NC Dept of Natural Resources and Community Development
W.P.

CITY OF JACKSONVILLE CAMA LAND USE PLAN UPDATE 1985

City of Jacksonville Adoption
October 7, 1986

Coastal Resources Commission
Certification
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The preparation of this report was financed in part through a grant provided by the North Carolina Coastal Management Program, through funds provided by the Coastal Zone Management Act of 1972, as amended, which is administered by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration.

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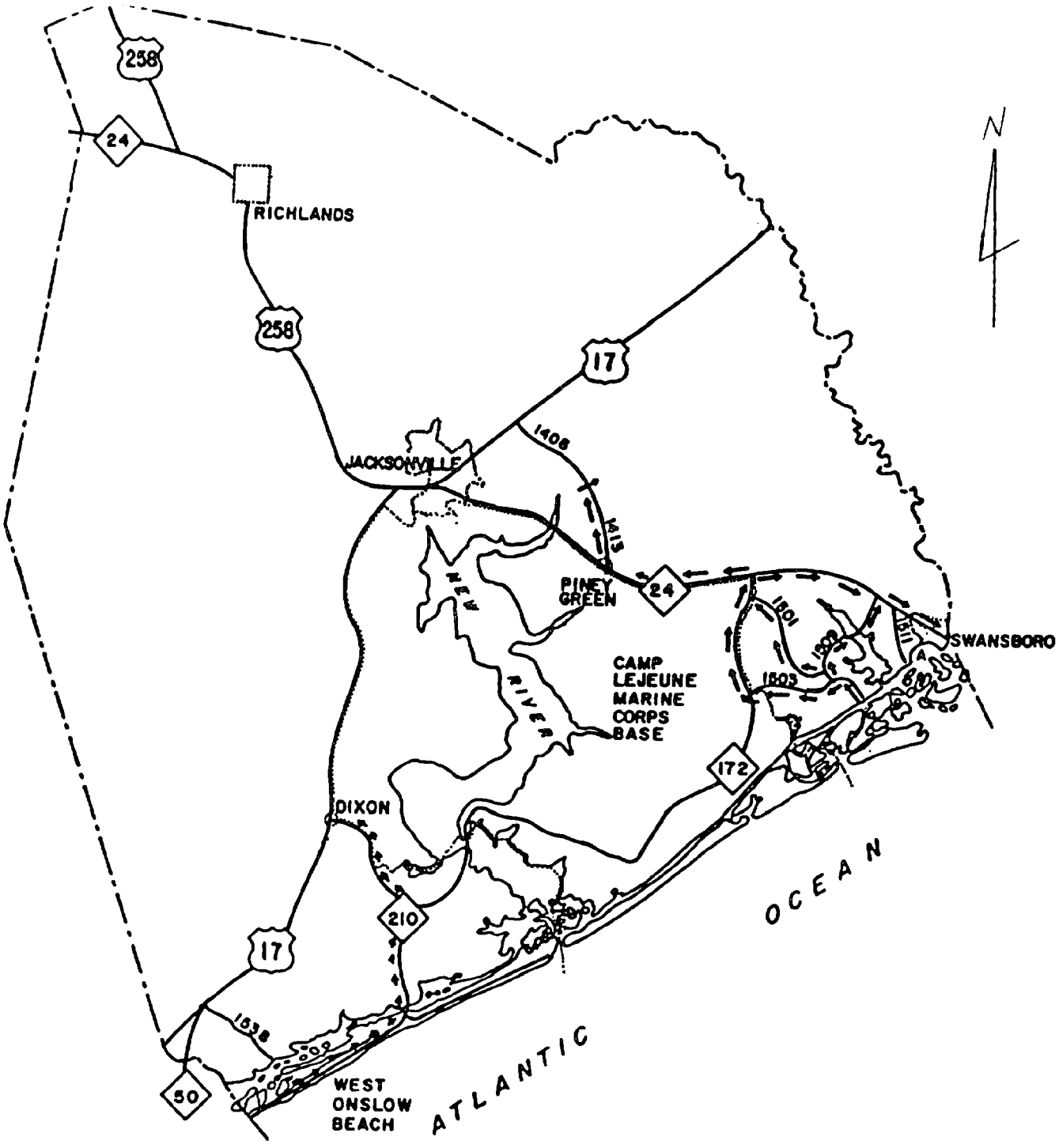
INTRODUCTION

The City of Jacksonville is located in the coastal plains region of North Carolina and serves as both the county seat of, and largest city in, Onslow County. As a municipality located within one of the twenty counties regulated by the North Carolina Coastal Area Management Act, Jacksonville is responsible for updating its land use plan every five years. This plan represents the second update of the City's original 1975 C.A.M.A. Land Use Plan. It is anticipated that this 1985 C.A.M.A. Land Use Plan Update will be used by local governments, private entities, and other levels of government as they make decisions concerning future development.

Great effort has been made to ensure that this Plan is a workable instrument which addresses the problems and concerns of our area while further exploring efficient use of public services, wise use of land, sound economic policies, recognition of the ecological and aesthetic virtues of planning protection, and the health and safety of our citizens. The following plan represents the work of the Jacksonville City Council, the Jacksonville Planning Board, the City of Jacksonville Planning Department, and other citizens who are interested in Jacksonville's future.



ONSLOW COUNTY

NORTH CAROLINA

PART I

Issues in the 1980 Land Use Plan Update

ISSUES DISCUSSED IN THE 1980 LAND USE PLAN UPDATE

For existing development:

1. To expand public utilities and services.
2. To improve the public streets network.
3. To encourage industrial employment opportunities.
4. To improve the nature of neighborhoods.
5. To implement a downtown redevelopment effort.
6. To discourage strip commercial development.

For future development:

1. To continue orderly growth.
2. To make good use of all available technical and natural resources.
3. To utilize future growth plans based on sound decisions that would reflect the highest and best use of the land and which would reflect community needs and desires.
4. To protect the New River from development encroachment.
5. To ensure adequate public park facilities.

PART II

Goals and Objectives Reflected in the 1980 Land Use Plan Update

GOALS AND OBJECTIVES OF THE 1980 LAND USE PLAN UPDATE

1. Goal - Land Use Planning

   Objective - To evaluate the effectiveness of the 1975 C.A.M.A. Land Use Plan and to devise a system to evaluate the effectiveness of on-going planning programs in the future.

2. Goal - Policy Development

   Objective - To develop specific policy statements that are reasonable and achievable.

3. Goal - Public Involvement

   Objective - To increase public awareness of the planning process for the C.A.M.A Plan Update and future planning and to increase public participation in the planning process.

4. Goal - Education of Elected and Appointed Officials

   Objective - To provide accurate information about existing natural resources within the Jacksonville area and their potential uses over the next ten years; to suggest methods of exchanging information with appropriate state and federal agencies to provide a constant flow of information to the local elected and appointed officials.

PART III

Effectiveness of the 1980 Goals and Objectives

Seven goals and objectives were set forth in Chapter VII of Jacksonville's 1980 C.A.M.A. Land Use Plan Update. The following sections quote those goals and objectives and describe actions taken by the City, over the past five years, which address each goal specifically.

A. Resource Protection and Management: New River

> It shall be the policy of the City of Jacksonville to advise all interested local governments, the State of North Carolina, and the U. S. Government that the City has determined through the C.A.M.A. Land Use Plan Update that there are potential recreational and economic uses for which the New River is not presently being used due to its polluted state. The City shall participate with local, state, and federal agencies to determine existing sources of pollution and methods of preventing such pollution of the New River in the future.

In 1981 the City of Jacksonville and Onslow County jointly applied for a C.A.M.A. grant: 1) to assess coliform distribution in the waters of the New River to a distance of approximately 10 miles north and south of Jacksonville, North Carolina, 2) to define point and non-point sources of pollution in the New River estuary should they exist, 3) to demonstrate seasonal changes and geographic changes in coliform counts in the New River estuary as an indication of pollution, 4) to present information of the socio-economic consequences of coliform in the estuary, and 5) to evaluate

and present rational alternatives to the present discharge systems. This grant was approved, and the University of North Carolina at Wilmington was contracted to prepare the study. The study was completed in the spring of 1982. It contained a description of identified causes of pollution and recommended methods of abatement.

Since the adoption of this C.A.M.A. policy, the City also adopted the "City of Jacksonville Flood Damage Prevention Ordinance" on February 5, 1985. (Appendix Page) In addition to helping limit pollution of the New River and its associated fragile areas, the objectives of this ordinance are: 1) to protect human life and health, 2) to minimize expenditure of public money for costly flood control projects, 3) to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public, 4) to minimize prolonged business interruptions, 5) to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets, and bridges located in flood plains, 6) to help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas, 7) to insure that potential homebuyers are notified that property is in a flood area, and 8) to minimize harm to natural plant and animal life.

The City is currently reviewing the subdivision ordinance in an effort to determine what changes within that ordinance may help alleviate the pollution of the New River.

B. Economic Development

It shall be the policy of the City of Jacksonville to cooperate and participate with the Onslow County Economic Development Commission and the Jacksonville Chamber of Commerce to identify potential industrial sites, thereby encouraging location of new industries in the Jacksonville area. The City shall extend utilities to identified industrial sites where engineering feasibility studies prove such extensions to be financially feasible.

As discussed in the chapter entitled "Existing Land Use", there are approximately 150 acres of available vacant land in the vicinity of the Jacksonville Industrial Park. This area is already served by utilities and is well situated for industrial plant sites. In an effort to improve the statistical base, upon which prospective industries depend for valuable information, the City has scheduled the "Jacksonville Economic Base Study" for completion during fiscal year 1987-1988.

C. Strip-Commercial Development

It shall be the policy of the City of Jacksonville to discourage strip-commercial development along any future or existing arterial, collector, or minor streets within the planning jurisdiction of the City. Such

discouragement will be in the form of appropriate revisions to the City's zoning ordinance requiring various types of control-of-access to major roads and streets and through zoning decisions.

As described in the chapter entitled "Existing Land Use", the City of Jacksonville does not have a traditional downtown area, but instead, has a series of strip-commercial developments along major highways. Since the adoption of the above stated policy in the 1980 C.A.M.A. Land Use Plan Update, the City Council has become more aware of the negative aspects of strip-commercial development and has utilized this awareness in its handling of rezonings which might be conducive to such development.

D. Redevelopment of Developed Areas: Old Downtown

It shall be the policy of the City of Jacksonville to participate in the investigation of the feasibility and/or desirability of redeveloping the original downtown area in cooperation with merchants and property owners of that area, as well as with other interested groups, such as local, state, and federal agencies. Further, the City shall cooperate with public and private organizations in preserving structures in the old downtown area and the rest of the City which have, or may be identified as having, historical significance.

As is evident from the above stated policy, the City has long recognized the value of the old downtown area and the need to improve it. In an effort to learn more about the downtown revitalization efforts of other communities, the Jacksonville City Council and selected staff members visited Tarboro, Fayetteville, and Wilmington for a first hand observation of their efforts and successes. As a result of these fact finding trips, the City Council, on July 3, 1984, passed Resolution 1691 which established a local "Downtown Redevelopment Task Force." As stated in this resolution, the purpose of the task force was "to make preliminary findings and recommendations with regard to the redevelopment and revitalization of the City's downtown area and adjoining waterfront areas, including those methods and organizations needed to implement and sustain its recommendations."

Acting on the recommendation of the Task Force (as contained in a report entitled "Jacksonville Downtown Redevelopment Task Force: Final Report") the City Council of Jacksonville contracted with a consulting firm, Land and Community Services, on June 28, 1985 to prepare a preliminary redevelopment plan which includes the following elements: a) Resources Analysis. An assessment of the natural, physical, historic, human, and economic resources of the area, b) Problems and Needs Assessment. An assessment of problems and needs in the area, including condition of properties, public facilities, land use patterns, public safety, appearance and aesthetics, investment characteristics, and economic health, c) Direction: Role Selection. Examination of potential role definitions for this area within the community, including discussion of various action alternatives and recommendation of a preferred role option for this area, d)

Implementation Strategies. Inventory and recommendation of resources and strategies for implementation of downtown redevelopment and of the recommended action alternative. Further issues addressed included: financial resources, planning and studies, organizations and agencies, private sector involvement, laws and regulations, public facilities improvements, historic preservation, investment incentives, marketing and promotion, special activities, zoning, public services, special service districts, protection and utilization of natural resources, and nearby neighborhoods involvement, and e) Concept Plan. Preparation of a conceptual plan, including maps and drawings, graphically illustrating preliminary recommendations for redevelopment of the area.

In addition to contracting for a plan of the area, the City has, in cooperation with Onslow County, applied for and received a $50,000 grant from The Land and Water Conservation Fund, and the Ocean and Estuarine Access Program to construct a waterfront park along the New River in the downtown area.

E. Redevelopment of Developed Areas: Other

> It shall be the policy of the City of Jacksonville to redevelop developed areas of the City which contain either housing units that are determined to be substandard and therefore unsafe for human habitation, or areas where the preponderance of incompatible land uses have developed in the past due to unplanned growth.

Redevelopment of such areas will be contingent upon the availability of local and federal funds and the financial feasibility of such projects.

The City has been active in the redevelopment of older developed areas. Since the adoption of the 1980 C.A.M.A. Land Use Plan Update, the City has rehabilitated 42 residential units, 5 commercial structures, and demolished or cleared 30 other properties. All rehabilitation projects and clearances occurred in older parts of town which would be generally classified as "depressed".

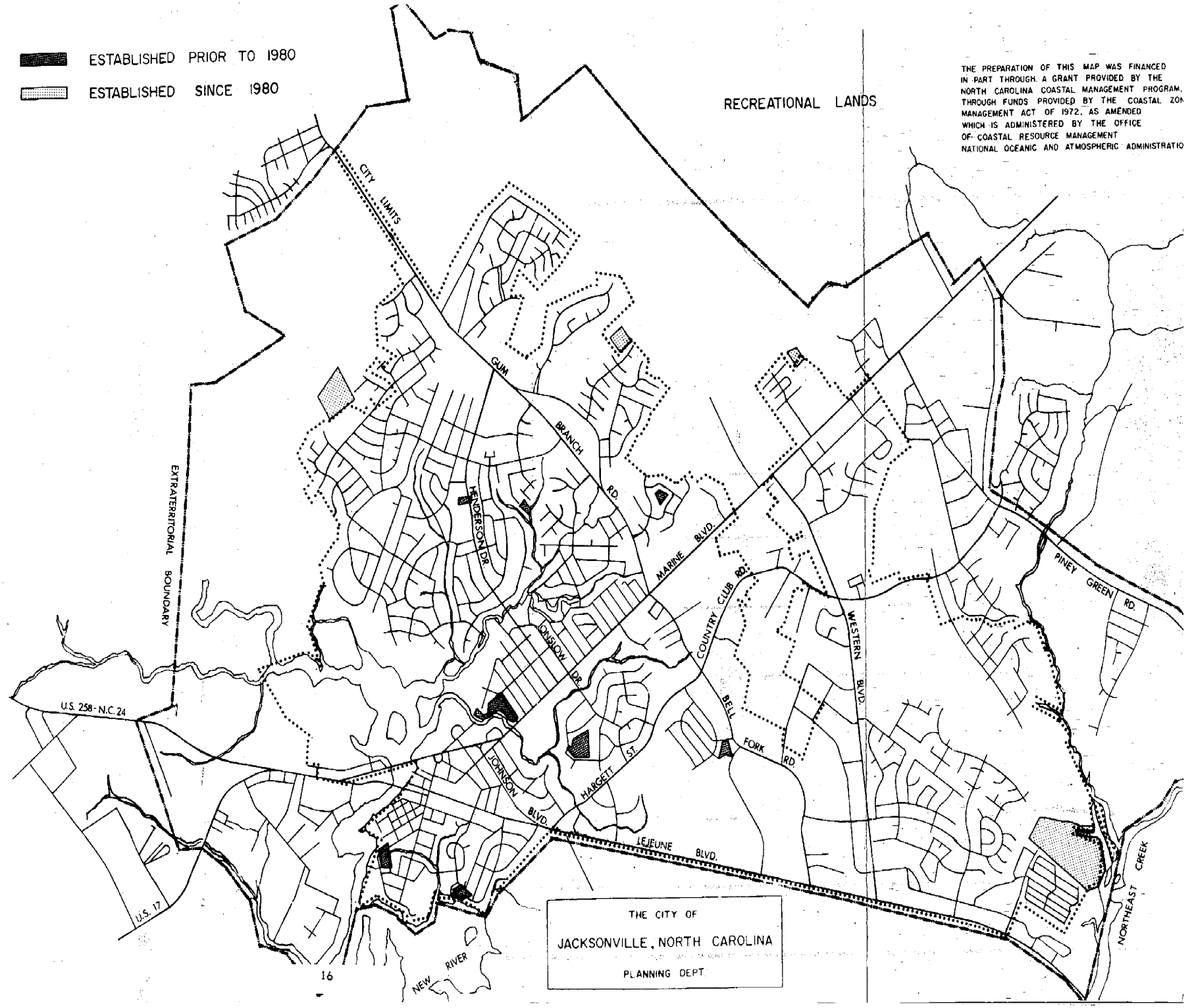
In addition to direct improvements in housing, infrastructure improvements have also been made throughout these depressed areas. Since 1980, the City has paved Spargo Street, Shoreline Drive, Loyola Street, E. Railroad Street, Wardola Street, Wantland Street, Marine Plaza, Maypatch Road, Texie Lane, 5th Avenue, Annie Street, and Miracle Drive. All of the aforementioned streets were previously unpaved. In addition, the City has constructed over a mile of sidewalks (5,376 linear feet) and made substantial improvements in, and increased the availability of, both water and sewer lines throughout the economically disadvantaged areas of the City. It is felt that the rehabilitation and clearance of existing structures and the extensive infrastructure improvements that have been made have effectively implemented the City's adopted policy from the 1980 C.A.M.A. Land Use Plan of "Redevelopment of Developed Areas".

