amendment.

DATA COLLECTION AND ANALYSIS SUMMARY

Appendix "E" describes the manner in which the data was assembled and analyzed, along with a statement of the major conclusions.

Chapter V

CONSTRAINTS

INTRODUCTION

The purpose of this chapter is to gather information on any growth constraints in the Jacksonville area. Such information will be helpful in preparing the land classification map of Chapter VII, and the areas of environmental concern in Chapter VIII. The constraints are divided into two groups; those related to undeveloped land, and those related to the capacity of community facilities. The outline of these two groupings is shown below:

...Undeveloped Land Suitability and Potential: Analyze the general suitability of undeveloped land to accommodate new growth, with consideration given to:

...Physical Limitations for Development: Areas likely to have conditions making development costly or causing undesirable consequences, such as:

...Hazard Areas, including:
...Man-Made Hazards: Such as airports, tank farms for storing flammable liquids, etc.
...Natural Hazards: Such as ocean erosive areas, estuarine erosive areas, and flood hazard areas (flood plains and floodways).

...Areas with Soil Limitations: Such as areas presenting hazards for foundations, shallow soils, poorly drained soils, septic tank and other development related facilities.
...Sources of Water Supply: Including groundwater recharge areas (bedrock and surficial), public water supply watersheds, and wellfields.
...Steep Slope Areas: Those exceeding 12 percent slopes.

...Fragile Areas: Areas which could be damaged or destroyed by inappropriate or poor development, including:

...Wetlands, frontal dunes, beaches, prime wildlife habitat, scenic and prominent high points, unique natural areas, estuarine waters, and other surface waters, rivers, lakes, or streams.

...Resource Potential Areas: Including archeological and historic sites, productive and unique agricultural lands, potentially valuable mineral sites, public-owned forests and parks, and private-owned wildlife sanctuaries.

...Capacity of Community Facilities: Including existing water and sewer service areas; design capacity of existing water treatment plant, sewage treatment plant, schools, and primary roads; and percentage of present utilization of those facilities.

Each of the constraints will be discussed in detail in the remainder of this chapter.

HAZARD AREAS

INTRODUCTION

The purpose of this section is to determine if there are any natural or man-made hazard areas in the Jacksonville Planning Area that could make future development very costly or could cause undesireable consequences.

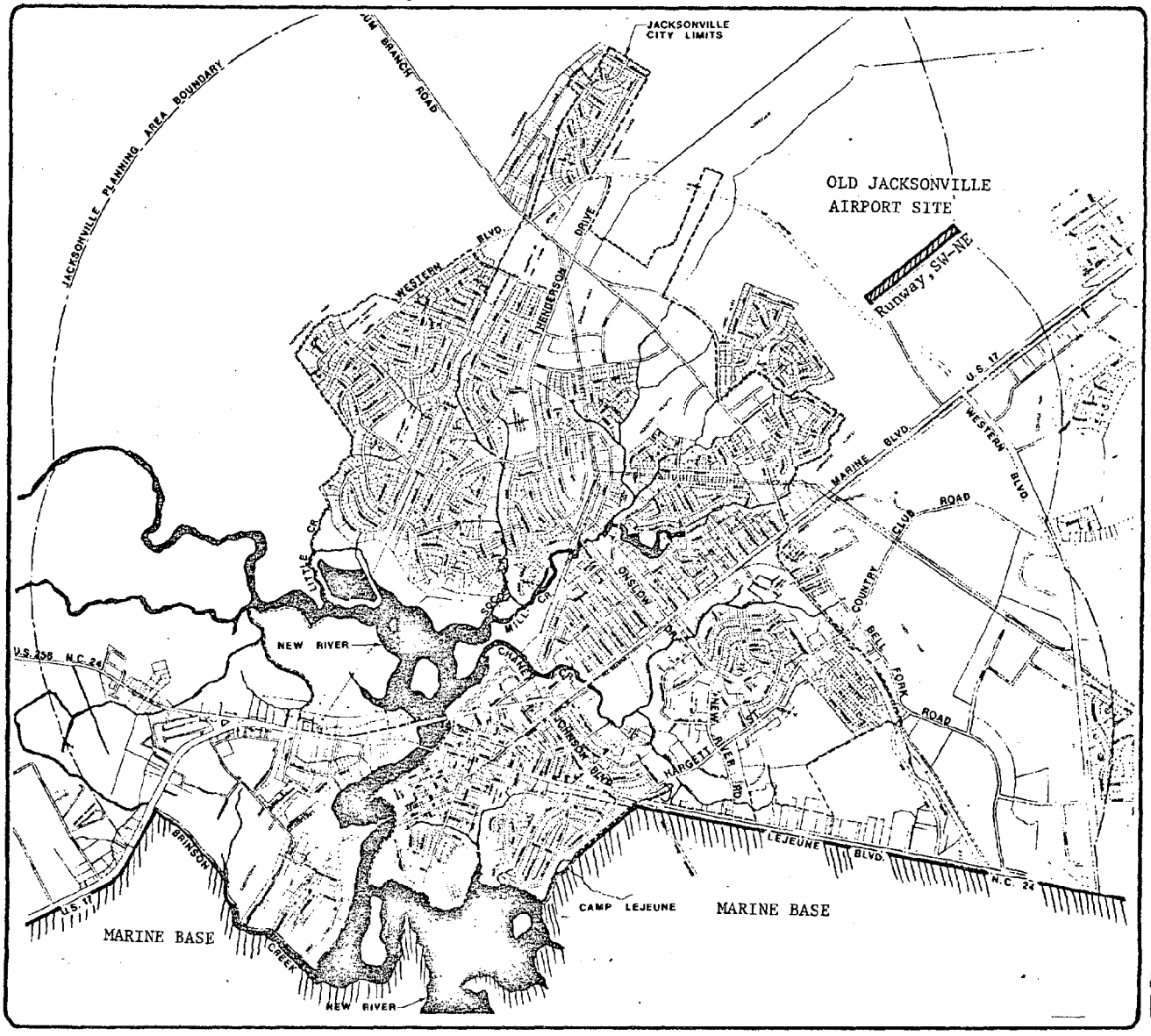
MAN-MADE HAZARDS

There are only two areas that might be considered as representing some degree of hazard to any future development in their vicinity: The old airport site, now under private operation, and portions of the Marine Base (see Exhibit 5.1m). The airport site, however, is expected to be replaced by a subdivision and/or commercial development in the near future.

NATURAL HAZARDS

The only natural hazard in the Jacksonville Planning Area would be the flood plains, which is the land along the New River and its tributaries that is flooded when heavy rainfall occurs. Exhibit 5.2m shows the flood plains as delineated by the Jacksonville Area Soil Survey*22 and the Jacksonville Flood Insurance Application.

Exhibit 5.1m: The Old Jacksonville Airport Site and the Marine Base



This is a work map illustrating areas of environmental concern prepared by Jacksonville, N.C. for the N.C. Coastal Resources Commission. This map is not for use in determining areas requiring permits. (11-23-75)

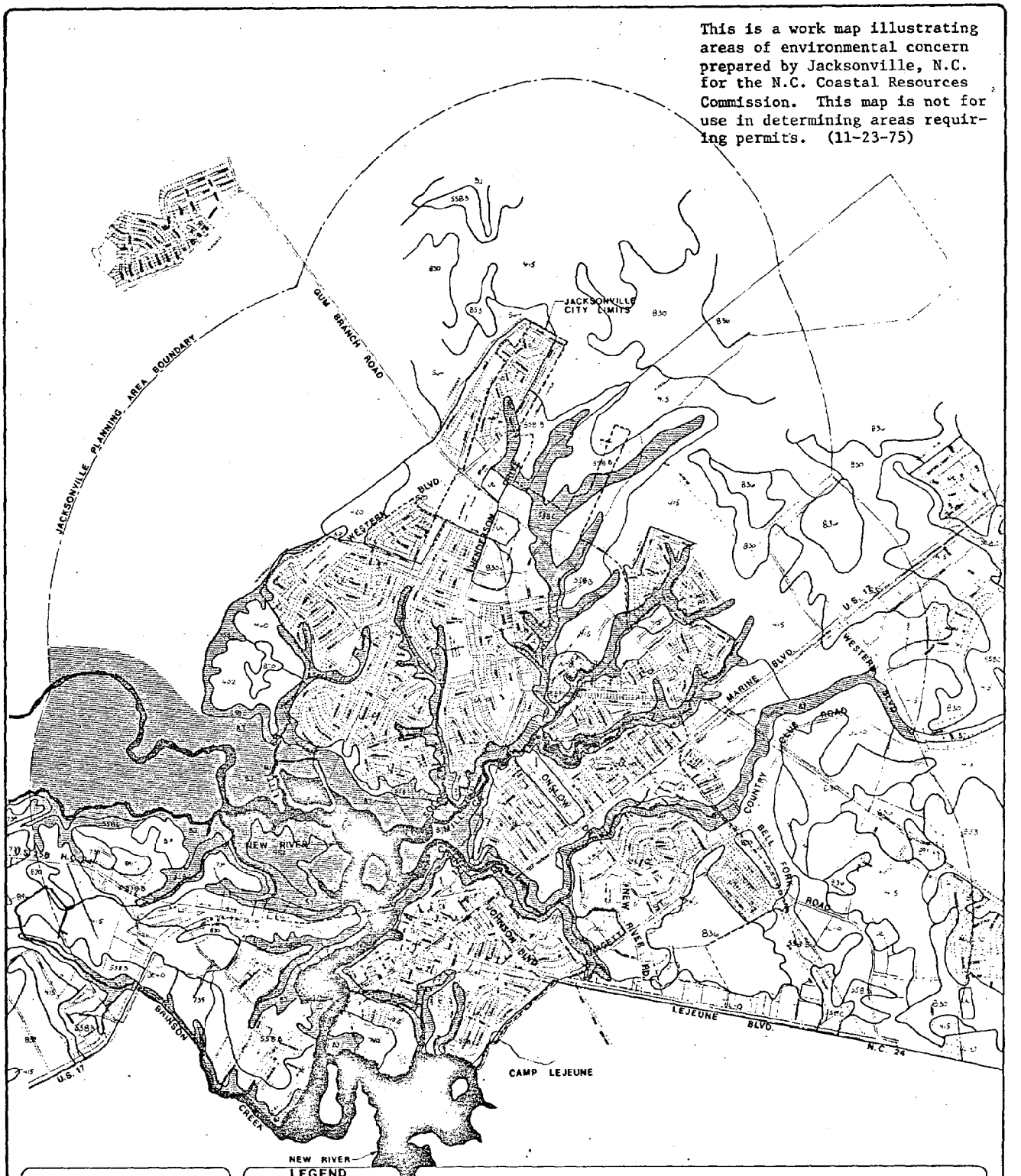


Exhibit 5.2m

Flood Plains

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

SOIL LIMITATIONS

INTRODUCTION

The type of soil that exists in an area is extremely important to a community's development--and, expecially to new urbanization. When construction activities have not been properly related to important characteristics of the soil, a large number of unnecessary problems can result:

...Houses settle and cause walls to crack, resulting in falling plaster, warped door frames, and leaking basements;

...yards, garages, and living areas flood after heavy rainfall;

...septic tank effluent bubbles to the ground surface; and

...streets, curbs, gutters, and sidewalks crack and become filled with pot-holes.

The proper approach to insure that these problems to do occur in new development is to investigate the soil limitations for the type of development being considered, and then making certain that these limitations are properly accommodated as part of the construction work.

JACKSONVILLE AREA SOIL SURVEY

In 1975, Mr. A. B. Whitley, District Conservationist of the U.S. Soil Conservation Service, in cooperation with the Onslow Soil and Water Conservation District, completed a "Jacksonville Area Soil Survey." Using aerial photographs, the study delineated twenty-three soil mapping units. Soil interpretation sheets were prepared for each unit, describing the soil's physical and chemical properties, suitability as a resource material, limitations affecting selected urban-related uses, agricultural capability, and wildlife and woodland suitability.

LIMITATIONS

For most of the soil interpretation items, the study ranked the mapping units in one of four levels of limitations: Slight, moderate, severe, or very severe limitations.* Jacksonville's planning consultant, GRW Engineers, summarized this data and transferred it to maps of the Jacksonville area, which resulted in Exhibits 5.3m through 5.6m.

Since most of these exhibits show that "severe" or "very severe" limitations exist for urban or agricultural-type activities, it would be appropriate to emphasise that this does NOT mean that all construction or development is prohibited. Rather, it means that, if an ample supply of land exists that is better suited to the contemplated activity, one would be wise and more efficient to select the more suitable land for development. Since some areas, such as Jacksonville, do not have an ample supply of more suitable land, the only recourse, if more development is to occur, is to make the difficult and costly modifications needed to alter the soil or to design a structure so as to compensate for a severe degree of limitation.

DWELLINGS, LIGHT INDUSTRY, AND SEPTIC TANKS

Most of the undeveloped land in the Jacksonville Planning Area has "severe" limitations for use for dwellings, light industry, or septic tanks. The primary cause of the "severe" ranking for these uses, as well as most others, is the problem of drainage. Good drainage is difficult simply because Jacksonville's land elevation is very close to sea level, creating a high water table, and the topography is relatively flat (see Exhibit 5.3m).

For dwellings, light industry, and similar construction, the common problems are either a high water table or shrink-swell characteristics of the soil. To overcome these problems, it is necessary to install drainage tile lines (at +80 cents per foot) approximately 100 feet on center (around $160 for a 100 x 200 foot lot), as well as add surface drainage ditches. For septic tanks, the high water table again is the problem. The soil is generally sandy enough to percolate, but that is only after the water table is lowered to a suitable level by means of expensive drainage improvement.

ROADS, STREETS, AND AGRICULTURAL USES

Development of roads and streets, as well as agricultural uses, also encounters severe soil limitations (see Exhibit 5.4m). For streets and roads, the common problem is the shrink-swell capacity, which requires more stringent and expensive construction methods, and sometimes requires the expensive removal and replacement of unsuitable soils.

PLAYGROUNDS AND RECREATION AREAS

All of the undeveloped land is ranked as having moderate or severe limitations for playgrounds and recreation, which generally requires tile or ditch drainage to lower the water table (Exhibit 5.5m). Pedestrian traffic use is the most important characteristic of playground use, and the high water table simply turns playgrounds into giant mud puddles.

WILDLIFE

The majority of the undeveloped land has only slight or moderate limitations for wildlife, reflecting the suitability of the land to sustain cover and natural growth. This is shown by Exhibit 5.6m.

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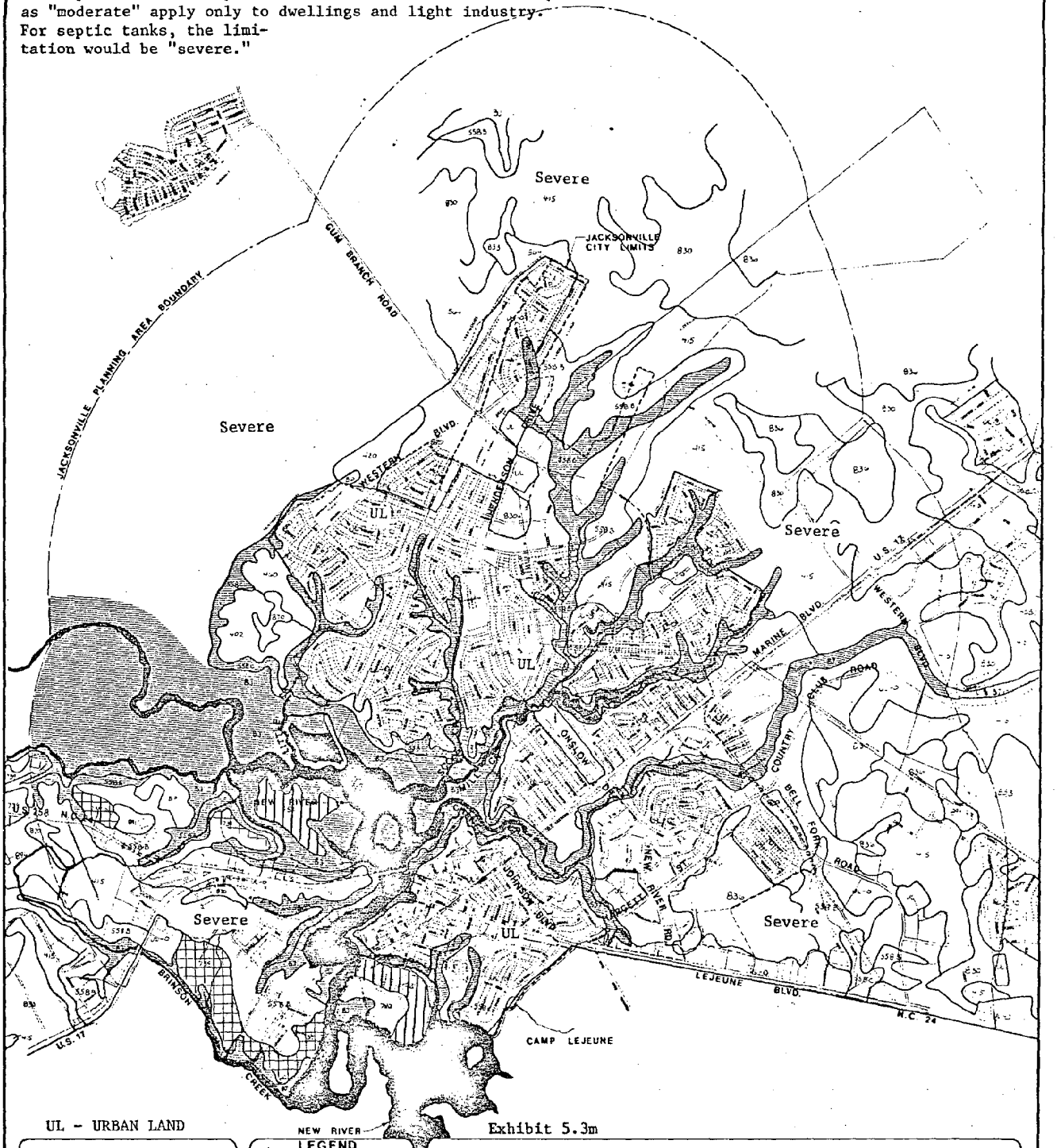
*A more detailed description of the rankings and other aspects of the Soil Survey are included in Appendix "D".

Soil limitations are similar for dwellings, light industry, and septic tanks, except that the areas marked on this map as "moderate" apply only to dwellings and light industry. For septic tanks, the limitation would be "severe."



UL - URBAN LAND

Exhibit 5.3m

NORTH

SCALE IN FEET 1000 0 1000 2000

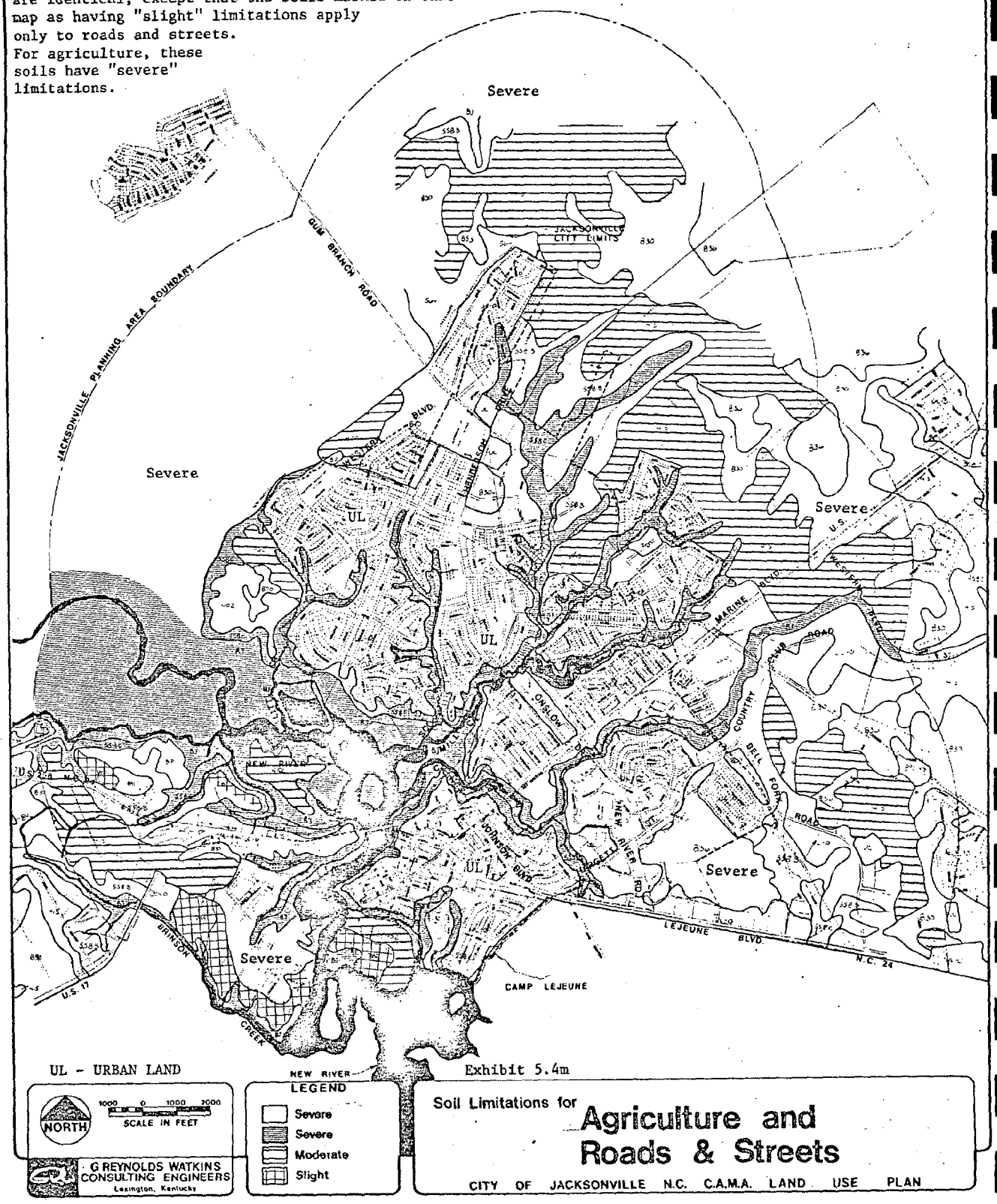
G REYNOLDS WATKINS CONSULTING ENGINEERS
Lexington, Kentucky

LEGEND
- Severe
- Severe
- Moderate
- Slight

Soil Limitations for **Dwellings, Light Industry, and Septic Tanks**

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

Soil limitations for roads, streets, and agriculture are identical, except that the soils marked on this map as having "slight" limitations apply only to roads and streets. For agriculture, these soils have "severe" limitations.



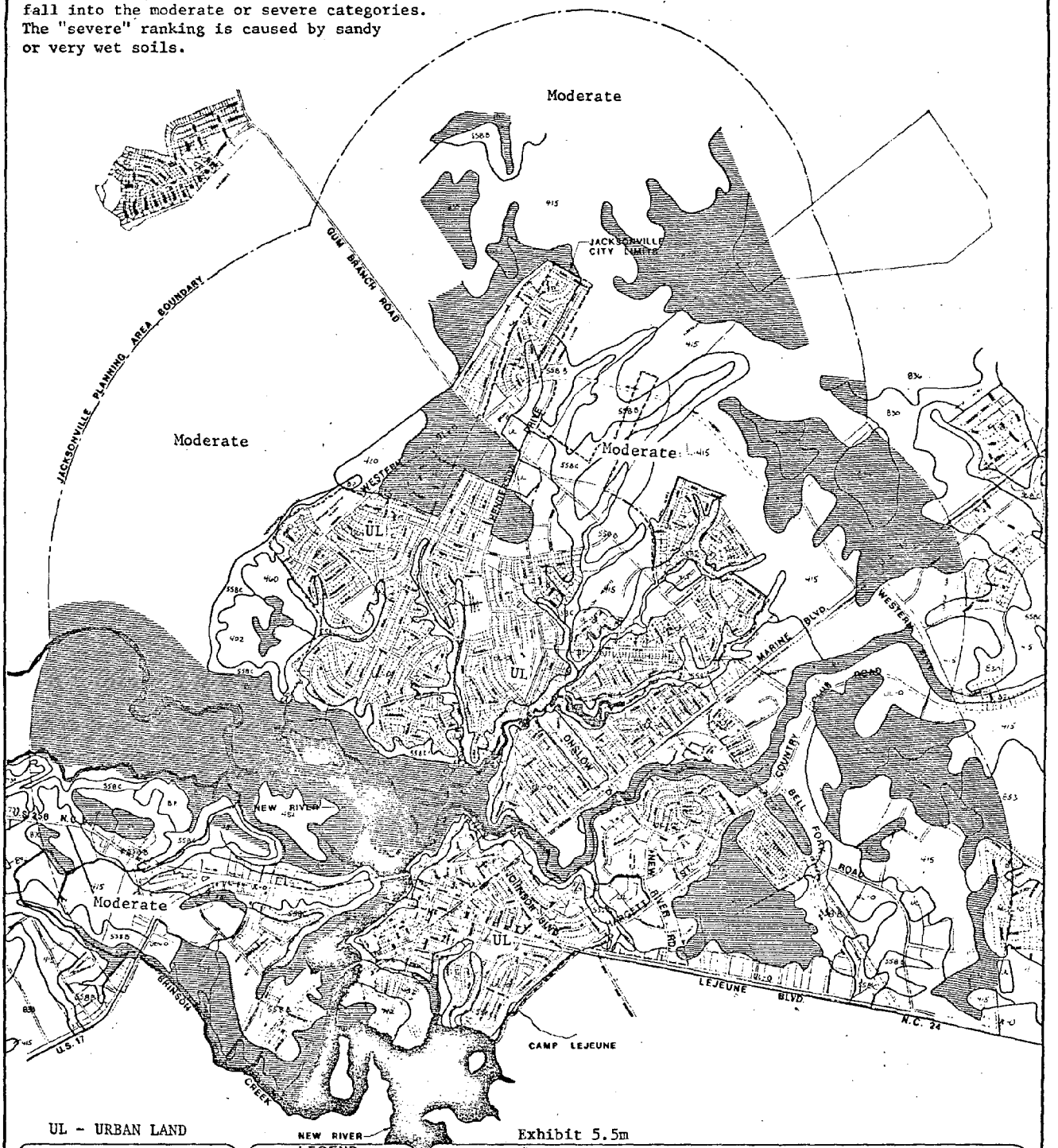
UL - URBAN LAND

Exhibit 5.4m

Soil Limitations for **Agriculture and Roads & Streets**

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

Playgrounds have neither of the extreme limitation rankings (slight or very severe); rather, all fall into the moderate or severe categories. The "severe" ranking is caused by sandy or very wet soils.



Soil limitations for "openland", "woodland," or "wetland" wildlife differ primarily in areas adjacent to New River and its tributaries. "Openland" wildlife has slight to severe limitations in these areas, while the rest of the planning area generally has only slight and moderate limitations. "Woodland" wildlife has slight to moderate limitation, except that the southwestern part of the area is severely limited. "Wetland" wildlife has slight to very severe limitations along the New River flood plain, depending on the slope of the land.

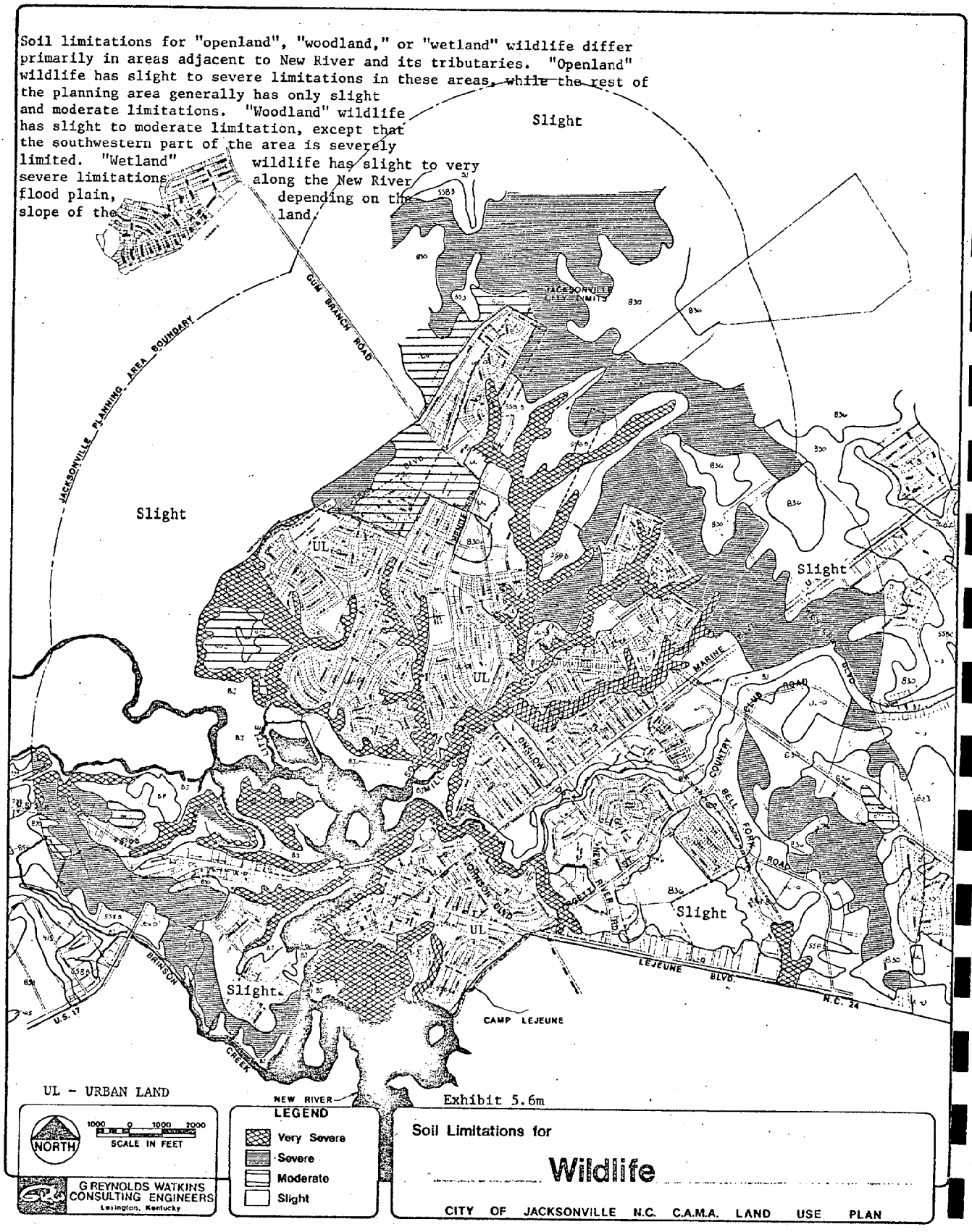


Exhibit 5.6m

WATER SUPPLY SOURCE

INTRODUCTION

In 1972, a study was made of the Jacksonville water supply system by G. Reynolds Watkins Consulting Engineers, Inc. to include an inventory, analysis, and projection of future needs. On the basis of that report, the City has undertaken major additions to its system that are now approaching completion. All of the material in this section is excerpted from the 1972 report.*

PAST AND PROJECTED WATER USAGE

According to the City's water pumping records, the average daily water usage has increased from 1.2 million gallons per day (mgd) in 1954 when the estimated population was 7,960---to 2.0 mgd (the well field capacity) in 1971 when the population had grown to an estimated 16,500. The average maximum amount of water pumped on a single day during this time period increased from 1.4 mgd to 2.3 mgd. These figures represent only domestic usage.