F. Recreational Lands

> It shall be the policy of the City of Jacksonville to locate and acquire recreational lands and facilities so as to meet the recreation needs of the citizenry. These needs shall be determined through development of a detailed recreation and open space plan.

The above policy has been a guiding force in the City's effort to expand recreational opportunities for local citizens. In 1981, the City, in cooperation with the Regional Development Institute of East Carolina University, drafted the "Jacksonville Recreation and Open Space Study" which noted that the City owned only 25 acres of public recreation land.

A primary recommendation of the "Jacksonville Recreation and Open Space Plan" and the aforementioned C.A.M.A. policy was the acquisition of additional recreational lands. In order to acquire additional recreational facilities, the City, in 1983, amended the City's subdivision ordinance so as to require developers to donate recreational land, or fees in-lieu-of, to the City for all residential subdivisions. As a result of this action, the City has acquired a 4.8 acre neighborhood park in Foxhorn Village Subdivision, a 2 acre park in Acorn Forest Subdivision, and a 3.9 acre park in the Branchwood Subdivision and has reserved a 2.2 acre park in Ellis Park Subdivision for future acquisition. Approximately $25,000 in a capital reserve property acquisition fund has been received as fees-in-lieu-of land donations from developers. The City has also acquired two community parks


ESTABLISHED PRIOR TO 1980
ESTABLISHED SINCE 1980
RECREATIONAL LANDS
THE PREPARATION OF THIS MAP WAS FINANCED IN PART THROUGH A GRANT PROVIDED BY THE NORTH CAROLINA COASTAL MANAGEMENT PROGRAM, THROUGH FUNDS PROVIDED BY THE COASTAL ZON MANAGEMENT ACT OF 1972, AS AMENDED WHICH IS ADMINISTERED BY THE OFFICE OF COASTAL RESOURCE MANAGEMENT NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIO
CITY LIMITS
EXTRATERRITORIAL BOUNDARY
GUM BRANCH RD.
HENDERSON DR.
MARINE BLVD.
COUNTRY CLUB RD.
ONSLOW DR.
WESTERN BLVD.
PINEY GREEN RD.
BELL FORK RD.
HARGETT ST.
JOHNSON BLVD.
LEJEUNE BLVD.
U.S. 258 - N.C. 24
U.S. 17
NEW RIVER
NORTHEAST CREEK
THE CITY OF
JACKSONVILLE, NORTH CAROLINA
PLANNING DEPT.

to provide needed recreation facilities to area residents. The first park was acquired from the Westminster Company in order to satisfy recreation needs in the Brynn Marr and Country Club Hills subdivisions. This 82 acre community recreation park, which is known as Northeast Creek Park, is under active development. The site plan for this waterfront park was financed through a 1983-84 C.A.M.A. grant. The other community park has only recently been acquired, and is in the Northwoods area adjacent to Parkwood Elementary School. This 32 acre park was partially acquired through utilization of fees-in-lieu-of land that had been donated to the City to fulfill subdivision development requirements within the general area. As a result of the City's policy to acquire additional recreation land, the City's overall recreational land has grown by 608% from 25 acres to 152 acres. Although this is a substantial increase in total recreation area, the recreation land per person is not growing as fast, having increased by 545% from .0011 acres per person in 1980 to .0060 acres per person in 1985.

G. Planning Tools and Capacity

It shall be the policy of the City of Jacksonville to improve its capacity and potential to guide community growth and land use by developing a full range of comprehensive plan elements by 1985. These elements should include a detailed land use plan, an economic base study, a housing study and plan, a recreation and open space study, a community facilities plan, a capital improvements program, a historic survey and inventory.

The City shall also explore the extension of its planning jurisdiction up to two miles from its corporate boundary and will consider uniform administration of its development regulation codes throughout its jurisdiction.

Since 1980, the City has completed "The Jacksonville Recreation and Open Space Plan", "The Jacksonville Community Facilities Plan", "The Jacksonville Housing Action Plan", "The Northeast Creek Park Site Plan", and this land use plan update. The City has also instituted an ongoing capital improvements program which is being used to fund major purchases. An economic base study has not yet been completed but has been scheduled for completion during fiscal year 1987-1988.

The City has also taken steps toward increasing the City's extraterritorial planning jurisdiction from one to two miles as recommended in the 1980 C.A.M.A. Land Use Plan Update. In the fall of 1983, the City conducted a detailed study of extraterritorial expansion. This study included land use surveys within the proposed expansion area and a survey of other cities' extraterritorial jurisdiction limits, to which 41 cities responded. This two mile expansion effort culminated in a joint meeting between the Onslow County Commissioners and Jacksonville City Council at which time Jacksonville's expansion request was denied.

PART IV

Annexations/ Existing Population

ANNEXATIONS

As indicated on Map Attachment C, the City of Jacksonville has maintained an aggressive annexation policy since the opening of Camp Lejeune in the mid-1940s. Since 1980, the City has annexed an additional 2,437 acres increasing the area within the corporate limits from 8.15 square miles to 11.97 square miles. The City, additionally, boasts a one mile extraterritorial planning jurisdiction. Future annexation considerations are reflected on Map Attachment D as adopted by the Jacksonville City Council.

Table 1 below illustrates corporate land area increases resulting from annexations between 1960 and 1985.

TABLE 1

JACKSONVILLE CORPORATE LAND AREA INCREASES

1960-1985

Year	Corporate Area (in square miles)	Percent Increase
1960	3.56	
1970	4.86	37%
1980	8.15	68%
1985	11.97	46%

Source: City of Jacksonville Planning Department.

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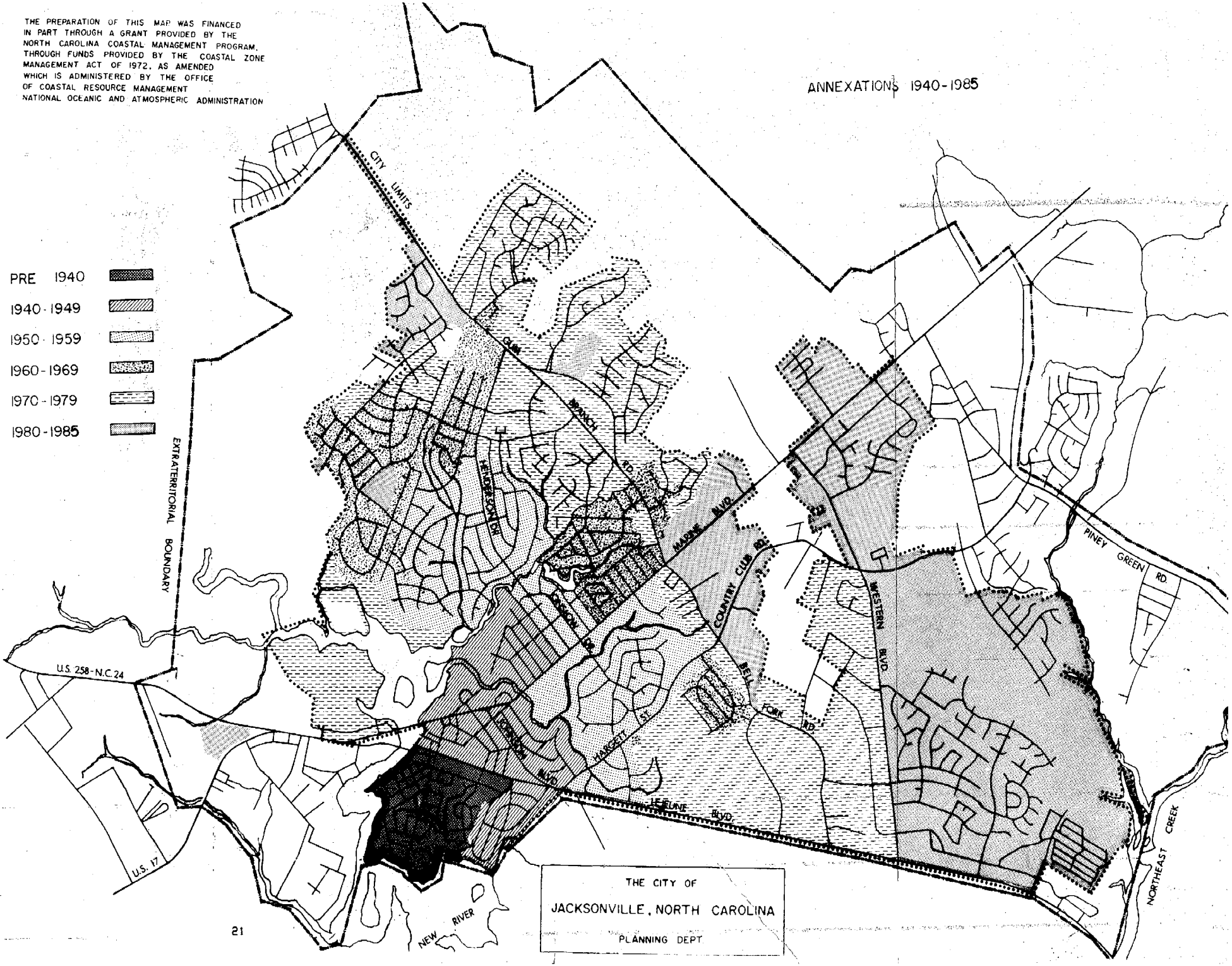
ANNEXATIONS 1940-1985



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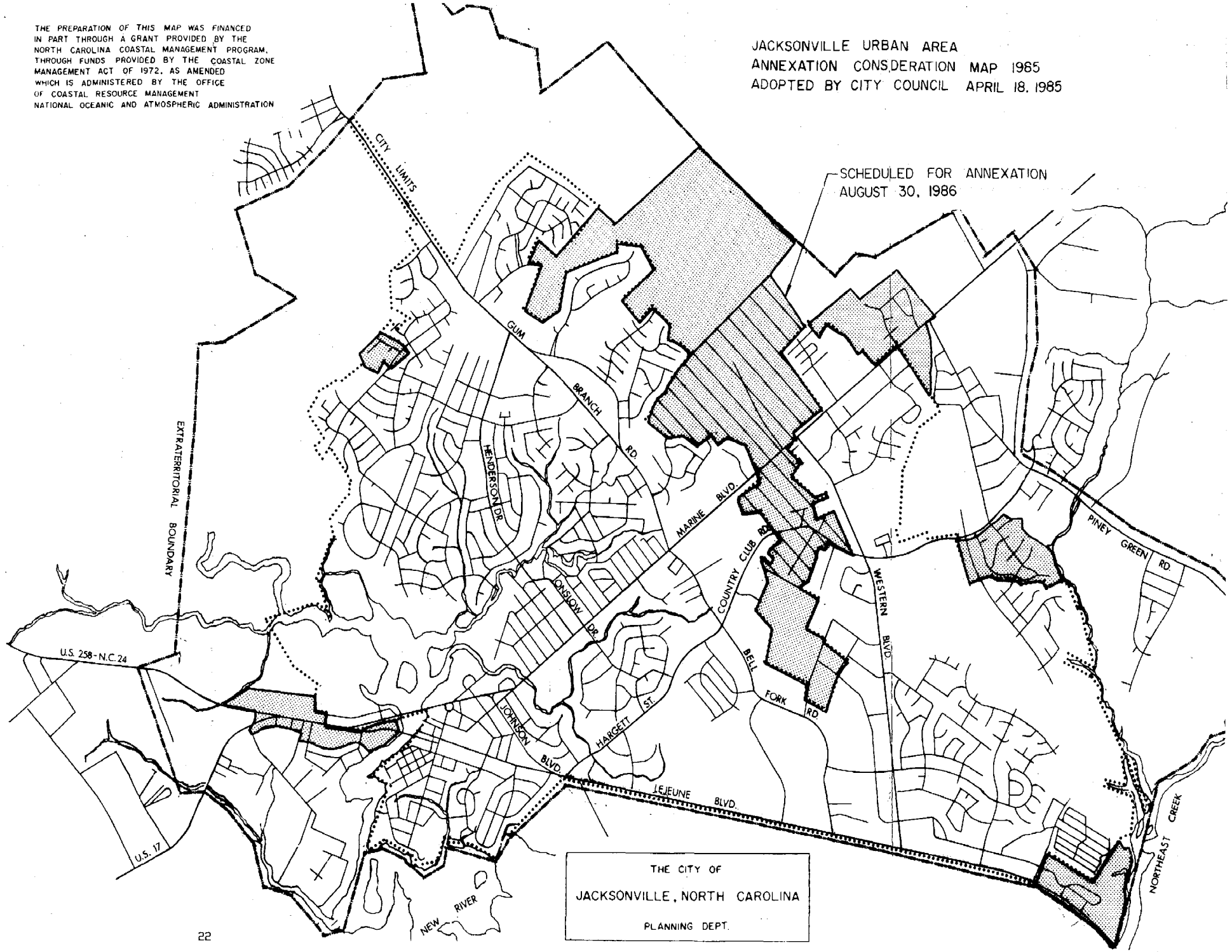
JACKSONVILLE URBAN AREA
ANNEXATION CONSIDERATION MAP 1985
ADOPTED BY CITY COUNCIL APRIL 18, 1985



POPULATION

The City of Jacksonville has experienced forty-five years of rapid growth. It has grown from a population of 873 in 1940 to an estimated 1985 population of 25,136. These figures represent a 2779% increase over a period of less than five decades.

TABLE 2

ONSLOW COUNTY AND JACKSONVILLE POPULATIONS

1940-1985

Year	Onslow County	Jacksonville
1940	17,939	873
1950	42,047	3,960
1960	82,706	13,411
1970	103,126	16,021
1980	112,784	18,237
1985	118,373	25,136

Source: U.S. Census Bureau, Office of State Budget & Management

The establishment of Camp Lejeune in Onslow County is a primary reason for Jacksonville's sustained population growth rate. Table 3 delineates the rates of natural increase and net migrations for the years 1961-1980.