Population projections to the year 2000 were included in the report*:

...1970 at 16,021
...1980 at 18,500
...1990 at 21,300
...2000 at 24,400
...an increase of 8,379 or 52% in a 30 year period.

The 1992 projected average daily water usage was 2.8 mgd, while the maximum daily water usage was 3.4 mgd. This would greatly exceed the 1971 well field capacity of 2.0 mgd. Exhibit 5.7t shows the 1954-1992 changes in terms of population and water usage for the average day and the maximum day.

Exhibit 5.7t: Population & Water Usage Changes

Year	Estimated & Projected Population	Water Usage Est.	
		Average Daily	Maximum Daily
At year			
1954	7,960	1.2 mgd	1.4 mgd
1971	16,500	2.0 mgd	2.3 mgd
1992	21,900	2.8 mgd	3.4 mgd
No. changes			
1954-1971	8,540	0.8 mgd	0.9 mgd
1971-1992	5,400	0.8 mgd	1.1 mgd
% changes			
1954-1971	107%	67%	64%
1971-1992	33%	40%	48%

*"Water System Improvements for Jacksonville North Carolina," for the City of Jacksonville, by G. Reynolds Watkins Consulting Engineers, Lexington, Ky., April 1972.

1972 WATER SUPPLY SYSTEM

The elements which comprised the Jacksonville water supply system in 1972 included the source of supply, treatment facilities, storage facilities, distribution system, fire hydrants, and fire flow requirements. Each will be discussed in this section.

Source of Supply (1972)

The major source of water supply for the City of Jacksonville in 1972 was Well Field #2, located approximately six miles northwest of the City along U.S. 258, as shown by Exhibit 5.8m. The five wells in the field had a maximum combined safe yield of approximately 2 mgd. Pumping records indicated that this amount of water was being pumped from the field each day of the 1972 summer months.

The Peedee formation is the primary source of water for Well Field #2. This formation extends into northern North Carolina, and seems to "thicken" as it proceeds in a northerly direction. Wells in Field #2 were spaced approximately 1,300 feet apart, and followed the "strike line" as defined by the North Carolina Department of Water Resources. The "strike line" is an arbitrary line west of Jacksonville running in a northerly direction. Wells west of this line tend to yield good quantities of high quality water, while those to the east tend to produce less water and of a lower quality.

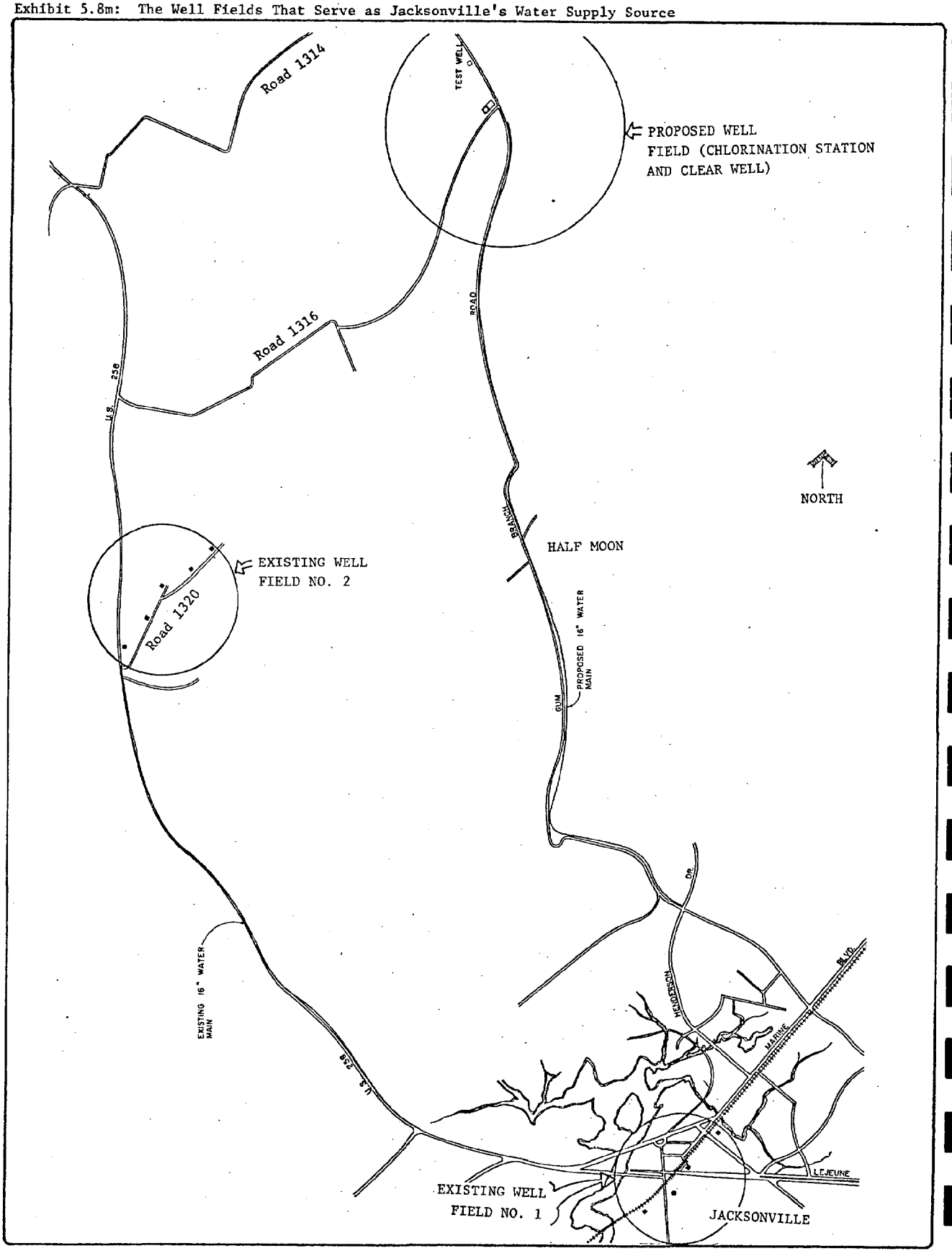
A secondary source of water for Jacksonville in 1972 was Well Field #1 located within the City, as shown by Exhibit 5.8m. This field taps the Castle Hayne formation, and produces water with a very high hardness and an unusually high concentration of hydrogen sulfide gas. Due to the undesirable quality of the water from this well field, it is used only on days when the domestic water demand exceeds the capacity of Well Field #2.

Water Treatment Facilities (1972)

The City has a water treatment plant located on Mill Street, which was formerly used to aerate and chlorinate the water from Well Field #1 when it was the only source of supply. When Well Field #2 was established, extensive water treatment was no longer necessary, due to the high quality of the water. As a result, treatment operations in the plant were suspended, and the plant now functions only as a chlorination and pumping station.

Because of the natural softness and very high quality of the water from Well Field #2, the only treatment needed is chlorination. This is accomplished at two locations, a chlorine-control station located along the supply main, and at the aeration plant clearwell. Flouridation is not necessary because the water naturally contains enough fluoride to meet the requirements of the North Carolina Board of Health.

Exhibit 5.8m: The Well Fields That Serve as Jacksonville's Water Supply Source



Water Storage Facilities (1972)

In 1972, Jacksonville had three elevated storage tanks in the water distribution system: a 500,000 gallon tank located on Gum Branch Road near Henderson Drive: a 200,000 gallon tank on Marine Boulevard at Cox Avenue; and a 200,000 gallon tank on Mill Street behind the water treatment plant. The Marine Boulevard tank is equipped with an automatic altitude valve, the Gum Branch Road tank is controlled with a telemetering system, and the water treatment plant tank is equipped with an altitude valve.

The tank behind the water treatment plant is valved off when the high service pumps at the plant are running, and it is put back on the distribution system when the pumps are shut down at the end of the work day.

The water treatment plant also has a ground level clearwell with a storage capacity of 500,000 gallons, giving a total storage capacity of 1.4 MG for the water system.

Water Distribution System (1972)

The water distribution system of the City is served by a 16-inch transmission/supply main that extends from Well Field #2 to the water treatment plant. The water lines within the distribution system vary in size from 1 1/2 to 12 inches, with six-inch mains as the most widely used size in the system. The 8-inch and 10-inch lines are located in the older sections of the City, and 12 inch lines are used to connect the outlying water storage tanks with the pumping station at the water treatment plant.

Fire Hydrants (1972)

A fire hydrant survey and flow test study was conducted throughout the City to determine the adequacy of the distribution system to provide fire flows. There were approximately 325 fire hydrants on the existing water distribution system, and 223 of these were tested in this survey.

The static and residual pressures, and the quantity of water discharged from a fully opened hydrant, were measured and recorded. The condition of each hydrant was also noted.

The present fire flow requirements were determined using the American Insurance Association formula. Substituting the estimated 1972 population of 16,500 into the equation, the current fire flow demand was approximately 4,000 gpm. This value, however, was unattainable anywhere in the system.

To determine the ability of the water system to provide the current fire flow requirements of 4,000 gpm, the total system requirements (domestic use plus fire flow) also were calculated, as shown by Exhibit 5.9t. The total required capacity for 1972 was 3.69 MG.

The actual capacity of the system was also calculated, and this value, as shown by Exhibit 5.10t was 2.04 MG. Therefore, a deficiency of 1.54 MG existed in the Jacksonville water system in 1972.

Exhibit 5.9t: 1972 Water System Requirements*

Item	Quanity
1. Average Daily Consumption (1972)	2.00 MGD
2. Average Maximum Daily Consumption (1972)	2.30 MGD
3. Peak Rate on Max. Day (2.5 X 2.0)	5.00 MG
4. Required Fire Flow for 10 Hours	4000 gpm
5. Required For Fire (4000 x 60 x 10)	2.4 MG
6. Consumption for 7 Hours - Max. Day (7/24 x 2.3)	.67 MG
7. Consumption for 3 Hours - Peak Rate on Max. Day (3/24 x 5.0)	.62 MG
8. Total Required Capacity for 1972	3.69 MG

*To fight a 10-hour fire.

Exhibit 5.10t: 1972 Water System Capacity

Item	Quantity
1. Well Field No. 1 - Water Furnished in 10 Hr.	0.54 MG
2. Well Field No. 2 - Water Furnished in 10 Hr.	.83 MG
3. Distribution System Storage (.90 X .50)	.45 MG
4. Clearwell Storage (.50 X .67)	.33 MG
5. Actual Capacity	2.15 MG

PROPOSED WATER SYSTEM IMPROVEMENTS

The 1972 report proposed a number of improvements to the Jacksonville water supply system, and the majority of these improvements have been completed.

Future Water Supply Requirements

The 1992 water supply capacity for 21,900 people, and to fight a ten hour fire, was estimated at 4.55 million gallons (mg), as shown by Exhibit 5.11t. If

Exhibit 5.11t: Future Capacity Requirements*

Item	1982 Need	1992 Need
1. Average Daily Consumption	2.40 MG	2.85 MG
2. Average Maximum Daily Consumption	2.80 MG	3.30 MG
3. Peak Rate on Max. Day	6.00 MG	7.12 MG
4. Require Fire Flow for 10	4250 gpm	4500 gpm
5. Quantity Required for Fire	2.55 MG	2.70 MG
6. Comsumption for 7 Hrs. - Max. Day	0.81 MG	0.96 MG
7. Consumption for 3 Hrs. - Peak Rate on Max. Day	0.75 MG	0.89 MG
8. Total Required Capacity	4.11 MG	4.55 MG
9. 1972 Capacity WITHOUT IMPROVEMENTS	2.15 MG	2.15 MG
10. Future Deficiency WITHOUT IMPROVEMENTS	1.96 MG	2.40 MG

*To fight a 10-hour fire.

these improvements are not made, a deficiency of 1.96 mg is estimated for 1982 and 2.4 mg for 1992.

Water Supply Location

An increase in pumping from the existing wells was considered for additional supply, but removal of more water from these wells would increase the "drawdown area" and possible cause salt water intrusion from the underlying geological formations. Therefore, it was proposed to establish a new well field as an additional source of water.

Several factors were considered in determining the location of a new well field. Primary among these was that the field be located near the "strike line". It is possible to drill wells on this line, but it is projected that the safe yield would be less.

Another factor considered in the location was the future potential growth direction of the City. Since the growth direction was assumed to be generally to the north and northwest, it was felt desirable to search for new well fields in the same direction. A site along Gum Branch Road was selected north of the City, and its location is shown by Exhibit 5.10m.

In order to determine the suitability of the proposed location and the adequacy of supply, a test well was drilled and the quantity and quality of the water proved to be satisfactory to meet the future needs.

New Well Field Capacity

Based upon analysis of pumping tests from the test well, it was proposed to drill three sets of wells in the new well field: two sets immediately and a third set for future demands. Each set consisted of two wells, one at a depth of approximately 500 feet which taps the Peedee formation, and one at a depth of approximately 300 feet which taps the Castle Hayne formation. The water from the latter formation generally has a high degree of hardness, but when mixed with the soft water from the Peedee formation, should produce water which has a combined hardness of less than 100 ppm.

It was proposed that the wells be located a minimum of 3,000 feet apart to avoid the problems with "drawdown" which currently exist in Well Field No. 2.

The safe yield capacity of each set of wells is projected to be 1,000 gpm or 1.4 MGD. Using this value, and the additional storage capacity proposed hereinafter, the system capacity was calculated assuming two sets of wells were drilled. The results, given in Exhibit 5.12t, show that this arrangement should be adequate until 1982. It is then proposed to drill the third set of wells to supply the City with the water needed until 1992. This phasing of the construction will produce capacities that exceed the required capacity for each year.

It was proposed to equip each well with a 500 gpm, dual-driven well pump. The controls for these pumps, as well as the controls for the pumps in the existing well field, were located in the water treatment plant on Mill Street. By this arrangement, all pumping operations are controlled from one location.

Exhibit 5.12t: Future Water System Capacity

Item	1982 Capacity	1992 Capacity
1. Well Field No. 1: Water Furnished in 10 Hrs. = 900 gpm X 600 Min.	0.54 MG	0.54 MG
2. Well Field No. 2: Water Furnished in 10 Hrs. = 1330 gpm X 600 Min.	0.83 MG	0.83 MG
3. Well Field No. 3: Water Furnished in 10 Hrs.	1.20 MG	1.80 MG
4. Clearwell Storage: 1.0 MG X 0.67	0.67 MG	0.67 MG
5. Elevated Storage: 1.9 MG X 0.50	0.95 MG	0.95 MG
6. Total Capacity	4.19 MG	4.79 MG
7. Required Capacity	-4.11 MG	-4.55 MG
8. Excess System Capacity	0.08 MG	0.24 MG

A new transmission/supply main was required from the new well field to the City. This supply main was a 16-inch pipe and connects with the existing distribution system at the Gum Branch Road elevated storage tank. The construction of this new supply line insures partial water service even if there were a break and disruption of service in the existing supply line.

Water Treatment Facilities

A new chlorination station was installed with the new well field. It was large enough to handle the entire 3,000 gpm flow that will eventually be produced by the well feild, and is sized and arranged to provide additional treatment capacity as required. The chlorination station is equipped with two chlorinators, one of which is used as a standby.

The North Carolina State Board of Health requires a 20-minute chlorine contact time for municipal water systems. A 500,000 gallon clearwell also was constructed at the chlorination station to provide additional storage required by the total system.

Two 2,000 gpm, high service pumps were installed to pump the water from the clearwell into the distribution system and elevated storage tanks. One of these pumps serves as a standby to insure uninterrupted service.

Water Storage Facilities

Along with the additional well field and the resultant increase in the supply capacity of the water system, additional elevated storage facilities were needed to provide enough pressure in the distribution system to satisfy the requirements of the North Carolina Fire Insurance Rating Bureau. Two, new 500,000 gallon elevated storage tanks were constructed: one located on Ellis Boulevard and the other constructed on Northwoods Park Jr. High School grounds. The Ellis Boulevard tank has an overflow elevation of approximately 140 feet and was equipped with a control valve for flow control. The Northwoods tank has an overflow elevation of approximately 142 feet and is equipped with a control valve.

Additional control valves were needed on the existing tanks due to the addition of more trunk lines and supplying of water from different directions. The Marine Boulevard tank no longer functions as the control tank since water is pumped directly to the Gum Branch tank from the new well field. Therefore, control valves were required on the two existing tanks. To limit the size of the surge wave that could be created if these control valves slam shut, the valves were of the slow-closing type.

Distribution System Improvements

The Jacksonville water distribution system is generally capable of delivering ample water for the current domestic consumption. However, because of residential and commercial growth in certain areas of the City, the existing water lines are not capable of delivering sufficient fire flow as discussed previously. A major problem is head loss in the 6-inch and smaller lines. The required residual pressure in the lines is 20 psi. Due to flat topography, the only head available is from the elevated storage tanks. The static head on the distribution system is approximately 50 psi or 115 feet of water. Therefore, head loss in the pipes must be limited to 30 psi or 69 feet of water. In a 6-inch pipe, a flow of 1,000 gpm will have a resulting head loss of 12.1 feet of water per 100 feet of pipe. Therefore, 6-inch pipes longer than 570 feet should be eliminated.

To strengthen the distribution system and to correct the areas with deficiencies in fire flow, it was recommended that a loop system of 12-inch water lines be constructed throughout the City. The interior sections of the 12-inch loops were strengthened by using 8-inch feeder lines and short sections of 6-inch line along some of the existing 2-inch lines. The 8-inch interior lines are the major feeder lines between the main 12-inch arteries. The 6-inch lines extend along streets which now have only 2-inch lines and needed fire hydrants.

It should be noted that some of the new lines extended beyond the City limits of Jacksonville. These lines were proposed to provide a "full-loop" system of distribution. It was not proposed that all outlying lines be constructed at present, but used for future construction as the City grows. The only major lines outside of the City that were proposed for construction at this time were the supply lines from the new well field and the 12-inch line along Western Boulevard to Gum Branch Road. The latter was necessary to supply the proposed storage tank on Ellis Boulevard and to provide the necessary fire flow for Parkwood Elementary School.

The North Carolina Fire Insurance Rating Bureau has also established requirements for the maximum spacing of fire hydrants on a municipal water distribution system, recommending that a City the size of Jacksonville space fire hydrants not farther than 800 feet apart in residential districts, and not farther than 300 feet apart in school, hospital, shopping centers and business districts. In order to comply with these requirements, it was proposed to install approximately 30 new fire hydrants throughout the City.

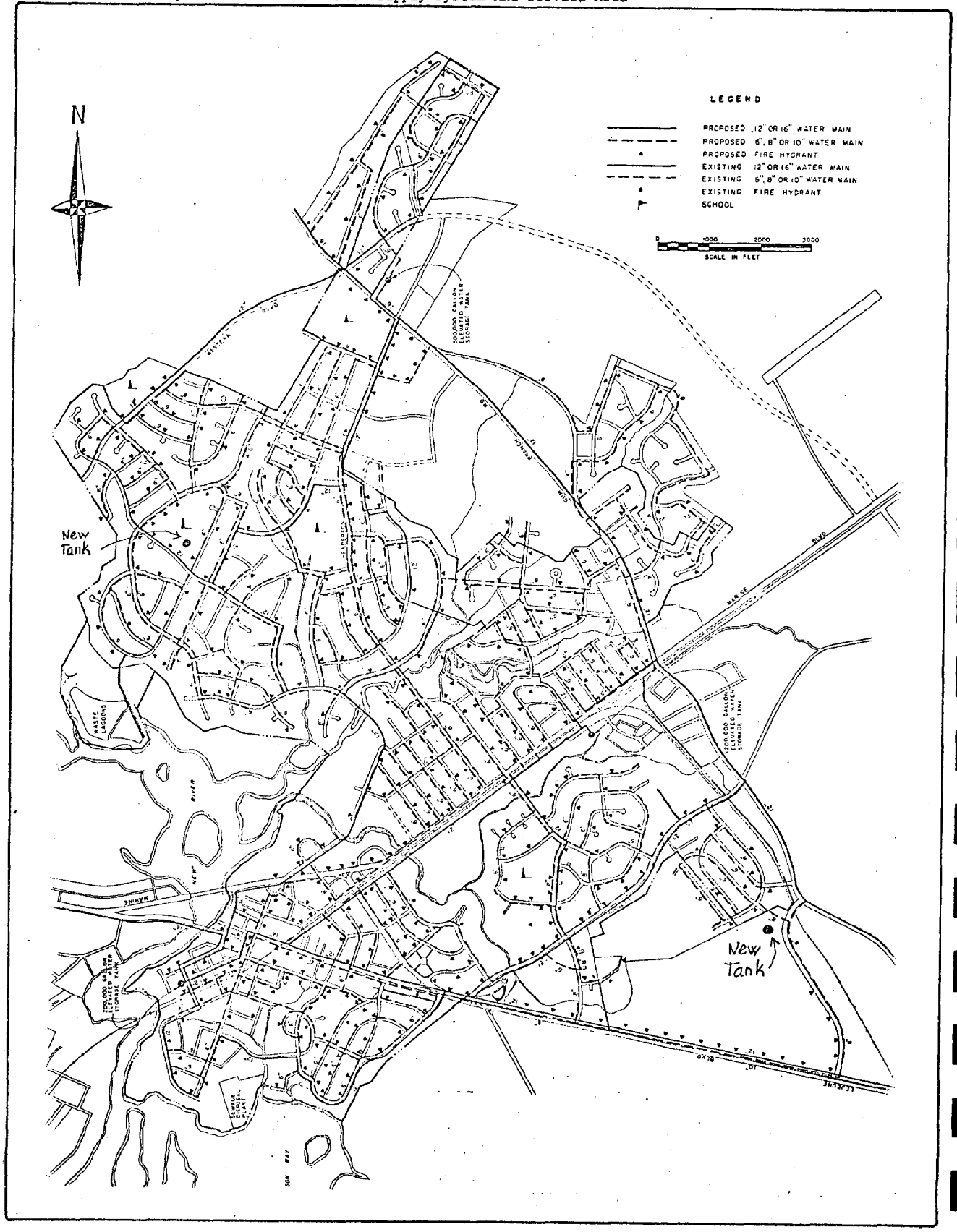
The plan proposals, and the existing system, are shown by Exhibit 5.13m.

STEEP SLOPE AREAS

There are no steep slope areas, exceeding twelve per cent slope in the Jacksonville Planning area. The City has been built on a shallow bluff above New River and its many tributaries. This forms a relative flat plain, except where it rises from the river and along the major drainage ways.

There is a gentle upward slope in the topography away from the river, rising from twenty feet near the shoreline to slightly over forty feet at the edge of the planning area near the old airport.

Exhibit 5.13m: City of Jacksonville Water Supply System And Service Area



FRAGILE AREAS

The only areas in Jacksonville which could be considered as fragile, and which could be damaged by inappropriate development are New River, its tributaries, and the flood plains. All are shown by Exhibit 5.2m.

An inquiry to the Natural Areas Study Coordinator of the Division of State Parks, N.C. Department of Natural and Economic Resources, brought the following reply.*

> "...I have checked my files for information on fragile or unique natural areas, and find none specifically identified within the planning area you defined. However habitats suitable for the American alligator and the Red-cockaded Woodpecker, two species on the Federal endangered species list, do exist within Camp Lejeune."

The Atlantic Ocean beaches, frontal dunes, and other similar fragile areas are to the south and southeast of the City.

*Letter from Robert P. Teulings 8-11-75, Natural Areas Study Coordinator, Division of State Parks.

RESOURCE POTENTIAL

In terms of areas with resource potential in Jacksonville, there are no unique agricultural lands, potentially valuable mineral sites, public owned forests, or privately owned wildlife sanctuaries.

In searching for any historic properties or archeological sites in the Jacksonville planning area, contacts were made with the Archeology Section and the Historic Properties Section of the North Carolina Division of Archives and History; the Research Laborabory of Anthropology at the University of North Carolina at Chapel Hill; the Department of Sociology/ Anthropology of the University of North Carolina at Wilmington; and the Natural Areas Study Coordinator of the North Carolina Division of State Parks.

Historic Properties

The CAMA guidelines require the inclusion of any historic or archeological sites which are listed in the National Register of Historic Places, sites which are owned or assisted by the State of North Carolina pursuant to G.S.121, or sites that have been designated as National Historic Landmarks.

An inquiry to the N.C. Department of Archives and History brought the following response*1:

> "To date, there are no properties in Jacksonville or within a one mile radius thereof, which fall into the above listed categories. That does not mean that there are no important buildings in that area, but rather that we have not yet inventoried that part of the county. If we find properties which meet the criteria of the National Register, approval to nominate will be requested from the North Carolina Historical Commission. Because this commission meets twice each year, the list of properties under category #1 is expanded semi-annually. Should any properties in the Jacksonville area be approved by the Historical Commission at their Fall meeting, I will let you know."

As is the case in many urban areas, the homes and other buildings of the early settlers have disappeared because of fire, disrepair, or demolition. The Onslow Historical Society is housed in the Pelletier House on New Bridge Street in the City. The house is of local interest because it was the birthplace of the first child born in Jacksonville.

Archeological Sites

An inquiry to the N.C. Division of History and Archives received the following response*2

> "...Although we have no recorded sites in the Jacksonville area, sporadic site surveys along the sound to the north on the mouth of New River have located in the neighborhood of 200 aboriginal

*1Letter from Janet Seapker, 8-26-75, N.C. Division of Archives and History.
*2Letter from Stephen Gluckman, Chief, Archeology Section, 8-20-75.

sites. The location of Jacksonville at the head of the New River estuary indicates that its ecology in prehistoric times would have supported a large aboriginal population. Although many of the remains of this occupation would have been destroyed by the development and expansion of the City, there are undoubtedly still some remains, and the entire area should be regarded as archeologically sensitive."

The state also would welcome the support of the City of Jacksonville in conducting a countywide inventory of archeological resources.

Another inquiry was made to the Department of Sociology/Anthropology of the University of North Carolina at Wilmington. The reply stated in part*1:

"....We have on record several important archeological sites within the area your letter described and would be interested in extending our survey in conjunction with this Land Use Plan."

Further information on the sites was immediately requested, but no response has been received to date.

Resource Areas Summary

From all information received to date, there are no known historic or archeological sites within the planning area which meet the CAMA guidelines. It is felt by some persons, however, that such sites do exist, and a countywide inventory needs to be undertaken in order to make a final determination.

*1Letter from Thomas C. Loftfield, Department of Sociology/Anthropology, 9-17-75.

CAPACITY OF FACILITIES

The purpose of this section is to determine the capacity of various community facilities in order to determine needs for the existing, as well as the future, population. A review will be made of the:

- ..existing water and sewer service areas;
- ..the design capacity of existing water treatment plant, sewage treatment plant, schools, and primary roads; and
- ..the per cent of present utilization of capacity for water treatment plant, sewage treatment plant, schools, and primary roads.

EXISTING WATER AND SEWER SERVICE AREAS

The service areas for the Jacksonville water supply system and sanitary sewage system are shown by Exhibits 5.13m and 5.14m. The water supply service area map indicates existing water supply lines and hydrants, as well as proposals for additions or changes made by the 1972 report. The majority of the proposals have been implemented, and all property within the City is served by the system.

The map of the existing sanitary sewage system indicates that all property within the City also is serviced by sanitary sewers.

DESIGN CAPACITY

Design capacity will be discussed for the water treatment plant, sewage treatment plant, schools, and primary roads.

Water Treatment Plant Capacity

In 1972, the capacity of the Jacksonville water supply system was 2.15 mgd. At that time, the 2.15 mgd was not adequate to meet the demands for the peak day and also meet the fire flow requirements of the N.C. Fire Insurance Rating Bureau.

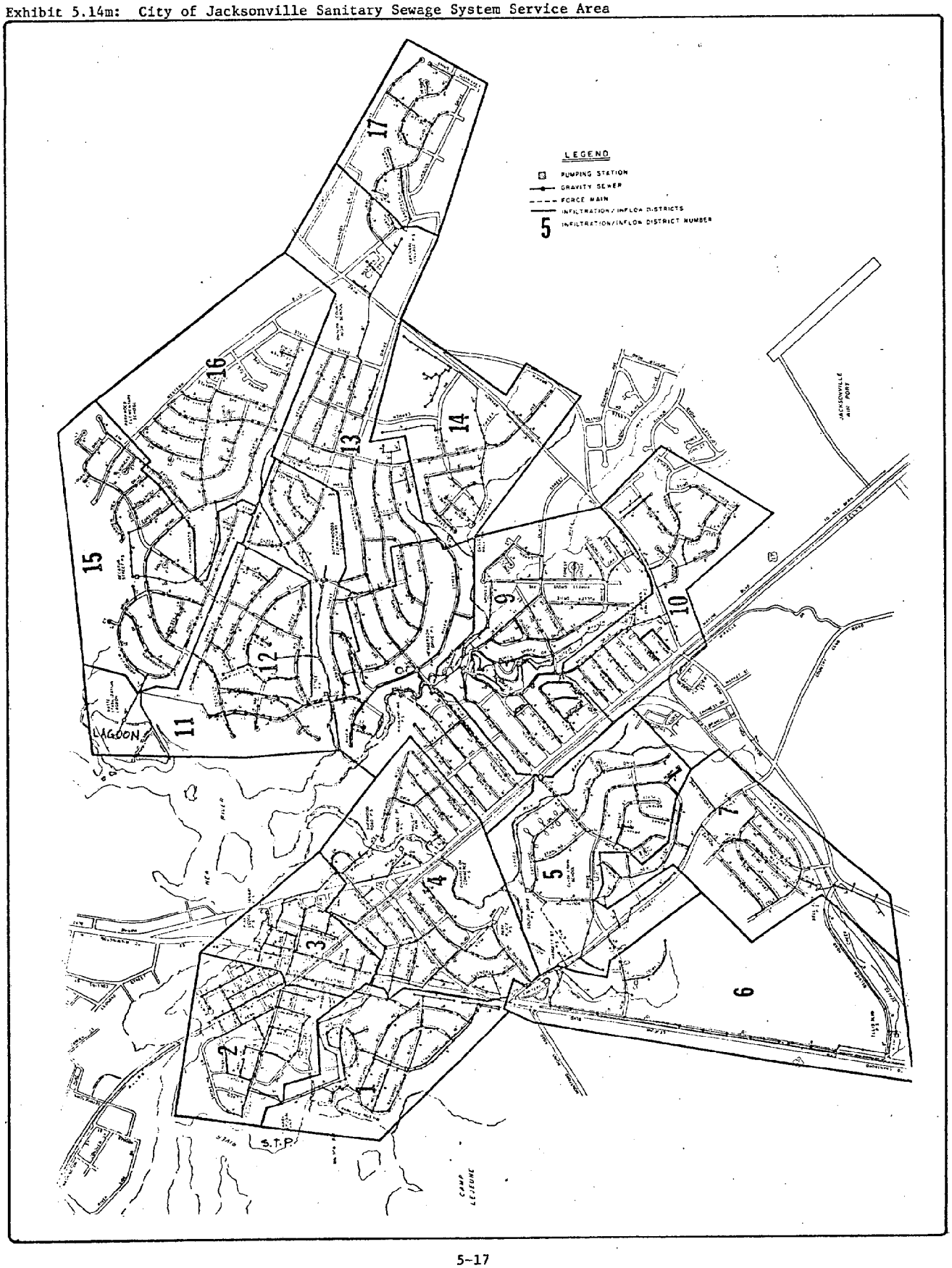
Proposals were developed in the same year to increase the capacity immediately to 4.11 mgd in order to service 21,900 people by 1992. A secondary expansion also was proposed, going to 4.55 mgd, in order to accommodate an estimated 25,000 people by 2000. If additional capacity should be needed, it is felt that the newest well field could absorb additional wells.

The 4.11 mgd expansion is almost completed, and the present utilization of that capacity is about 50 per cent.

Sewage Treatment Plant Capacity

The City of Jacksonville is served by two waste treatment facilities: an oxidation lagoon facility and a trickling filter facility.

Exhibit 5.14m: City of Jacksonville Sanitary Sewage System Service Area



Oxidation Lagoon Facility

The lagoon facility is located in the area marked as number "11" on Exhibit 5.14m. This facility serves development in areas 11, 12, 13, 15, 16, and 17. This area generally is northwest of Mill Creek and it encompasses 1,088 acres or 1.7 square miles of land.

The facility was completed in 1964 and consists of a primary lagoon with a surface area of 15 acres in series with a secondary lagoon with a surface area of 5 acres. Disinfection is achieved in a 4,100 cubic feet chlorine contact pond.

The design capacity is 0.516 million gallons per day (mgd) of domestic sewage. There is no industrial flow to this facility. In 1973, the average daily flow was 0.49 mgd, which was generated by an estimated 8,000 people in the service area. This would mean that approximately 95 per cent of the capacity is being utilized.

Trickling Filter Facility

The trickling filter sewage treatment plant is located in the area marked as number "1" on Exhibit 5.14m. This facility serves development in areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 14---which covers 2,035 acres or 3.18 square miles of land.

The facility was constructed in the early 1940's, with the final improvements added in the mid 1960's. It consists of a coarse bar screen, grit collector, fine bar screen, primary settling tanks, high rate fixed bed trickling filter, final settling tank, chlorine contact chamber, anaerobic digester, sludge drying beds, and a centrifuge.

The nominal design capacity of the facility is 2.56 mgd. In 1973, the average daily flow to the plant was 1.56 mgd, which was generated primarily by approximately 9,000 people. Industrial wastewater accounts for a small protion of the flow, but even this is primarily domestic sewage. Approximately 61 per cent of the plant's capacity is being used.

Proposed Trickling Filter Upgrading

The 1973 average daily flow to both Jacksonville facilities was 2.05 mgd, while the combined plant capacity was 3.08 mgd. This means that 67 per cent of the combined capacity was being used.

In looking at the future needs of the Greater Jacksonville area, the "201 study*" considered several different alternatives for increased sewage treatment plant capacity. The selected alternative was to abandon the present lagoon facility, and concentrate on upgrading the trickling filter plant.

The upgraded facility would have a design capacity of 4.0 mgd, and would accommodate the needs of an estimated 30,000 people by 1995. It was further recommended that the facility be constructed as soon as possible, and definitely before 1980.

*"Greater Jacksonville 201 Faciltiies Plan," prepared for the City of Jacksonville by G. Reynolds Watkins Consulting Engineers, 1975.

School Capacity

Public school services for the City and the remainder of the County are provided by the Onslow County Board of Education. There are twenty-three schools in the County system, and a 1974-75 enrollment of approximately 15,000. In addition to the County system, educational services also are provided by:

...the Camp Lejeune-M.C.A.S. System, which serves about 4,000 students, with
...1 kindergarten
...5 elementary schools
...1 junior high school
...1 senior high school

...Parochial Schools, which serve about 900 students, with two elementary schools; and

...the Coastal Carolina Community College, with a fulltime enrollment of 500 students, and offering two year degrees in liberal arts and technical programs, a one year vocational program, and various occupational short courses through their extension service.

Present Onslow Enrollment

The present enrollment for the Onslow County Public Schools is about 15,000. Each school and its enrollment is shown by Exhibit 5.15t.

The exhibit also provides a separate listing of the County schools which are located in the City, and which, according to the Superintendent's office, serve children within the Jacksonville City limits.

The eight schools within Jacksonville serve 5,751 City children, which is 39 per cent of the total County enrollment.

Past Enrollment

The total County enrollment for the past five years, 1970-75, remained fairly static at around 15,000, with less than a one per cent yearly fluctuation (see Exhibit 5.16t.)

The Jacksonville total enrollment, for the same period, remained around 7,000, but with a higher fluctuation of around ten per cent, and with a more or less steady decline in enrollment.

When the past five years are reviewed by grade level:

..the grades 1-6 showed a decline of about ten per cent for the County as a whole and for Jacksonville;

..grades 7-9 remained static in the Jacksonville area, but increased by less than ten per cent in the entire County; and

..grades 10-12 showed an enrollment increase of

Exhibit 5.15t: Onslow County Public Schools*

School	Enrollment
Onslow County total	14,956
..Jacksonville City total	5,751
..Clyde Erwin	456
..Northwoods Elementary	507
..Parkwood	422
..Thompson	524
..Bell Fork	436
..Jacksonville Junior High	863
..Northwoods Junior High	956
..Jacksonville Senior High	1,587
..Other County Schools total	9,205
..Blue Creek	608
..Dixon Elementary	1,003
..Dixon High	449
..Morton Elementary	652
..Richlands Elementary	927
..Richlands High	629
..Silverdale	191
..Summersill	545
..Swansboro Elementary	402
..Swansboro Middle	429
..Swansboro Junior High	341
..Swansboro High	674
..Tabernacle	734
..Trexler	564
..White Oak	1,057

*From Onslow County Board of Education

about 17 per cent for Jacksonville, and about 25 per cent for the County.

Future Enrollment Projections

Exhibit 5.16t shows the future enrollment projections made by the Onslow County Board of Education. The overall projection for the Countywide system, to 1980, is a slight decrease of about two per cent. A similar projection is made for the Jacksonville area.

When the projected years are reviewed by grade level:

..grades 1-6 are practically static for the City and County;

..grades 7-9 are projected to increase the first couple of years, but then decline by about ten per cent for the City and County; and

..grades 10-12 are projected to increase by about ten per cent for the City and County.

Thus, while it has been estimated that the City and County experienced growth in their total population from 1970-75, this did not automatically generate a similar increase in school enrollment, as has generally been the case in past decades. The enrollment projections reflect similar trends of overall population growth, but no student enrollment increase.

Present Capacity

With approximately 15,000 students enrolled in we school buildings, the County Board of Education reports that their building capacity is fully utilized and there is no unused space.

Exhibit 5.16t: Past and Projected Enrollment for Onslow County Public Schools*1

Year	Jacksonville Attendance Area				Onslow County Totals			
	Grades 1-6	Grades 7-9	Grades 10-12	Grades 1-12	Grades 1-6	Grades 7-9	Grades 10-12	Grades 1-12
1970-71	4,109	1,859	1,423	7,391	8,296	3,880	2,894	15,070
1971-72	3,892	1,896	1,459	7,247	8,042	3,982	3,094	15,118
1972-73	3,680	1,871	1,490	7,041	7,749	4,025	3,168	14,942
1973-74*2	3,567	1,825	1,599	6,691	7,470	4,154	3,358	14,982
1974-75	3,538	1,867	1,668	7,073	7,386	4,062	3,603	15,051
1975-76	3,390	1,979	1,665	7,034	7,102	4,249	3,616	14,967
1976-77	3,314	1,986	1,717	7,017	6,967	4,249	3,713	14,929
1977-78	3,338	1,905	1,715	6,958	6,943	4,103	3,758	14,804
1978-79	3,300	1,773	1,888	6,961	6,979	3,829	3,961	14,769
1979-80	3,348	1,743	1,834	6,925	7,072	3,719	3,900	14,691

*1From Onslow County Board of Education
*2End of third month.
NOTE: The above figures do not include kindergarten. If such were added, the enrollment would increase by 500 for Jacksonville, and over 1,000 for the Countywide total.

The Board also notes that a future Southwest Junior/Senior High on Highway #43 will accommodate 800 students presently at Jacksonville Junior High and Jacksonville Senior High.

Capacity of Primary Roads

Inquiries were made of the North Carolina Highway Commission as to the present capacities of Jacksonville's primary roads, and the extent to which these capacities were presently utilized. The Commission responded that the only information available was contained in the 1969-70 thoroughfare plan prepared for Jacksonville,* and the report was still considered to be adequate. The remaining information is taken from that report.

Existing Street System

Jacksonville's major street system is characterized by a random arrangement of urban and suburban streets feeding into U.S. 17 and N.C. 24, which are part of the N.C. primary highway system.

Within this system, N.C. 24 and U.S. 17 are classified as part of the North Carolina trunk system. The trunk system provides for the movement of large volumes of interstate and intrastate traffic, along with a major volume of intercity traffic.

These facilities should provide a high level of service with a minimum amount of marginal interference. Either partial control of access or full control of access is desirable for these facilities.

1966 Traffic Volumes

The 1966 average traffic volumes for a 24 hour period are shown by Exhibit 5.17m. The highest recorded volume was 30,380 at the intersection of U.S. 17, N.C. 24 and Old Bridge Street. Volumes on N.C. 24 east ranged from 19,600 to 28,680. On U.S. 17 the volumes ranged from 25,610 near Court Street to 8,050 north of Gum Branch Road. Volumes in excess of 8,000 vehicles per day were recorded on Henderson Drive, Hargett Street, New Bridge Street, Court Street and Onslow Drive.

Capacity

A relatively good indication of the adequacy of the existing street system is a comparison of traffic volumes with the ability of the streets to move traffic. In an urban area, a street's ability to move traffic is generally controlled by intersection capacity. Capacity is defined as the maximum number of vehicles which has a reasonable expectation of passing over a given section of a lane or a roadway in one direction, or in both directions for a two-lane or a three-lane highway, during a given time period under prevailing roadway and traffic conditions.

The relationship of traffic volumes to the capacity of the roadway will determine the level of service being provided. Six levels of service have been selected to identify the conditions existing under various speed and volume conditions on any highway or street. The level of service usually suitable for urban design practice is "level of service C," and is defined as being in the zone of stable traffic flow with most drivers restricted in their freedom to select their own speed, change lanes or pass. A relatively staisfactory operating speed is attained at this level of service.

The existing traffic volumes are close to exceeding the capacity at level of Service C at the following intersections: N.C. 24 at the main gate entrance to Camp Lejeune, Bell Fork Road and Tarawa Terrace, U.S. 17 at Old Bridge Street, and Johnson Boulevard and Chaney Avenue. There are three intersections that are operating above capacity at level of Service C: Johnson Boulevard at Bayshore Boulevard and Warn Street, and U.S. 17 at Henderson Drive. (See Exhibit 5.18m)

1990 Traffic Volumes

The "Thoroughfare Plan" projected 1990 population as being:

...128,615 for Onslow County
... 61,607 for Jacksonville Township, and
... 22,302 for the City of Jacksonville

Projected 1990 travel desires were assigned to the existing major street systems to determine its future adequacy and to locate problem areas. The assignment was accomplished by use of an electronic computer and all traffic movements were assigned to the designated existing major street system on an all or nothing nondirectional basis, that is, the routing with the shortest travel time was assigned all of a specific movement. The 1990 assigned volumes are shown on Exhibit 5.17m.

A comparison of the assigned 1990 volumes with the 1966 volumes indicates that traffic will become intolerable long before 1990 if significant improvements to the existing major street system are not made. Almost all existing major streets would be subjected to traffic volumes considerable above their existing capacities.

*"Jacksonville Thoroughfare Plan," prepared for the City of Jacksonville By the Advance Planning Dept. of the N.C. State Highway Commission, March, 1969. Supplement prepared in September of 1970.

Chapter VIII : POTENTIAL

AREAS OF ENVIRONMENTAL CONCERN

INTRODUCTION

The 1974 North Carolina Coastal Area Management Act requires that "particular concern be given to the nature of development which shall be appropriate within the various types of Areas of Environmental Concern (AEC) that may be designated by the Coastal Resources Commission."

The Land Use Plan shall include a description of any potential AEC, along with a statement of specific land uses which may be allowed in such area, consistent with policy objectives. These are areas in which uncontrolled or incompatible development might result in irreparable damage to the very features of the Coastal Area which make it economically, aesthetically, and ecologically rich. The six basic categories for potential AEC's are:

..Coastal Wetlands
..Estuarine Waters
..Renewable Resource Areas
..Fragile, Historic or Natural Resource Areas
..Public Trust Areas
..Natural Hazard Areas

JACKSONVILLE POTENTIAL AEC's

Of the six basic categories, Jacksonville has land that fits only one: the natural hazard area which is concerned with flood plains.

The Jacksonville floodplain areas were previously discussed in Chapter V, and illustrated by Exhibit 5.2m. The Coastal Resource Commission guidelines further describes a floodplain as follows:

..Description - River flood plain is defined as a land area adjoining a river, stream, or watercourse which is likely to be flooded once every 100 years (i.e., that has a one per cent chance of being flooded each year).

..Significance - Floodplains store floodwaters, thereby reducing inundation of adjacent lands. Flood plains also absorb and dissipate the energy of floodwaters, thereby reducing downstream destruction.

..Policy Objective - To protect the public health, safety, and welfare by restricting land uses within the flood plain which have a significant potential to increase flood damage and cause loss of life.

..Appropriate land uses - Appropriate land uses shall be those consistent with the above policy objective.

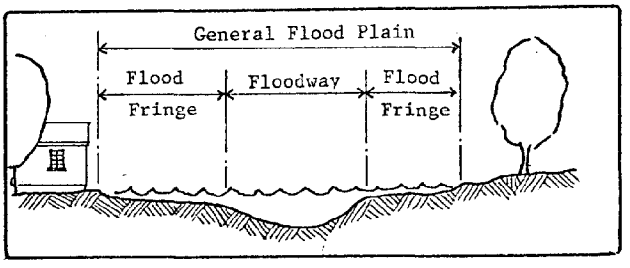
FLOOD PLAIN LAND USES

The delineation of a flood, and its later subdivision, is shown by Exhibit 8.1m. The remainder of this section will define these different areas, and describe the uses permitted in each. The most appropriate way to provide the necessary regulations would be to prepare and adopt a "floodplain zoning ordinance".

Definitions

The flood plain, for regulatory purposes, is called the "general floodplain". With proper hydrologic studies, it can be subdivided further into a "floodway" and "flood fringe" (see Exhibit 8.1m).

Exhibit 8.1m: Flood Plain Delineated and Subdivided



General Flood Plain District (GFP) - is the channel of a stream, and the adjacent land which has been, or may be in the future, covered by water, and including, but not limited to the regulatory flood. This area of coverage may be referred to as the flood plain or flood hazard area. With proper hydrologic studies, the GFP may be subdivided into a "floodway" and "flood fringe" as defined in the following:

..Floodway (FW) - is the channel of a stream and that adjacent land that are required to carry the deep and fast moving floodwater, and the two principal factors in its determination are the selected flood discharge and the permitted increase in flood heights.

..Flood Fringe (FF) - is the portion of the GFP beyond the floodway that carries the floodwaters that usually are shallow and slow moving.

Regulatory Flood - is the flood of a 100 year frequency, and the flood protection elevation shall be one foot higher. The regulatory flood shall be the basis for determining the discharge, profile, protection elevation, floodway, and flood fringe.

Permitted Uses

The land uses permitted in each area are described in the following sections.

General Flood Plain Uses

The permitted uses within the general flood plain district (GFP), which are allowed as a matter of right, are open space uses and do not involve

structures, fill, or storage of materials or equipment...such as agricultural activities, industrial loading or parking, private and public recreation uses, and residential lawns, play, or parking areas. All other uses must meet the requirements for a special permit, after determining if it is in the floodway or flood fringe.

Floodway District Uses

The uses permitted as a matter of right are the same as those for the GFP district. The "special permit uses" primarily include activities that would not suffer great damage from flooding, are extensive uses that must be located within a floodway for continuity (streets, utilities), or could be moved or taken down prior to flooding (signs, carnivals, etc.).

Standards imposed by a Board of Adjustment on any special permit may include a prohibition against unduly affecting floodway capacity or increasing flood heights. The Board also must take into consideration that future requests of a similar nature may be received for the opposite side of the stream. Fill must be minimized and protected against erosion, and any structures permitted shall not be for human habitation, must have a low damage potential, and be situated to minimize effect of flood flows.

Flood Fringe District Uses

Not only are the GFP uses permitted outright in this district, but additional uses can be considered if they are flood-proofed or elevated above the regulatory flood level. Fill extending at least 15 feet beyond the structure is the preferred method of protecting structures in this district because it acts as a buffer for the buildings, protects streets and utilities, and discourages walk-out basements that are easily flooded.

Special permit uses may include buildings placed on stilts, piles, or partial walls (as opposed to fill) if such supporting members have a proper foundation to withstand flooding and do not create other undesirable effects. In permitting such for buildings, one should not forget that this may provide no protection for lower elevation streets or utilities.

Special Permit Procedure

Detailed procedures would have to be developed for guidance in filing special permit applications, as well as any other steps leading up to the Board's decision in regard to a special permit request in the floodway or flood fringe districts.

The type of information required by the Board shall include the hydrologic data delineating the floodway and flood fringe, and the relation of the lot and any structures thereto. Cross-sections and profiles of the districts also will be needed, as well as specifications for floodproofing, filling, dredging, or other pertinent construction activities. Upon receiving this information, the Board will transmit the data to qualified professionals for their advice and recommendations.

The Board of Adjustment within a reasonable time, shall review the special permit request to determine the suitability of the proposed use in relation to the flood hazard, considering factors such as the danger to life and property, water pollution effect, alternative locations for the proposed use, and the need to attach special conditions.

WATER CLASSIFICATION

The streams within the Jacksonville Planning Area are classified as "C" by the North Carolina Stream Classification System. The "C" classification means that the water is suitable for fish and wildlife propagation, boating, wading, and fishing, but is not fit for human use of bathing, diving, waterskiing, or as a water supply. These waters have a decreased diversity of fish species, but an increased population of fish such as catfish, gizzard shad, bass, gar, and mosquito fish.*13

Outside the Planning Area, from the New River railroad bridge south to Hickory Point, the water classification is "SB". From Hickory Point south to the Atlantic Ocean, the water classification is "SA."

The best usage of "SA" waters is shellfishing for market purposes and any other usage requiring waters of lower quality. For "SB" waters, the best usage is bathing and any other usage except shellfishing for market purposes.

Implementation of the "201 Water Quality Plan" recommendations will provide higher treatment for the Jacksonville domestic and nondomestic sewage generated by existing and future urban development. This could lead to the consideration of upgrading the water quality classification and standards, unless non-point pollution sources overbalance the improved point source treatment.

Appendix "A"

BIBLIOGRAPHY

1. Coastal Area Management Act for North Carolina, being Senate Bill #972 amending G.S. Chapter 113A by adding a new Article 7, and ratified by the General Assembly of North Carolina in its 1973 Session (2nd Session, 1974).

2. Development Potential of Onslow County, N.C., prepared by the Onslow County Planning Department and Moore, Gardner, and Associates, Inc., for the Onslow County Planning Board, October, 1969.

3. Manpower Application for Onslow County, prepared by Ken Floan, Executive Director, for the Manpower Planning Office of Onslow County, 1974.

4. Onslow County Preliminary Study for Flood and Drainage Plan, prepared by the office of the County Manager of Onslow County, N.C., December 31, 1970.

5. Planning Tomorrow for Onslow County, N.C. prepared by the Onslow County Planning Department for the County of Onslow, N.C., May, 1972.

6. Plan for Jacksonville, N.C., 1966, prepared by the North Carolina Division of Community Planning, Department of Conservation and Development, August, 1966.

7. Population Growth Trends and Projections for Onslow County, North Carolina, prepared by the Onslow County Planning Department for the County of Onslow, N.C., October, 1968.

8. Recreation Study for Onslow County, N.C. prepared by the Onslow County Planning Department for the County of Onslow, North Carolina, December, 1968.

9. Recreation Study for Jacksonville, N.C., prepared by the Mayor's Recreation Study Commission for the City of Jacksonville, May, 1970.

10. State Guidelines for local planning in the coastal area under the Coastal Area Management Act of 1974, prepared by and for the North Carolina Coastal Resources Commission, Raleigh, N.C., January 27, 1975.

11. Thoroughfare Plan for Jacksonville, N.C., 1969, prepared by the North Carolina Highway Commission for the city of Jacksonville, N.C., March, 1969.

12. Thoroughfare Plan for Jacksonville, N.C., Supplemental Report, 1970, prepared by the North Carolina State Highway Commission for the city of Jacksonville, N.C., September, 1970.

13. 201 Facilities Plan for Jacksonville, N.C., prepared by G. Reynolds Watkins Consulting Engineers for the city of Jacksonville, N.C., 1975.

14. Water Quality Management Plan for Region "P", Phase II, prepared by and for the Neuse River Council of Governments, New Bern, N.C., February, 1973.

15. Zoning Ordinance for Onslow County, N.C., prepared by the Onslow County Planning Department for the County of Onslow, N.C., February 17, 1969.

16. Zoning Ordinance for Jacksonville, N.C., prepared for and adopted by the city of Jacksonville, N.C., August 22, 1972.

17. Water System Improvement Plan for Jacksonville, N.C., prepared by G. Reynolds Watkins Consulting Engineers for the city of Jacksonville, N.C. April, 1972.

18. Population Projections for Jacksonville and Onslow County, N.C., prepared by the Office of State Planning, N.C. Department of Administration, Raleigh, May, 1975.

19. 1973 Population Estimates for Jacksonville and Onslow County, N.C., prepared by the Office of State Planning, N.C., Department of Administration, Raleigh, July 1, 1973.

20. 1980 Population Trend Projections for Onslow County, N.C., prepared by the Office of State Planning, N.C. Department of Administration, Raleigh, August 6, 1974.

21. An Appraisal of Potentials for Outdoor Recreational Development in Onslow County, North Carolina, prepared by soil Conservation Service of the U.S. Department of Agriculture for Onslow Soil and Water Conservation District, May, 1974.

22. Jacksonville Area Soil Survey for the City of Jacksonville, prepared by the U.S. Department of Agriculture Soil Conservation Service, 1970.

23. Nuese-White Oak River Basin - Volume I of the North Carolina Water Plan - Technical Report (Draft), prepared by the Water Resources Planning Section, Division of Resources Planning and Evaluation, Department of Natural and Economic Resources, State of North Carolina, March, 1975.

24. North Carolina Statewide Comprehensive Outdoor Recreation Plan, prepared by the N. C. Department of Natural and Economic Resources, 1973.

25. Private Recreation Enterprise Inventory, by National Association of Conservation Districts, 1975.

Exhibit C. 3t: Number of Responses by Category to Each Opinion Survey Question, by City Sub-Area and Citywide Total

Survey Item	Area "A"					Area "B"					Area "C"					Area "D"					Area "E"					Area Unknown					TOTAL CITY				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
1. Employment opportunities	4	7	4	9	4	1	5	1	4	2	0	5	1	3	2	1	1	0	1	2	0	3	1	1	1	3	3	2	3	3	9	24	9	21	14
2. Your home	21	7	0	2	0	8	4	0	1	0	5	5	0	0	1	3	1	0	1	0	4	0	0	1	0	10	4	0	0	0	51	21	0	5	1
3. Your neighborhood	14	13	1	2	0	5	3	0	4	1	4	6	1	0	0	2	0	2	1	0	6	0	0	0	0	5	9	0	0	0	36	31	4	7	1
4. Shopping areas	15	9	0	4	2	4	6	1	0	1	6	3	0	1	1	2	1	0	2	0	3	2	0	1	0	7	5	0	3	0	37	26	1	11	4
5. Downtown	1	2	1	9	18	0	1	1	2	9	0	3	0	2	6	0	1	1	0	3	0	1	0	2	3	2	2	1	6	5	3	10	4	21	44
6. Indistrial areas	4	5	8	9	4	2	4	4	1	0	2	5	1	2	1	0	1	3	0	1	0	1	3	0	1	2	2	5	5	0	10	18	24	17	7
7. Library	5	12	7	4	2	1	5	3	2	2	6	5	0	1	0	0	3	1	1	0	2	3	1	0	0	2	8	3	0	1	16	36	15	8	5
8. Schools	5	11	3	8	3	2	6	2	3	0	3	1	1	1	1	0	3	1	1	0	4	2	0	0	0	4	4	2	3	1	18	30	9	16	5
9. Parks and recreation	6	7	2	8	8	1	4	1	5	2	3	4	0	0	4	0	3	0	0	2	0	3	0	1	2	2	5	1	4	2	12	26	4	18	20
10. Police protection	12	11	2	2	1	5	6	0	1	0	2	6	1	1	0	0	3	0	2	0	4	2	0	0	0	5	5	2	3	0	28	33	5	9	1
11. Fire protection	22	9	0	0	0	8	4	0	0	0	8	2	1	0	0	0	3	1	1	0	4	2	0	0	0	6	7	1	0	0	48	27	3	2	0
12. Postal service	24	5	0	1	1	7	4	0	1	0	8	1	0	1	1	4	1	0	0	0	5	1	0	0	0	10	4	0	0	1	58	16	0	3	3
13. Sidewalks	5	12	2	4	7	3	0	0	4	6	1	1	4	4	0	0	2	0	0	3	2	1	1	1	0	3	3	2	6	2	14	19	9	19	18
14. Streets	5	17	0	7	1	1	9	0	2	1	0	8	0	3	0	0	2	0	2	1	2	3	0	1	0	2	9	1	2	1	10	48	1	17	4
15. Airport	6	16	4	3	1	3	6	1	0	2	4	7	0	0	0	0	2	2	0	1	4	1	1	0	0	1	10	0	4	0	18	42	8	7	4
16. Electric system	13	8	3	4	2	4	5	1	2	0	4	4	0	0	3	1	3	1	1	0	3	2	0	1	0	6	4	2	2	1	31	26	7	10	6
17. Street lights	13	12	0	5	1	4	6	0	2	0	3	4	2	2	0	1	3	0	0	1	2	2	0	2	0	6	6	1	2	0	29	33	3	13	2
18. Water system	18	8	1	4	0	5	7	0	0	0	4	6	0	1	0	2	2	1	0	0	4	0	0	1	1	8	6	1	0	1	41	29	3	6	2
19. Telephone system	16	5	2	6	1	3	5	1	3	0	5	1	1	3	0	1	3	0	1	0	5	1	0	0	0	7	7	0	1	0	37	22	4	14	1
20. Radio	13	8	1	7	1	6	4	0	2	1	7	3	0	1	0	2	1	0	0	2	4	1	0	1	0	5	7	0	2	0	37	24	1	13	4
21. Television	8	11	1	9	0	4	6	1	0	0	2	5	1	0	2	1	1	1	0	2	3	1	1	0	1	8	3	1	2	1	26	27	6	11	6
22. Newspaper	12	11	2	4	1	6	5	1	1	0	5	5	0	1	0	2	1	0	1	1	2	3	1	0	0	6	8	0	1	0	33	26	4	8	2
23. Garbage collection	17	10	1	2	0	7	4	0	2	0	9	1	1	0	0	0	4	0	1	0	4	0	2	0	0	7	6	2	1	0	44	25	6	6	0
24. Storm water disposal	6	14	3	3	4	3	4	1	2	2	1	1	3	3	1	0	1	1	2	1	1	2	3	0	0	5	4	4	2	0	16	26	15	12	8
25. Sewage disposal	13	12	2	2	1	4	6	1	1	0	2	2	2	5	0	1	3	1	0	0	3	1	1	1	0	7	4	1	1	2	30	28	8	10	3
26. Air quality	15	11	2	0	2	6	5	0	1	0	3	7	0	1	0	1	3	1	0	0	1	3	2	0	0	8	5	1	0	0	34	34	6	2	2
27. Overall quality of living in Jacksonville	4	17	1	3	1	3	6	0	3	0	1	6	0	3	0	0	3	0	1	1	1	3	0	1	0	3	6	1	1	0	12	41	2	12	2
28. City should continue to grow in area and population	18	5	3	3	0	9	2	0	1	1	9	0	0	0	0	4	0	1	0	0	5	1	0	0	0	10	3	1	0	0	55	11	5	4	1
29. Future land use plan for Jacksonville is needed	21	5	1	0	1	11	1	0	0	1	8	3	0	0	0	3	1	1	0	0	5	0	1	0	0	12	1	1	0	0	60	11	4	0	2
30. Buildings should not be permitted in our flood plains	15	5	5	4	1	6	2	4	1	0	2	3	4	0	0	3	0	2	0	0	4	0	0	2	0	8	0	3	1	0	38	10	18	8	1
31. More industry is needed	19	6	1	2	1	9	1	1	0	1	8	1	0	0	0	3	1	0	1	0	6	0	0	0	0	11	3	0	0	0	56	12	2	3	2
32. Sex	23	9	—	—	—	9	3	—	—	—	8	4	—	—	—	5	1	—	—	—	4	2	—	—	—	13	2	—	—	—	62	21	—	—	—
33. Age	3	26	0	—	—	0	12	0	—	—	3	4	0	—	—	0	5	0	—	—	0	5	1	—	—	1	13	0	—	—	7	70	1	—	—
34. Income	2	3	10	13	—	0	2	6	4	—	2	1	5	3	—	1	0	3	1	—	1	1	3	1	—	0	0	11	4	—	6	7	38	26	—
35. City area	30	—	—	—	—	—	13	—	—	—	—	—	11	—	—	—	—	—	5	—	—	—	—	—	6	A.U. = 15					City = 65				

C-5

Appendix "D"

SOIL SURVEY TECHNICAL DATA

INTRODUCTION

A "Jacksonville Area Soil Survey*22" study was prepared in 1975 by Mr. A. D. Whitley, District Conservationist of the U.S. Soil Conservation Service, in cooperation with the Onslow County Soil and Water Conservation District. This study, by use of aerial photographs, delineated twenty-three "soil mapping units" for the Jacksonville area. These delineations are graphically illustrated by Exhibit D.1m.

For each mapping unit, several interpretations were made in terms of its limitations or suitability for certain types of activities. This is shown by Exhibit D.2t.

SOIL LIMITATIONS

The degree of limitation for specific uses include septic tank absorption fields, sewage lagoons, shallow excavations, dwellings without basements, sanitary landfill, and local roads and streets. In these columns, degree of limitation is expressed as slight, moderate, or severe, and in some instances, very severe, and give restrictive features if degree of limitation is more than slight.

Slight soil limitation is the rating given soils that have properties favorable for the rated use. The degree of limitation is minor and can be overcome easily. Good performance and low maintenance can be expected.

Moderate soil limitation is the rating given soils that have properties moderately favorable for the rated use. This degree of limitation can be overcome or modified by special planning, design, or maintenance. During some part of the year, the performance of the structure or other planned use is somewhat less desirable than for soils rated slight. Some soils rated moderate require treatment such as artificial drainage, runoff control to reduce erosion, extended sewage absorption fields, extra excavation, or some modification of certain features through manipulation of the soil. For these soils, modification is needed for those construction plans generally used for soils of slight limitation. Modification may include special foundations, extra reinforcement of structures, sump pumps, and the like.