TABLE 3

NATURAL INCREASE AND NET MIGRATION WITHIN JACKSONVILLE

1961-1985

	Natural Increase (Birth Rate)	Net Migration
1961-70	5,609	11,309
1971-80	4,171	5,484
1981-85	5,460	N/A

Source: 1983 City Data Base and North Carolina Dept. of Natural Resources and Community Development

As Table 3 indicates, the number of individuals living in Jacksonville is more proportionately affected by those moving to the area rather than by those being born in the area. Net migration increases are directly tied to the number of former military and their dependents retiring in the area, as well as to the number of people moving to Jacksonville to join the goods and services industry.

The following table offers a comparison of Jacksonville's population between 1970 and 1980 by age groups as provided by the U.S. Census Bureau:

TABLE 4

JACKSONVILLE POPULATION BY AGE

1970-1980

Age	1970	1980	% Change
Under 5	1,624	1,547	- 5
5-9	1,698	1,298	- 31
10-14	1,873	1,240	- 51
15-19	1,585	1,597	+ 1
20-24	2,150	2,458	+ 14
25-29	1,274	1,955	+ 53
30-34	1,025	1,248	+ 22
35-44	2,000	1,771	- 13
45-54	1,570	1,767	+ 13
55-59	438	2,886	+558
60-64	306	529	+ 73
65-74	316	609	+ 93
75-84	127	215	+ 69
85+	35	69	+ 97

Source: U.S. Census Bureau

The largest age group increase between 1970 and 1980 was experienced by the 55 to 59 age group. It should further be noted that all age groups 45 and over have experienced extensive growth since 1970. This growth indicates that a large number of retired military and their dependents are choosing to remain in Jacksonville.

Though Marine Corps Base Camp Lejeune exists as an entity separate from the City of Jacksonville, its population has a significant bearing on the development and economy of the City. Table 5 depicts the actual military presence found both on base and in surrounding communities with Jacksonville clearly being the community most profoundly affected.

TABLE 5

TOTAL MILITARY (ACTIVE AND RETIRED); THEIR DEPENDENTS AND CIVILIAN EMPLOYEES

BY SELECTED MONTH AND YEAR 1980-1985

Month/Year	Active Milit.	Ret. Depend	Depend	Civil.	Total
November 1980	35,446	23,478	22,549	3,905	85,378
November 1981	36,297	23,571	21,788	3,808	85,464
November 1982	39,358	24,158	30,360	4,211	98,088
November 1983	39,877	24,645	31,710	4,497	100,729
November 1984	40,477	33,297	31,493	4,392	105,522
June 1985	43,304	33,351	31,674	4,489	112,818

Source: Assistant Chief of Staff, Manpower - USMC, Base Camp Lejeune

These totals indicate that the total military (as defined in Table 5) grew more than thirty-two percent between November 1980 and June 1985. It is anticipated that this growth trend will continue at its present rate over the coming ten years.

PART V

Economy

ECONOMY

The economic base and structure found within the City is quite different from those found in most comparably sized cities within North Carolina. The following sections serve to identify economic factors which differentiate the nature and scope of Jacksonville's economy from most other economies found on the State's coast.

Payroll and Retail Sales

Table 6 depicts the five major industries within Onslow County and further estimates the annual payroll of each industry during the noted years.

Table 6

Estimated Annual Payroll per Industry in Onslow County

1975, 1980, 1984

Source	1975 Payroll	1980 Payroll	1984 Payroll
Camp Lejeune	$244,000,000	$355,000,000	$408,935,000
Industry	22,000,000	32,000,000	50,000,000
Agriculture	20,000,000	28,000,000	38,361,541
Tourism	12,000,000	26,000,000	43,624,000
Seafood Industry	8,000,000	13,000,000	9,653,640

Source: Onslow County Economic Development Commission

While these figures pertain specifically to Onslow County, it should be noted that a large segment of the overall Camp Lejeune monies remain within the Jacksonville Urban Area.

Table 7 serves to contrast retail sales in both Jacksonville and Onslow County between 1970 and 1983. These figures highlight the constant increase in overall retail sales while specifically denoting the tremendous amount of overall retail sales which take place within Jacksonville.

Table 7

Retail Sales in Jacksonville and Onslow County

1970-1983

Year	Jacksonville	Onslow County
1970	$105,980,116	$138,717,657
1971	108,640,669	147,325,204
1972	122,544,924	167,139,528
1973	140,476,403	194,066,574
1974	149,622,399	213,290,728
1975	160,133,124	232,299,799
1976	176,974,662	261,858,203
1977	196,284,346	285,192,011
1978	210,103,409	311,938,794
1979	224,459,502	337,755,974
1980	250,193,547	364,909,567
1981	309,248,814	406,957,094
1982	361,297,285	462,355,522
1983	428,511,780	539,007,283

Source: Onslow County Economic Development Commission

Employment

Employment within Jacksonville continues to grow at a high rate. Table 8 indicates the total number of employed civilians from 1960 to 1980 while Table 9 depicts the sources of employment in 1980.

Table 8

Jacksonville Civilian Employment

1960-1980

Year	Number Employed	Percent Increase
1960	3105	
1970	4933	58%
1980	6788	37%

Source: U.S. Census Bureau

Table 9
Source of Employment
1980

FIELD	NUMBER	WOMEN	MEN
1. Agriculture	15	10	5
2. Mining	6	0	6
3. Construction	351	55	296
4. Manufacturing			
- nondurable goods	255	200	55
- durable goods	319	147	172
total	574	347	227
5. Transportation, communication and other public utilities	505	120	385
6. Wholesale Trade	126	49	77
7. Retail Trade			
- general merchandise	307	200	107
- food, baker, dairy	197	70	127
- auto dealers, gas station	169	25	144
- eating, drinking places	473	280	193
- finance, insurance, real estate	540	308	232
- banking and credit agencies	242	160	82
- insurance and other finance	298	148	150
total	1588	742	846
8. Services			
- business service	102	43	59
- repair	71	4	67
- private households and other personal service	290	208	82
- entertainment, recreation	100	23	77
- professional and related services	1362	1010	352
- health care and hospitals	1050	295	755
- education	713	544	169
- social service, legal, professional	279	171	108
- public administration	603	243	360
total	1925	1288	637

Source: U.S. Census Bureau

Income

The following table depicts, per capita income, mean family income, and household income in both Jacksonville and Onslow County for the listed years.

Table 10

Per Capita, Mean Family, Median Family, and Household Incomes

Jacksonville and Onslow County

	Year	Jacksonville	Onslow County
Per Capita	1970	$2,866	$2,205
	1980	6,333	5,114
Mean Family	1970	9,702	7,491
	1980	18,791	15,763
Median Family	1950	2,582	1,312
	1960	5,091	3,729
	1970	8,225	6,471
	1980	16,389	13,210
Household Income	1980	$17,338	$14,804

Source: U.S. Census Bureau

Camp Lejeune

Camp Lejeune Marine Corps Base occupies approximately 166 square miles in the southeastern portion of Onslow County, or approximately 22% of the county's land area. The base, since it is under no county or municipal jurisdiction, is controlled completely be the military.

With 43,304 military personnel stationed at Camp Lejeune and living on base, as well as throughout the county and neighboring counties, the economic impact is both broad and far-reaching. In 1984, 31,674 dependents of military personnel also lived in or near Onslow County, 11,524 on base, 20,150 off base. Over 4,489 civil service workers from a multi-county area commuted to Camp Lejeune daily to work. Over 1500 non-civil service workers commuted to work daily on various base construction projects at the base. With an annual payroll now exceeding $408 million, the effect of Camp Lejeune on the entire region is obvious. It is estimated that the government spent $155 million for goods and services at Camp Lejeune in 1984, including utilities, travel, supplies, repair, and construction, much of that locally.

Camp Lejeune is virtually a self-sufficient city within itself. It supplies the majority of its own community facilities and purchases electricity through an exclusive contract with Carolina Power and Light Company. Most living requirements can be purchased directly from the commissary or the post exchange which this past year (1984) had combined retail sales of over $65 million.

Along with the population at Camp Lejeune come many vehicles. In addition to more than 57,000 registered vehicles in Onslow County, we must plan on over 59,100 unregistered vehicles (out of state and military vehicles) to get the entire traffic picture.

PART VI

Existing Land Use

EXISTING LAND USE

Since the advent of Camp Lejeune in the mid-40s, the City of Jacksonville has grown rapidly and haphazardly. It was not until 1980 that the City, with the aid of a Coastal Area Management Act Grant, established a professionally staffed planning program. With the continued expansion of personnel at Camp Lejeune, the City strived to meet the demand for additional services and housing. The City's original Central Business District (CBD) became too small to meet the increased demand for commercial goods and services. Being confined from expansion to the south by Camp Lejeune, to the west and north by the New River and associated fragile wetlands, and to the east by established residential areas, commercial areas began to grow linearly along major thoroughfares. Before this trend of strip commercial development came under control, practically the entire length of U.S. Hwy 17, N. C. Hwy.24, and Western Boulevard were filled with commercial land uses. Outlying residential areas were also developed so as to take advantage of the expanded business areas and the thoroughfare-like access that was provided to the Camp Lejeune employment center. Within the City Planning area there are no identified archeological sites, publicly owned gamelands, or prime agricultural sites which could be easily damaged or destroyed by inappropriate and poorly planned development.

Residential

The Jacksonville area offers a wide variety of housing types, densities, and locations. The major employment center in Jacksonville is

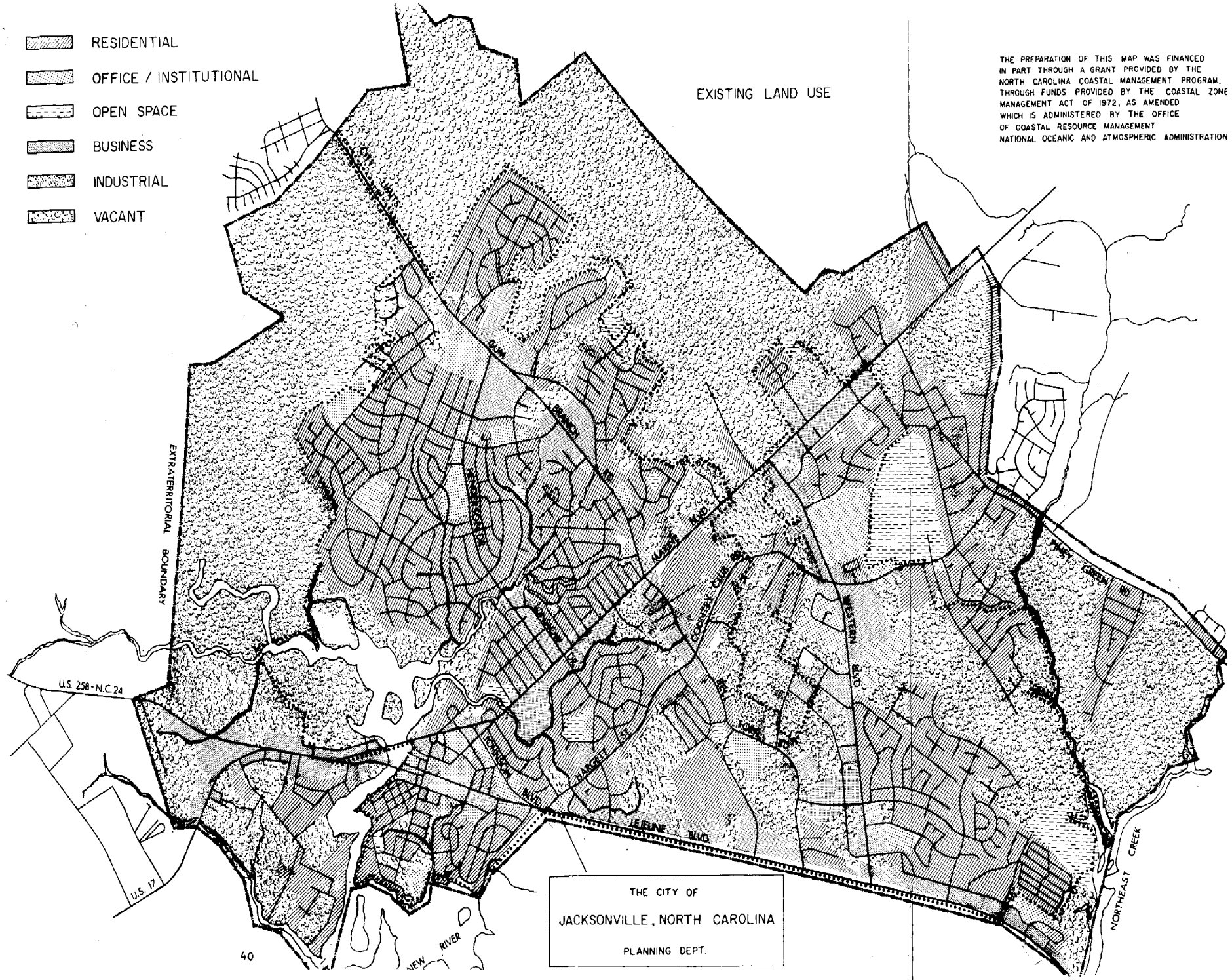
Camp Lejeune and most housing areas have been situated so as to have quick and convenient access to that center. However, because of the sheer volume of traffic associated with commercial and residential development along the City's thoroughfares, access to Camp Lejeune has often become burdened with traffic, traffic signals, and access points.

The 1983 City of Jacksonville C.A.M.A. Housing Action Plan details the number and quality of housing units within the City. In order to provide a variety of housing types to service the needs of a highly transient population, the City contains a large percentage of small lot and rental type housing.

According to the 1983 C.A.M.A. Housing Action Plan, 61% of the City's housing units are detached single family, 27% are apartment type units, 7% are mobile homes, and 4% are duplex/townhouse type units. The majority of multi-family type units can be found in close proximity to existing thoroughfares while single family detached units are "buried" deeper into residential development with the multi-family units serving as transition areas.

Commercial

As mentioned in the introduction to this chapter, the Jacksonville CBD became stifled by physical constraints, and the desire to make commercial areas readily accessible to new residential areas. As a result of this desire to bring retail areas into close proximity to new residential


RESIDENTIAL
OFFICE / INSTITUTIONAL
OPEN SPACE
BUSINESS
INDUSTRIAL
VACANT
EXISTING LAND USE
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EXTRATERRITORIAL BOUNDARY
U.S. 258 - N.C. 24
U.S. 17
NEW RIVER
LEJEUNE BLVD.
WESTERN BLVD.
COUNTRY CLUB RD.
NORTHEAST CREEK
THE CITY OF
JACKSONVILLE, NORTH CAROLINA
PLANNING DEPT.

developments, and the lack of an "effective" planning program, commercial growth surged down major thoroughfares as strip commercial development. Jacksonville currently has no "traditional" downtown. It, instead, has an intensely developed series of roads highlighted by U.S. Hwy. 17, N.C. Hwy. 24, and Western Boulevard which intersect in such a manner as to form a triangle, serving residential areas which are both within its confines and its exterior. As can be seen by viewing the existing land use map, there are only scattered commercial areas, particularly along Gum Branch Road, Bell Fork Road, and Hargett Street which provide commercial service to surrounding residential neighborhoods.

Industrial

The City of Jacksonville has only a minimal amount of land used for industrial purposes. The Jacksonville Industrial Park is located along White and Center Streets and was originally established in 1975. The park is the site of Stanadyne, Mine Safety Appliance, Progressive Services, and a speculative shell building which was constructed in 1980 and remains vacant. Within the area of the industrial park there are nearly 150 acres of vacant land which are well suited and situated for industrial development.

Vacant Land

The majority of land within the City's extraterritorial planning jurisdiction is currently vacant. However, as is noted by information

contained earlier in this report regarding population and annexations, the City has experienced tremendous growth over the last 40 years. It is anticipated that the City will continue to grow and that urban development will encroach into these vacant areas. The large vacant areas in the eastern section of the City (east of Western Boulevard) are expected to be developed for residential purposes as major subdivisions within the area (Brynn Marr, Country Club, and White Oak Estates) continue to expand in a well planned manner. The majority of the vacant lands within the center of the City (Bell Fork Road, Hargett Street, Country Club Road, and U.S. Hwy. 17) are expected to be developed during the planning period into a mixture of commercial and residential land uses. The large vacant areas to the north and west of the City should continue to see residential encroachment as the City continues to grow northward along an expanded Gum Branch Road and the proposed Western Boulevard extension. Flood hazard areas are the only identified fragile areas having resource potential within the City of Jacksonville; these areas remain vacant.