Severe soil limitation is the rating given soils that have one or more properties unfavorable for the rated use, such as steep slopes, bedrock near the surface, flooding hazard, high shrink-swell potential, a seasonal high water table, or low bearing strength. This degree of limitation generally requires major soil reclamation, special design, or intensive maintenance. Some of these soils, however, can be improved by reducing or removing the soil feature that limits use, but in most situations, it is difficult and costly to alter the soil or to design a structure so as to compensate for a severe degree of limitation.

A rating of very severe must be a subdivision of the severe rating and the criteria used to separate moderate and severe must stand. A soil rated very severe has one or more features so unfavorable for the rated use that the limitation is very difficult and expensive to overcome. Reclamation would be extremely difficult, requiring the soil material to be removed, replaced, or completely modified. Very shallow soils over hard rock or deep, wet organic soil material, for example, have very severe limitations for houses with basements or for on-site sewage disposal. A rating of very severe is confined to soils that require extreme alteration and that, for the most part, are not used for the purposes being rated.

SPECIAL SOIL LIMITATIONS

In the "agricultural," "wildlife," and "woodland" categories of Exhibit D.2t, the original data was not categorized into the "slight" through "very severe" levels, and certain interpretations had to be made.

In determining agricultural use limitations, the Capability Class for each particular soil was used as the "use" indicator. The Capability Classes are designated by Roman Numerals I-VIII and indicate progressively greater limitations and narrower choices for practical agricultural use.

CAPABILITY, SOIL LOSS FACTORS, AND POTENTIAL YIELDS (High Level Management)

Phase of Ser.	Capability	Soil Loss K	Soil Loss T	Corn bu.	Peanuts lbs.	Bahia Past. AUM	Coast. Bermu. AUM	Coast. Bermu.
1-6%	IIIs	.17	5	60	2100	7.0	8.0	4.5

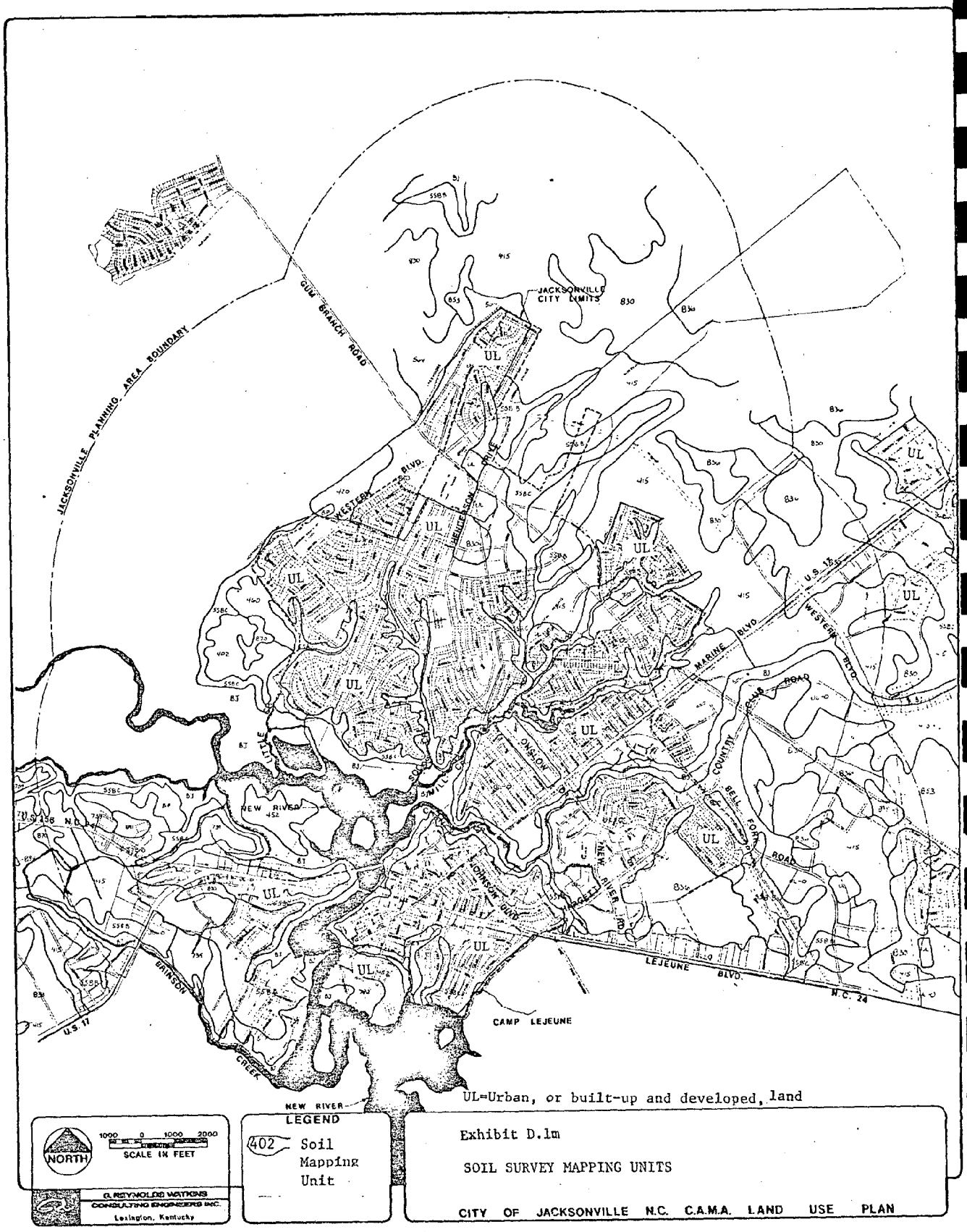
Class I soils have few limitations that restrict their use. → slight

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices. → moderate

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices or both.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impracticle to remove, that limit their use largely to pasture, range, woodland, or wildlife. → severe



UL=Urban, or built-up and developed, land

Exhibit D.1m

SOIL SURVEY MAPPING UNITS

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

Exhibit D.2t: Soil Limitations for Various Types of Urban and Agricultural Uses

Soil Mapping Unit Name, and Map No.	Hydro. gp.	Dwellings	Light industry	Playground	Roads & Streets	Septic Tanks	Agricultural Use*	Wildlife			Woodland Use*
								Open land	Wood land	Wet-land	
739-Baymead sand, 1-6% slope	A	slight	slight	severe	slight	slight	severe	severe	severe	severe	vry sev.
B-J Bib and Johnston soils	B/D	severe	severe	severe	severe	severe	severe	severe	moder.	slight	moderate
853 Blaven fine sand loam	D	severe	severe	severe	severe	severe	severe	vy.sv.	moder.	slight	moderate
BP Borrow Pits	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
558B Craven fine sandy loam 1-4% slope	C	severe	severe	severe	severe	severe	severe	slight	slight	slight	slight
558C Craven fine sandy loam 4-8% slope	C	severe	mod. - severe	severe	severe	severe	severe	slight	slight	very severe	slight
402 Johns sandy loam	C	severe	severe	moder.	severe	severe	moderate	moder.	slight	moder.	slight
564 Lenoir loam	D	severe	severe	severe	severe	severe	severe	slight	moder.	moder.	slight
891 Lynn Haven sand	B/D	severe	severe	severe	severe	severe	severe	moder.	severe	moder.	severe
415 Onslow loamy fine sand	B	severe	severe	moder.	moder.	severe	moderate	slight	slight	severe	slight
460 Pactows loamy sand	C	severe	severe	moder.	moder.	severe	severe	slight	slight	very severe	slight
836 Pantego loam	D	severe	severe	severe	severe	severe	severe	slight	slight	slight	slight
830 Rains sandy loam	B/D	severe	severe	severe	severe	severe	severe	moder.	moder.	slight	moder.
452 Seabrook loamy fine sand	A	moder.	moder.	moder.	moder.	severe	severe	moder.	moder.	very severe	moder.
420 Stalling loamy sand	C	severe	severe	moder.	moder.	severe	moder.	slight	slight	severe	slight
870 Torhunta fine sandy loam	C	severe	severe	severe	severe	severe	severe	severe	moder.	moder.	moder.
UL Urban land	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
UL-O-Urban land Onslow soils complex, 0-6% slope	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
722 Wando fine sand	A	slight	slight	moder.	slight	severe	severe	severe	severe	very severe	moder.

*"Agricultural use" and "Woodland use" ranks are based on soil in "drained" condition.

Class VI soils have very severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife. → severe

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife. → very severe

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife, or water supply, or to esthetic purposes. → very severe

For Wildlife Habitat, suitability was charted two different ways depending on the form used. The form used four indicators; very poor, poor-poorly suited, fairly-suited, and good, well-suited for three separate wildlife classifications: openland, woodland, and wetland.

WILDLIFE SUITABILITY

Suitability	Potential as Habitat for- Openland Wildlife	Woodland Wildlife	Wetland Wildlif.
Openland-Poorly suited	Fair	Fair	Poor
Woodland-Suited Wetland-Well Suited	Good	Good	Poor

Comparable ratings for the Soil Conservation Soil Survey and Exhibit D.2t are:

SCS	Exh. D.2t
very poor - unsuited	very severe
poor-poorly suited	severe
fair - suited	moderate
good - well suited	slight

For woodland use, the categories under Wildlife Suitability, "Hardwood trees and shrubs" and "Low coniferous plants" were used as indicators of woodland use (blue forms SCS). On the white forms, these headings were not included, so the woodland wildlife category under "Potential as Habitat" was used (in combination with the erosion hazard and seedling mortality) to obtain a rank (assuming that if the soil would support a woodland wildlife, it would similarly support a woodland).

WILDLIFE SUITABILITY

Pot./Habit. Elem.		Poten./Habit	Woodlnd Mngt. Problems	
Hardwood trees/ shrubs	Low conf. plnts.	Woodland Wildlife	Erosion Hazard	Seedling Mortality

SOIL LIMITATIONS FOR VARIOUS USES

In the remainder of this appendix, the soil limitations for the various types of urban and agricultural activities of Exhibit D.2t will be described in greater detail, beginning with the "hydrologic soil group."

HYDROLOGIC SOIL GROUP

Soils are grouped into four hydrologic soil groups, A through D. These groups are used mostly in watershed planning to estimate runoff from rainfall. Soil properties were considered that influence the minimum rate of infiltration obtained for a bare soil after prolonged wetting. These properties are: depth to seasonal high water table, intake rate and permeability after prolonged wetting, and depth to a layer or layers that slow or impede water movement.

Dual hydrologic groups are given for wet soils rated D in their natural condition that can be adequately drained. It is considered that drainage is feasible and practical and that drainage improves the hydrologic group by at least two classes (from D to A or B). The first letter applies to the drained conditions.

Hydrologic Group A: (Low runoff potintial.) Soils that have infiltration rates even when thoroughly wetted and a high rate of water transmission.

Hydrologic group B: (Moderately low runoff potential.) Soils that have moderate infiltration rates when thoroughly wetted and a moderate rate of water transmission.

Hydrologic group C: (Moderately high runoff potential.) Soils that have slow infiltration rates when thoroughly wetted and a slow rate of water transmission.

Hydrologic group D: (High runoff potential.) Soil having very slow infiltration rates when thoroughly wetted and a very slow rate of water transmission.

DWELLINGS

As rated in the interpretation sheet, dwellings are not more than three stories high and are supported by foundation footings placed in undisturbed soil. The features that affect the rating of a soil for dwellings are those that relate to capacity to support load and resist settlement under load, and those that relate to ease of excavation. Soil properties that affect capacity to support load are wetness, susceptibility to flooding, density, plasticity, texture, and shrink-swell potential. Those that affect excavation are wetness, slope, depth to bedrock, and content of stones and rocks. Unless otherwise stated, the soils are rated for dwellings without basements.

LIGHT INDUSTRIES

Ratings are for the undisturbed soils that are used to support building foundations. Emphasis is on foundations, ease of excavation for underground utilities, and corrosion potential of uncoated steel pipe. The undisturbed soil is rated for spread footing foundations for buildings less than three stories high or foundation loads not in excess of that weight. Properties affecting load-supporting capacity and settlement under load are wetness, flooding, texture, plasticity, density, and shrink-swell behavior. Properties affecting excavation are wetness, flooding, slope, and depth to bedrock.

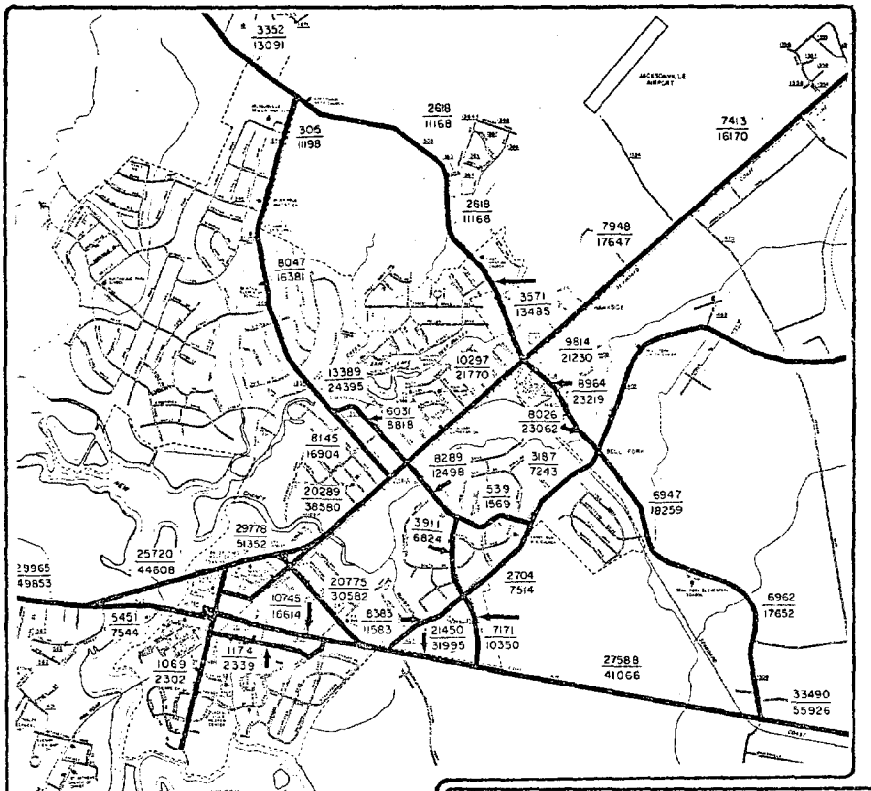


Exhibit 5.17m

Existing Major Streets With

1966 And 1990 Traffic Volumes

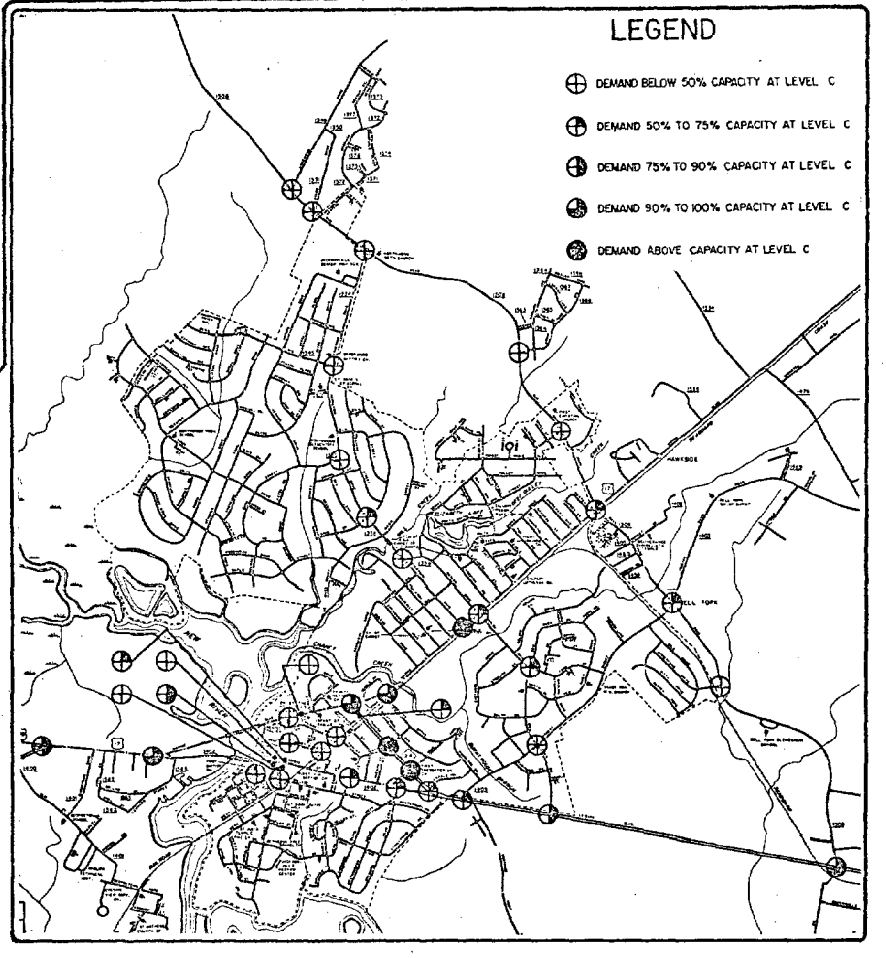


Exhibit 5.18m

Intersection Capacities

Chapter VI

ESTIMATED DEMAND

INTRODUCTION

The purpose of this chapter is to estimate the future growth potential for the Jacksonville area. The chapter sections will include:

.....Population Projections

.....Future Economy

.....Future Land Needs

.....Future Community Facilities Need

The cost implications of Jacksonville's potential growth should be fully understood by local officials and citizens, for any new growth will definitely require an expansion of community facilities and public services.

Some of the needed improvements will be fully, or partially, paid for by local developers or by State and/or Federal funds. Other costs, however, for continuing public services and certain capital construction needs, will be a local government responsibility. Taxes from new development will pay for some portion of the added costs, but no assurance can be given that this will be sufficient to cover all additional costs.

POPULATION PROJECTIONS

Over the years, estimates of the future population for Jacksonville, and larger areas, have been made by several agencies. Each of these will be reviewed in order to provide background for making future projections as part of this report.

DEPARTMENT OF ADMINISTRATION, 1975*18

In 1975, the North Carolina Department of Administration made population projections for Jacksonville and Onslow County, in order to comply with legislative directions of the Coastal Area Management Act (CAMA). The projections are shown by Exhibit 6.1t.

Exhibit 6.1t: 1975 D.O.A. Projections

Year	City of Jacksonville	Onslow County
1970	16,021	103,126
1980	22,077	124,312
1990	31,487	130,356
2000	51,417	146,127

1974 D.O.A. PROJECTIONS TO 1950*20

An August 6, 1974 projection from the North Carolina Department of Administration*20 (DOA) estimated the 1980 population of Onslow County as 124,312, which is an increase of 21,186 or 21 percent over the 1970 figure of 103,126. This projection for 1980 is identical to that of the 1975 DOA work.

1969 PROJECTIONS BY HIGHWAY COMMISSION*11

In 1969, the North Carolina Highway Commission prepared a Major Street Plan for the city of Jacksonville. As part of that report the estimates of Exhibit 6.2t were included. The estimates for 1970, as

Exhibit 6.2t: Population Projections

Area	1960	1966*	1970*	1980*	1990*
Onslow County	82,706	--	97,686	117,029	128,615
Jackson. Twp.	40,834	--	48,648	58,866	61,607
Jacks. City	13,491	15,717	17,611	21,309	22,302
Jacks. Plan. Area*	--	30,577	--	--	41,262

*As used in the Major Street Plan report

well as the forecasts for 1980 and 1990 generally were lower than the D.O.A. projections for Jacksonville and Onslow County.

1975 Projection of 201 Plan*13

In 1975, the firm of G. Reynolds Watkins Consulting Engineers prepared a "Water Quality Management Plan (201)" for Jacksonville. This plan included population projections as shown by Exhibit 6.3t , and all are much more conservative than the previously discussed projections.

The delineation of the "201" study area is shown by Exhibit 6.4m. The study area is much larger than the City of Jacksonville or the Jacksonville Planning Area, but it does not include all of Jacksonville Township, although the township boundaries are followed in places.

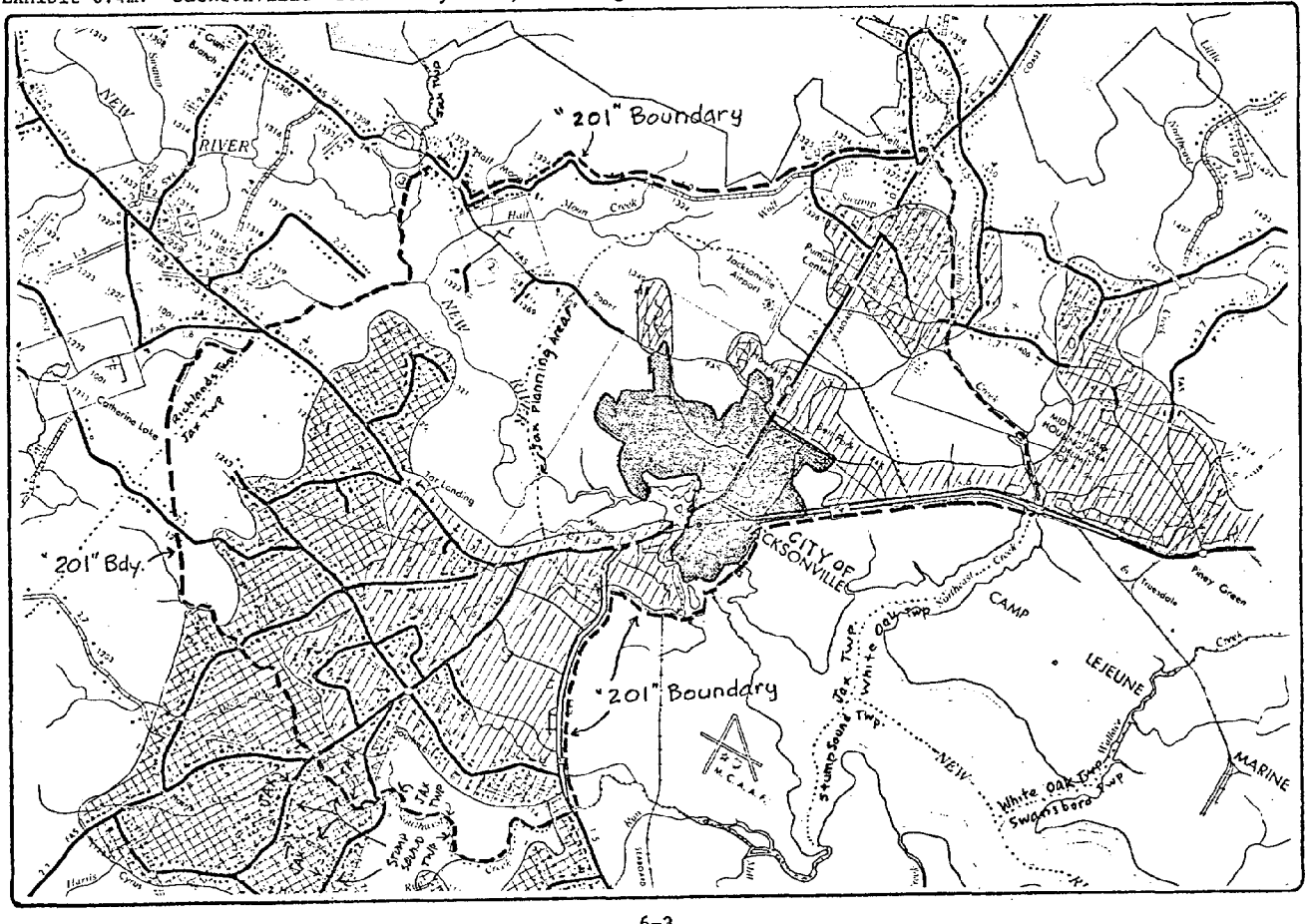
Exhibit 6.3t: 1975 Population Projections Contained in Jacksonville 201 Plan.

Area	1970	1975	1980	1985	1990	1995	1970-1995	
							Number	%
Onslow County*	103,126	104,813	106,500	110,000	113,500	116,650	13,524	13%
..Outside 201 area	71,005	72,127	72,425	74,535	76,646	78,406	7,401	10%
..Inside 201 area	32,121	32,686	34,075	34,465	36,854	38,244	6,123	19%
..Outside Jacksonville	16,100	16,406	17,536	18,382	19,228	20,128	4,028	25%
..Inside Jacksonville**	16,021	16,280	16,539	17,083	17,626	18,116	2,095	13%

*"Population by County, Historic (1940-1970) and Projected (1980-2020)," prepared by the U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia, July, 1972.

**"Water Quality Management Plan, Phase II, Region "P", prepared by the Neuse River Council of Government, Regional Planning Division, New Barn, North Carolina, June, 1974.

Exhibit 6.4m: Jacksonville "201" Study Area, Planning Area, and Township Boundary



WATER QUALITY MANAGEMENT PLAN PROJECTION 1974

The 1974 "Water Quality Management Plan, Phase II, Region P*14, prepared by the Neuse River Council of Government contained future population estimates for Jacksonville City and Township (see Exhibit 6.5t).

In the thirty year projection period, the "Water Quality Management Plan" estimates an increase of only 16 percent for the city as well as the township--an average of slightly over five percent per decade.

Exhibit 6.5t: Neuse River COG Population Projections

Year	City of Jacksonville	Township of Jacksonville
1970	16,021	55,737
1980	16,539	57,510
1990	17,626	61,290
2000	18,605	64,690
1970-2000	+2,584	+8,953
% change	+16%	+16%

DEPARTMENT OF NATURAL AND ECONOMIC RESOURCES (DNER) PROJECTIONS, 1975

In a 1975 draft of the "North Carolina Water Plan - Technical Report *23" for the Neuse-White Oak River Basin, the Department of Natural and Economic Resources (DNER) made population projections to the year 2020.

The projections were for the counties within each basin, and Onslow County was included within the White Oak Basin. The projections and the decade changes are shown by Exhibit 6.6t for the "medium range" values.

The average change in population by decade for each area was as follows:

..11% for the Neuse-White Oak total
..11% for the Neuse River Basin
.. 7% for the White Oak Basin
.. 6% for Onslow County

In addition to the "medium range" projections, the DNER report also included "low range" and high range" projections. All three levels for Onslow County are shown by Exhibit 6.7t.

Exhibit 6.7t: Onslow County 3-Level Projections*23

Year	Low Range Projection	Medium Range Projection	High Range Projection
1970	103,126	103,126	103,126
1980	100,000	116,100	125,600
1990	102,500	119,000	132,600
2000	103,000	122,500	138,900
2010	103,500	125,100	144,200
2020	105,000	138,000	157,100
1970-1980	-3,126;-3%	+12,974;13%	+22,474;23%
1980-1990	+2,500;+3%	2,900; 3%	7,000; 6%
1990-2000	+ 500;+1%	3,500; 3%	6,300; 5%
2000-2010	+ 500; 1%	2,600; 2%	5,300; 4%
2010-2020	+1,500; 2%	12,900;10%	12,900; 9%
Average by decade	+1%	+6%	+9%

The average population increase per decade for the three projection levels was as follows:

..1% for the low range projection
..6% for the medium range, and
..9% for the high range projection.

In all three levels, the lowest projections generally were for the years between 1980 and 2010, with the highest projections for 1970 to 1980 and 2010 to 2020. The low range was an exception, however, with the only projection population loss occurring between 1970-1980, as well as a low projection for 2010-2020.

Exhibit 6.6t: DNER Population Projections (medium range) to the Year 2020*23

Area	1970 (actual)	1980	1990	2000	2010	2020
Neuse-White Oak Total	1,129,243	1,236,500	1,353,700	1,504,400	1,669,000	1,870,200
..Neuse Basin	994,514	1,085,700	1,198,400	1,344,700	1,502,700	1,685,400
..White Oak Basin	134,729	150,800	155,300	159,700	166,300	184,800
..Onslow County	103,126	116,100	119,000	122,500	125,100	138,000

	1970-80 Change	1980-90 Change	1990-2000 Change	2000-2010 Change	2010-2020 Change
Neuse-White Oak Total	107,257-10%	117,200-10%	150,700-11%	164,600-11%	201,200-12%
..Neuse Basin	91,186- 9%	112,700-10%	146,300-12%	158,000-12%	182,700-12%
..White Oak Basin	16,071-12%	4,500- 3%	4,400- 3%	6,600- 4%	18,500-11%
..Onslow County	12,974-13%	2,900- 3%	3,500- 3%	2,600- 2%	12,900-10%

SUMMARY OF PROJECTIONS

Previous sections of this chapter have described the population projections made by various government agencies and others. They include seven different projections for Onslow County, two for Jacksonville Township, one for a "Jacksonville Highway Planning Study Area," one for the Jacksonville "201" study area, and four for the City of Jacksonville. These are summarized by Exhibit 6.8t for 1970 through the year 2000. Over the thirty year projection period, the figures:

..for Onslow County range from a .1% decrease to a 42% increase,
..for Jacksonville township show a 16% to an 18% increase, and
..for the City of Jacksonville, range from a 16% increase to a 221% increase.

SELECTED POPULATION PROJECTIONS

The selected population projections estimate that Onslow will increase by over 26,000 people (or 26%) from 1970 to the year 2000, with the majority of this growth occurring in Jacksonville Township (see Exhibit 6.9t).

For the 1975 population, the selected figures were those developed by the Onslow County Office of Manpower Planning (for the County), by the City and D.O.A. (for the City); while the Township was estimated to contain about 57 per cent of the County's total population.

For 1970-80, the 16 percent increase for Onslow is halfway between the D.N.E.R. midrange estimate, and the DOA estimate, while the Township is estimated to accommodate about 59 per cent of the County's population. For 1980-2000, the County is estimated to grow by 8 percent, which is slightly higher than the DNER midrange estimate; while the Township is estimated to contain 61 per cent of the County's population by the year 2000.

Future growth for the City of Jacksonville will depend primarily on its annexation policy, since there is little undeveloped land remaining within the City's boundaries. As shown by Exhibit 6.9t, the "low" estimate for the year 2000 is 25,000 people, an increase of 9,000 or 56 per cent over 1970. This projection is based on the assumptions that no annexation occurs and growth occurs on the remaining vacant land, or the City annexes land within its Planning Area containing 2,000 people plus the 3,000 in Brynn Marr as of 1975.

The "high" estimate is for 41,000 people by 2000, an increase of 25,000 or 156 per cent. This is based on annexing all of Brynn Marr (+10,000 people ultimately) and much of the other developed land in the Jacksonville Planning Area. By the year 2020, the projected population total would be 56,000.

Exhibit 6.9t: Selected Population Projections

Year	Onslow County	Jacksonville Township	Jacksonville City	
			Low	High
At Year No.				
..1970	103,126	55,737	16,000	16,000
..1975	112,000	63,737	20,000	20,000
..1980	119,840	70,737	25,000	29,000
..1990	124,640	74,737	25,000	37,000
..2000	129,630	78,737	25,000	41,000
No. Change				
..1970-75	(8,847)	(8,000)	(4,000)	(4,000)
..1975-80	(7,840)	(7,000)	(5,000)	(9,000)
..1970-80	16,714	15,000	9,000	13,000
..1980-90	4,800	4,000	0	8,000
..1990-2000	4,990	4,000	0	4,000
..1970-2000	(26,504)	(23,000)	(9,000)	(25,000)
% Change				
..1970-75	(9%)	(14%)	(25%)	(25%)
..1975-80	(7%)	(11%)	(25%)	(45%)
..1970-80	16%	27%	56%	81%
..1980-90	4%	6%	0	28%
..1990-2000	4%	5%	0	11%
..1970-2000	(26%)	(41%)	(56%)	(156%)

Exhibit 6.8t: Summary of Population Projections, 1970-2000

Area, and agency making projection	At-year population projections				Between-year change, number and %							
					1970-80		1980-90		1990-2000		1970-2000	
	1970	1980	1990	2000	No.	%	No.	%	No.	%	No.	%
Onslow Co. Projections												
..Dept. of Admin., 1975	103,126	124,312	130,356	146,127	21,186	21	6,044	5	15,771	12	43,001	42
..N.C. Hwy Comm., 1969	97,686	117,029	128,615	-	19,343	20	11,586	10	-	-	-	-
..Dept. of Admin., 1974	103,126	124,312	-	-	21,186	21	-	-	-	-	-	-
..201 Study (EDA), 1975	103,126	106,500	113,500	120,000	3,374	3	7,000	7	6,500	6	16,874	16
..DNER, low range, 1975	103,126	100,000	102,500	103,000	-3,126	-3	2,500	3	500	1	-126	-.1
..DNER, med. range, 1975	103,126	116,100	119,000	122,500	12,974	13	2,900	3	3,500	3	19,374	19
..DNER, high range, 1975	103,126	125,600	132,600	138,900	22,474	23	7,000	6	6,000	5	35,774	35
Jacksonville Twp.												
..N.C. Hwy Comm., 1969	48,648	58,866	61,607	-	10,218	21	2,741	5	-	-	-	-
..Neuse River COG, 1974	55,737	57,510	61,290	64,690	1,773	3	3,780	7	3,400	6	+8,953	16
..Hwy. Planning Area	32,000	-	41,262	-	-	-	-	-	-	-	-	-
201 Study Area	32,121	34,075	36,854	39,600	1,954	6	2,779	8	2,746	8	7,479	23
Jacksonville City												
..Dept. of Admin., 1975	16,021	22,077	31,487	51,417	6,056	38	9,410	43	19,930	63	35,396	221
..N.C. Hwy Comm., 1969	17,611	21,309	22,302	-	3,698	21	993	5	-	-	-	-
..201 Study, 1975	16,021	16,539	17,626	18,605	518	3	1,087	7	979	6	2,584	16
..Neuse River COG, 1974	16,021	16,539	17,626	18,605	518	3	1,087	7	979	6	2,584	16

FUTURE ECONOMY

INTRODUCTION

In researching the available literature, no employment projections could be found for the City of Jacksonville or Onslow County. Projections were available, however, for a much larger multi-county "State planning region" designated as region "P"*1, and these figures were used as a means to develop projections for Onslow County. The methodology included:

..Using 1970 actual employment figures to determine the percentage of region "P" employment accounted for by Onslow County.

..Projecting future Onslow employment by assuming it would continue to share the same percentage of the region's employment as for 1970 (except that "total employment, non-ag employment, and non- manufacturing" were obtained by adding the employment figures of their respective sub-categories).

PROJECTED EMPLOYMENT

Between 1970 and the year 2000, it was projected that Onslow County's employment would grow from 17,259 to 23,587, an increase of 6,328 or 37 per cent, as shown by Exhibits 6.10t and 6.11t.

Agricultural vs. Non-Agricultural

In the first breakdown of total employment, it was projected that agricultural jobs in Onslow County would decrease by 389 or 44 per cent, while non-agricultural employment would increase by 6,717 or 41 per cent (see Exh. 6.10t and 6.11t).

Manufacturing vs. Non-Manufacturing

When non-agricultural employment was subdivided, there was a larger absolute growth in non-manufacturing jobs (5,775), but a larger relative growth in manufacturing (54 per cent).

Manufacturing was projected to grow from 1,738 jobs to 2,680, an increase of 942 or 54 per cent. Non-manufacturing was projected to grow from 14,632 to 20,407, an increase of 5,775 or 40 per cent.

Non-Manufacturing Breakdown

When manufacturing jobs were subdivided and ranked according to absolute increases, the following order resulted:

..Service jobs would increase by 2,074, or 55 per cent.

..Trade (retail and wholesale) would increase by 1,765, or 38 per cent.

..Finance, insurance, and real estate (F.I.R.E.) would increase by 479, or 61 per cent.

..Construction would increase by 442, or 37 per cent; government jobs by 380 or 16 per cent; T.C.U.*2 by 334 or 29 per cent; and "other" jobs by 301 or 39 per cent.

Exhibit 6.10t: Employment Projections for N. C. Region "P"*1 and Onslow County, 1970-2000

Employment Category	1970 Actual Employ.			1980 Projection		1990 Projection		2000 Projection		1970-2000 Change	
	N.C. Region "P"	Onslow Co.	Co. % Of "P"	N.C. Region "P"	Onslow Co. est.	N.C. Region "P"	Onslow Co. est.	N.C. Region "P"	Onslow Co. est.	N.C. Region "P"	Onslow Co. est.
Total Employment	163,280	17,259	(10.6)	175,200	19,279	184,300	20,693	202,000	23,587	38,720	6,328
Agricultural	14,620	889	6.1	12,100	738	9,400	573	8,200	500	-6,420	-389
Non-Agricultural	148,660	16,370	(11.0)	163,100	18,541	174,900	20,120	193,800	23,087	45,140	6,717
..Manufacturing	20,670	1,738	8.4	24,900	2,092	27,800	2,335	31,900	2,680	11,230	942
..Non-Mfg.	127,990	14,632	(11.4)	138,200	16,449	147,100	17,785	161,900	20,407	33,910	5,775
....Construction	5,990	1,190	19.9	6,600	1,313	7,200	1,433	8,200	1,632	2,210	442
....T.C.U.*2	4,050	1,169	28.9	4,200	1,214	4,600	1,329	5,200	1,503	1,150	334
....Trade	18,130	4,610	25.4	21,100	5,359	22,200	5,639	25,100	6,375	6,970	1,765
....F.I.R.E.*3	2,910	781	26.8	3,700	992	4,100	1,099	4,700	1,260	1,790	479
....Services	8,770	3,774	43.0	9,900	4,257	11,100	4,773	13,600	5,848	4,830	2,074
....Other	16,510	775	4.7	18,200	855	20,100	945	22,900	1,076	6,390	301
....Government	71,630	2,333	3.3	74,500	2,459	77,800	2,567	82,200	2,713	10,570	380

*1From "N.C. Water Plan - Technical Report, Neuse-White Oak River Basin, Volume I (Draft)", by the N.C. Dept. of Natural and Economic Resources, Water Resources Planning Section, March, 1975, p 2-15.

*2Transportation, communication, and utilities.

*3Finance, insurance, and real estate.

IMPACT ON FUTURE LAND USE

If the projected trends are realized in the future, the resulting impact on land use probably would include some of the following characteristics:

..Increasing "total employment" would probably reflect additional population and urbanization in Onslow County, as well as more commuter employment from adjacent counties.

..Decreasing agricultural employment would probably reflect the preemption of agricultural lands by urbanization, increasing farm mechanization, and voluntary departure from farm job for better paying urban jobs.

..Increases in manufacturing and non-manufacturing jobs emphasize the increasing demand for shifting land from open or agricultural activities to urbanized uses.

..The growth in services, wholesale and retail trade, and other non-manufacturing uses would illustrate demand for additional strip commercial zoning along arterial streets, more planned shopping centers, and possible redevelopment of some portions of the Downtown area.

JACKSONVILLE IMPLICATIONS

It is probable that the majority of Onslow County's employment growth will occur in and around the City of Jacksonville. The extent to which it occurs within the City will depend primarily on the City's annexation policies.

Exhibit 6.11t: 1970-2000 Employment Changes for Onslow County and N.C. Region "P"

Employment Category	1970-2000 Change In Number		1970-2000 Change In Percentage		County As Per Cent Of Region "P"	
	N.C. Region "P"	Onslow County	N.C. Region "P"	Onslow County	1970	2000
Total Employment	38,720	6,328	24%	37%	10.6%	11.7%
Agricultural	-6,420	-389	-44%	-44%	6.1%	6.1%
Non-Agricultural	45,140	6,717	30%	41%	11.0%	11.9%
..Manufacturing	11,230	942	54%	54%	8.4%	8.4%
..Non-Manufacturing	33,910	5,775	27%	40%	11.4%	12.6%
....Construction	2,210	442	37%	37%	19.9%	19.9%
....Transport, commun. utilities	1,150	334	28%	29%	28.9%	28.9%
....Trade	6,970	1,765	38%	38%	25.4%	25.4%
....Finance, insur., real estate	1,790	479	62%	61%	26.8%	26.8%
....Services	4,830	2,074	55%	55%	43.0%	43.0%
....Other	6,390	301	39%	39%	4.7%	4.7%
....Government	10,570	380	15%	16%	3.7%	3.7%

FUTURE LAND NEEDS

INTRODUCTION

The purpose of this section is (1) to allocate the projected ten year population growth to moderate to high density areas (transition lands), or to low density areas (community lands); and (2) to allocate the land area needed to accommodate the projected growth.

EXISTING LAND USE RATIOS

In 1975, the City of Jacksonville's 4.8 square miles (3,056 acres) of urban development accommodated the needs of an estimated 20,000 people. In other words, it required one square mile of development to provide for the urban needs of each 4,167 people---or one acre for 6.5 persons.

This urban land use/people ratio is compared with other U.S. areas in Exhibit 6.12t. In the comparison, Jacksonville ranks about in the middle, with an average of 154 acres of urban land needed to meet the needs of each 1,000 people.

Exhibit 6.12t: Comparing Urban Land Ratios

Area	People/ Urban acre	People/ Sq. mile	Urban acres 1,000 people
Owensboro, Ky.	6.3	4,032	159
Pinellas Co., Florida	6.5	4,180	154
Jacksonville, N.C.	6.5	4,167	154
Lexington, Ky.	7.1	4,583	140
Nicholasville, Ky.	8.0	5,166	125

Subdividing the total urban area in categories can provide further insight into the character of Jacksonville. Exhibit 6.13t not only provides such a breakdown for Jacksonville, but also compares thos figures with similar categories for other U.S. areas.

In comparing the categories for various cities, the following observations are made:

...For residential land use, Jacksonville's relatively high 59 per cent possibly reflects a predominance of single family homes on relatively large lots, with relatively few apartment areas---as well as a less extensive land use for insustrial and semi-public uses.

...For commercial land use, Jacksonville's relatively high 9 per cent possibly reflects its commercial servicing of many of the Marine Base personnel needs more than anything else.

...For industrial land use, Jacksonville's relatively low 1 per cent simply reflects the fact of its low level industrialization, and its economic dependence upon other economic areas.

...For public/semi-public land use, the City's relatively low ranking especially reflects the lack of public parks---which, incidentially, is the case with Nicholasville, Kentucky.

...For transportation, Jacksonville is fairly similar to the other U.S. areas.

Exhibit 6.13t: Comparing Jacksonville Urban Land Use Categories With Other U.S. Areas

Land use categories	(174,000*) Lexington, Kentucky 1970	(20,000) Jacksonville, N.C. 1975	(522,000) Pinellas Co., Florida 1970	(9,000) Nicholasville, Kentucky 1975	(varies) Rand data on 48 cities	(50,000) Owensboro, Kentucky 1970
Urban Land Total	100%	100%	100%	100%	100%	100%
...Residential	59	59	47	40	39	38
...Commercial	4	9	6	5	5	7
...Industrial	4	1	3	22	11	11
...Public/Semi	13	8	13	8	20	15
...Transportation	20	23	32	25	26	29

*Population

ESTIMATED POPULATION GROWTH

As discussed earlier in this chapter, future growth for the City of Jacksonville will greatly depend upon whether or not the City annexes adjacent undeveloped, as well as developed, land. If no further annexation should occur, it is doubtful that the City could grow beyond 25,000 people, as shown by the "low" estimate in Exhibit 6.14t. With annexation,

Exhibit 6.14t: Jacksonville Population Projection

Year	City of Jacksonville est.	
	Low est.	High est.
At-year number		
...1970	16,000	16,000
...1975	20,000	20,000
...1980	25,000	29,000
...1985	25,000	33,000
...1990	25,000	37,000
...2000	25,000	41,000
Number change		
...1970-75	4,000	4,000
...1975-80	5,000	9,000
...1980-85	0	4,000
...1980-90	0	8,000
...1990-2000	0	4,000
...1970-2000	9,000	25,000
Per Cent change		
...1970-75	25%	25%
...1975-80	25%	45%
...1980-85	0	14%
...1980-90	0	28%
...1990-2000	0	11%
...1970-2000	56%	156%

it is estimated that the city could grow to 41,000 people by the year 2000.

ALLOCATING TEN YEAR GROWTH BY DENSITY

As shown by Exhibit 6.14t, Jacksonville's ten year growth (from 1975 to 1985) could vary from 5,000 to 13,000 people. For this growth, the Coastal Resources Commission (CRC) guidelines require that an estimate be made as to what form the new development will take in terms of density.

Two classes of density are established by the guidelines for new development:

..Transition - for moderate to high density development, with at least 2,000 people per square mile.

..Community - for low density development, with 640 persons per square mile, or one person per acre.

Jacksonville's future growth will be allocated to the transition class, with its higher density. This choice is more compatible with the density of Jacksonville's past growth, as well as being more illustrative of carrying out the community's objectives of having efficient and well planned growth.

ALLOCATING LAND AREA NEEDED

The land area needed to accomodate Jacksonville's ten year growth of 5,000 to 13,000 people could vary from 1.25 square miles to 6.5 square miles, as shown by Exhibit 6.15t. The variation is caused by the

Exhibit 6.15t: Land Area Needs for New Growth

Density, or number of people per square mile	Land needed for 5,000 people	Land needed for 13,000 people
2,000 per sq. mile	2.5 sq. mi.	6.5 sq. mi.
3,000 per sq. mile	1.67 sq. mi.	4.33 sq. mi.
4,000 per sq. mile	1.25 sq. mi.	3.25 sq. mi.

two population figures and three ranges of density. Regardless of the population figure, the least amount of new land would be required of course, by the highest density figure of 4,000 people per square mile, which is similar to the City's present gross density.

The 2,000 people per square mile density was used in the exhibit to illustrate the needs if development followed the lowest density mentioned in the CRC guidelines.

The 3,000 persons per square mile was used in the exhibit to establish a mid-range between the other two density figures. For instance, if development were generally to follow past trends, with the exception of allocating a higher land percentage to parks and industry (two areas for which Jacksonville has allocated an extremely low percentage of its total land), the mid-range estimate would be more appropriate than the high estimate.

A rule of thumb ratio for the amount of park land needed in a city is ten acres for each 1,000 people. At this rate, Jacksonville should have 200 acres to serve its present 20,000 people instead of the 23 acres measured in the land use survey. And, if this deficit of 177 acres were made up in the near future, it would contribute to the validity of using the mid-range population density.

The 23 acres of existing parks represents less than one per cent of Jacksonville's total land area. If this same percentage were continued as the city adds another 4.33 square miles (the mid-range figure for 13,000 people), there would be only 27 acres of new park land acquired...or about 2 acres per 1,000 people instead of the 130 acres needed if the standard of 10 acres per 1,000 people were followed.

Thus, over 300 acres of park land would be needed if the City were to make up its past deficit, and

also properly meet the needs of an additional 13,000 people in the future. This 300 acres is not reflected in the present gross density of about 4,000 people per square mile of urban development.

Considering all these factors, it is suggested that the mid-range population density of 3,000 persons per square mile be used. This means that 4.33 square miles of land will be allocated to serve the new urban needs of 13,000 more people between 1975 and the year 2,000.

COMMUNITY FACILITIES

INTRODUCTION

As the new residential, commercial, and industrial areas are constructed by private enterprise to meet the needs of an additional 13,000 people, they will also generate the need for various community facilities which are primarily provided by local government. Some of these facilities would include:

..Public activity areas, such as
...schools
...parks
...fire stations

..Energy supply, such as
...water
...electricity

..Waste disposal, for
...storm water
...sewage
...solid waste

..Transportation system, including
...walkways
...bikeways
...highways and streets

To the extent that the City's growth comes from annexation of developed land, some of the above facilities may already be installed. In other cases, and especially for newly developed land, the City and others would be responsible for acquisition and construction, or meeting the needs from unused capacity of existing facilities.

SCHOOLS, PARKS, AND FIRE STATIONS

The Onslow County Board of Education would be responsible for meeting the public school needs of any population growth. However, there is a distinct possibility that total population growth will not necessarily mean a proportionate increase in school enrollment.

For instance, between 1970 and 1975 the county school enrollment changed very little although there was an estimated 12,000 (or 12 per cent) increase in the total county population. The School Board's enrollment projections to 1980 reflect no appreciable increase in total, although some minor shifts occur by grade level.

If events should turn out differently and a sizeable student increase did occur, the School Board would have to add to existing schools, or consider new construction, since they report all presently available space is being utilized.

The park needs of an added population would have to be met by the City and its Parks Department. To accommodate annother 13,000 people by 1985, the City's park land should be increased by 130 acres. And, to make up a deficit in existing park land would require another 177 acres, or an overall total of 307 acres.

The majority of the park needs should be met by two types of parks:

...Neighborhood Walk-To Parks - which are within walking distance (5 to 10 minutes) of all citizens, and at least 10 to 15 acres in size. For 13,000 new people this could mean anywhere from 3 to 6 new neighborhood parks.

...City-wide Drive-To Parks - which would be within a 5 to 15 minute driving distance of all citizens, although some residents would be able to walk to them. These parks would have no size limit, although their minimum size should be at least 50 to 100 acres.

If the Marine Corps should ever consider its Montford Point area to be surplus to their needs, it would be an excellent location for a City-wide park. City officials may want to consider discussing such possibilities with the Marine Base authorities. This would place the City's desire officially on record in case future events should declare the land as being surplus.

The fire protection needs of a growing population would be the responsibility of the City. The two City stations presently provide a good service area coverage, and a third station is being planned for on the east side of town. Any new growth should be amply covered by these three stations, although review of adequacy should be performed periodically with state authorities.

WATER SUPPLY

As mentioned earlier, the City's water supply system is undergoing expansion from 2.15 million gallons per day (mgd) to 4.11 mgd, with later planned expansion to 4.55 mgd.

This expansion should accommodate future growth needs, but if unforeseen events should occur, the new well field probably will be able to accept new wells which could meet the demand.

SEWAGE DISPOSAL

The City's two sewage treatment plants have a combined capacity of 3.08 mgd. Only 67 per cent of this capacity (or 2.05 mgd) was being used in 1973 to serve approximately 17,000 people. The capacity of the two plants should not be reached until the population served is approximately 25,000 people.

In addition, the Jacksonville "201 Study" also recommended that the lagoon facility be abandoned and that the trickling filter facility be upgraded to a design capacity of 4.0 mgd, which could serve approximately 30,000 people. The upgrading is recommended for completion prior to 1980.

If annexation or unforeseen population growth should occur, further expansion of the sewage plant facility should be studied.

STREETS AND HIGHWAYS

The State of North Carolina is primarily responsible for the primary or major roads in the Jacksonville area. In the earlier discussion of the "1969 Thoroughfare Plan" prepared by the State, it was noted that some major street intersections were already serving beyond their capacity or were very hazardous. The study also pointed out that future population growth would make the situation even more intolerable unless certain major street improvements were carried out.

The remainder of this section quotes directly from the thoroughfare proposals made by the 1969 Study.

Proposed Thoroughfare Plan

The major problems that need to be solved in developing an adequate thoroughfare system for handling existing and anticipated volumes of traffic in the Jacksonville urban area are:

1. To locate alternate thoroughfares to handle existing and anticipated traffic movements presently using US 17 and NC 24.

2. To provide alternate exit and entrance routes for the Northwoods residential area.

3. To determine cross sections required on existing thoroughfares to carry 1990 volumes of traffic.

4. To locate a loop around the Jacksonville urban area to provide for travel movements between outlying residential developments.

The recommended thoroughfare plan with estimated 1990 traffic volumes is shown by Exhibit 6.16m. A listing and discussion of the functional elements of the plan follows:

Major Thoroughfare System

Radial and Crosstown System: The radial thoroughfares provide for the movement of traffic from points in outlying areas to the central business area, and crosstown thoroughfares provide for the movement of crosstown traffic in the central area. In Jacksonville these thoroughfares are synonymous in the central area and are as follows:

1. NC 24 (Lejeune Boulevard) - NC 24 is one of the most important radials in Jacksonville. This facility carries large volumes of traffic serving the abutting commercial land use as well as being the only access route to Jacksonville from Camp Lejeune. This five-lane divided facility is presently operating above capacity at level of service C and volumes continue to increase year after year. Two alternates were analyzed for the purpose of providing enough capacity to handle future traffic in this corridor. One was to provide additional lanes, control the access to reduce the side frictions resulting from the strip commercial development, and develop interchanges at major intersections to handle turning movements. The second alternate was to provide a controlled access facility parallel to NC 24 to provide for through trip movements with NC 24 continuing to serve the strip commercial development. On the basis of alternate traffic assignments of projected travel patterns and cost estimates of the alternate improvements, the second alternate is recommended.

2. US 17 (Marine Boulevard) - US 17 presently functions as an important radial serving large

Exhibit 6.16m: Jacksonville Thoroughfare Plan with 1990 Traffic Volumes

volumes in excess of 30,000 vehicles a day were recorded on US 17 at Old Bridge Street. In the central area it also functions as an important crosstown thoroughfare.

3. New Bridge Street-Old Bridge Street - This facility is presently functioning as a crosstown facility serving Jacksonville's original Central Business District. New Bridge Street from Court Street west is proposed to be widened to 44' and extended across New River to connect with Old Bridge Street. This proposal is expected to increase the capacity of this crosstown facility to adequately handle 1990 traffic.

4. Johnson Boulevard Extension - This proposed facility will function as a radial serving the Northwoods residential area. Presently Henderson Drive serves as the only entrance-exit route to the Jacksonville central area from this large residential development. Anticipated volumes on Henderson Drive without the Johnson Boulevard extension dictated the necessity of providing an alternate access to the area. Several alternatives were investigated for the location of this proposed facility, however, the recommended location was selected since it would (1) be less disruptive to the neighborhood, (2) provide several alternative routes from the neighborhood to the facility, and (3) could be extended west as new development occurs.

5. Country Club Road-Hargett Street - This radial serves the northeast area of Jacksonville. Hargett Street also functions as a crosstown facility serving traffic from NC 24 to Bell Fork Road with origins and destinations in the New River Shopping Center area.

6. Gum Branch Road-Henderson Drive-Onslow Drive - This facility serves a very important function in the thoroughfare network. Gum Branch Road is the only radial serving the area northwest of Jacksonville. Gum Branch Road connects Richlands with north Jacksonville and is expected to increase in importance as development in this area occurs.

Facilities not included in the above discussion, but which will function as radials are: (1) SR 1406, (2) Montford Point Road, (3) US 258 NC 24, (4) Chaney Avenue, and (5) Court Street.

Loop System: The development of a loop system for Jacksonville is proposed to provide for more direct movements between outlying areas, to relieve the central area radials of considerable traffic by providing more direct movements, and to generally provide a better distribution of traffic. Two existing loops are currently in existence - they are Henderson Drive-Onslow Drive-River Drive and Gum Branch Road-Bell Fork Road.

An additional more extensive loop is proposed that would consist of Western Boulevard and the extension of Western Boulevard west and south to US 17. This loop would provide additional access into the Northwoods area from the area west of the New River.

Note: The C.A.M.A. Land Use Plan Advisory Committees noted that the portion of Western Boulevard in the Northwoods area had been developed with driveway access to individual homes, thereby destroying its major thoroughfare potential. To counteract this deficiency, the committees proposed an alternate routing northwest of this area in order that Western could be extended without driveway intersections (see Exhibit 6.16m).

Bypass System:

1. Southern Expressway - This proposed expressway is an important element in the Jacksonville thoroughfare system. It is designed to relieve NC 24 and Johnson Boulevard of through traffic movements, allowing NC 24 to serve the existing strip commercial, development presently bordering this facility. The traffic analysis indicated that with the inclusion of the Southern Expressway, future traffic volumes along NC 24 could be held to acceptable levels.

   Note: The C.A.M.A. Land Use Plan Advisory Committees observed that the Southern Expressway routing might incur considerable opposition due to its proximity to Downtown development. As an alternate, they suggested moving the Expressway further south, where it would cross New River at its narrowest width, proceed across Montford Point, and then proceed to tie in with the original Expressway proposal (see Exhibit 6.16m). Since the alternate route would involve more Marine Base property, further discussion should be held with Marine authorities...especially in regard to the future possibility of the Montford Point area being considered as surplus.

2. Eastern Freeway - US 17 is a major coastal route in eastern North Carolina carrying large volumes of through traffic. The purpose of the proposed Eastern Freeway is to provide an alternate route for this through traffic to permit existing US 17 to better serve Jacksonville's internal traffic movement needs. Without the Eastern Freeway future volumes of traffic onexisting US 17 would increase to a level where intolerable congestion and delay would be experience. An alternate route for a US 17 bypass around the west and northern side of the urban area was investigated but was not found to provide as good a service for internal movements. Access points along the proposed freeway to major radials would allow for more direct traffic movements and better distribution of Jacksonville's internal traffic.

Minor Thoroughfares

The purpose of minor thoroughfares is to collect the traffic from the surrounding area and carry it to the major thoroughfare system. The following streets will function as minor thoroughfares in the Jacksonville thoroughfare system.

1. Decator Road and River Street - These two minor thoroughfares will provide access routes from the Northwoods area and the proposed Johnson Boulevard extension.

2. Doris Road - It is proposed that Doris Road be extended to Gum Branch Road to provide more direct access to northeast Jacksonville from the Northwoods area.

3. Pine Valley Road

Chapter VII

LAND CLASSIFICATION

INTRODUCTION

The purpose of this chapter is to prepare a map for five classifications of land use:

..Class #1: Developed - For land that is already urbanized.

..Class #2: Transition - For presently undeveloped land that is expected to be urbanized in the next ten years, 1975 to 1985, with a density of at least 2,000 persons per square mile.

..Class #3: Community - For urban type, but isolated, uses in a rural environment, whether existing or proposed, at density of 1 person per acre, or 640 persons per square mile.

..Class #4: Rural - Land for long term management for productive resource utilization, and which may be urbanized beyond the ten year forecast period

..Class #5: Conservation - Land which should remain essentially in its natural state, including river and flood plain areas.

This classification is intended to assist in providing cooperation and coordination between the three levels (federal, state, and local) of government by:

..1. Encouraging consistency and coordination between local land use policies and those of the State of North Carolina.

..2. Providing a guide for public investment in land, by assisting local and State government to know in advance the need for parks, schools, highways, etc.

..3. Serving as a framework for budgeting and planning for the construction of community facilities.

..4. Aiding in better coordination of regulatory policies and decisions.

..5. Helping to provide guidance for a more equitable distribution of the land tax burden.

The land classification map is intended to be updated at least every five years. The classification for Jacksonville is described on the following pages.

JACKSONVILLE CLASSIFICATION

The classification scheme for the City of Jacksonville is shown by Exhibit 7.1m, and is further described in the remainder of this chapter.

DEVELOPED CLASS

Land classified as developed must have an existing population density of at least 2,000 persons per square mile, and be adequately served with water supply, sewage disposal, schools, and primary roads.

All of the urban developed area within Jacksonville falls into this category.

TRANSITION CLASS

The transition class identifies land where moderate to high density growth is to be encouraged, and where any such growth that is permitted by local regulation will be provided with the necessary public services.

The area to be designated as transition must be no greater than that required to accommodate the estimated population growth at a minimum gross density of 2,000 persons per square mile. Lands to be classified as transition should be considered in the following order:

..First priority is for lands which presently have a gross density of 2,000 people per square mile, but which lack the necessary public services to qualify as "developed." Such areas may not be expected to accommodate additional population, but they will require public funds in the future for adding the needed services.

..Second priority is for lands which have all the necessary public services, but which lack the population density of 2,000 persons per square mile.

..Third priority is for additional land necessary to accommodate the remainder of the estimated transition area growth for the ten year planning period.

For Jacksonville, it was estimated that up to 4.33 square miles of new urbanized land could be required to accommodate the needs of another 13,000 people by 1985. This amount of land is shown on Exhibit 7.1m as being located within the Jacksonville planning area, and all of it falls into the third priority.

If land, such as Bryn Marr, should be annexed, it could reduce the estimated transition land need, since the majority of Bryn Marr is located outside of the Jacksonville planning area.

COMMUNITY CLASS

The community class identifies existing and new clusters of low density development not requiring major public services. It includes:

..Existing clusters of one or more land uses such as a rural residential subdivision or a church, school, general store, industry, etc.

..New rural growth when the lot size is ten acres or less. Such new growth should not occur on land with severe physical limitations for development, on "conservation" lands, or on fragile or other similar sensitive lands unless no other reasonable alternative exists.

For Jacksonville, it was considered that no community class land existed at present, and that none would be allocated for such development in the future.

RURAL CLASS

The rural class identifies lands for long term management for productive resource utilization, and where limited public services will be provided. Development in such areas should be compatible with resource production, and would include any land not assigned to one of the other four classifications. This category also would include land for future needs which are not currently recognized.

For Jacksonville, as shown by Exhibit 7.1m, two large areas to the north and northwest were grouped into this classification. The CAMA Land Use Plan Advisory Committees feel that these are the areas where Jacksonville's growth will, and should, occur after 1985 or beyond the 13,000 population addition.

CONSERVATION CLASS

The conservation class identifies lands which should be maintained essentially in its natural state and where very limited or no public services are provided. They are the least desirable for development because they are too fragile, have severe or hazardous limitations, or are natural resources too valuable to endanger. They include:

..Fragile lands - such as wetlands, surface waters, wildlife habitats, historical and archeological areas, and steep slope areas.

..Hazard lands - such as floodways, erosive areas, etc.

..Other areas - such as public owned forests or parks, private sanctuaries, water supply watersheads, etc.

For Jacksonville, the only land designated as "conservation" was that which was located within the flood plains, as illustrated by Exhibit 7.1m.