PART VII

Physical Limitations/ Constraints to Development

Physical Limitations/Constraints to Development

The list of physical limitations and constraints to development is both lengthy and, in some cases, particularly unique to Jacksonville. Major components of this list include: 1) the presence of Marine Corps Base Camp Lejeune; 2) the inadequacy of the present streets network to accommodate current and anticipated traffic loads; 3) soil limitations prohibitive of most types of urban development; 4) barriers created by the New River and its associated fragile areas; and 5) special limitations on the existing water and sewer facilities. There are no helicopter landing areas, chemical storage locations or roads identified for the transportation of explosives within the Jacksonville Planning Area that have been identified as constraints to development. The following sections discuss each of these limitations/constraints and, further, discuss both current and anticipated methodologies specifically addressing each issue.

1. Camp Lejeune

While the economic benefits derived from the presence of Camp Lejeune can hardly be overstated, that presence also serves as a barrier to the private development of approximately five miles of property adjacent to the southernmost Jacksonville city limits. The Base essentially functions as a self contained city. It supplies its own power and community facilities thereby remaining autonomous. Comprised of one hundred seventy three square miles, the Marine Corps Base owns approximately twenty two percent of Onslow County. It is anticipated that this large land area will remain under the

ownership of the United States government and that no private development will ever take place within its realm.

The City and the Base have long enjoyed a good working relationship and, while the Base does indeed represent a barrier to private development south of the City's corporate limits, it must be noted that base facilities continue to expand according to recommendations handed down annually by Headquarters Marine Corps in the form of a "Facilities Support Requirements Plan." This Plan depicts decisions made after environmental, land use, transportation, and related issues have been thoroughly evaluated.

2. Streets Network

Demands made on several major thoroughfares through Jacksonville continue to increase. The steady growth of the City has outstripped its transportation facilities and created an urgent need for transportation system improvements to keep pace with this development Map Attachment F depicts average daily trip counts, as provided by the North Carolina Department of Transportation, at selected locations. (Top figures represent 1980 counts, while bottom figures depict 1984 counts.) As indicated by these traffic counts, the volumes of traffic carried along major routes has jumped substantially at each count location during this four year period. It is anticipated that volumes will continue to climb, thereby rendering many existing roadways obsolete. Beyond the capacity problems facing the existing streets network, further development north and northwest of the city limits is currently impossible due to a complete absence of streets

COMPARATIVE TRAFFIC COUNT MAPS AT SELECTED LOCATIONS 1980/1984

1980 ADT
1984 ADT

N/A - NOT AVAILABLE

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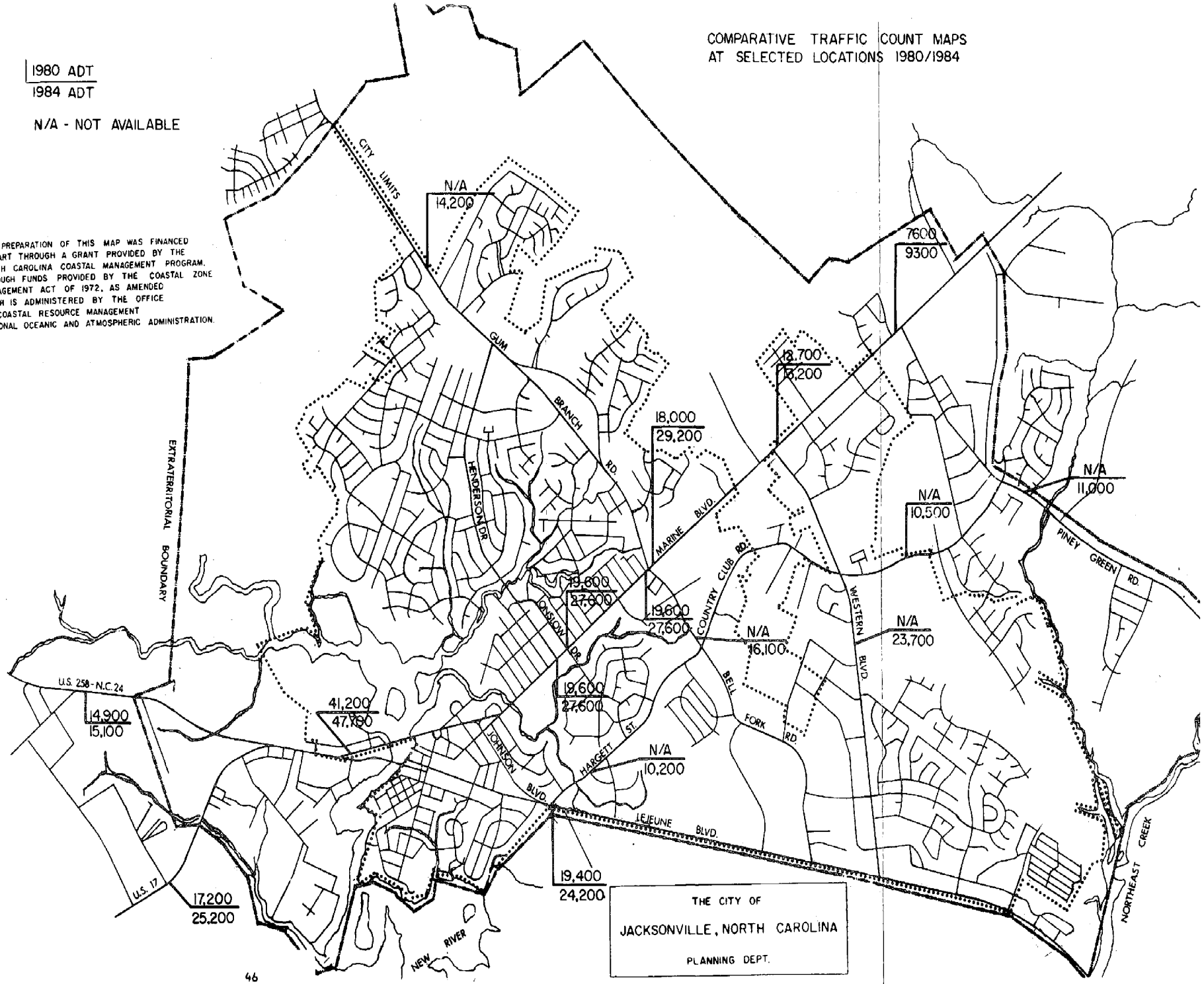

within these areas.

In recognition of both traffic load problems and the amount of property to which no access to a public street exists, the Jacksonville City Council adopted the Jacksonville Urban Area Thoroughfare Plan Update in 1985 (see Map G). Further discussion of suggested improvement and construction projects can be found in the chapter entitled "Future Needs, Demands, and Community Facilities" on page 79 of this Plan.

3. Soil Limitations

The U.S. Soil Conservation Service, in cooperation with the Onslow Soil and Water Conservation District, completed a soil survey of Jacksonville in 1975. The study concludes that majority of soils within Jacksonville are either unsuitable for building, or can be made suitable only by improving drainage and related soil problems. More detailed information may be obtained from the U. S. Soil Conservation Service.

4. Areas of Environmental Concern (AEC's)

The New River flows through, and borders on, the western city limits. Growing concern about pollution prompted the City and County to jointly sponsor a study of the river. Completed in 1983, the "Pollution-Related Microbiology of the New River Estuary Study" determined that the New River is in a partially polluted state resulting from a combination of agriculture, stormwater, landfill and wildlife runoff. The study further

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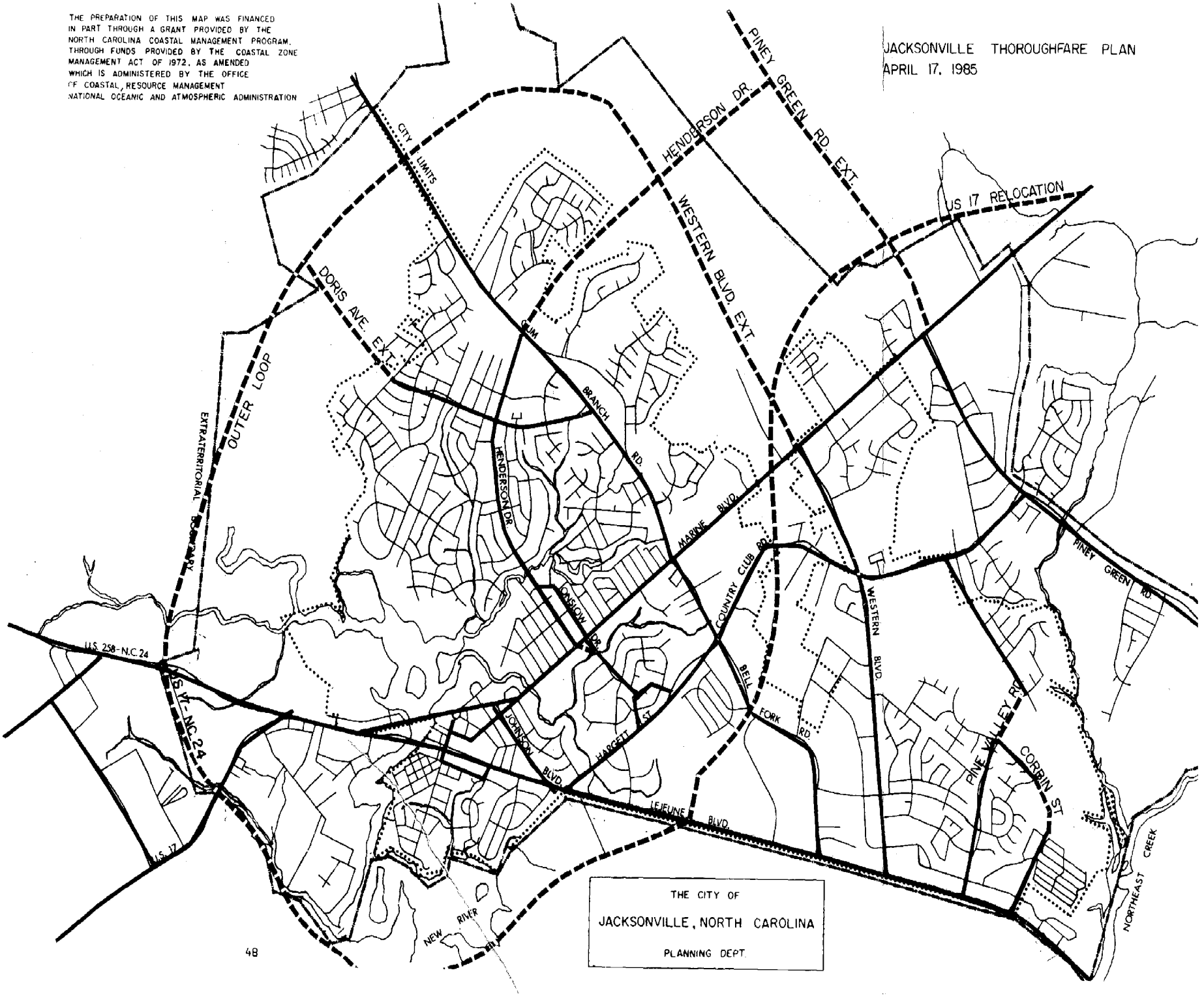
JACKSONVILLE THOROUGHFARE PLAN
APRIL 17, 1985



suggested that improvements in sewer hook-up controls and steps slowing runoff would considerably lower the pollution level of the River.

There are a number of AEC's in the Jacksonville Planning area associated with the New River Drainage Basin. These areas include public trust waters, estuarine waters, and estuarine shorelines.

Public trust waters are defined as all waters of the Atlantic Ocean and the lands thereunder from the mean high water mark to the seaward limit of state jurisdiction; all natural bodies of water subject to measurable lunar tides and lands thereunder to the mean high water mark; all navigable natural bodies of water and lands thereunder to the mean high water level or mean water level as the case may be, except privately--owned lakes to which the public has no right of access; all water in artificially created bodies of water containing significant public fishing resources or other public resources which are accessible to the public navigation from bodies of water in which the public has rights of navigation; and all waters in artificially created bodies of water in which the public has acquired rights by prescription, custom, usage, dedication, or any other means.

The public has rights to public trust waters including navigation and recreation. In addition, these areas support valuable commercial and sports fisheries, have aesthetic value, and are important resources for economic development. The New River is an example of public trust waters.

Estuarine waters are another valuable resource in need of protection. The waters of the New River below the bridge carrying U. S. Highway 17 traffic are classified as estuarine waters. Estuarine waters are defined as all the waters of the Atlantic Ocean within the boundary of North Carolina and all the waters of the bays, sounds, rivers, and tributaries thereto seaward of the dividing line between coastal fishing waters and inland fishing waters, as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Natural Resources and Community Development found in 15 NCAC 3F .0200 and the most current revision of the North Carolina Fisheries Regulations for Coastal Waters.

Estuarine waters are the dominant component and bonding element of the entire estuarine system, integrating aquatic influences from both the land and the sea. Estuaries are among the most productive natural environments of North Carolina. They support the valuable commercial and sports fisheries of the coastal area which are comprised of estuarine dependent species such as menhaden, flounder, shrimp, crabs, and oysters. These species must spend all or some part of their life cycle within the estuarine waters to mature and reproduce. Of the 10 leading species in the commercial catch, all but one are dependent on the estuary.

This high productivity associated with the estuary results from its unique circulation patterns caused by tidal energy, fresh water flow, and shallow depth; nutrient trapping mechanisms; and protection to the many organisms. The circulation of estuarine waters transports nutrients, propels plankton, spreads seed stages of fish and shellfish, flushes wastes

from animal and plant life, cleanes the system of pollutants, controls salinity, shifts sediments, and mixes the water to create a multitude of habitats. Some important features of the estuary include mud and sand flats, eel grass beds, salt marshes, submerged vegetation flats, clam and oyster beds, and important nursery areas.

Secondary benefits include the stimulation of the coast economy from the spin off operations required to service commercial and sports fisheries, waterfowl hunting, marinas, boatyards, repairs and supplies, processing operations, and tourist related industries. In addition, there is considerable nonmonetary value associated with aesthetics, recreation and education.

The third Area of Environmental Concern found within the Jacksonville Planning area are estuarine shorelines. Although characterized as dry land, estuarine shorelines are considered a component of the estuarine system because of their close association with the adjacent estuarine waters.

Estuarine shorelines are defined as those non-ocean shorelines which are especially vulnerable to erosion, flooding, or other adverse effects of wind and water and are intimately connected to the estuary. This area extends from the mean high water level or normal water level along the estuaries, sounds, bays, and brackish waters for a distance of 75 feet landward.

All areas of environmental concern are directly associated with the New River and are found throughout the City. Attached Map H depicts areas, designated by the Federal Emergency Management Agency in February 1985, which lie within floodplains. These areas are, of course, prohibitive of standard type development and encompass floodplains, public trust waters, estuarine waters and estuarine shorelines.

5. Limitations on Water and Sewer Facilities

In discussing limitations to development, water and sewer availability and system capacities are of paramount concern. The City recognizes the importance of this issue and addresses it in detail in the following chapter.