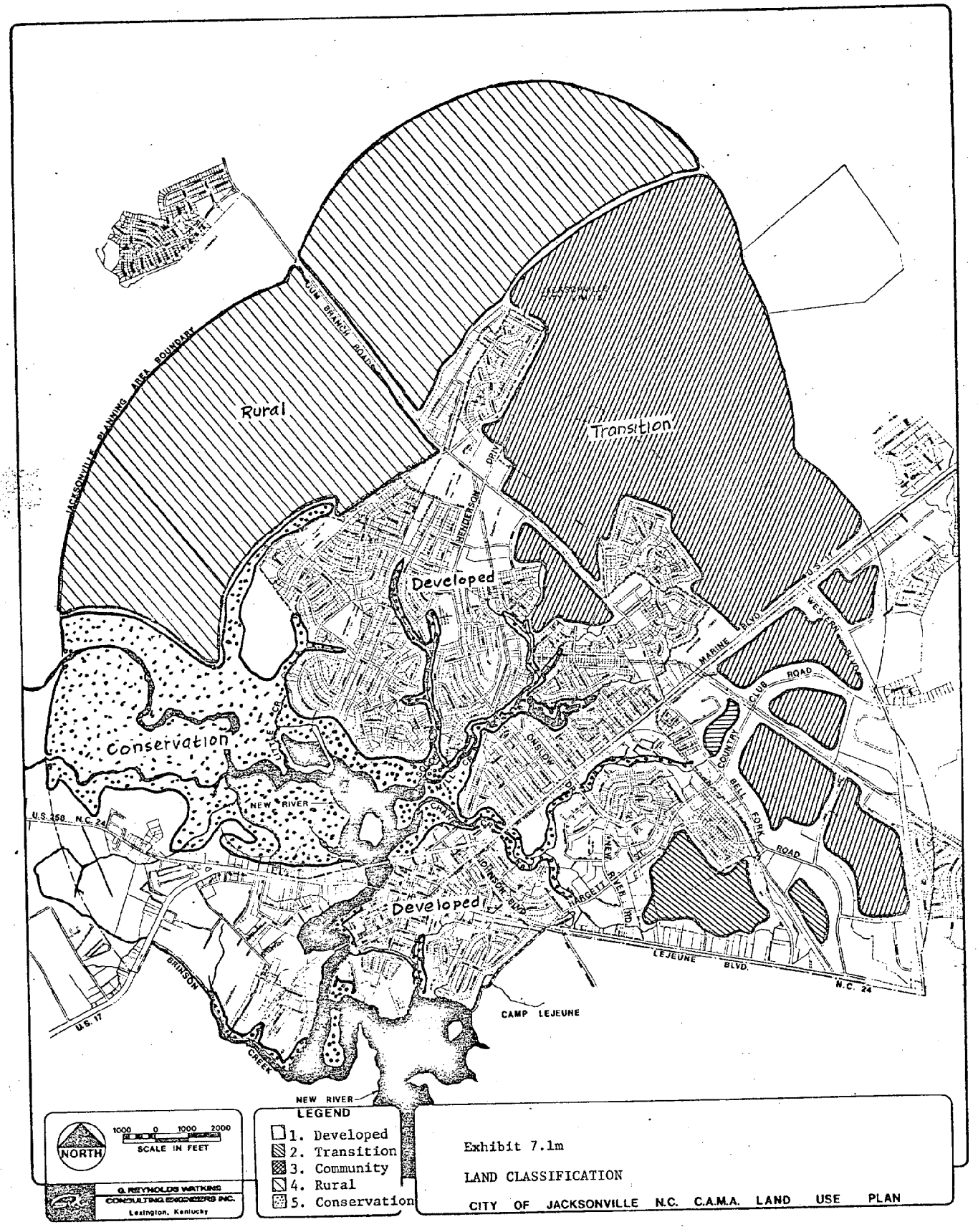


Exhibit 7.1m

LAND CLASSIFICATION

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

Properties affecting corrosion of buried uncoated steel pipe are wetness, texture, total acidity, and electrical resistivity.

PLAYGROUNDS

Ratings apply to areas to be used for playgrounds, athletic fields, and organized games such as badminton and volleyball. All areas are subject to heavy foot traffic. The assumption is made that good vegetative cover can be established and maintained. The best soils for playgrounds have a nearly level surface free of coarse fragments and rock outcrops, good drainage, freedom from flooding, and a surface texture that is firm even after rains and is not dusty when dry.

LOCAL ROADS AND STREETS

Local roads and streets, as rated in the interpretation sheet, have an all-weather surface expected to carry automobile traffic all year. They have a subgrade of underlying soil material; a base consisting of gravel, crushed rock, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. These roads are graded to shed water and have ordinary provisions for drainage. They are built mainly from soil at hand, and most cuts and fills are less than six feet deep.

Soil properties that most affect design and construction of roads and streets are load supporting capacity and stability of the subgrade, and the workability and quantity of cut and fill material available. The AASHO and Unified classifications of the soil material, and also the shrink-swell potential, indicate load supporting capacity. Wetness and flooding affect ease of excavation and amount of cut and fill needed to reach an even grade.

SEPTIC TANK FILTER FIELDS

Septic tank filter fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material from a depth of 18 inches 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 or rock, and susceptibility to flooding. Slope is a soil property that affects difficulty of layout and construction and also the risk of soil erosion, lateral seepage, and downslope flow of effluent. Large rocks or boulders increase construction costs.

Appendix "E": Summary of

DATA COLLECTION & ANALYSIS

INTRODUCTION

This appendix is intended to indicate the manner in which the data was assembled and analyzed, along with a statement of the major conclusions.

PRESENT CONDITIONS

The analysis of present conditions included the population, economy, existing land use, and current plans, policies and regulations.

Population

Population data was assembled from the U.S. Census reports, Camp Lejeune personnel, North Carolina state agencies, and reports by Onslow County and Jacksonville agencies. These are noted in Appendix "A" as items 2, 3, 5, 6, 7, and 19.

The method of analysis is shown by Pages 4-2 through 4-10. The major conclusions also are included within those pages.

Economy

Economic data was assembled from the U.S. Census, the County's Manpower Planning Office, and North Carolina Department of Natural and Economic Resources. These are noted in Appendix "A" as items 3, 5, and 23.

The method of analysis and major conclusions are given on Page 4-11 of this report.

Existing Land Use

Existing land use data was assembled by a field survey, which was then measured and tabulated as described by Appendix "B".

The method of analysis is shown by Appendix "B" and Pages 4-12 through 4-20. The major conclusions also are shown on Pages 4-12 through 4-20.

Current Plans, Policies, Regulations

The data on plans, policies, and regulations was assembled by interviewing and collecting reports from various City, County, and State agencies. The resulting reports are listed in Appendix "A". The analysis and major conclusions are described on Pages 4-21 through 4-25.

CONSTRAINTS

The analysis of constraints dealt with land potential and capacity of community facilities.

Land Potential

Land potential characteristics which were studied included those with physical limitations, such as hazard areas, soil limitations, water supply sources, and steep slopes.

Natural and man-made hazards were determined by viewing area maps and by discussion with local committee members. These are described on Page 5-2, and pertinent reports are listed as items 4 and 22 in Appendix "A".

Areas with soil limitations were derived from basic work by the Soil Conservation Service. The data and method of analysis are described in Appendix "D", and major conclusions are discussed on Pages 5-4 through 5-8. Also see item 22 in Appendix "A".

Water supply source data was derived from the Water System Improvement Plan prepared by G. Reynolds Watkins Consulting Engineers, shown as item 17 in Appendix "A". Major conclusions are described on Pages 5-9 through 5-13.

Steep slope data was derived from U.S.G.S. maps and Onslow County reports (see item 5 in Appendix "A").

Fragile Areas

Data on fragile areas was solicited from the North Carolina Division of State Parks, as noted on Page 5-15.

Resource Potential Areas

Data on historic and archeological sites was requested from the North Carolina Department of Archives and History and the University of North Carolina at Wilmington, as shown by Pages 5-15 and 5-16.

Capacity of Community Facilities

Data on water and sewers was assembled from the 201 Study and the Water System Improvement Study (items 13 and 17 in Appendix "A"); school data was

secured from the Onslow County Board of Education; and primary road data was obtained from the North Carolina Highway Commission (see items 11 and 12 in Appendix "A").

Major conclusions in regard to these community facilities are described on Pages 5-16 through 5-21.

ESTIMATED DEMAND

Estimated future demands were made for population, economy, land needs, and community facilities.

Population Projections

Data on population projections were assembled from federal reports (EPA), North Carolina state agencies, the 201 Study, local reports, and recommendations from the local committees. These are listed in Appendix "A" as items 6, 7, 11, 13, 14, 17, 18, 20, and 23.

Major conclusions are described on Pages 6-2 through 6-5.

Economic Projections

Economic projections were derived from a technical report prepared by the North Carolina Department of Natural and Economic Resources (see item 23 in Appendix "A"). The major conclusions are described on Pages 6-6 and 6-7.

Future Land Needs

Data on future land needs were developed by reference to projections for other U.S. cities, and by discussion with the Jacksonville committees. The analysis and major conclusions are described on Pages 6-8 through 6-10.

Community Facilities Demand

Data on demand for schools, parks, and fire stations were secured from the Onslow County School Board, the City Parks Department, and the City Fire Department. Park needs also were projected by the consultant. The major conclusions are reported on Pages 6-10 and 6-11.

Water supply and sewage disposal needs were taken from the 201 Study and Water System Study, as reported on Page 6-11.

Major thoroughfare needs came from the N.C. Highway Commission Plan (items 11 and 12 in Appendix "A"). The major conclusions are reported on Pages 6-11 through 6-13.

Appendix "F"

PUBLIC PARTICIPATION LOG

Too often, community plans are prepared by only a few people, with little participation by the general public or its representatives, or even by elected officials. One frequent result of such an approach is that plan proposals are not implemented because officials feel the plan is not "theirs," or they may be unaware of the plan's existence.

Thus, the purpose of this public participation program was to try to secure more involvement from public officials and the general citizenry by (1) providing opportunities for them to become properly informed about the CAMA Land Use Plan, and (2) by providing opportunities for them to contribute to the content and proposals of the plan. The following log describes such opportunities.

...Providing Opportunities for Persons to Become Properly Informed...	...Providing Opportunities for Persons to Contribute and Become Involved...
A. FORMAL GROUPS APPOINTED 1. In addition to City Council and Planning Board, the City intends to appoint a Citizens Advisory Committee and a Technical Advisory Committee. (2-75) 2. Planning criteria and an information packet prepared for members of committees, to be mailed on their appointment. (3-75) 3. Citizens Advisory Committee appointed. (8-75) 4. Technical Advisory Committee appointed. (8-75)	
B. INFORMATION MATERIAL AND DISTRIBUTION 1. Information for committees on CAMA purpose, content of Jacksonville Land Use Plan, committee purpose, and membership lists sent to all committee members. (8-75) 2. CRC Display Signs posted throughout Jacksonville. (from 5-75 on) 3. CRC "Handbook on Public Participation" and "Guidelines" distributed both committees, Planning Commission, and City Council. (9-75) 4. Jacksonville "Detailed Work Program" distributed to both committees, Planning Commission, and City Council. (1 to 8-75)	

*Note: The approved "Detailed Work Program" for the Jax CAMA Land Use Plan proposed contact and review with City Council, Planning Board, Citizen and Technical Advisory Committees, and others. Proposals for informing public included face to face presentations, public school program, media, and material preparation. Proposals for public involvement included meetings and review sessions, attitude survey, and neighborhood meetings.
*Also, Jacksonville planners have been sending copies of all correspondence and other data to Onslow Co. planners for full coordination purposes.

5. Citizen Opinion Survey prepared (2 to 9-75), and
   -27,000 copies distributed by newspaper
   -100 copies distributed around individual neighborhoods by Citizens Advisory Committee
   -400 copies distributed by City at service counter in City Hall
   -Other copies distributed by Technical Advisory Committee and Planning Commission

   after return, these were tabulated, analyzed, and reviewed by committees. Majority of committee members agreed with results of each survey item.

6. "SYNOPSIS" sections on Jax economy, land use, and population (past, present, future) typed and given to both committees. Planning Commission, City Council, and newspapers. (5 to 9-75)

7. Report chapters, or parts thereof reviewed with committees, and Onslow County Planner (1 to 9-75), including:
   Chapt. I - INTRODUCTION
   Chapt. IV - POPULATION, ECONOMY
   Chapt. V - CONSTRAINTS, Hazard Areas
   Chapt. VI - ESTIMATED DEMAND - Population Projections
   App. B - Land Use Inventory Procedure

8. Visual display of wall maps, tables, photos prepared and reviewed with both committees, Planning Commission, two high school classes, newspaper, radio, and several individuals (3 to 9-75); including:
   -Large Jacksonville aerial photo
   -Jacksonville Planning Area map
   -Population table for past and present
   -Existing land use map
   -Existing land use table
   -Existing population/land use ratios
   -Future population projections (table)
   -Future land use projections (table)
   -Future population/land use ratios

C. MEETINGS AND PRESENTATIONS

1. City Manager and/or City Engineer discussions with City Council and Planning Commission and others (1 through 9-75).

-also newspaper, radio reporting

2. City Manager and City Engineer conversations with citizens and others in regard to serving on Advisory Committees (2 to 8-75).

-also newspaper, radio reporting

3. Citizen Advisory Committee Meeting (9-4-75)
   -Visual display maps, tables, etc. described in B,8 were described in detail, along with B,7 items. Material described in B,3 and B,6 passed out to members. Citizen members offered suggestions in several areas, and changes were made on spot. Citizens offered to distribute opinion surveys to neighbors and encourage their return. Citizens also offered to try to arrange sub-meetings, but all were pessimistic about getting anyone to neighborhood meetings.

-also newspaper, radio reporting

4. Technical Advisory Committee Meeting (9-5-75)
   -Same procedure followed as described above for Citizens Advisory Committee. Marine Corps representative, Col. George Caridakis, offered many valuable comments and suggestions regarding existing and future population and land use in regard to Marine Corps influences. School Board representative, Charles Hoyt, provided information regarding school locations and population. Weyerhauser representative, Joe Thomas, offered suggestions related to their

Brynn Marr development, their other land holdings. All present agreed on growth direction, future growth location, and growth ranges.

-also newspaper, radio reporting

5. Planning Board Meeting (9-5-75) - Same procedure followed as described previously for Citizens Advisory Committee. Several suggestions and comments contributed, based on knowledge of past development and planning work.

-radio station personnel invited to these presentations, and accepted, but didn't appear at meetings.

6. Jacksonville Senior High School Class (9-8-75) One of Citizen's Committee members, Mrs. Gaskins, arranged for presentations to her classes. First presentation made at 10:00 a.m., with students from other classes also joining Mrs. Gaskins group. Some generally descriptive material added to what was presented previously to Citizen's Committee. Students then responded with their comments about present community needs and attitudes, as well as future opinions.

7. Jacksonville Senior Hi School Class (9-8-75)
-Same as above for second class that met at 11:00 a.m.

-newspaper printed and distributed "citizen opinion survey" as part of daily issue. Copies also handed out to City Hall visitors. Committee members also took copies to distribute in their neighborhoods.

8. Small group or individual meetings (2 thru 9-75)
-Informal meetings have occurred with one to three people in terms of discussing Jacksonville CAMA plan and community needs. These have included citizens in restaurants, motels, at City Hall, as well as public agencies or developers such as Weyerhauser Corp., Marine Corps, School Board, Soil Conservation Service, County Planner, County Manpower Planner, Jacksonville Fire Chief, Jacksonville City Clerk, Chamber of Commerce, newspaper reporters, Jacksonville Parks and Recreation Director, City Engineer, N.C. Highway Department (Jacksonville, district, and State offices), and Neuse River C.O.G. staff.

-conversations with newspaper assisted in preparation of published articles.

10. Meeting Held on 10-13-75 for Citizens Advisory Committee Technical Advisory Committee, Planning Board, and City Council to review:

..Chapt. I - Introduction (3pp.)
..Chapt. III - Issues & Objectives (8pp)
..Chapt. IV - Present Conditions (24pp)
..Chapt. V - Constraints (part, 5pp)
..Chapt. VI - Est. Demand (part, 5pp)
..App. C - Citizen Survey (5pp)
..App. D - Soil Data (5pp)

-copies of all material distributed. also mailed to anyone not in attendance.

Each passout item was described and discussed with notes made for any suggested changes. For the opinion survey, the results of each item was discussed and members polled as to their agreement or disagreement. In all cases, majority agreed with the results.

Exhibit boards were on display during meeting. Copies of all materials were distributed to newspaper and radio representatives.

-copies of all material distributed, also mailed to any member not in attendance.

11. Meeting Held on 11-20-75 for citizens Advisory Committee, Planning Board, and City Council to review:
..Table of Contents
..List of Exhibits
..Chapt. II- Synopsis
..Chapt. III - Goals (corrections)
..Chapt. IV - Present Conditions (corrections)
..Chapt. V - Constraints (remainder)
..Chapt. VI - Est. Demand (remainder)
..Chapt. VII - Land Classification
..Chapt. VII - Areas of Enviorn. Concern
..App. A - Bibliography
..App. B - Land Use Inventory

Goals and opinion survey items again discussed in detail. Each report section reviewed page by page. Exhibit boards were on display and used for discussion. Copies of all material were given to newspaper and radio representatives.

12. Draft of Jacksonville CAMA Land Use Plan sent to CRC as approved by local committees, on 11-21-75.

-copies of all material distributed, also mailed to any member not in attendance.

13. Meeting held on 2-9-76 for citizens' Advisory Committee, Planning Board, and City Council in order to review comments made by Coastal Resource Commission on 11-23-75 preliminary draft.

Listing of all CRC comments were distributed and each item discussed proposed changes or additions to plan to recognize CRC comments also were discussed and agreed upon.

Remaining work and public hearing schedule dates were reviewed, and all members encouraged to attend the public hearings.

.. by March 3, 1976, legal ad will announce date, time, and place of joint public hearing with Onslow County.

.. by March 31, 1976, revised synopsis delivered to CRC for review.

.. On April 14, 1976 joint public hearing hearing held.

.. On May 4, 1976, plan adopted by Jacksonville City Council.

.. by May 22, 1976, certified copy of plan to CRC.

.. by May 29, 1976, additional copies to CRC.

Appendix "G": CROSS REFERENCE OF JAX TABLE OF CONTENTS TO

C. R. C. STANDARD FORMAT

C.R.C. Standard Format for Table of Contents	Comparable Section From Jax Table of Contents
I. Introduction Purpose of the plan, history of CAMA planning effort, etc.	Chapt. I pp. 1-1, 1-2
II. Description of Present Conditions	Chapt. IV
A. Population and Economy (brief analysis)	pp. 4-2/4-11
B. Existing Land Use	pp. 4-12/4-20, App. B
1. Legible map of existing land uses	p. 4-13
2. Analysis	
a. significant compatibility problems	p.4-18
b. problems from unplanned development with implications for future land use	
c. areas experiencing or likely to experience major land use change	p. 4-19
C. Current Plans, Policies, and Regulations	pp. 4-21/4-24
1. Plans and Policies	
a. transportation plans	
b. community facilities plans	
c. utilities extension policies	
d. open space policies	
e. recreation policies	
f. prior land use plans	
g. prior land use policies	
2. Local Regulations	
a. zoning ordinances	
b. subdivision regulations	
c. floodway ordinances	
d. building codes	
e. septic tank regulations	
f. historic districts regulations	
g. nuisance regulations	
h. dune protection ordinances	
i. sedimentation codes	
j. environmental impact statement ordinances	
3. Federal and State Regulations	
III. Public Participation Activities	Chapt. III
A. Identification and analysis of major land use issues	
1. The impact of population and economic trends	p. 3-2
2. The provision of adequate housing and other services	
3. The conservation of productive natural resources	
4. The protection of important natural environments	
5. The protection of cultural and historic resources	
B. Alternatives considered in the development of the objectives, policies and standards.	p. 3-3
C. Land use objectives, policies and standards for dealing with each identified major issue.	p. 3-4
D. A brief description of the process used to determine objectives, policies and standards, emphasizing public participation	p. 3-1
E. A detailed statement outlining the methods employed in securing public participation, and the degree of participation achieved and the results obtained	p. 3-1, App. C & F
IV. Constraints	Chapt. V
A. Land Potential	
1. Physical Limitations	
a. hazard areas	p. 5-2
b. soil limitations	p. 5-4, App. D
c. water supply areas	p. 5-9
d. steep slopes	p. 5-13

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3. Areas with Resource Potential a. productive agricultural lands b. potentially valuable mineral sites c. publicly-owned lands and other non-intensive outdoor recreation lands d. privately-owned wildlife sanctuaries	p. 5-15
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2. Design capacity of existing water treatment plant, sewer treatment plant, schools, and primary roads	pp. 5-16/5-20
3. The percent utilization of water and sewer plants, schools, and primary roads	pp. 5-16/5-20
V. Estimated Demand	Chapt. VI
A. Population and Economy 1. Population a. ten-year population projection b. considerations taken into account in preparing ten-year projection (seasonal populations, local objectives, social and economic change) c. 5, 10, 25, and 50 year projections d. relationship of long-term projections to desires of the people e. relationship of the capabilities of the land and water to sustain them f. examination of seasonal population and economic impacts	pp. 6-2/6-5 p. 3-2
2. Economy Identification of major trends and factors in economy	pp. 6-6, 6-7
B. Future Land Needs Use of the ten-year population projection to determine land demand for land classification	pp. 6-8, 6-9
C. Community Facilities Demand 1. Ten-year population projection used to determine facilities demand 2. Consideration of the type and cost of services needed to accommodate projected population 3. Consideration of the ability of the local economy to finance service expansion	pp. 6-10/6-13
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A. Description of the Land Classification System	p. 7-1
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VII. Summary A. Discussion of the manner of data assembly, analysis, and a statement of major conclusions B. Discussion of the application of the data to the plan's formulation	App. E p. E-1 p. E-1
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Appendix "B" - PROCEDURE FOR EXISTING

LAND USE INVENTORY

INTRODUCTION

The procedure followed to map, measure, and delineate areas for the existing land use data of Chapter IV will be described in this appendix in terms of:

..Area of Coverage
..Map to be Used
..Land Use Categories
..Land Use Colors
..Preparing Exist Land Use Map
..Selecting Areal Analysis Units
..Measuring Areal Analysis Units
..Land Use Measurement Technique and Resulting Tabulations

AREA OF COVERAGE

The area of coverage not only for the land use inventory, but also for all other aspects of this study, was required to be the Jacksonville Planning Area. This area includes the City of Jacksonville, plus all other territory within a one mile radius of the city limits (excluding Camp Lejeune). This is illustrated by Exhibit B-1m.

BASE MAP TO BE USED

In gathering land use data, the base map should contain at least the following information:

..rights of way for streets, railroads, utilities, and any other similar "movement" strip.

..names of streets and other rights-of-way, as well as "place" names for parks, schools, etc.

..property lines that are accurate and up-to-date.

..drainage lines, ponds, lakes, streams, and any other water bodies.

..city limit lines, as well as any other governmental boundaries.

..at a scale large enough to permit accurate coloring and measuring of the smallest land parcels.

Fortunately, the Jacksonville City Engineer had a map meeting all of these requirements, and was drawn at a scale of 1"=±690', which was large enough to insure accurate work. The map size, for the planning area, was approximately 42 inches square. Although this size was too large to include in the final report, it was very useful at meetings for audience review and discussion.

LAND USE CATEGORIES

The Coastal Resources Commission's guidelines required twelve categories of land use, with local agencies encouraged to use more categories where appropriate. For Jacksonville, fourteen categories were used, with the additional two developed by subdividing residential into single family, apartments, and mobile homes. The categories were:

..Urban & Built-Up Uses (heading, not a category)

..Residential, Single Family

..Residential, Apartment

..Residential, Mobile Home

..Commercial - includes places where one can purchase goods and/or services, such as retail stores, restaurants, bars, theaters, offices, motels, wholesalers, auto-oriented activities, etc.

..Industrial - includes places where goods are processed and/or manufactured, including manufacturing plants, storage yards, warehouses, etc.

..Transportation, Communication and Utilities - transportation includes rights-of-way for streets, walkways, and railways, as well as bus terminal, rail yards, etc; communication includes telephone rights-of-way, as well as telephone exchanges, radio and television stations and towers, etc; and utilities includes any rights-of-way or facility buildings for water, gas, electricity, sewers, etc.

..Government and Institutional - includes buildings or facilities for city, county, state, or federal agencies, as well as schools, churches, cemeteries, hospitals, etc.

..Cultural, Entertainment, and Recreation - includes libraries, museums, golf courses, parks, tennis courts, etc.

..Undeveloped land - in this "urban" category, such uses are restricted to vacant lots or any other land ready for buildings to be placed thereon.

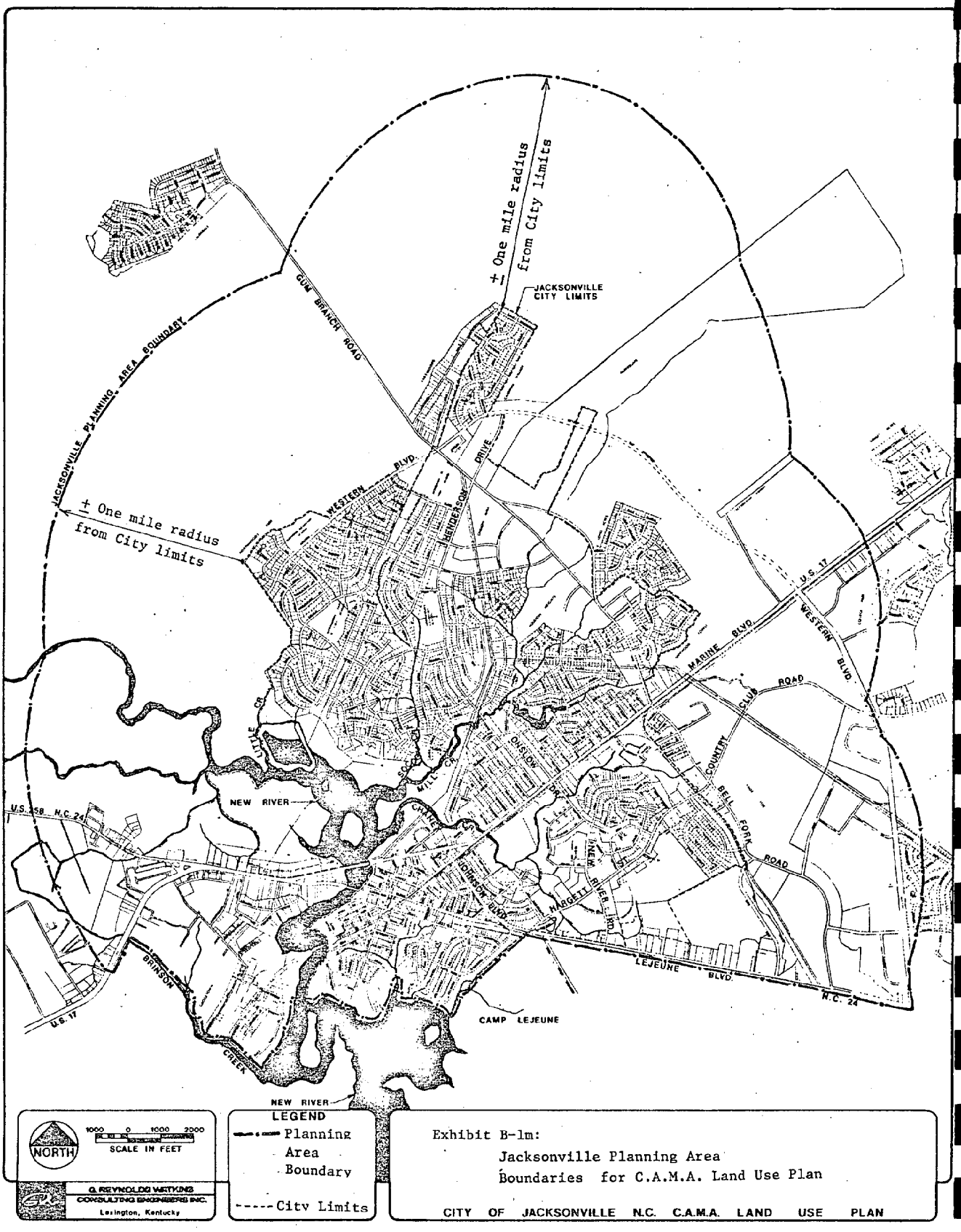
..Agriculture - cropland, live stock, farming

..Forest Land

..Water - streams, lakes, ponds

..Wetlands - marshes, swamps

..Barren - beaches, quarries, graded land for


± One mile radius from City limits
JACKSONVILLE CITY LIMITS
GUM BRANCH ROAD
JACKSONVILLE PLANNING AREA BOUNDARY
± One mile radius from City limits
WESTERN BLVD.
HENDERSON DRIVE
U.S. 17
MARINE BLVD.
COUNTRY CLUB ROAD
NEW RIVER
U.S. 258 N.C. 24
BELL FORK ROAD
HARGETT CREEK
LEJEUNE BLVD.
N.C. 24
BRINSON CREEK
U.S. 17
CAMP LEJEUNE
NEW RIVER
NORTH
1000 0 1000 2000
SCALE IN FEET
G. REYNOLDS WATKINS CONSULTING ENGINEERS INC.
Lexington, Kentucky
LEGEND
Planning Area Boundary
City Limits
Exhibit B-1m:
Jacksonville Planning Area Boundaries for C.A.M.A. Land Use Plan
CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

building construction.

It should be noted that this land use classification system has certain conflicting categories. The government category, for instance, is the only one based on ownership, whereas all others try to reflect the use made of the land. As a result, government owned parks, libraries, and golf courses could be counted as either "government" or "cultural...". Government owned utilities present a similar problem, whether to place under government or under utilities.

LAND USE COLORS

The Coastal Resources Commission guidelines established the land use colors, with Jacksonville adding two more for the extra residential categories. The categories and colors were:

..Urban and Built-up
  ..Residential, single family - canary yellow, solid, Eagle Verithin #735

  ..Residential, apartment - yellow ochre, solid, #736

  ..Residential, mobile homes - orange, solid, #736

  ..Commercial - carmine red, solid, #745

  ..Industrial - violet, solid, #742

  ..Transportation, Communication, & Utilities - dark grey, solid, #747-1/2

  ..Government and Institutional - Ultramarine blue, solid, #740

  ..Cultural, Entertainment, & Recreational - true green, solid, #751

  ..Undeveloped - no color, leave blank

..Agriculture - dark brown, hatched, #756

..Forest Land - true green, hatched, #751

..Water - sky blue, solid, #740-1/2

..Wetlands - sky blue, hatched, #740-1/2

..Barren - dark brown, solid, #756

PREPARING LAND USE MAP

Using the previously described base map, land use categories, and colored pencils, the Jacksonville City Engineer and staff field surveyed the entire Planning Area and prepared the land use map. In fact, they surveyed and mapped several areas beyond, but adjacent to, the Planning Area. This additional information proved to be quite helpful.

SELECTING AREAL ANALYSIS UNITS

Before land use measurements were begun on the completed map, a decision had to be made as to the subdivision of the Planning Area into smaller areal units in order that helpful analyses could be performed on the distribution of existing uses. It was decided to use the following hierarchy* (also see Exh. B.2m):

.Whole - starting with the entire Planning Area, and then dividing it into:

.Halves - identified as the "north half" and the "south half", with the division line being U.S. Highway 17.

.Quadrants - using the already established halves, the Planning Area was then divided into quadrants by using Gum Road and Bell Fork Road as the divider, along with the division line already established for the halves. The resulting quadrants, in the north half, were NA and NB; and, in the southern half, were SA and SB.

.Sectors - using the established quadrants, the Planning area, was divided into sectors,

(1) Quadrant NA being dividing into four sectors, with Sector NA-1 bounded by previously described lines plus the addition of Highways US258 and NC24; Sector NA-2 bounded by previous descriptions and the New River; Sector NA-3 bounded by previous and Onslow Drive and Henderson Drive; and Sector NA-4 bounded by previous and Gum Branch Road;

(2) Quadrant NB not being further subdivided, and the Sector NB-1 has the same boundaries as the quadrant.

(3) Quadrant SA being divided into five sectors, with Sector SA-1 bounded by Brinson Creek, New River, and US17; Sector SA-2 bounded by Johnson Boulevard, US17, New River, and Camp Lejeune property; Sector SA-3 bounded by Johnson Boulevard, Hargett Street, US17, Onslow Drive, and New River Drive; Sector SA-4 bounded by US17, Onslow Drive, Hargett Street, New River Drive, and Bell Fork Road; and Sector SA-5 bounded by Hargett Street, Bell Fork Road, and Lejeune Boulevard.

(4) Quadrant SB being divided into four sectors, with Sector SB-1 bounded by US17, Bell Fork Road, Country Club Road, and Western Blvd; Sector SB-2 bounded by Country Club Road, Western Blvd. Lejeune Bld., and Bell Fork Road; Sector SB-3 bounded by Western Blvd., Marine Blvd., and the Planning Area boundary; and Sector SB-4 bounded by Western Blvd. and the Planning Area boundary.

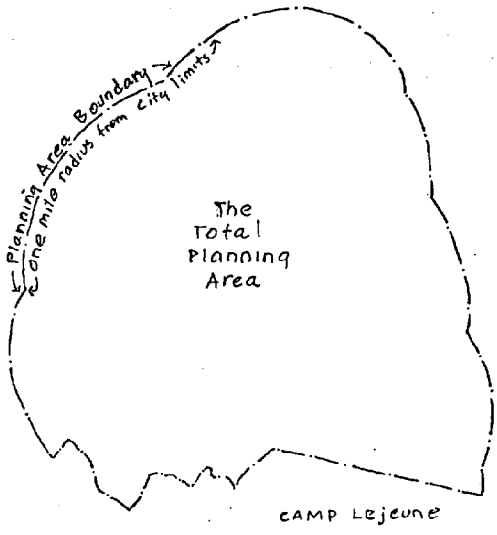
.Districts - using the established sectors, the the Planning Area was divided into districts, which separate Jacksonville from the remaining area.

(1) Sector NA-1 not being further subdivided and District NA-1nj has the same boundaries as the sector.

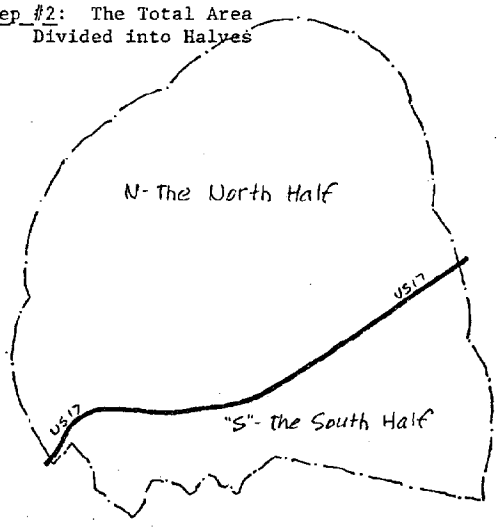
*the classification terms in the hierarchy are not intended to be literally interpreted; rather, they are used for descriptive purposes. For instance, the halves are not equal in size, nor are the quadrants, etc. But it was felt that these terms would be more understandable than use of terms such as "two parts", "four parts", etc.

Exhibit B-2m: Hierarchy of Five Aeral Subdivision Units for Jacksonville (and Use Analysis)

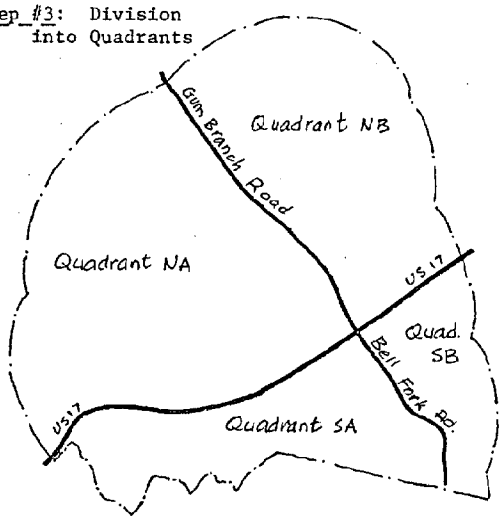
Step #1: The Total Area



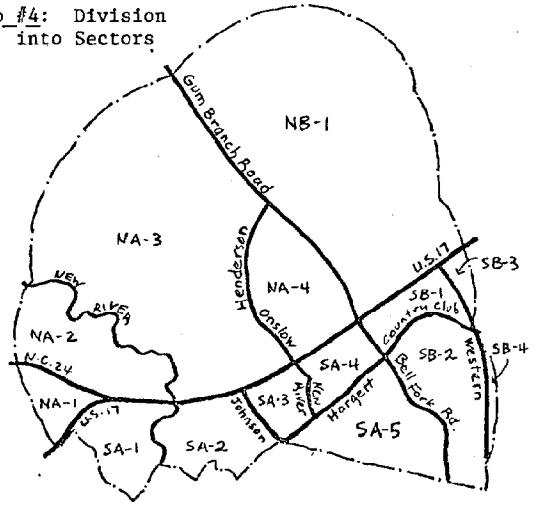
Step #2: The Total Area Divided into Halves



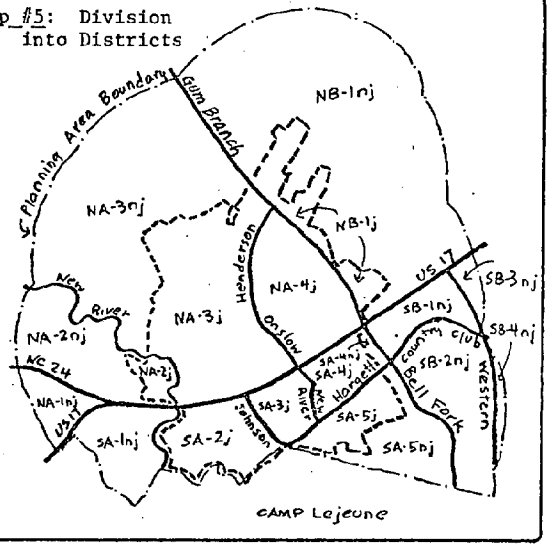
Step #3: Division into Quadrants



Step #4: Division into Sectors



Step #5: Division into Districts



(2) Sector NA-2 being divided into two distircts, with District NA-2j being the portion in Jacksonville, bounded by New River, a tributary of New River, and US17;

..and District NA-2nj bounded by the Planning Area boundary, New River, a tributary of New River, NC24, and US17.

(3) Sector NA-3 being divided into two districts, with District NA-3j being the portion in Jacksonville, bounded by US17, New River, Onslow Drive, Henderson Drive, Gum Branch Road, the back property line of urban subdivisions, Little Creek, and New River; and District NA-3nj bounded by Gum Branch Rd., the Planning Area, New River, a New River tributary, and the back property line of urban subdivisions.

(4) Sector NA-4 not being further subdivided, and District NA-4j has the same boundaries as the sector.

(5) Sector NB-1 being divided into two districts, with District NB-1j bounded by Gum Branch Rd. and the city limits line; and District NB-1nj bounded Gum Branch Rd., the Planning Area boundary, US17, and the city limits line.

(6) Sector SA-1 not being further subdivided, and District SA-1nj has the same boundaries as the sector.

(7) Sector SA-2 not being further subdivided, and District SA-2j has the same boundaries as the sector.

(8) Sector SA-3 not being further subdivided, and District SA-3j has the same boundary as the sector.

(9) Sector SA-4 being divided into two districts, with District SA-4j bounded by US17, the railroad tracks, Hargett St., New River Road, and Onslow Drive; and District SA-4nj bounded by the railroad tracks, Bell Fork Road, and Hargett Street.

(10) Sector SA-5 being divided into two districts, with the city limits separating District SA-5j from District SA-5nj.

(11) Sector SB-1 not being further subdivided, and District SB-1nj has the same boundary as the sector.

(12) Sector SB-2 not being further subdivided, and District SB-2nj has the same boundary as the sector.

(13) Sector SB-3 not being further subdivided, and District SB-3nj has the same boundary as the sector.

(14) Sector SB-4 not being further subdivided, and District SB-4nj has the same boundary as the sector.

These units may be grouped as follows:

...the entire Jacksonville Planning Area
...the city of Jacksonville
...the Planning Area excluding Jacksonville
...the Planning Area by halves
...the city by halves
...the non-city area by halves
...the Planning Area by quadrants
...the city by quadrants
...the non-city area by quadrants
...the Planning Area by sectors
...the city by sectors
...the non-city area by sectors
...the Planning Area by districts
...the city by districts
...the non-city area by districts

The matrix design for tabulating data for this hierarchy could follow two designs, depending only on method preferred for displaying the data collected for the areal units. The "horizontal-spread" design would be as shown by Exhibit B.3t. In this design,

Exhibit B.3t: Horizontal-Spread Matrix Design

Areal Unit Hierarchy	Residential, in acres			Same for Other Land Uses
	Total Area	Jackson-ville	Not Jack.	
Planning Area Total				
..North half				
..NA quad				
..NA-1 Sector		NJ*		
..NA-1nj dist.		NJ		
..NA-2 Sector				
..NA-2j dist.			J**	
..NA-2nj dist.		NJ		
..NA-3 Sector				
..NA-3j dist.			J	
..NA-3nj dist.		NJ		
..NA-4 Sector			J	
..NA-4j dist.			J	
..NB quad				
..NB-1 Sector				
..NB-1j dist.			J	
..NB-1nj dist.		NJ		
..South half				
..SA quad				
..SA-1 Sector		NJ		
..SA-1nj dist.		NJ		
..SA-2 Sector			J	
..SA-2j dist.			J	
..SA-3 Sector			J	
..SA-3j dist.			J	
..SA-4 Sector				
..SA-4j dist.			J	
..SA-4nj dist.		NJ		
..SA-5 Sector				
..SA-5j dist.			J	
..SA-5nj dist.		NJ		
..SB quad				
..SB-1 Sector		NJ		
..SB-1nj dist.		NJ		
..SB-2 Sector		NJ		
..SB-2nj dist.		NJ		
..SB-3 Sector		NJ		
..SB-3nj dist.		NJ		
..SB-4 Sector		NJ		
..SB-4nj dist.		NJ		

*NJ-Not in Jacksonville
**J-In Jacksonville

shown by the residential columns, data for the three major areal units are placed side by side.

In the "vertical-spread" design, there would be only one areal unit listed under each land use. In effect, this means the preparation of three tables... one for the "total planning area", one for Jacksonville, and one for the area not in Jacksonville.

The "horizontal-spread" design is preferred because it pulls everything together in one table. If the number of land uses to be measured is such that this design cannot be accommodated by the paper being used, one would be forced to go to the "vertical-spread" design.

MEASURING AREAL ANALYSIS UNITS

Having selected the areal analysis units, it was necessary to measure them in an accurate manner, prior to beginning any land use measurement.* The method used for this Measurement is described in the following:

.Total - measure the total planning area four times, add the results, divide by four, and use this average as the overall control figure.

.Halves - measure each half four times, add the results, and divide by four to get the average for each half. Add the two halves and figure percentage that each half is of the total obtained by adding the two halves. If they do not add to the figure obtained previously for the total area, find the difference and distribute it proportionately to each half.

.Quadrants - measure each quadrant in the north half four times, add the results and divide by four to get the average for each quad. If they do not add to the figure for the north half previously obtained, find the difference and distribute it to proportionately to each quadrant, thereby forcing the two quads to add to the north half figure. Repeat for southern half.

.Sectors - measure each of the sectors in the NA quadrant four times, add the results and divide by four to get the average measurement. If these averages do not add to the previously obtained area for the NA quad, find the difference and distribute it proportionately to each sector. Repeat for sectors in NB, SA, and SB quads.

.Districts - measure each of the districts within a sector four times, add the results and divide by four. If the averages do not add to the previously obtained sector figure, find the difference and distribute it proportionately to the districts.

In taking these measurements from the 1"=690' land, use map, the map was first taped down to a drafting table and a piece of mylar drafting film placed on top. The outline of the entire planning area was traced on the mylar, and the area was measured. A combination of grids and planimeter were used in measuring. Paper with a one inch square grid was slipped under the mylar, with each grid equalling 10.93 acres (690'x690'=476,100÷ 43,560=10.93 acres). Where an irregular boundary did not permit use of the grid, the area was planimetered. All measurement data was retained on work sheets to permit later checking for accuracy.

After measurement was completed for the total planning area, a similar procedure was followed for the halves and the other units. Where streets were involved, the boundary or division line was placed in the middle of the street right-of-way. The resulting figures are shown by Exhibit B.4t, while the unit delineation are shown by Exhibit B.5m.

Exhibit B.4t: Area Unit Measurement

Areal Unit	Total Area in Acres	Jackson. part in Acres	Not in Jackson. in Acres
Planning Area Total	11,977.1	4,006.3	7,970.9
..North half	8,493.7	2,758.9	5,734.9
..NA quad	5,063.5	2,373.3	2,690.2
..NA-1 Sector	248.0	NJ	248.0
..NA-1nj dist.	248.0	NJ	248.0
..NA-2 Sector	806.5	161.6	644.9
..NA-2j dist.	161.6	161.6	J
..NA-2nj dist.	644.9	NJ	644.9
..NA-3 Sector	3,274.6	1,477.3	1,797.3
..NA-3j dist.	1,477.3	1,477.3	J
..NA-3nj dist.	1,797.3	NJ	1,797.3
..NA-4 Sector	734.4	734.4	J
..NA-4j dist.	734.4	734.4	J
..NB quad	3,430.3	385.6	3,044.7
..NB-1 Sector	3,430.3	385.6	3,044.7
..NB-1j dist.	385.6	385.6	3,044.7
..NB-1nj dist.	3,044.7	NJ	3,044.7
..South half	3,483.4	1,247.4	2,236.0
..SA quad	2,194.5	1,247.4	947.1
..SA-1 Sector	559.6	NJ	559.6
..SA-1nj dist.	559.6	NJ	559.6
..SA-2 Sector	475.4	475.4	J
..SA-2j dist.	475.4	475.4	J
..SA-3 Sector	262.3	262.3	J
..SA-3j dist.	262.3	262.3	J
..SA-4 Sector	278.7	239.8	38.9
..SA-4j dist.	239.8	239.8	J
..SA-4rj dist.	38.9	NJ	38.9
..SA-5 Sector	618.6	269.9	348.6
..SA-5j dist.	269.9	269.9	J
..SA-5nj dist.	348.6	NJ	348.6
..SB quad	1,288.9	NJ	1,288.9
..SB-1 Sector	297.8	NJ	297.8
..SB-1nj dist.	297.8	NJ	297.8
..SB-2 Sector	751.0	NJ	751.0
..SB-2nj dist.	751.0	NJ	751.0
..SB-3 Sector	135.8	NJ	135.8
..SB-3nj dist.	135.8	NJ	135.8
..SB-4 Sector	104.3	NJ	104.3
..SB-4nj dist.	104.3	NJ	104.3

*If this step is skipped, and one proceeds directly to measuring the individual land uses and accumulating them to the desired sub-totals and total, an unacceptable degree of error almost invariably results.

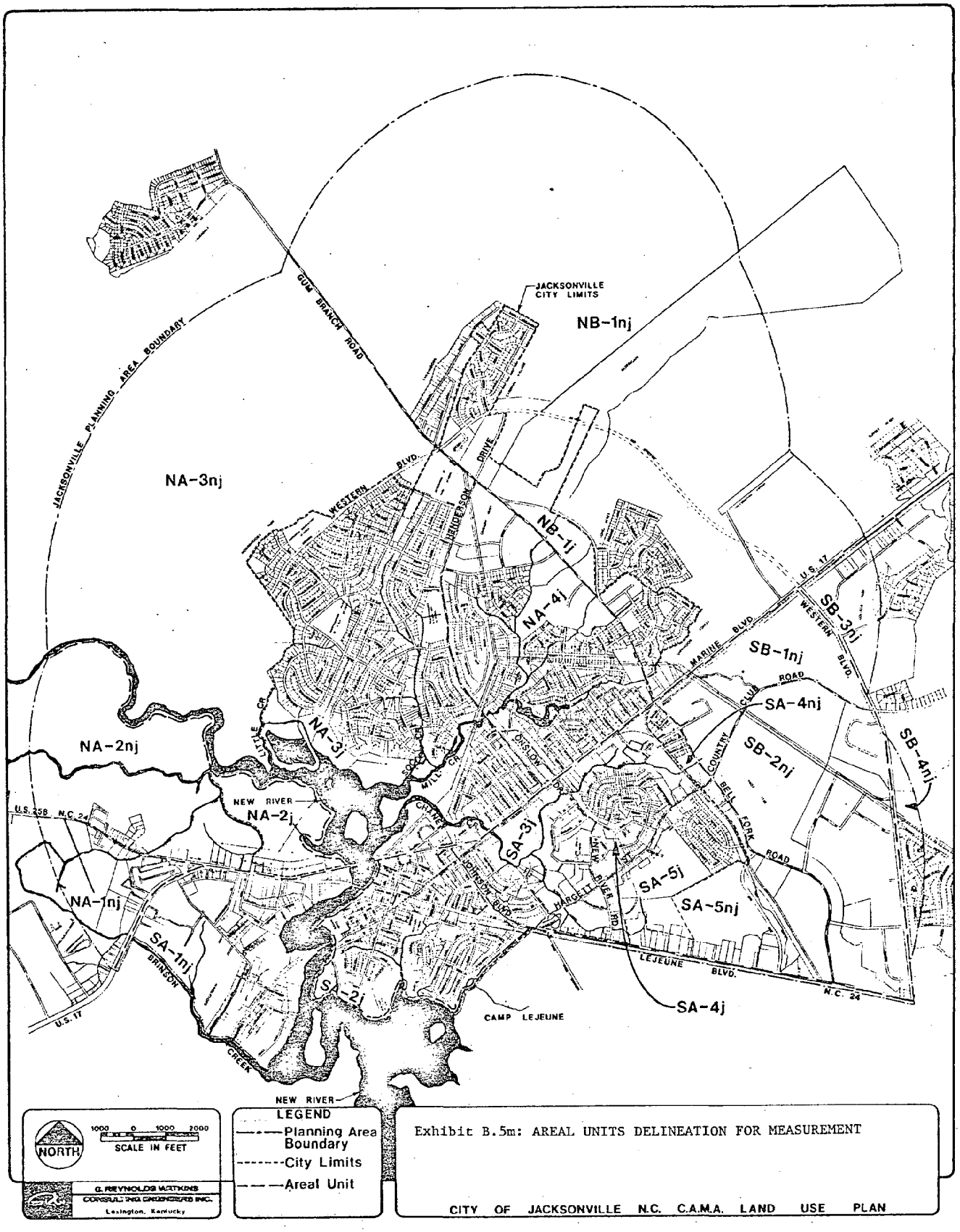


Exhibit B.5m: AREAL UNITS DELINEATION FOR MEASUREMENT

CITY OF JACKSONVILLE N.C. C.A.M.A. LAND USE PLAN

LAND USE MEASUREMENT METHOD

In measuring the areal units, the work proceeded from the largest area down to the smallest area. In the land use measurement, however, the procedure was reversed and work began at the smallest area, the district, and these were accumulated to the larger areas. Each of the 14 land use categories in each district were measured twice, their percentages figured, and the acres totalled. If totals did not agree with the the areal measurement previously obtained, the difference was distributed proportionately to the land use categories.

Transportation, communication, and utilities (TCV) were the first land uses measured because of their linear nature, and because streets had to be divided when they formed part of a boundary. All TCV uses were tabulated on a separate sheet, as shown by Exhibit B.6t, and the TCV total was entered on the final land use summary. As each TCV item was measured, it also was outlined in the appropriate color on the mylar firm overlaying the land use map. Boundary half streets were measured, with the lineal footage multiplied by half the right of way, and the resulting square footage was divided by 43,560 square feet to obtain acres. Full streets inside the district were measured using the full right-of-way.

The other land uses were measured after the TCV

Exhibit B.6t: Transportation, Communication, and Utilities (TRV) Measurement for the Planning Area.

Areal Unit Hierarchy	Boundary half streets				Interior full streets				Total street acres	Rail & Util.		Total TCU acres
	lineal feet X	1/2 row	=square feet	÷43,560 =acres	lineal feet X	row	=square feet	÷43,560 =acres		lineal feet	acres	
Planning Area Total	217,783	50	10,609,617	249.96	450,140	60	27,008,325	620.03	869.99	86,120	189.81	1,059.8
..North half	91,512	50	4,575,564	105.04	270,912	60	16,254,675	373.16	478.20	43,211	99.20	577.4
..NA quad	69,432	50	3,471,563	79.69	210,192	60	12,611,475	289.52	369.21	41,658	95.63	464.9
..NA-1 Sector	10,695	50	534,750	12.28	12,593	60	755,550	17.34	29.62	0	0	29.6
..NA-1nj dist.	10,695	50	534,750	12.28	12,593	60	755,550	17.34	29.62	0	0	29.6
..NA-2 Sector	9,833	50	491,626	11.28	1,725	60	103,500	2.38	13.66	8,021	18.41	32.1
..NA-2j dist.	2,674	50	133,688	3.07	0	0	0	0	3.07	5,865	13.46	16.5
..NA-2nj dist.	7,159	50	357,938	8.21	1,725	60	103,500	2.38	10.59	2,156	4.95	15.5
..NA-3 Sector	25,875	50	1,293,750	29.70	124,804	60	7,488,225	171.91	201.61	21,045	48.31	249.9
..NA-3j dist.	19,320	50	966,000	22.18	123,165	60	7,389,900	169.65	191.83	21,045	48.31	240.1
..NA-3nj dist.	6,555	50	327,750	7.52	1,639	60	98,325	2.26	9.78	0	0	9.8
..NA-4 Sector	23,029	50	1,151,437	26.43	71,070	60	4,264,200	97.89	124.32	12,592	28.91	153.2
..NA-4j dist.	23,029	50	1,151,437	26.43	71,070	60	4,264,200	97.89	124.32	12,592	28.91	153.2
..NB quad	22,080	50	1,104,001	25.35	60,720	60	3,643,200	83.64	108.99	1,553	3.57	112.6
..NB-1 Sector	22,080	50	1,104,001	25.35	60,720	60	3,643,200	83.64	108.99	1,553	3.57	112.6
..NB-1j dist.	6,469	50	323.438	7.43	28,980	60	1,738,800	39.92	47.35	518	1.19	48.5
..NB-1nj dist.	15,611	50	780,563	17.92	31,740	60	1,904,400	93.72	61.64	1,035	2.38	64.0
..South half	126,271	50	6,034,053	144.92	179,228	60	10,753,650	246.87	391.79	42,909	90.61	482.4
..SA quad	67,534	50	3,376,690	77.50	149,040	60	8,942,400	205.29	282.79	26,349	54.44	337.2
..SA-1 Sector	8,366	50	418,313	9.60	28,290	60	1,697,400	38.97	48.57	4,313	8.91	57.5
..SA-1nj dist.	8,366	50	418,313	9.60	28,290	60	1,697,400	38.97	48.57	4,313	8.91	57.5
..SA-2 Sector	5,865	50	293,250	6.73	68,655	60	4,119,300	94.52	101.30	4,571	9.44	110.7
..SA-2j dist.	5,865	50	293,250	6.73	68,655	60	4,119,300	94.52	101.30	4,571	9.44	110.7
..SA-3 Sector	14,231	50	711,563	16.33	15,525	60	931,500	21.38	37.71	3,795	7.84	45.6
..SA-3j dist.	14,231	50	711,563	16.33	15,525	60	931,500	21.38	37.71	3,795	7.84	45.6
..SA-4 Sector	15,008	50	750,376	17.22	19,492	60	1,169,550	26.85	44.07	6,770	13.99	58.1
..SA-4j dist.	11,644	50	582,188	13.36	16,560	60	993,600	22.81	36.17	6,641	13.72	49.9
..SA-4nj dist.	3,364	50	168,188	3.86	2,932	60	175,950	4.04	7.90	129	.27	8.2
..SA-5 Sector	24,064	50	1,203,188	27.62	17,078	60	1,024,650	23.52	51.14	6,900	14.26	65.4
..SA-5j dist.	9,488	50	474,375	10.89	13,110	60	786,600	18.06	28.95	2,587	5.35	34.3
..SA-5nj dist.	14,576	50	728,813	16.73	3,968	60	238,050	5.46	22.19	4,312	8.91	31.1
..SB quad	58,737	50	2,657,363	67.42	30,188	60	1,811,250	41.58	109.00	16,560	36.17	145.2
..SB-1 Sector	19,493	50	974,625	22.37	5,693	60	341,550	7.84	30.21	7,417	15.77	46.0
..SB-1nj dist.	19,493	50	974,625	22.37	5,693	60	341,550	7.84	30.21	7,417	15.77	46.0
..SB-2 Sector	25,875	50	1,293,750	29.7	14,145	60	848,700	19.48	49.18	5,347	12.28	61.5
..SB-2nj dist.	25,875	50	1,293,750	29.7	14,145	60	848,700	19.48	49.18	5,347	12.28	61.5
..SB-3 Sector	6,210	50	31,050	7.13	4,312	60	258,750	5.94	13.07	2,587	5.35	18.4
..SB-3nj dist.	6,210	50	31,050	7.13	4,312	60	258,750	5.94	13.07	2,587	5.35	18.4
..SB-4 Sector	7,159	50	357,938	8.22	6,037	60	362,250	8.32	16.54	1,207	2.77	19.3
..SB-4nj dist.	7,159	50	357,938	8.22	6,037	60	362,250	8.32	16.54	1,207	2.77	19.3

*No communication land uses (telephone, tv, radio) were catalogued separate from other rights-of-way locations.

data had been completed. Generally, the land uses with the smallest amount of land area in the district were measured first, and those with the largest areas left until last. Each land use was delineated in the appropriate color on the mylar film to insure no areas were overlooked.

When a large number of separated, but similar land uses occurred within a district, they were colored on the mylar and then copied onto tracing paper with matched sides abutting. This provided a singular, altho irregular in shape, mass to planimeter. For large parcels the 10.93 acre grid was used whenever possible to reduce the need for planimetering.

The final detailed land use tabulations for the Planning Area, the City of Jacksonville, and the Area Outside Jacksonville are shown by Exhibits B.7t, B.8t, and B.9t. The existing land use map, and other land use information, is contained in chapter IV.