FEMA FLOODWAY BOUNDARIES

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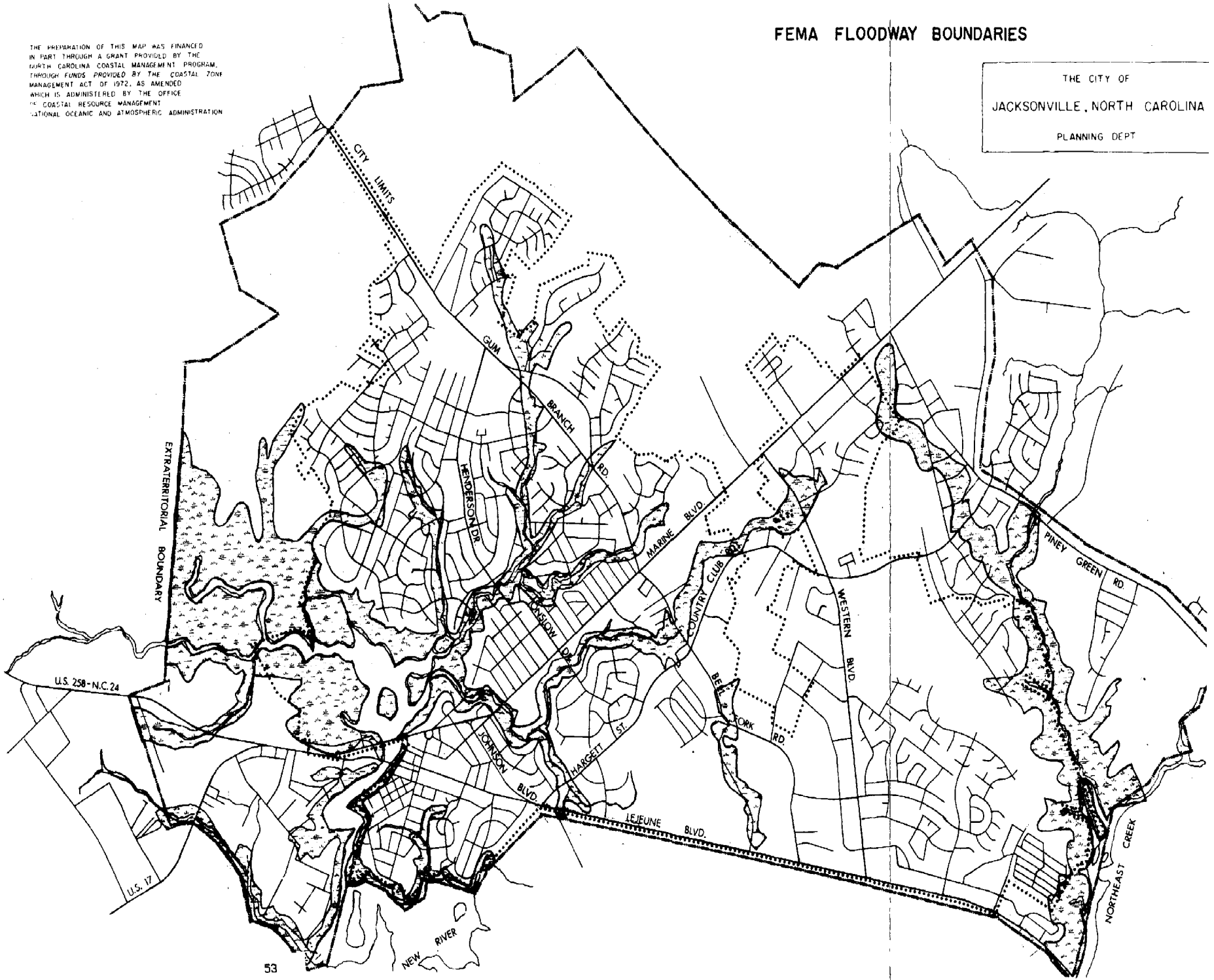

PART VIII

Limitations on Water and Sewer Facilities

LIMITATIONS ON WATER AND SEWER FACILITIES

In discussing limitations to development, water and sewer availability and system capacity are important considerations. In the following paragraphs these water and sewer factors are presented. Included are details on hydrologic setting, fire flows, and water consumption, as well as information on the actual physical facilities.

Hydrologic Setting:

The hydrologic setting represents the water availability characteristics of the various rock formations and aquifers found in the area that can be used for potable water. In the Jacksonville area, several hydrologic units exist. The Castle Hayne Aquifer is the most prolific aquifer of the area. However, because of a high iron and sulfur content, treatment is required prior to introduction into the potable water supply. The Cretaceous Upper Sand Aquifer yields small quantities of potable water; insufficient for a consistent supply to serve the City. The Cretaceous Middle Sand Aquifer produces the majority of the City's water supply. The water is of high quality and requires only chlorination prior to consumption. At present, the overall capacity of the cretaceous middle sand aquifer to accommodate future demands is unknown, however, the City, Onslow County, Richlands, and Jones County are participating with the USGS and DNRCD in developing a ground water computer model which will aid in making this determination.

Water Treatment:

The quality of water in the Wells Fields is such that the only treatment required is chlorination for disinfection purposes. Fluoridation is not required as it occurs in near optimum concentration naturally in the water.

Water Supply Facilities:

Jacksonville obtains its water from two major well fields: the 258 Well Field and the Gum Branch Well Field. The 258 Well Field is located six miles west of Jacksonville off U.S. Highway 258 on Old Tram Road. The 258 Well Field was installed during the early 1960's and contains six wells having a total water production capacity of 1370 gpm or about 2 mgd. Water from the wells is pumped into a 16 inch diameter water main which discharges into a 500,000 gallon underground clearwell at the water plant. Chlorine is added to the water at a control house located on U.S. 258 near the well field and at its water plant.

The Gum Branch Well Field is located nine miles from Jacksonville on Gum Branch Road (SR 1308). The Gum Branch Road Well Field was installed during the 1970's and consists of five wells having a total water production capacity of 2000 gpm or 2.9 mgd. The wells discharge into a 500,000 gallon clearwell at the well field site. The Gum Branch Pumping Station contains two high service pumps having a combined pumping capacity of approximately

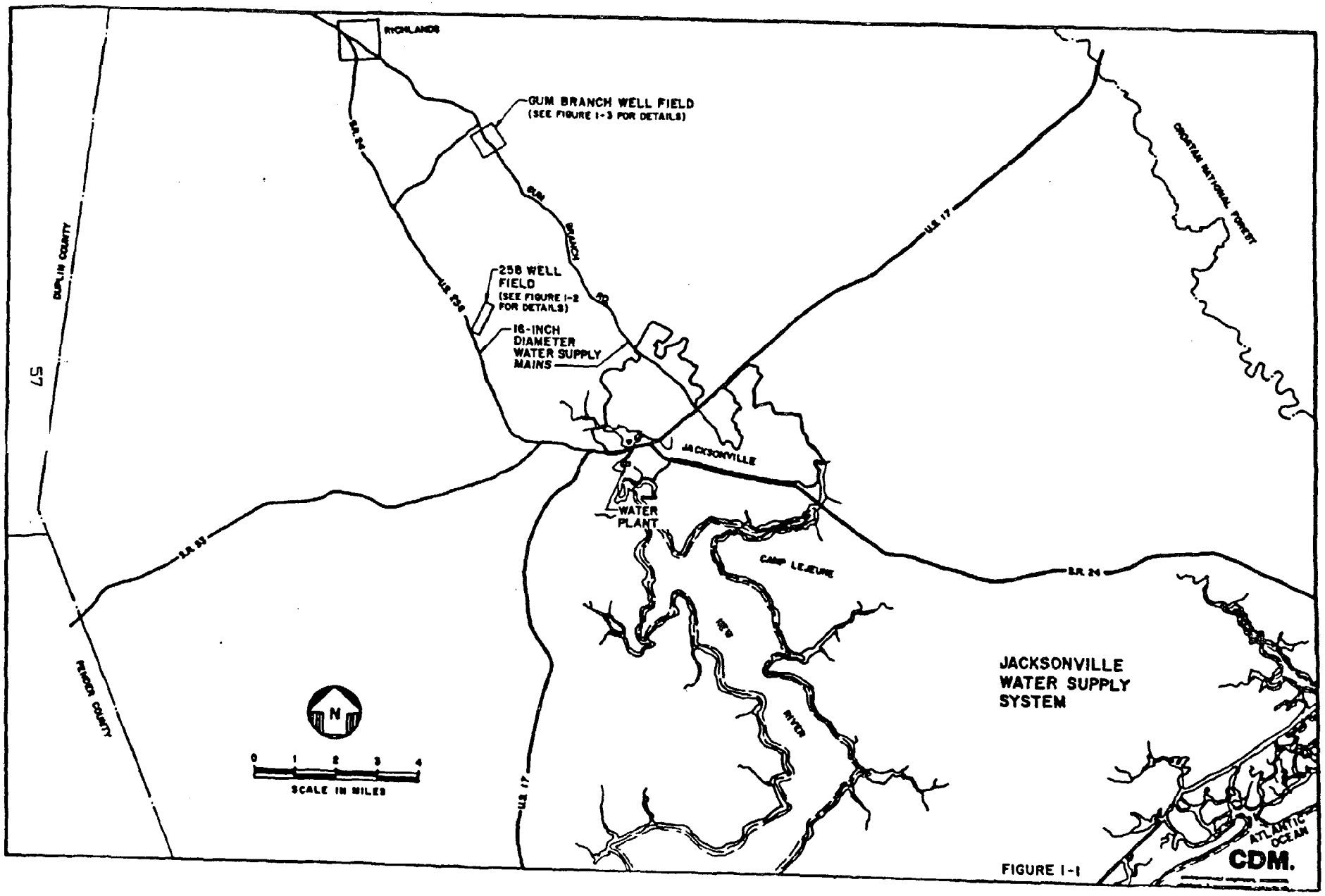
RYONLANDS
GUM BRANCH WELL FIELD
(SEE FIGURE 1-3 FOR DETAILS)
S.R. 24
GUM BRANCH
U.S. 17
258 WELL FIELD
(SEE FIGURE 1-2 FOR DETAILS)
16-INCH DIAMETER WATER SUPPLY MAINS
DUPLIN COUNTY
57
JACKSONVILLE
WATER PLANT
CAMP LEJEUNE
S.R. 24
S.R. 53
PENDER COUNTY
U.S. 17
NEW RIVER
ATLANTIC OCEAN
N
0 1 2 3 4
SCALE IN MILES
JACKSONVILLE WATER SUPPLY SYSTEM
CDM.

FIGURE 1-1

2700 gpm. Chlorination occurs at the Gum Branch Control House and is pumped directly into the distribution system via a 16 inch water main on Gum Branch Road.

An important element of the water supply system is the water plant located on West Railroad Street. The water plant was initially used to aerate and chlorinate water produced by the Old City Well Field. (Aeration has not been necessary since development of the 258 Well Field due to improved water quality.) Currently, this facility provides ground storage and high service pumping for the 258 Well Field and a central monitoring location for the operation of the water supply and water distribution systems. Water is pumped from the water plan clearwell into the distribution system.

TABLE 11

WATER SUPPLY CAPABILITIES

WATER SUPPLY PRODUCTION

258 WELL FIELD		GUM BRANCH WELL FIELD	
Well #1	300 gpm	Well #1	850 gpm
#2	300 gpm	#2	50 gpm
#3	170 gpm	#3	150 gpm
#3A	100 gpm	#4	500 gpm
#4	200 gpm	#5	450 gpm
#5	300 gpm		2000 gpm = 2.88 mgd
	1370 gpm = 1.972 mgd		

TOTAL PRODUCTION 3370 gpm = 4.9 mgd

Source: City of Jacksonville Utilities Department

Water Storage Facilities:

Prior to 1972 the City had three elevated and one ground storage tanks with total capacities of 900,000 gallons elevated and 500,000 in ground

storage at the water plant.

Following the 1972 Water Report, an additional 1,000,000 gallons of elevated storage was added, half in the Northwoods Area near the junior high school and the other half on Ellis Boulevard approximately one-half mile north of Lejeune Boulevard. An additional 500,000 gallon ground storage tank was also added at the Gum Branch Well Field.

The May 1980 annexation also brought into the system the 400,000 gallon elevated tank in the Brynn Marr area.

Table 12 details the existing storage capacities and locations in the Jacksonville water supply system.

TABLE 12

WATER STORAGE CAPABILITIES

Water Storage Capacity

Clearwells

Gum Branch Wellfield	500,000 gallons
Water Plant	500,000 gallons

Tanks

Gum Branch Road	500,000 gallons
Water Plant	200,000 gallons
U.S. 17 N	200,000 gallons
Ellis Boulevard	500,000 gallons
Brynn Marr	400,000 gallons
Northwoods	500,000 gallons

Total Storage Capability	3,300,000

Water Distribution System

The water distribution system in Jacksonville is controlled by the amount of water pumped in from the well fields and the level of water in the storage tanks. Water enters the distribution system from two points, the Gum Branch Clearwell and the water plant clearwell, through a grid system of mains. High service pumps at both locations allow water plant

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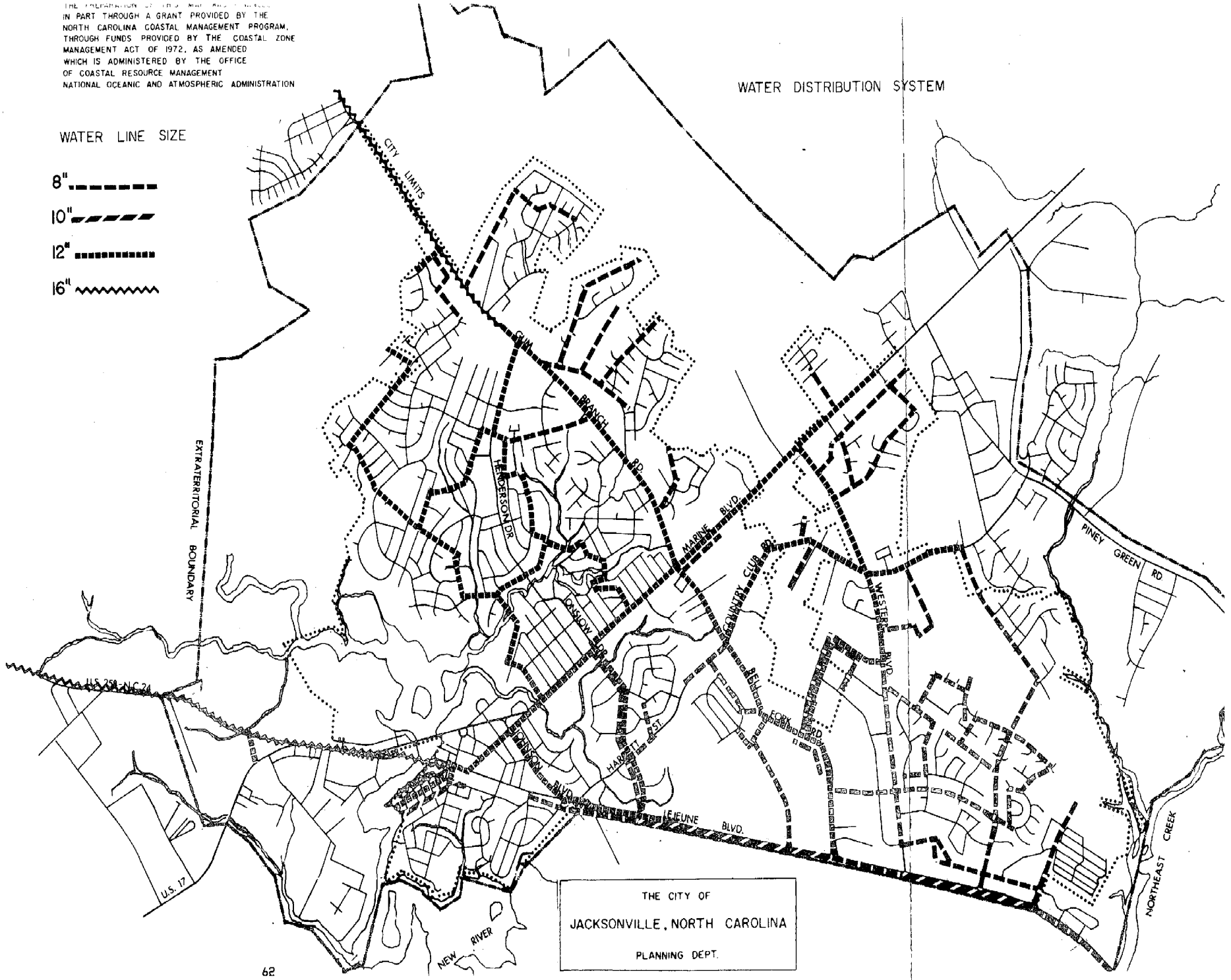
WATER DISTRIBUTION SYSTEM



operators to adjust the rate of flow into the system to meet the demand.