Exhibit B.7t: Land Use Measurements for the Jacksonville Planning Area, in Acres

Aerial Unit	Single Fam. Resid.	Apt. Res.	Mob-ile Home	Resi-dential Total	Com-mercial	In-dus-try	Trans., Comm., Util.	Gov., Inst-itut.	Cul. Ent. Rec.	Urban Built Total	Un-devel-oped	Agri-cul-tur.	Forest Land	Wa-ter	Wet Land	Bar-ren	Total Undev-elop.	Total Land Use
	(1)	(2)	(3)	(4=1+2+3)	(5)	(6)	(7)	(8)	(9)	(10=4+5+9)	(11)	(12)	(13)	(14)	(15)	(16)	(17=11+14+16)	(18=10+17)
Planning Area Total	1,907	261	68	2,237	601	68	1,060	415	25	4,405	1,463	42	5,262	390	381	35	7,572	11,977
..North half	1,283	101	53	1,437	205	2	577	163	12	2,396	319	42	5,028	294	381	35	6,098	8,494
..NA quad	980	68	2	1,071	178	0	465	146	8	1,868	279	42	2,203	291	381	0	3,195	5,064
..NA-1 sector	3	0	13	16	47	0	30	0	0	93	145	0	0	10	0	0	156	248
..NA-1nj dist.	3	0	13	16	47	0	30	0	0	93	145	0	0	10	0	0	156	248
..NA-2 sector	13	0	7	19	15	0	32	0	0	67	34	19	501	45	142	0	740	807
..NA-2j dist.	0	0	0	0	12	0	17	0	0	29	16	8	57	0	51	0	133	162
..NA-2jn dist.	13	0	7	19	3	0	16	0	0	38	18	10	444	45	91	0	607	645
..NA-3 sector	667	20	1	687	46	0	250	145	8	1,136	51	23	1,616	210	239	0	2,139	3,275
..NA-3j dist.	663	20	1	684	46	0	240	145	8	1,123	51	0	28	174	101	0	355	1,477
..NA-3nj dist.	3	0	0	3	0	0	10	0	0	13	0	23	1,588	36	138	0	1,784	1,797
..NA-4 sector	298	49	3	350	69	0	153	2	0	574	48	0	86	26	0	0	161	734
..NA-4j dist.	298	49	3	350	69	0	153	2	0	574	48	0	86	26	0	0	161	734
..NB quad	303	33	30	366	27	2	113	16	3	528	40	0	2,825	2	0	35	2,903	3,430
..NB-1 sector	303	33	30	366	27	2	113	16	3	528	40	0	2,825	2	0	35	2,903	3,430
..NB-1j dist.	180	31	0	211	15	0	49	13	3	291	0	0	57	2	0	35	95	386
..NB-1nj dist.	123	2	30	155	12	2	65	3	0	237	40	0	2,768	0	0	0	2,808	3,045
..South half	624	160	15	800	396	66	482	252	13	2,009	1,144	0	234	97	0	0	1,475	3,483
..SA quad	482	156	15	653	274	40	337	151	13	1,468	405	0	225	97	0	0	726	2,195
..SA-1 sector	38	27	12	78	39	2	58	51	0	226	264	0	0	69	0	0	333	560
..SA-1nj dist.	38	27	12	78	39	2	58	51	0	226	264	0	0	69	0	0	333	560
..SA-2 sector	214	5	3	223	49	15	111	56	8	461	7	0	0	8	0	0	15	475
..SA-2j dist.	214	5	3	223	49	15	111	56	8	461	7	0	0	8	0	0	15	475
..SA-3 sector	62	53	0	114	45	0	46	19	2	226	15	0	11	10	0	0	37	262
..SA-3 dist.	62	53	0	114	45	0	46	19	2	226	15	0	11	10	0	0	37	262
..SA-4 sector	84	41	0	124	13	24	58	2	0	221	52	0	0	6	0	0	57	279
..SA-4j dist.	78	41	0	119	3	19	50	2	0	193	42	0	0	5	0	0	47	240
..SA-4nj dist.	6	0	0	6	10	4	8	0	0	28	10	0	0	1	0	0	11	39
..SA-5 sector	84	30	0	114	128	0	65	24	3	334	67	0	214	3	0	0	284	619
..SA-5j dist.	66	30	0	96	23	0	34	6	1	161	14	0	93	2	0	0	109	270
..SA-5nj dist.	19	0	0	19	105	0	31	18	2	174	54	0	121	1	0	0	175	349
..SB quad	142	4	0	147	122	26	145	101	0	541	739	0	9	0	0	0	748	1,289
..SB-1 sector	45	0	0	45	25	0	46	1	0	117	181	0	0	0	0	0	181	298
..SB-1nj dist.	45	0	0	45	25	0	46	1	0	117	181	0	0	0	0	0	181	298
..SB-2 sector	36	4	0	40	96	13	62	49	0	259	492	0	0	0	0	0	492	751
..SB-2nj dist.	36	4	0	40	96	13	62	49	0	259	492	0	0	0	0	0	492	751
..SB-3 sector	11	0	0	11	0	13	18	27	0	69	67	0	0	0	0	0	67	136
..SB-3nj dist.	11	0	0	11	0	13	18	27	0	69	67	0	0	0	0	0	67	136
..SB-4 sector	51	0	0	51	1	0	19	24	0	95	0	0	9	0	0	0	9	104
..SB-4nj dist.	51	0	0	51	1	0	19	24	0	95	0	0	9	0	0	0	9	104

Exhibit B.8t: Land Use Measurements for the City of Jacksonville Area, in Acres

Aerial Unit	Single Fam. Resid.	Apt. Res.	Mob-ile Home	Resi-dential Total	Com-mercial	In-dus-try	Trans., Comm., Util.	Gov., Inst-itut.	Cul. Ent. Rec.	Urban Built Total	Un-devel-oped	Agri-cul-tur.	Forest Land	Wa-ter	Wet Land	Bar-ren	Total Undev-elop.	Total Land Use
	(col. 1)	(2)	(3)	(4=1,2,3)	(5)	(6)	(7)	(8)	(9)	(10=4+5+9)	(11)	(12)	(13)	(14)	(15)	(16)	(17=11+16)	(18=10+17)
Planning Area Total	1,560	227	7	1,795	263	34	699	242	23	3,056	194	8	333	228	153	35	950	4,006
..North half	1,141	99	4	1,244	143	0	458	160	12	2,016	116	8	229	202	153	35	743	2,759
..NA quad	961	68	4	1,033	127	0	410	146	8	1,725	116	8	172	200	153	0	648	2,373
..NA-1 sector	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..NA-1nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..NA-2 sector	0	0	0	0	12	0	17	0	0	29	16	8	57	0	51	0	133	162
..NA-2j dist.	0	0	0	0	12	0	17	0	0	29	16	8	57	0	51	0	133	162
..NA-2nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..NA-3 sector	663	20	1	684	46	0	240	145	8	1,123	51	0	28	174	101	0	355	1,477
..NA-3j dist.	663	20	1	684	46	0	240	145	8	1,123	51	0	28	174	101	0	355	1,477
..NA-3nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..NA-4 sector	298	49	3	350	69	0	153	2	0	574	48	0	86	26	0	0	161	734
..NA-4j dist.	298	49	3	350	69	0	153	2	0	574	48	0	86	26	0	0	161	734
..NB quad	180	31	0	211	15	0	49	13	3	291	0	0	57	2	0	35	95	386
..NB-1 sector	180	31	0	211	15	0	49	13	3	291	0	0	57	2	0	35	95	386
..NB-1j dist.	180	31	0	211	15	0	49	13	3	291	0	0	57	2	0	35	95	386
..NB-1nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..South half	419	128	3	551	121	34	241	83	12	1,040	78	0	104	26	0	0	207	1,248
..SA quad	419	128	3	551	121	34	241	83	12	1,040	78	0	104	26	0	0	207	1,248
..SA-1 sector	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SA-1nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SA-2 sector	214	5	3	223	49	15	111	56	8	461	7	0	0	8	0	0	15	475
..SA-2j dist.	214	5	3	223	49	15	111	56	8	461	7	0	0	8	0	0	15	475
..SA-3 sector	62	53	0	114	45	0	46	19	2	226	15	0	11	10	0	0	37	262
..SA-3j dist.	62	53	0	114	45	0	46	19	2	226	15	0	11	10	0	0	37	262
..SA-4 sector	78	41	0	119	3	19	50	2	0	193	42	0	0	5	0	0	47	240
..SA-4j dist.	78	41	0	119	3	19	50	2	0	193	42	0	0	5	0	0	47	240
..SA-4nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SA-5 sector	66	30	0	96	23	0	34	6	2	161	14	0	93	2	0	0	109	270
..SA-5j dist.	66	30	0	96	23	0	34	6	2	161	14	0	93	2	0	0	109	270
..SA-5nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB quad	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-1 sector	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-1nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-2 sector	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-2nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-3 sector	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-3nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-4 sector	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
..SB-4nj dist.	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ

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Exhibit B.9t: Land Use Measurements for the Outside of Jacksonville Area, in Acres

Aerial Unit	Single Fam. Resid.	Apt. Res.	Mob-ile Home	Resi-dential Total	Com-mer-cial	In-dus-try	Trans., Comm., Util.	Gov., Inst-itut.	Cul. Ent. Rec.	Urban Built Total	Un-devel-oped	Agri-cul-tur.	Forest Land	Wa-ter	Wet Land	Bar-ren	Total Undev-elop.	Total Land Use
	(1)	(2)	(3)	(4=1+2+3)	(5)	(6)	(7)	(8)	(9)	(10=4+5+6+7+8+9)	(11)	(12)	(13)	(14)	(15)	(16)	(17=11+12+13+14+15+16)	(18=10+17)
Planning Area Total	347	34	61	442	338	40	361	173	2	1,349	1,269	33	4,929	162	228	0	6,622	7,971
..North half	142	2	49	194	62	2	119	3	0	380	203	33	4,799	91	228	0	5,355	5,735
..NA quad	19	0	19	38	50	0	55	0	0	144	163	33	2,031	91	228	0	2,547	2,690
..NA-1 sector	3	0	13	16	47	0	30	0	0	93	145	0	0	10	0	0	156	248
..NA-1nj dist.	3	0	13	16	47	0	30	0	0	93	145	0	0	10	0	0	156	248
..NA-2 sector	13	0	7	19	3	0	16	0	0	38	18	10	444	45	91	0	607	645
..NA-2j dist.	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..NA-2nj dist.	13	0	7	19	3	0	16	0	0	38	18	10	444	45	91	0	607	645
..NA-3 sector	3	0	0	3	0	0	10	0	0	13	0	23	1,588	36	138	0	1,784	1,797
..NA-3j dist.	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..NA-3nj dist.	3	0	0	3	0	0	10	0	0	13	0	23	1,588	36	138	0	1,784	1,797
..NA-4 sector	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..NB quad	123	2	30	155	12	2	64	3	0	237	40	0	2,767	0	0	0	2,808	3,045
..NB-1 sector	123	2	30	155	12	2	64	3	0	237	40	0	2,767	0	0	0	2,808	3,045
..NB-1j dist.	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..NB-1nj dist.	123	2	30	155	12	2	64	3	0	237	40	0	2,767	0	0	0	2,808	3,045
..South half	205	32	12	249	275	32	242	169	2	969	1,066	0	130	71	0	0	1,267	2,236
..SA quad	62	27	12	102	154	6	97	68	2	428	327	0	121	71	0	0	519	947
..SA-1 sector	38	27	12	78	39	2	58	51	0	226	264	0	0	69	0	0	333	560
..SA-1 dist.	38	27	12	78	39	2	58	51	0	226	264	0	0	69	0	0	333	560
..SA-2 sector	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..SA-2j dist.	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..SA-3 sector	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..SA-3j dist.	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..SA-4 sector	6	0	0	6	10	4	8	0	0	28	10	0	0	1	0	0	11	39
..SA-4j dist.	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..SA-4nj dist.	6	0	0	6	10	4	8	0	0	28	10	0	0	1	0	0	11	39
..SA-5 sector	19	0	0	19	105	0	31	18	2	174	53	0	121	1	0	0	175	349
..SA-5j dist.	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
..SA-5nj dist.	19	0	0	19	105	0	31	18	2	174	53	0	121	1	0	0	175	349
..SB quad	142	4	0	147	122	26	145	101	0	541	739	0	9	0	0	0	748	1,289
..SB-1 sector	45	0	0	45	25	0	46	1	0	117	181	0	0	0	0	0	181	298
..SB-1nj dist.	45	0	0	45	25	0	46	1	0	117	181	0	0	0	0	0	181	298
..SB-2 sector	36	4	0	40	96	13	62	49	0	259	492	0	0	0	0	0	492	751
..SB-2nj sector	36	4	0	40	96	13	62	49	0	259	492	0	0	0	0	0	492	751
..SB-3 sector	11	0	0	11	0	13	18	27	0	69	67	0	0	0	0	0	67	136
..SB-3nj dist.	11	0	0	11	0	13	18	27	0	69	67	0	0	0	0	0	67	136
..SB-4 sector	51	0	0	51	1	0	19	24	0	95	0	0	9	0	0	0	9	104
..SB-4nj dist.	51	0	0	51	1	0	19	24	0	95	0	0	9	0	0	0	9	104

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Appendix "C"

CITIZEN OPINION SURVEY

INTRODUCTION

As part of Jacksonville's public participation program for the CAMA Land Use Plan, it was decided that a citizen opinion survey should be made. The purposes of the survey were to determine (1) the level of satisfaction or dissatisfaction with certain community services, opportunities, and livability qualities; and (2) to determine the level of agreement or disagreement with certain future growth possibilities.

DESIGN

The design of the survey form is shown by Exhibit C.2t. The questions dealing with "satisfaction-dissatisfaction" are numbered 1 through 27, and those dealing with "agreement-disagreement" are 28 through 30. Questions 32 through 35 were included to permit later analysis of responses by sex, age, income, geographic area, or by any combination of these characteristics.

DISTRIBUTION

The forms were distributed to citizens in three ways: 27,000 copies (only 6,000-8,000 in Jacksonville City) in the local newspaper; approximately 400 copies were given to citizens who visited City Hall for other reasons; and about 100 copies were distributed by members of the Citizen's Advisory Committee to persons living in their neighborhood and to high school students.

RETURNS

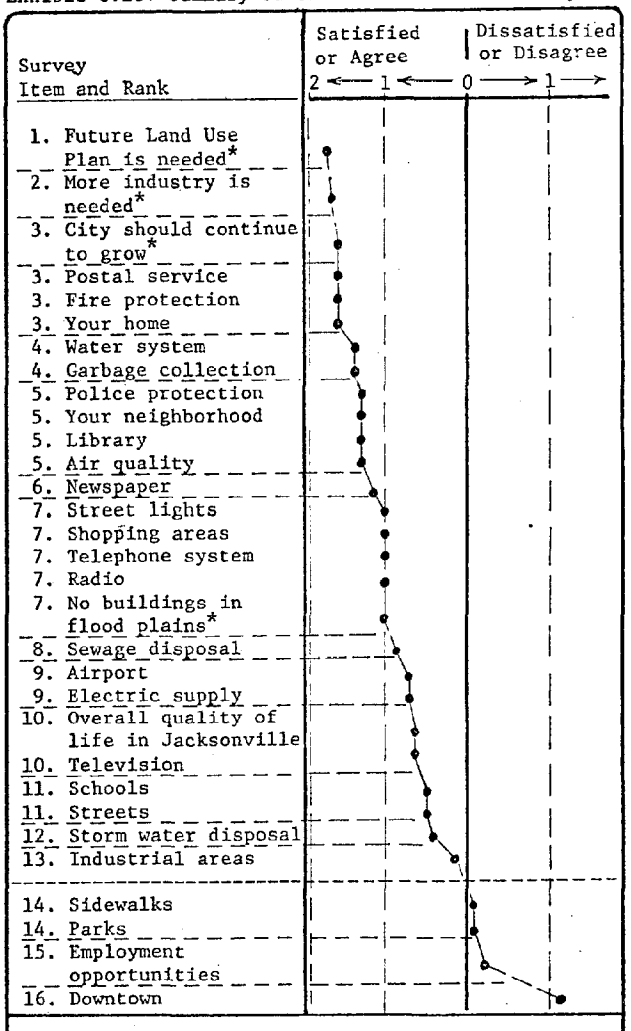
Of the 8,000 Jacksonville forms, only 80 were returned---which represents less than one percent (.4%) of the 20,000 people living in the City. Or, if one assumes that each form represents the attitudes of an entire family unit, the returns would represent about one and one-half percent of the City's 5,600 dwelling units. Because of the small return and the lack of a scientific sampling procedure, the response cannot be said to be representative of the attitudes of all the citizens of Jacksonville.

FINDINGS

When the 80 forms were summarized, as shown by Exhibit C.1t, they revealed far more positive than negative findings. For the four "agree-disagree" items on the form, the highest level of agreement was for "a future land use plan is needed," next was "more industry is needed", followed by "the City should continue to grow in area and population," and ending with "buildings should not be permitted in our flood plains."

For the "satisfied-dissatisfied" questions, the highest degree of satisfaction was expressed with "postal service, fire protection, and your home".

Exhibit C.1t: Summary of the 80 Jacksonville Responses



*These are the four "agree-disagree" questions

Items through #7 on the exhibit also ranked in the high satisfaction area, while items #8 through #13 ranked in the "fairly" satisfied area. On the dissatisfied side were only four items. Sidewalks, parks, and employment opportunities were ranked as "slightly dissatisfied", while Downtown was the only item to receive a "fully dissatisfied" ranking.

In terms of dominant characteristics, the eighty respondents were:

...74% male
...90% between 19 to 64 yrs
...83% earned over $10,000 per year
...80% live north of Marine Boulevard

WRITTEN COMMENTS

Space was provided on the survey form for citizens to add any other comments desired. The following

Exhibit C.2t: Citizen Opinion Survey Form for Jacksonville, North Carolina CAMA Land Use Plan

CITY OF JACKSONVILLE, NORTH CAROLINA

CITIZEN OPINION SURVEY

Dear Citizen:

The North Carolina Coastal Areas Management Act of 1974 requires the city of Jacksonville, along with other coastal cities and counties, to prepare a Land Use Plan to help guide our community's future growth and development, and to protect our natural resources. This survey form is one method we are using to try to insure that our plans adequately reflect the opinions and attitudes of our citizens.

Would you be so kind as to help us by completing this survey form on the front and back. After completion, will you please fold the form so that my office address shows on the outside and return it by mail.

I thank you for your interest and help.

Sincerely,

Robert F. Wray, City Manager

The following items deal with certain services, facilities, and opportunities in Jacksonville. For each item, would you mark the one box that expresses your degree of satisfaction or dissatisfaction. If you would like to explain the reason for your answer, please do so on the back of this page in the box titled "For Your Comments."

Survey Item	A Fully Satisfied	B Fairly Satisfied	C No Opinion	D Slightly Dissatisfied	E Fully Dissatisfied
Employment opportunities					
2. Your home					
3. Neighborhood					
4. Shopping areas					
5. Downtown					
6 Industrial areas					
7. Library					
8. Schools					
9. Parks and recreat.					
10. Police protect.					
11. Fire protect.					
12. Postal service					
13 Sidewalks					
14. Streets					
15. Airport					
16. Electric System					
17. Street lights					
18. Water system					
19. Telephone system					
20. Radio					
21. TV					
22. Newspaper					
23. Garbage collection					
24. Storm water disposal					
25. Sewage disposal					
26. Air quality					
27 Overall quality of living in Jackson.					

In the following, would you indicate your degree of agreement or disagreement by marking only one of the boxes.

Survey Item	A Fully Agree	B Fairly Agree	C No Opinion	D Slightly Disagree	E Fully Disagree
28. The city should continue to grow in area and population.					
29. The futr. land use plan for Jacksonville is needed.					
30. Bldgs. should not be permitted in our flood plains.					
31. More industry is needed.					

Please turn to other side of this sheet and fill in those items. Thanks

..If you don't mind, would you please mark the appropriate box in the following:

32. Sex A. Male ☐ B. Female ☐

33. Age Group:
A. 18 yrs/under ☐ B. 19 to 64 ☐ C. over 65 ☐

34. Income Group:

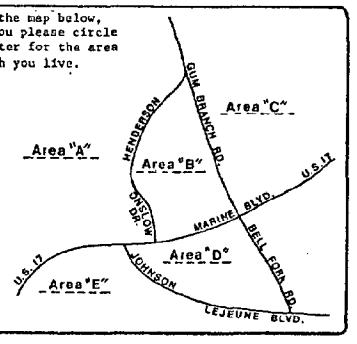
A. $5,000 or under ☐

B. $5,001 to 10,000 ☐

C. $10,001 to 15,000 ☐

D. over $15,000 ☐

35. On the map below, would you please circle the letter for the area in which you live.



written comments were made:

..."Illumination of many residential streets needs upgrading."

..."Need more parks and sidewalks, and more employment opportunities."

..."Close Court Street to traffic, and make into plaza, with trees and seating. Clean up area around bus station."

..."City is clean, healthy place to live, and reflects conscientious professional management practices. Services are excellent, the tax rate fair, and there's no deficit spending. I am proud to call Jacksonville my home."

..."J.C. Penny or Sears store needed. Should vote to outlaw sale of alcoholic beverage. This would clean up Downtown Jacksonville in a hurry."

..."Airport too far from Jacksonville. Dissatisfied with Court Street. No radio station has adequate news coverage. Limited TV channels if not on cable. Newspaper carries practically no sports, except for statistics.

..."Court Street is a disgrace. Developers should be made to put in streets, sidewalks, and parks. Rules for trash collection too strict. No recreation facilities in Area B."

..."Preserve public beach area before it is too late. Safe park and recreation space still a great need."

..."Route #17 and #24 need streets cleaned. Need bus service on main streets at least."

..."Too many commercials on local radio."

..."City should not continue to grow. Widening Henderson helped business but hurt residential. More industry is not needed. Airport was unnecessary and location is not good. Hospital would have been perfect at Montford point, but present location will present excessive cost to extend public services."

..."Overall quality of Jacksonville is not satisfactory because the military downgrades overall appearance, crime rate is rising, lack of facilities for selective shopping, and better recreation facilities are needed."

..."Need more industry. Telephone installation charge is too high."

..."Jacksonville is a good town, and this survey is a good start towards giving people what they want."

..."Airport needs a restaurant, and better service to the western part of North Carolina. Downtown should be rebuilt. Postal service in my neighborhood is good, but is too slow generally. City is large enough to support a TV station. Storm water drainage needs improvement in some areas. No sewage should ever be allowed to run in the river (example: stream on Maple Street). Too much haze in summer. Need a park in Area "C". Need more nice restaurants."

..."Most important matter that can be improved are our recreation facilities."

..."Need shopping mall. Sidewalks should be required on every street. Airport too far from City. Need local TV station. Need better water and sewers outside the City."

..."City can't grow without job opportunities and a workable plan to get the population off of welfare."

..."Airport needs more direct flights. Everything is hard sell on radio. Newspaper is getting better."

ANALYSIS BY JACKSONVILLE SUB-AREA

In order to determine if people living in different parts of Jacksonville would respond alike or differently to the same question, the City was divided into five sub-areas ((as shown by Item 35 on Exhibit C.2t). Of the total Citywide return of 81 forms:

...30, or 37%, were from Area "A"
...13, or 16%, were from Area "B"
...11, or 14%, were from Area "C"
... 5, or 6%, were from Area "D"
... 6, or 6%, were from Area "E"
...16, or 21%, were not marked as to the area.

The summary of responses from each area is shown by Exhibit C.3t. When each area was plotted*1 in a fashion similar to Exhibit C.1t, the similarity between areas was remarkable. There were very few cases where one area was "satisfied" with something, but other areas were "dissatisfied." An item by item breakdown will be provided by following the rank order established in Exhibit C.1t.

1. The future land use plan for Jacksonville is needed - all areas fully agree with this statement.

2. More industry is needed - Three areas fully agreed, while areas "A" and "D" fairly agreed.

3. The City should continue to grow in area and population - All areas fully agreed except for "A" and "B", which "fairly agreed."*2

3. Postal service - Areas A, D, and E were fully satisfied with this service, while the remaining areas were fairly satisfied.

3. Fire protection - All areas were fully satisfied with this service, except for "D" and the "unmarked area," which were fairly satisfied.

3. Your home - Area "A" was fully satisfied with their homes, while all other areas were fairly satisfied.

*1-The score for each survey item was established by (1) multiplying each "E" response by 1, "D" by 2, "C" by 3, "B" by 4, and "A" by 5; and (2) by adding up the resulting figures and dividing that total by the total number of responses to the item. The resulting score is plotted on Exhibit C.1t.

*2-This item, and the three which follow, all receive the same score and are all ranked as "3".

4. Water system - All areas were fairly satisfied with the public water system.

4. Garbage collection - Area "C" was fully satisfied with this service, and all other areas were fairly satisfied!

5. Police protection - Area "E" was fully satisfied, and all other areas were fairly satisfied.

5. Your neighborhood - Area "E" was fully satisfied with the neighborhood, and all other areas were fairly satisfied.

5. Library - All areas were fairly satisfied with the library.

5. Air quality - All areas were fairly satisfied.

6. Newspaper - Area "C" was fully satisfied, and all other areas were fairly satisfied.

7. Street lights - All areas were fairly satisfied.

7. Shopping areas - All areas were fairly satisfied.

7. Telephone system - Area "E" was fully satisfied, and all other areas were fairly satisfied.

7. Radio - All areas were fairly satisfied.

7. Buildings should not be permitted in our flood plains - All areas fairly agreed on this statement.

8. Sewage disposal - All areas were fairly satisfied.

9. Airport - All areas were fairly satisfied.

9. Electric supply - All areas were fairly satisfied.

10. Overall quality of life in Jacksonville - All areas were fairly satisfied.

10. Television - Area "D" was slightly dissatisfied, but all other areas were fairly satisfied.

11. Schools - Area "E" was fully satisfied, and all other areas were fairly satisfied.

11. Streets - Area "D" was slightly dissatisfied, but all other areas were fairly satisfied.

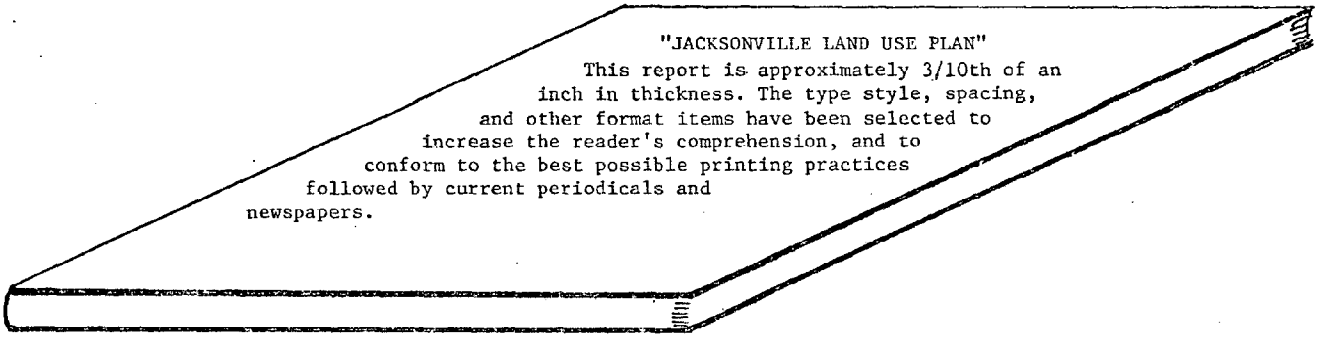
12. Storm water disposal - Areas "C" and "D" were slightly dissatisfied, but all others were fairly satisfied.

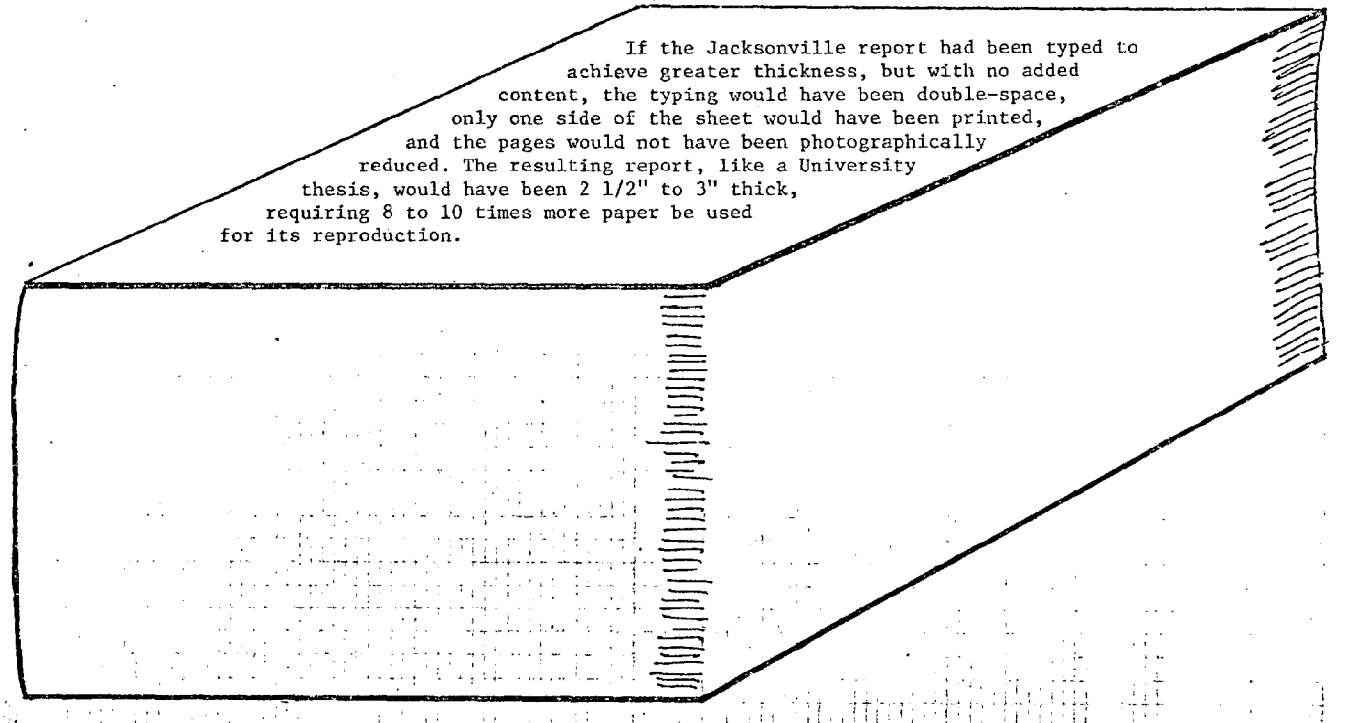
13. Industrial areas - Area "C" and the "unmarked area" were fairly satisfied, but all other areas were slightly dissatisfied.

14. Parks - Area "C" and the "unmarked" area were fairly satisfied, but all other areas were slightly dissatisfied.

15. Employment opportunities - All areas were slightly dissatisfied with employment opportunities.

16. Downtown - All areas expressed more dissatisfaction with Downtown than any other survey item.


"JACKSONVILLE LAND USE PLAN"
This report is approximately 3/10th of an inch in thickness. The type style, spacing, and other format items have been selected to increase the reader's comprehension, and to conform to the best possible printing practices followed by current periodicals and newspapers.


If the Jacksonville report had been typed to achieve greater thickness, but with no added content, the typing would have been double-space, only one side of the sheet would have been printed, and the pages would not have been photographically reduced. The resulting report, like a University thesis, would have been 2 1/2" to 3" thick, requiring 8 to 10 times more paper be used for its reproduction.

...The Jacksonville, North Carolina Coastal Area Management Land Use Plan was prepared through the cooperative efforts of many persons, most of whom are listed on this page.....

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Axson Smith
Kenneth D. Stewart, Exec. Secretary

W. Randolph Thomas, Jacksonville member of Advisory Council

The City of Jacksonville retained the firm of G. Reynolds Watkins Consulting Engineers, Inc. for professional assistance in the preparation of this plan. The firm's work was performed by Dr. William H. Qualls, Vice President for Community Planning and Management.

Local guidance and coordination were provided by Robert F. Wray, City Manager, and Bill Hargett, P.E., City Engineer GRW #446-5-'75

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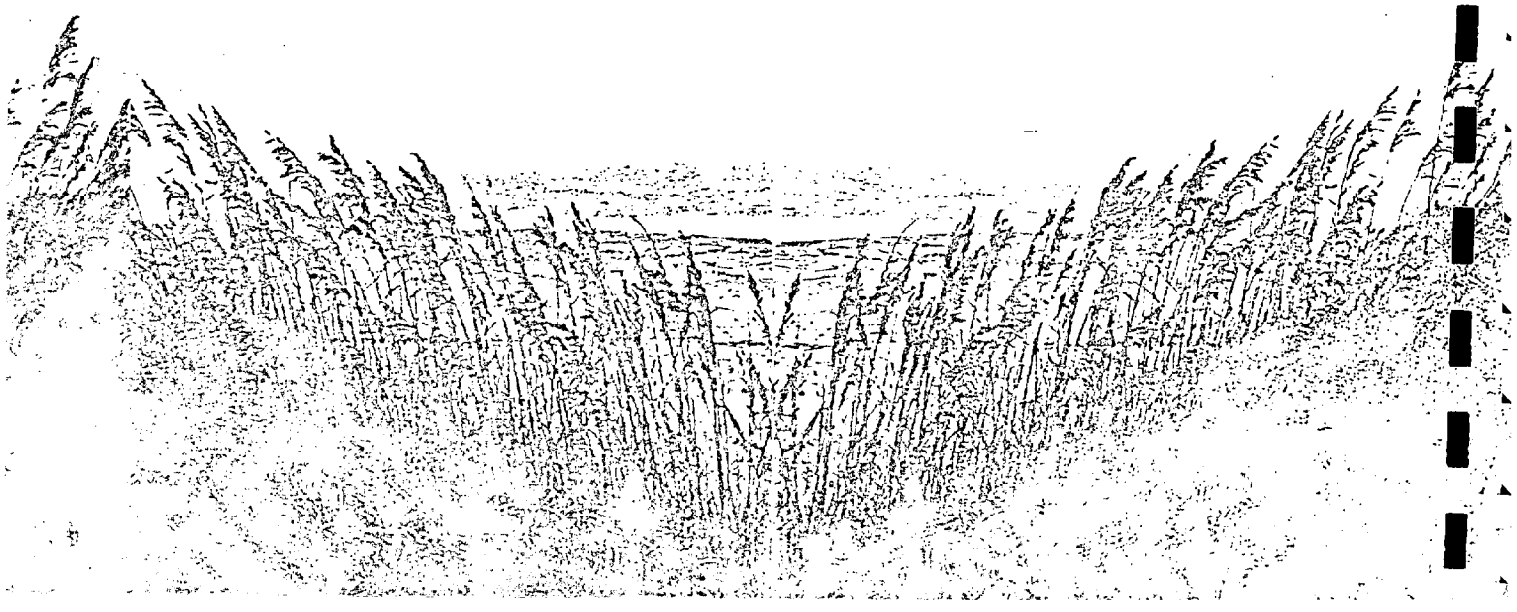

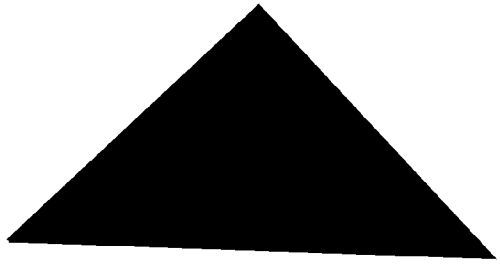

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