Pressure in the system is maintained between 45 and 60 psi. Water demand and storage tank levels are monitored from the water plant. The system consists of all sizes of pipe from 2 inch to 16 inch with 6 inch being the most common. Generally a 6 inch is the minimum used for new work where fire hydrants are uses. A two inch line may be used on short cul-de-sacs.

Recent Water Usage:

Water demands have increased substantially over the past 20 years. Some of this increase is due to the addition of former county users through annexations, as happened in 1976 with the Brynn Marr area. After a substantial reduction in per capita usage from 1954 to 1966 due to technical improvements in the system, the per capita usage has increased. Since Jacksonville has little industry, this increase is primarily due to increases in domestic consumption. A 1982 Camp Dresser & McKee report projects this trend to continue to the year 2000. (Table 13 from that report is shown on the following page.)

It should be emphasized that if Jacksonville adds any industry, especially wet industry, the per capita use figures will increase substantially.

TABLE 13

WATER CONSUMPTION

Year	Population Supplied	Per Capita Consumption (gpd)	Average Day (mgd)	Maximum Day (mgd)	Maximum Hour (mgd)	Fire Flow (mgd)	Maximum Day Plus Fire (Mgd)
1954	7960	151	1.20	1.40			
1966		97	1.57				
1971	16500	121	2.00	2.30		4.55	
1975			1.87	2.55			
1979	22000	111	2.45	3.73			
1985	25000	120	3.00	4.80	7.68	5.04	9.84
1990	26600	124	3.30	5.28	8.44	5.04	10.32
1995	28300	127	3.59	5.75	9.20	5.04	10.79
2000	29900	130	3.89	5.22	9.95	5.04	11.26

Source: City of Jacksonville Public Utilities Department.

Adequacy of Water Supply System

With the completion of Well 16, the supply capacity reached 5.568 mgd. Past maximum demand reached 5.5 mgd in 1985. Two additional 450 gpm wells are planned for construction in FY86-87. These additions will bring supply capacity to 6.86 mgd which should accommodate existing and anticipated development demands until 1992. Present annual daily water demand is approximately 3.58 mgd.

Fire Flow Requirements

The City of Jacksonville uses the recommendations of the Insurance Services Office (ISO) to determine fire protection requirements. In general, these recommendations vary from 750 gallons per minute (gpm) for residential areas to a maximum of 3,500 gpm (5.04 mgd) for commercial and industrial buildings. It is accepted practice to add the fire flow requirements to the maximum day consumption.

The Camp Dresser & McKee report stated that sufficient storage capacity existed to meet fire flow requirements. However, the distribution system and water supply may become critical as the development expands.

Presently, there are approximately 800 fire hydrants, within the City. The City's policy is for the hydrants to be tested by the Fire Department twice annually and for the Utilities Department to repair any hydrants not in proper working order.

Onslow County Water System

Onslow County has recently constructed a system of water mains, storage tanks and pumps to provide water to many areas of the county not presently being served by municipalities. The cost of the improvements was borne by the State, a Farmers Home Administration grant, and a county bond issue. An interconnection has been made between the county system and the city system. Two others are feasible- one on Gum Branch Road and one in Country Club

Hills. These interconnections will provide for an exchange of water in case of a water emergency. The City also has bought some county lines in areas that have been annexed. The cost were reimbursements of actual county dollars spent on the lines, not including grant funds applied.

Wastewater Collection and Treatment System

EPA "201" Facilities Plan

In November 1972, Public Law 92-500, the Federal Water Pollution Control Act, was enacted. This law was the most comprehensive clean water legislation enacted during a 20 year period. More specifically, the Act had three major elements that were not the major thrust of previous legislation. These three elements were:

1. Comprehensive Planning
2. 75 Percent Facilities Planning and Construction Grants
3. Strong Enforcement Procedures through the NPDES permit system.

The Jacksonville Area Facilities Plan developed as a result of this act, was presented to City and County officials on December 23, 1976. The area covered includes that part of Onslow County extending on the east from the Northeast Creek Drainage Basin (Piney Green) to the center of Southeast Creek on the west, a distance of about 14 miles, and inland a distance of between 6 to 7 miles.

In July of 1977, the City was given a 75% Federal and 12.5% State grant to provide the facilities called for in the selected plan for the City of Jacksonville and that part of the county in the planning area that is east of the City. The Wilson Bay Wastewater Treatment Plant was expanded to 4.46 mgd and several pumping stations and trunk sewer were installed under this

program. Some difficulties were experienced with meeting permitted effluent limits; upgrading of this treatment facility to increase sludge handling capability is in progress.

Jacksonville System - General

The Jacksonville wastewater treatment system consists of lateral, collector and interceptor gravity sewers, force mains and pumping stations, and one packed tower biological filter secondary treatment plant with aerobic sludge digestion, located on New River at Wilson Bay. The latter has eliminated the need for two sewage lagoons previously used to treat the City's sewage. The wastewater treatment plant is designed to serve a population of 39,000 persons resulting in a flow of 4.46 mgd average with peak flows of up to 12.2 mgd on an average loading rate of 3.0 mgd. The facility was designed to meet its NCDES permit requirements as follows:

Biochemical Oxygen Demand	(BOD): 30 mg/l
Suspended Solids	(TSS): 30 mg/l
Kjeldahl Nitrogen	(TKN): 25 mg/l
Dissolved Oxgen	(DO) : 5 mg/l

Source: NPDES Requirements

The new treatment plan was designed for the year 1995. However, recent census data and growth projection indicate that the plant's capacity will be more than adequate past the design date.

Sewage Collection System

Jacksonville is relatively flat with elevations ranging from zero to 60 feet. As a result of the flatness, it is necessary to construct sewers at minimum grades.

Jacksonville also spans across several partially tidal tributaries to the New River.

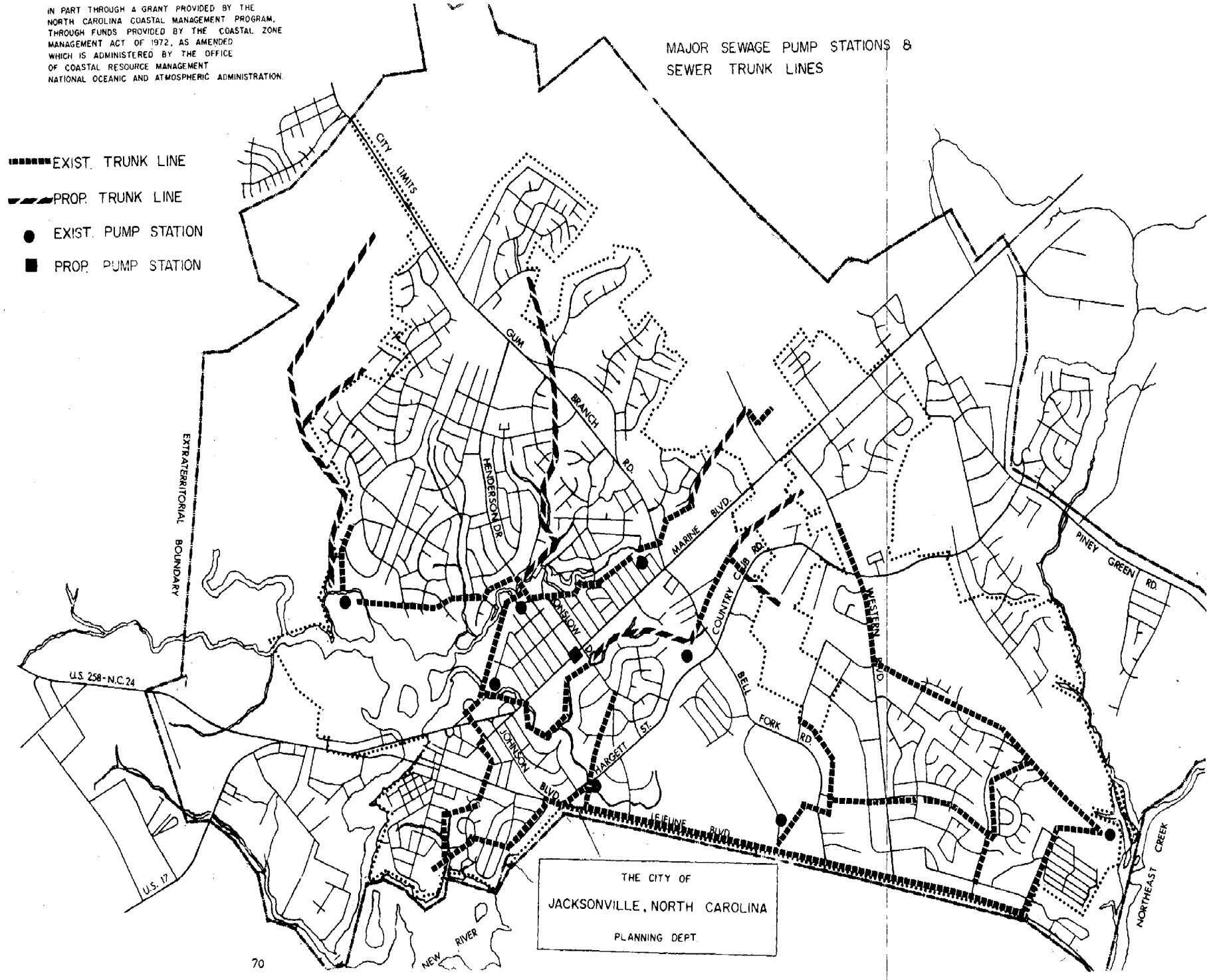
For these two reasons, as well as the fact that Jacksonville has grown through a series of annexations of subdivisions with their own waste handling systems, the current system consists of a number of separate force mains and pumping stations.

The recent 201 program sought to eliminate a number of the smaller pump stations. However, there still remain the 5 large stations and over 20 smaller ones. The larger stations are dry pit type with variable speed centrifugal pumps and are provided with a stand-by unit as well as an automatic switchover to auxiliary power by diesel generators. Most small stations are wet pit installations and are provided with stand-by pumping units- either submersible or suspended type. The more important units also have an auxiliary power supply by diesel generators.

All pumping stations operate automatically based on sewage level with maintenance visitations made daily when possible. The major functions are monitored by stations larger than 100 gpm from the treatment plant at Wilson Bay.

IN PART THROUGH A GRANT PROVIDED BY THE NORTH CAROLINA COASTAL MANAGEMENT PROGRAM, THROUGH FUNDS PROVIDED BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, AS AMENDED WHICH IS ADMINISTERED BY THE OFFICE OF COASTAL RESOURCE MANAGEMENT NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

MAJOR SEWAGE PUMP STATIONS & SEWER TRUNK LINES



Other Wastewater Treatment Facilities

The "201" Facilities Plan noted 22 point discharge sources in the Jacksonville area. One of these is the Wilson Bay Treatment Plant. Two discharge points, the Brynn Marr and Brookview Drive Lagoons, have been abandoned. Thirteen more are located outside the jurisdiction of this report, most being "package" plants. The remainder are being abandoned as the City annexes further into the County.

Stormwater

Some stormwater enters the sanitary sewage system either as inflow or as infiltration. The City has an active program of inflow (direct entry of stormwater into sanitary sewers) reduction and this source of added water is under reasonable control. Jacksonville experiences some infiltration as do other cities. High flows are experienced at the wastewater treatment plant during periods of extended and heavy rainfall; however, the plant's hydraulic capacity has not yet been exceeded. Stormwater is not intentionally admitted to the sanitary sewers; the City has conducted no tests of contaminants in urban storm water runoff.

Septic Tank Use

City of Jacksonville policy does not permit the use of septic tanks in the city limits except in circumstances where sewer is currently not accessible. There are, however, numerous areas in the City where septic

tanks do exist, some are operable, most notably in the Bell Fork, Country Club, and US 17 North areas. As the City has annexed these areas, and sewer extended, the homeowners have been encouraged to hook on and abandon the septic tanks through the enactment of a City policy requiring that sewer fees be paid regardless of hookup use. It is noted that septic system contamination of surficial aquifers (the disposal of sewerage by septic tank/nitrifications line systems) is the responsibility of State and local health departments. Their regulations and enforcement procedures are designed to protect the public interest both from groundwater contamination and surface hazard.

Water Protection

Potable water protection is guaranteed through several methods. First, the State Division of Health Services requires a minimum of 10 feet of horizontal or 18" vertical clearance between water and sewer lines and the City upholds this requirement. Water lines are constructed of materials meeting the standards of the American Water Works Association to insure a quality pipe network. The water lines are maintained and leaks repaired by a 13 man, 3 crew division of the Public Utilities Department. The division attempts to make repairs within 15 days of reporting. During construction, metallized warning tape is placed over the line to warn people who might be digging up the ground.

Water Problems and Needs

In the near future, Jacksonville will be faced with a water shortage, which was acute during the summer of 1985, and peak demand on hot days will surpass the system's pumping capacity. The City Council enacted a water conservation ordinance to take steps toward easing the problem until additional wells are completed.

The first new well should be completed by late 1985. Two additional wells are in the design stage for construction in FY1987 and FY1988. However, with the rapid growth that Jacksonville has realized recently, and the prospects for continued growth, additional wells will be required by the early 1990's as discussed on page .

Sewage Problems and Needs

As Jacksonville continues to grow, numerous sewage problems have developed: 1) sewers do not have the capacity to handle additional flows; 2) pump stations are overloaded; 3) pumping is inefficient if gravity flow can be obtained. To address these problems, the City is undertaking an interceptor construction program to eliminate current capacity problems. Within the next five years, interceptors are planned to be installed along Mill Creek, Dotey's Branch, and Sandy Run Branch. Future interceptors are expected to be installed on Northeast Creek and Brick Kiln Branch.

The Mill Creek interceptor will ease overloading problems that

currently plague some Northwoods and Cardinal Village neighborhoods. In addition, the area immediately north of Cardinal Village and the area adjacent to Willow Woods could be served without overloading the sewer system in the area.

The Dotey's Branch interceptor is the key to providing sewer to the US 17 North areas, including Foxhorn Village, near the old airport. With completion of this project, sewer for US 17 North to the rear of Long Acres Subdivision and along the proposed Western Boulevard extension will be served. Currently, the lack of facilities in this area provided a major constraint to development.

The Sandy Run trunk main will provide sewer service to the area recently annexed between Western Boulevard and Bell Fork Road, south of US 17. Currently all the homes in the area operate on septic tanks. Construction of this trunk sewer will also expedite the transfer of sewer from College Park to the treatment plant taking strain off the system in Brynn Marr. This sewer system is to be the first installed under the construction program.

An interceptor along Brick Kiln Branch would allow the City to serve the Georgetown area and large areas in the US 17 South, US 258, and Maplehurst Road triangle. Northeast Creek's interceptor will provide for elimination of two pump stations and open up the Piney Green and Brynn Marr areas for further development. Timing of this latter sewer system may be delayed if the current housing market tightens considerably.

PART IX

Severe Storm: Mitigation & Reconstruction

STORM HAZARD MITIGATION

The City recognizes the potential threat tropical storms and hurricanes pose to the health, safety, and well-being of the Jacksonville community. Flooding, wind damage, property damage, and other types of infrastructure damage must be considered in attempting to prepare for those types of disasters that may occur in coastal regions between June 1 and November 30. The City endorses the "Onslow County Hurricane Response Plan" as adopted by Onslow County in April, 1984. The plan outlines responsibilities, evacuation actions, warning systems, and shelter provisions and, as such, stands as an integral section of this Plan's overall storm mitigation policy. The "Onslow County Hurricane Response Plan" is included as Appendix 2 of this report.

A. Composite Hazard Maps

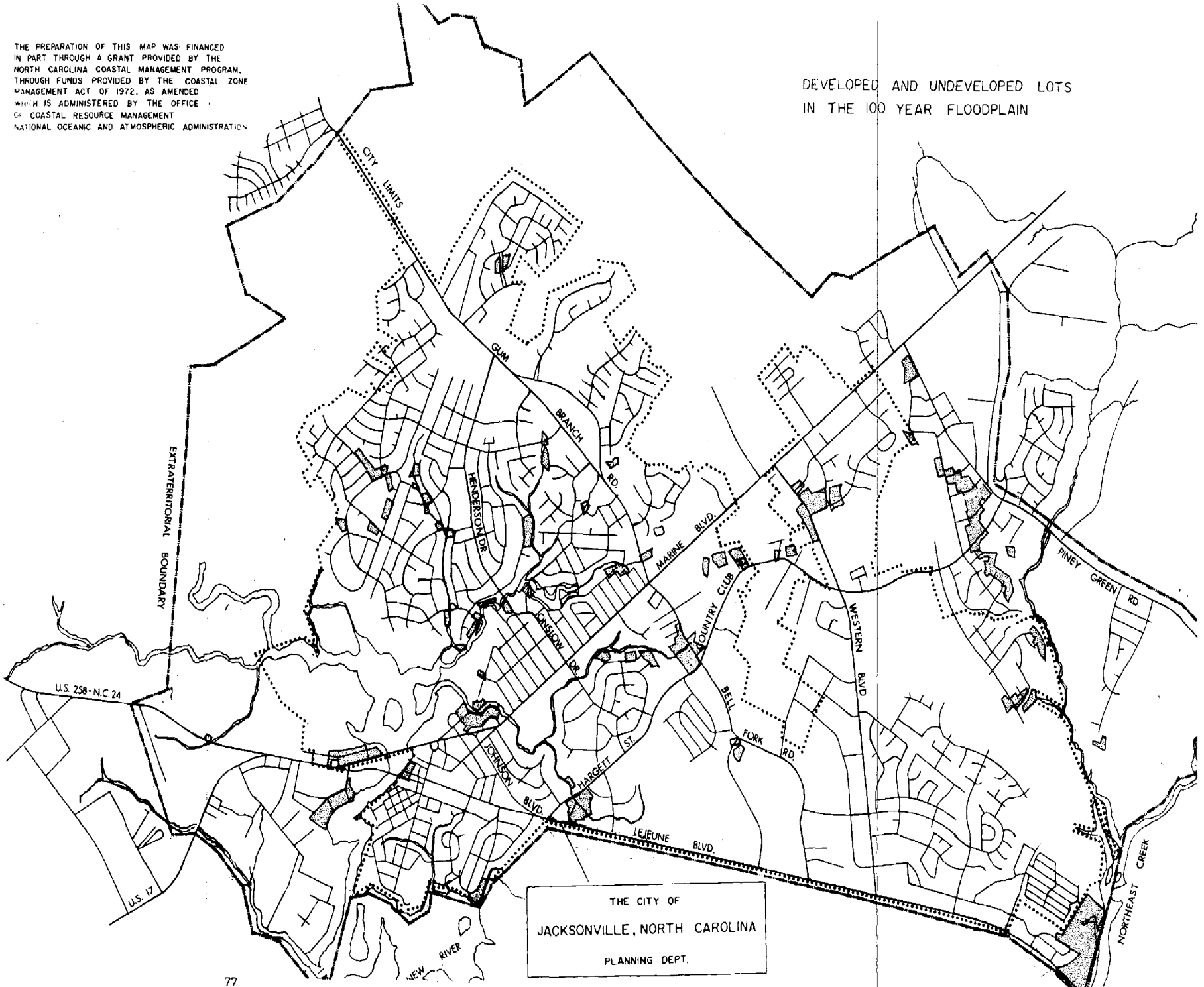
In recognizing potential flood damage areas within Jacksonville, Map Attachment H depicts all floodplains within the City while Map Attachment L depicts those existing developed and undeveloped lots which fall totally within the 100 year floodplain.

B. Inventory of Existing Lots Within the Floodplain

Close examination indicates that one hundred seventy seven existing lots within the City fall entirely within the 100 year floodplain, as indicated by the Federal Emergency Management Agency. Field surveys,

THE PREPARATION OF THIS MAP WAS FINANCED IN PART THROUGH A GRANT PROVIDED BY THE NORTH CAROLINA COASTAL MANAGEMENT PROGRAM, THROUGH FUNDS PROVIDED BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, AS AMENDED WHICH IS ADMINISTERED BY THE OFFICE OF COASTAL RESOURCE MANAGEMENT NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DEVELOPED AND UNDEVELOPED LOTS IN THE 100 YEAR FLOODPLAIN



conducted by the Jacksonville Planning Department indicate that one hundred thirty five of these lots are used for residential purposes and thirty are zoned for commercial purposes while only twelve of these lots remain vacant.

C. Types of Risks

While areas throughout Jacksonville would be subject to both wind and water damage resulting from tropical storms and hurricanes, those developed lots within the 100 year floodplain would suffer substantial flooding damages estimated between $16,000,000 and $20,000,000. These figures do not include public facilities (roads, water, sewer, etc.) which have been designed to withstand inundation. It is impossible to estimate the replacement cost for these public facilities in that they may only be damaged, if at all, certainly not totally destroyed.

D. Flooding and High Wind Policies

To mitigate the hazards of flooding, the City Council adopted a flood damage prevention ordinance in 1984. This ordinance recognized that areas within the Jacksonville Planning jurisdiction are subject to periodic inundation which "can result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures, and impairment of the tax base. " Major provisions of this ordinance include the following:

1. restricting or prohibiting uses which are deemed dangerous to health, safety, and/or property;

2. requiring that those uses vulnerable to flooding be protected against flood damage at the time of initial construction;

3. controlling all types of alternatives to natural flood plains, stream channels, and other natural protective barriers;

4. controlling those types of development which might increase erosion; and

5. regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

The City Engineer is designated to administer this ordinance through a permit process which allows for special construction modes for those structures to be erected within a flood plain and encompass the following standards:

1. residential construction - new construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated no lower than one foot above base flood elevation.

2. non-residential construction - new construction or substantial improvement of any commercial, industrial, or other non-residential

structure shall either have the lowest floor, including basement, elevated no lower than one foot above the level of the base flood elevation or, together with attendant utility and sanitary facilities, be flood-proofed and certified as such by a registered engineer or architect.

3. mobile home - no mobile home shall be placed in a designated flood way or coastal high hazard area, except in an existing mobile home park or mobile home subdivision (with the latter requiring over-the-top ties and frame ties capable of carrying a force of 4,800 pounds).

Nonconforming structures in existence prior to the adoption of this ordinance are not forced to comply, however, should these structures be moved or destroyed, any subsequent building shall fall subject to the ordinance.

As request for rezonings and subdivision submittals are made to the City of Jacksonville Planning Department, it shall be the responsibility of that department to discourage both commercial and residential development within flood plain areas. Developers will be made aware of potential hazards and will be subjected to the full scope of the flood damage protection ordinance. For those potentially developable lands outside floodplains but subject to excess flood and/or wind damage, the Department shall inform both Planning Board and City Council of such concerns as development plans are submitted. It shall be the responsibility of the City Council to make final decisions, base upon information presented, as to how

the health, safety, and well being of the community might be affected by such development.

E. Hurricane Preparedness Plan

A Hurricane Response Plan was adopted by Onslow County (see page 129) in January, 1984. The stated purpose of this Plan is to provide for an orderly and coordinated evacuation of endangered areas to minimize the effects of hurricanes on residents and visitors in Onslow County. The Plan provides for the alerting of selected officials, the evacuation of the public from danger areas, and the designation of shelters for those evacuated. It also provides for reentry into evacuated areas when the threat to health and safety has ended.

A major provision of this Plan includes the establishment of two evacuation action groups: A. a control group (comprised of elected officials from each municipality within Onslow County as well as the Onslow County Commissioners' Chairman) vested with the responsibility of overseeing the evacuation operations. B. a support group (comprised of appointed County and municipal professionals employees) vested with the responsibility of providing personnel and material resources for the implementation of preplanned actions and actions directed by the control group.

POST DISASTER RECONSTRUCTION PLAN

The City of Jacksonville recognizes that the reconstruction process occurs in four periods which overlap yet follow each other in sequence after a disaster strikes. These periods are as follows:

1. emergency period - the initial days or weeks after the disaster when social and economic activities are most seriously disrupted and attention focuses on the dead, injured, missing, and homeless;

2. restoration period - the first weeks or months after the disaster when attention focuses on debris removal and the rapid repair of damaged utilities, housing, and commercial structures; this period marks the transition from the response phase to the recovery phase;

3. replacement reconstruction period - several weeks after the disaster and possibly continuing for several years with concentration placed on reconstruction of those buildings and utilities which were damaged beyond repair; and

4. commemorative, betterment, and developmental reconstruction period- usually several years after the disaster when attention is directed toward the memorialization of the disaster and to mark the community's post disaster improvement and/or to enhance future growth. The actual amount of time it takes to recover from a natural disaster depends primarily upon the extent of damages incurred. During the restoration

period, the City shall evaluate the condition of damaged or destroyed public facilities and submit a report to the City Council. At that time, consideration will be given to relocating destroyed facilities out of high risk damage areas. Such relocation shall occur only when more satisfactory/lower risk locations are both feasible and readily available.

A. Emergency Management Response To Immediate Cleanup

Public safety is the primary concern during the emergency period. Debris removal, securing power lines, assessing water quality and opening lines of transportation and communication are actions to be taken by the EMC, FEMA, the NCDOT, Division of Health Services, NC National Guard, and Civil Air Patrol. These agencies will be responsible for organizing volunteers and utilizing available resources in cleanup activities.

B. Local Long Term Reconstruction Policies

Immediately following a natural disaster, during which substantial physical damage was incurred, the Jacksonville City Council should enact a post disaster reconstruction moratorium. This moratorium should remain in place until heavily damaged areas can be cleared and mapped for Council review. At that time Council should address each of the following questions and consider creating new policy:

1. should there be changes in land use?

2. should there be changes in the building codes?

3. should there be a concerted effort to make the community more effective and more attractive?

4. should there be compensation or special financial assistance for private property losses?

5. how should increased local public expenditures be financed?

6. should normal or extraordinary decision making mechanisms be uses to guide post-disaster recovery?

The Council should also establish a Recovery Task Force to assist in overseeing the reconstruction process and to recommend policy changes. This task force should be comprised of citizens, of varied backgrounds, that are familiar with Jacksonville and the City's policy making process. Individual members of the task force should be appointed by Council in a like manner as other advisory board members with special emphasis placed upon attaining a group with numerous related expertise. The Task Force should consist of no less than eight and no more than fifteen members.

C. Guidelines for Post Disaster Repairs and Reconstruction

1. **Timing and Completion of Damage Estimates** - The preliminary damage assessment will be completed by the City Engineer within the first five days after the disaster. This assessment will be submitted to City Council via the City Manager. Damage survey reports will be completed by the City Engineer within three months of the disaster.

2. **Timing and Completion of Temporary Development Moratoria** - The City Council, upon receipt of the City Engineer's damage assessment report, should decide if damage was substantial enough to warrant a temporary development moratorium. If so, development will be suspended in affected areas until redevelopment policy is set (within 6 months).

3. **Development Standards - Post Disaster** - Development standards for post disaster reconstruction shall follow set State Building Codes and/or any other policies enacted by City Council during the moratorium. Where nonconforming structures have suffered more than 60% damage, they may be rebuilt only in conformance with current standards.

D. Establishment of Schedule for Staging and Permitting Repairs and Reconstruction

All such scheduling depends upon the enactment of a moratorium. Should such a moratorium not be set, project applications and approvals shall take place from the day following the initial disaster to three months afterward. Project completion and final inspections will take place from fifteen days after the disaster through two years after.

E. Policy Implementation

The City Council shall make all policy decisions concerning the City of Jacksonville and its extraterritorial jurisdiction and City Staff will be responsible for actual implementation and compliance checks.

F. Policies for Repair and Replacement

During the restoration period (3-10 weeks) the utility system shall be patched to be made operable. During the reconstruction period (10-200 weeks) reconstruction and possible relocation, if feasible, of the capital stock shall be made.

PART X

Future Needs, Demands & Community Facilities

POPULATION PROJECTIONS

The North Carolina Office of Budget and Management has projected that Onslow County population will increase fourteen percent over the next ten years. Citing the unpredictability of population shifts in communities heavily influenced by the military, however, OBM has not attempted to formulate a 1995 population projection for the City. Recent growth indicators - including actual population growth, new housing starts, annexations, et cetera - depict a far higher City-wide population increase.

In an attempt to provide a more accurate projection, the following two methodologies were utilized to project population from the 1985 base population of 25,136: a) combining current birthrates (3.6 persons per 1000), net migration rates (.74%), and death rates (.63 persons per 1000)--yielding a 1995 population projection of 34,586 and, b) multiplying the average number of residential building permits issued from 1979 to 1984 (455) by the current average number of persons per household as provided by the North Carolina Office of Budget and Management (2.658) - yielding a 1995 population projection of 35,907. Averaging the totals derived from these two methodologies yields a total population projection for 1995 of 35,246. This figure represents an approximate thirty-seven percent total population increase anticipated by 1995.

The implications of an overall thirty-seven percent population growth rate are pervasive. The following sections reflect the potential requirements such growth might demand.

Streets and Highway Network

Thoroughfares and major arterials throughout Jacksonville are presently functioning at near capacity load levels. Table 14 depicts 1984 average daily trips along selected streets and highways through Jacksonville.

TABLE 14

1984 ADT COUNTS ALONG SELECTED ROUTES

Route/Street Name	1984 Average Daily Trips
Gum Branch Road	17,333
U.S. Highway 17 (within City)	24,362
N.C. Highway 24 (within City)	30,840
Western Boulevard	21,600
Henderson Drive	13,550
Piney Green Road	8,157
Country Club/Hargett	11,483

Source: NCDOT 1984 ADT Map

The Planning and Research Branch of the North Carolina Department of Transportation has provided the 1990-95 estimates reflected in Table 15. These estimates are based upon a system-wide analysis and, further, upon the assumption that the 1985 Jacksonville Urban Area Thoroughfare Plan (included as Map G earlier in this Plan) will be fully implemented by 1990-95.

TABLE 15

1990-95 ADT COUNTS ALONG SELECTED ROUTES

Route/Street Name	Projected ADT Counts
Gum Branch Road	30,000
U.S. Highway 17 (within City)	43,000
N.C. Highway 24 (within City)	52,500
Western Boulevard	39,000
Henderson Drive	22,000
Piney Green Road	13,000
Country Club/Hargett	20,000
U.S. 17/N.C. 24 Freeway Facility	50,000

Source: Jacksonville Thoroughfare Plan Report (Draft Copy)

It is anticipated that demands on the streets and highways network will continue to mount. A public transit service began trial operations during mid-1985, but this service has not received the amount of participation

which would be necessary to warrant consideration of reduced future loads as a result of the service's existence.

Housing

Windshield surveys conducted as a primary project element in the City's 1984 C.A.M.A. Housing Action Plan indicated that there were a total of 11,112 dwelling units within Jacksonville and its one mile extraterritorial planning jurisdiction. Among these dwelling units, it was further referenced that the City maintains a constant ten percent vacancy rate.

While attempting to accurately estimate the total number of dwelling units anticipated in 1995, the following two methodologies were utilized: a) the estimated 1995 population figure of 35,246 was subtracted from the City's 1985 population of 25,136 - yielding a difference of 10,111. This difference was then divided by the current average Jacksonville household size of 2.658 - yielding quotient of 3804 additional dwelling units required by 1995, b) the total number of dwelling unit building permits issued for the 53 month period between July 1980 to December 1984 was 2010. The following ratio was formed:

$$\frac{2010 \text{ building permits issued}}{53 \text{ total months}} \quad X \quad \frac{X}{120} \quad \frac{\text{building permits issued}}{\text{total months (1995)}}$$

$$53X = 241.200$$

$$X = 4551 \text{ projected building permits to be issued by 1995}$$

An average of the final sum reached by utilizing the aforementioned methodologies indicates that approximately 4178 additional dwelling units will be constructed by 1995. The continued growth rate may necessitate the residential development of as much as six hundred and fifty acres at an average density of 7 units per acre, by 1995.

While discussing the necessity of new housing as population increases, it is equally important to recognize the potential affects of housing condition deterioration. This issue was discussed in the 1983 Jacksonville Housing Action Plan Section X entitled "Causes of Blight and Strategies" and appears as Appendix 4 of this Plan Update.

Open Space

The National League of Cities has suggested a nationwide open space requirement of one acre for every one hundred residents. The City currently falls well below this suggestion. Applying this suggestion only to the projected population increase of 10,111 persons, an additional one hundred one acres would be required.

The City of Jacksonville incorporated requirements in February, 1983 for recreational/open space dedication into the City's subdivision ordinance. It is anticipated that future development will provide adequate open space for the City's increasing population.

Undeveloped Land

There are currently several large tracts of undeveloped land within the city limits and extraterritorial jurisdiction. The majority of these tracts fall within the northern and eastern sections of the City. They remain undeveloped primarily because they lack good access to the existing streets network. Given that proper access be attained, most of the City's undeveloped land areas would be suitable for commercial and/or residential development.

Services

The addition of over 10,000 people dictates the addition of commercial and office space for the provision of services to the newly developed residential areas. Acreage figures will vary depending upon the amount of office and commercial space built.

Water and Sewer

The ability to provide sewer and water service in certain areas will help determine, to a degree, where growth can occur. Expansion of water lines, well fields, sewer lines, and sewer plan capabilities will be necessary to accommodate growth.

Schools

Several city schools are operating above capacity. Temporary classrooms have helped ameliorate the situation in the short run. The Onslow County School District will need to utilize their ability to float bonds to construct and further maintain the schools in the City of Jacksonville. At least one new elementary school and middle school may need to be built to accommodate this growth.

Extraterritorial Jurisdiction (ETJ)/Annexations

The current one mile extraterritorial jurisdiction encompasses a large area of undeveloped land and some residential subdivision uses. There is much room to expand. Annexations of these areas is a possibility, the ETJ allows consistency in developed areas in zoning and building codes. An additional 37% in land area would bring in 4.4 square miles, bringing the City area to 16.3 square miles.

Community Facilities

The Jacksonville Community Facilities Plan was completed in 1982 and was financed in part through a grant provided by the North Carolina Coastal Management Program. That Plan identified future needed facilities for a twenty-year period within Jacksonville and immediately adjacent areas.

The Community Facilities Plan was divided into the following sections: a) Public Safety, b) Public Works, c) Parks and Recreation, d) Public

Utilities, e) Administration and Support Facilities, f) Education Facilities, g) Other Public Facilities, and h) Capital Improvements Program. Each subsection offered a description of an individual element of the section itself, (reference table of contents found in Appendix 5 of this plan.) while further evaluating the subsection and making recommendations.

The City believes the Community Facilities Plan remains a timely and useful document. Rather than restating that Plan, it is suggested that more information regarding community facilities be obtained directly from the 1982 Plan.

Projected Land Use Needs 1995

The following figures were attained by using: the 1980 ratios of land use acreage per 1000 population, the percentage growth from 1980 to 1985, and the projected growth from 1985 to 1995.

TABLE 16

PROJECTED LAND USE

Land Use	Ratio AC/1000	1995 Projected Land In Acres	1985 Land In Acres	Net Acres Needed
Residential	110	5269	3846	1423
Commercial	32	1537	1122	415
Industrial	8	133	97	36
Public/Institutional	30	1262	921	341
Trans/Comm/Util	50	2252	1644	608
Total		10,453	7630	2823
Square Miles		16.3	11.9	4.4

The extraterritorial jurisdiction, one-mile beyond the City limits, contains approximately 3000 acres or roughly 4.6 square miles of land. This amount of land will adequately provide room for projected development. The 1995 projections area based upon a 37% increase in land as well as population.

PART XI

Policies & Implementations: Community Issues

A primary objective of the Coastal Area Management Act Land Use Plan Update is a statement of policies which will direct the decision-making process for the coming ten years within Jacksonville and its extraterritorial jurisdiction. Policy statements have been tailored to suit the anticipated needs of the City and extraneous subjects (such as fisheries, mineral production areas, and phosphate mining) have been intentionally excluded from the text in an effort to comply with .0201(d) of Subchapter 7B (Land Use Planning Guidelines - DNRCD-DCM) which states that "the land use plan itself should be simple, clear, and plain." With this concept in mind, the following policy statements represent the official policy of the City of Jacksonville.

A. RESIDENTIAL BLIGHT

1. Description

According to the City of Jacksonville Housing Action Plan, some 13.83% of the study area housing stock was in a substandard condition. While only 9.84% (933 units) of the City's housing stock was classified as substandard, some 34.42% (632 units) of the extraterritorial jurisdiction's housing was classified as substandard.

2. Policy

It shall be the policy of the City of Jacksonville to redevelop areas of the City which contain concentrations of substandard housing.

3. Implementation Strategies

a. The City should continue efforts to expand its extraterritorial planning jurisdiction.

b. The City should continue to rehabilitate existing housing structures through the use of Community Development Block Grant funds.

c. The City should continue to improve existing infrastructure.

d. The City should continue enforcement of its adopted minimum housing code.

e. The City should implement recommendations as contained in the Chapter entitled "Causes of Blight and Strategies" as contained in the "Housing Action Plan." (Appendix 4 of this Plan)

B. DOWNTOWN REDEVELOPMENT

1. Description

The downtown area of Jacksonville was at one time the hub of economic activity in Onslow County. However, because of its inability to expand and the locating of several adult businesses within the area, it

began to decline as a retail center. The Jacksonville downtown area is currently predominated by governmental structures and offices, attorney offices, bars, pawn shops, and tattoo parlors.

2. Policy

It shall be the policy of the City of Jacksonville to participate in redeveloping the original downtown area in cooperation with merchants, and property owners of that area, as well as with other interested groups.

3. Implementation Strategies

a. The City should work closely with the downtown consultant (contracted on June 28, 1985) to formulate a preliminary downtown redevelopment plan. Furthermore, the City should actively seek to implement any recommendations made in the new downtown redevelopment strategy.

b. The City should help establish a permanent downtown organization to oversee the redevelopment process and on-going growth.

c. The City, perhaps in cooperation with the County, should hire a full-time Downtown Manager to promote, organize, and manage the redevelopment plan and work with the downtown organization.

C. RECREATIONAL LAND

1. Description

In 1980, the City of Jacksonville had only 25 acres of recreational land to service the needs of approximately 22,000 people. Although the City now has over 150 acres of recreational land, the City falls below recommended national standards for recreational areas.

2. Policy

It shall be the policy of the City of Jacksonville to locate and acquire recreational lands and facilities so as to meet the recreation needs of the citizenry.

3. Implementation Strategies

a. The City should continue enforcement of the subdivision regulations requiring recreation land dedication.

b. The City should seek low cost land near the City for development as citywide parks.

c. The City should continue to attempt to acquire land and facilities within developed areas.

D. TRANSPORTATION

1. Description

The primary mode of transportation within the Jacksonville area is individual motor vehicles. The City is primarily served by U.S. Highway 17, U.S. Highway 258, and N.C. Highway 24. Current average daily traffic counts along U.S. Highway 17 are in excess of 43,000 making it one of the busiest roads in North Carolina. None of the aforementioned roads provide four lane access to Onslow County. Many other roads within the Jacksonville area are congested.

2. Policy

It shall be the policy of the City of Jacksonville to seek to improve the highway system within the Jacksonville Urban Area.

3. Implementation Strategies

a. The City should continue participation in the Continuing, Cooperative, and Comprehensive Transportation Planning program.

b. The City should seek to implement the adopted Thoroughfare Plan of April 17, 1985.

c. The City should cooperate with Onslow County and surrounding counties in improving inter-county transportation arteries.

E. INDUSTRIAL/ECONOMIC DEVELOPMENT

1. Description

The major employer within the Jacksonville area is Camp Lejeune with nearly 50,000 employees. Other small industries exist, but their combined employment would be much less than a tenth of the military's. In order to expand the City's economic base and to establish some economic stability, additional industries must be attracted to Onslow County.

2. Policy

It shall be the policy of the City of Jacksonville to cooperate and participate with the Onslow County Economic Development Commission and Greater Jacksonville Chamber of Commerce to attract new industries and identify potential industrial sites.

3. Implementation Strategies

a. The City should complete the economic base study scheduled for fiscal year 1987-1988.

b. The City should consider, where feasible, extending water and

sewer facilities to potential industrial sites.

c. The City should seek to have a permanent appointment to the Economic Development Commission's Board of Directors.

F. LAND USE PATTERNS

1. Description

The City of Jacksonville is characterized by mixed land uses and strip commercial development along many major thoroughfares. This strip development inhibits traffic flow and often creates land use conflicts with adjacent residential areas.

2. Policy

It shall be the policy of the City of Jacksonville to discourage conflicting land use patterns and strip-commercial development along any future or existing arterial, collector, or minor street within the planning jurisdiction of the City.

3. Implementation Strategies

a. The City should comprehensively review zoning within the area of any proposed street extensions.

b. The City should conduct detailed corridor studies along all major thoroughfares in an effort to determine ways to eliminate or improve existing problem areas.

c. The City should direct commercial development into concentrated nodes rather than into linear extensions.

d. The City should require that new residential subdivisions back onto major roads and thus be prevented from having direct driveway access.

G. PUBLIC PARTICIPATION

1. Description

The fundamental tool in any planning effort is public participation. Unless a plan or program reflects the expressions and desires of the citizenry, it is certainly doomed to non-implementation.

2. Policy

It shall be the policy of the City of Jacksonville to encourage citizen participation in all planning activities.

3. Implementation Strategies

a. The City should continue its practice of administrative public information meetings in regard to specific projects.

b. The City should continue its practice of providing speakers to local civic clubs and schools.

H. RESOURCE PROTECTION

1. Description

The New River and its associated fragile areas provide aesthetic, recreational, and economic benefit to the citizens of Onslow County. The New River is a focal point of the Jacksonville area; developable land along its periphery is scarce.

2. Policy

It shall be the policy of the City of Jacksonville to seek protection of the New River and its associated fragile areas from pollution and development encroachment.

3. Implementation Strategies

a. The City should enforce the "Flood Damage Prevention

Ordinance" which limits development within flood hazard areas.

b. The City should, where feasible, provide public sewerage facilities to areas located adjacent to fragile areas.

c. The City should discourage development which would result in direct urban runoff.

d. The City should encourage drainage designs which would take advantage of holding ponds or some other means of pollutant control.

I. WATER AND SEWER EXTENSIONS

1. Description

The availability of water and sewer services dictates the direction and density of urban growth. The availability of these water supply and waste disposal systems allows urban areas the luxury of concentrated commercial development and high density residential development.

2. Policy

It shall be the policy of the City of Jacksonville to extend water and sewer facilities to areas complying with City specifications and requirements.

3. Implementation Strategies

The City should allow extension of water and sewer facilities in conformance with adopted City policy (see Appendix 6).

PART XII

Land Classification

LAND CLASSIFICATION

The land classification system contained within this report has been developed as an aid to guiding the growth and development of the City of Jacksonville. The land classification system and map is an expression of the City of Jacksonville's desired future growth patterns. Land classifications on the map are general in nature and should be viewed as showing the general character of an area rather than the specific use of individual lots. Local, state, and federal regulatory agencies will find the adopted land classification map useful in that it encourages consistency and coordination between local land use policies and those of the State of North Carolina; provides a guide for public investment in land, by assisting local and State government to know in advance the need for parks, schools, highways, etc; serves as a framework for budgeting and planning for the construction of community facilities; aids in better coordination of regulatory policies and decisions; and enables the City to "guide" growth and development to areas best suited to service their needs. The land classification system further serves as a vital implementation tool for the community issues and policies found in Chapter XI of this Plan.

DEVELOPED AREAS

Within the urban boundary of the City of Jacksonville, the predominate land classification is "developed". Areas classified as developed have either an estimated density of 500 dwelling units per square mile and are developed for office/commercial/industrial purposes, or have a mixture of

residential and other uses. Areas classified in a developed category typically have both a public water and sewer system although some developed areas are only served by public water. There are many vacant areas within the City's planning jurisdiction classified as developed because they are relatively small in size and already served by public facilities.

In order to distinguish between types of development most appropriate for different areas of the City's planning jurisdiction, the developed category has been subdivided into the following classifications:

Low Density Residential Developed

Low Density Residential Developed (LR) consists almost entirely of those residential areas within the City's planning jurisdiction predominated by single family detached dwelling units. Typical lot sizes in the LR classification are approximately 10,000 square feet. The LR classification may also include recreational areas and schools if they are situated in such a manner as to be an asset to the surrounding residential area.

High Density Residential Developed

High Density Residential Developed (HR) areas are predominated by multi-family structures ranging from duplex/townhouses to condominiums. These HR areas typically have an average of 10 units per acre and are scattered throughout different areas of the City. The HR areas are usually found adjacent to good thoroughfare access or between low density

residential areas and commercial areas.

Mixed Density Residential Developed

Mixed Density Residential Developed (MD) areas are, for the most part, older residential areas which usually contain a variety of housing types and possibly some scattered commercial uses. A typical MD might contain single family detached residential dwelling units on both small lots and large lots, mobile homes, duplexes, triplexes, and other small multi-family rental complexes, along with scattered commercial uses within the residential area such as convenient stores, barber shops, garages, etc.

Business/Industrial Developed

Business/Industrial Developed (BD) areas are normally found along major highways, in concentrated shopping areas (downtown area, shopping centers) or zoned industrial areas. BD's contain office and institutional uses which tend to buffer residential areas from more concentrated business development, as well as intensely developed commercial and industrial areas. Due to the lack of a strong and viable downtown area, many of the commercial uses are in strip commercial developments rather than in commercial core areas.

TRANSITION AREAS

As the developed classification illustrates what has already happened

regarding land use within the City's urban area, the transition areas attempt to depict what will happen in the future. Transition land classification areas are important in that they serve as the guide and controlling force of future development. Through proper planning and utilization of the land classification map, growth can be controlled so as to be most advantageous to the citizenry and their tax dollars.

Much of Jacksonville's undeveloped area is in close proximity to the Urban Core. The City of Jacksonville exercises land use control over a one mile extraterritorial planning jurisdiction which is prone to fairly immediate development. The City has tried in the past to expand the extraterritorial planning jurisdiction to 2-3 miles which would bring more rural areas under the City's control, however, these efforts have been unsuccessful and the extraterritorial planning jurisdiction remains small and development of it remains imminent due to its close proximity to the Urban Core.

There is great difficulty in projecting Jacksonville's future land use needs. Since the establishment of Camp Lejeune in the early 1940's, Jacksonville has depended upon the Base for its growth. Each time additional military personnel (currently there are 41,016 active duty present) are assigned to Camp Lejeune, approximately 30% of this number will have families who move to Jacksonville and there is a spinoff for service industry expansion in the local economy to serve their needs. Planned military personnel expansions are not made known to local officials until circa the time the relocation actually occurs.

Another unpredictable trend in the Jacksonville Area which makes detailed projections difficult is military retirees. Camp Lejeune has now become the Marine Corps second largest base and many career marines are experiencing multiple tours of duty at Camp Lejeune. The proximity of Camp Lejeune and its support facilities (medical and retail), the areas relatively low cost of living, and the temperate climate is making the Jacksonville area an attractive retirement area for military personnel.

The relatively small extraterritorial planning area, the unpredictability of the military, and the absence of any prime irreplaceable agricultural lands within the planning area have resulted in all of Jacksonville's undeveloped area being classified into one of three transition classifications.

In an effort to differentiate between areas within the City's planning jurisdiction best suited for specific future uses, the Transition category has been subdivided into the following classifications:

Residential Transition Areas

Residential Transition Areas (RT), as foreseen in this land use plan update, may contain either low or high density residential developments. Although it would be desirable to separately distinguish between low and high density residential uses, it is not practical to project specific locations where these types of development might occur. The City will, however, through the Zoning Ordinance, utilities provisions, and site plan

review ensure that different residential densities do not develop in a conflicting manner.

Mixed Transition Areas

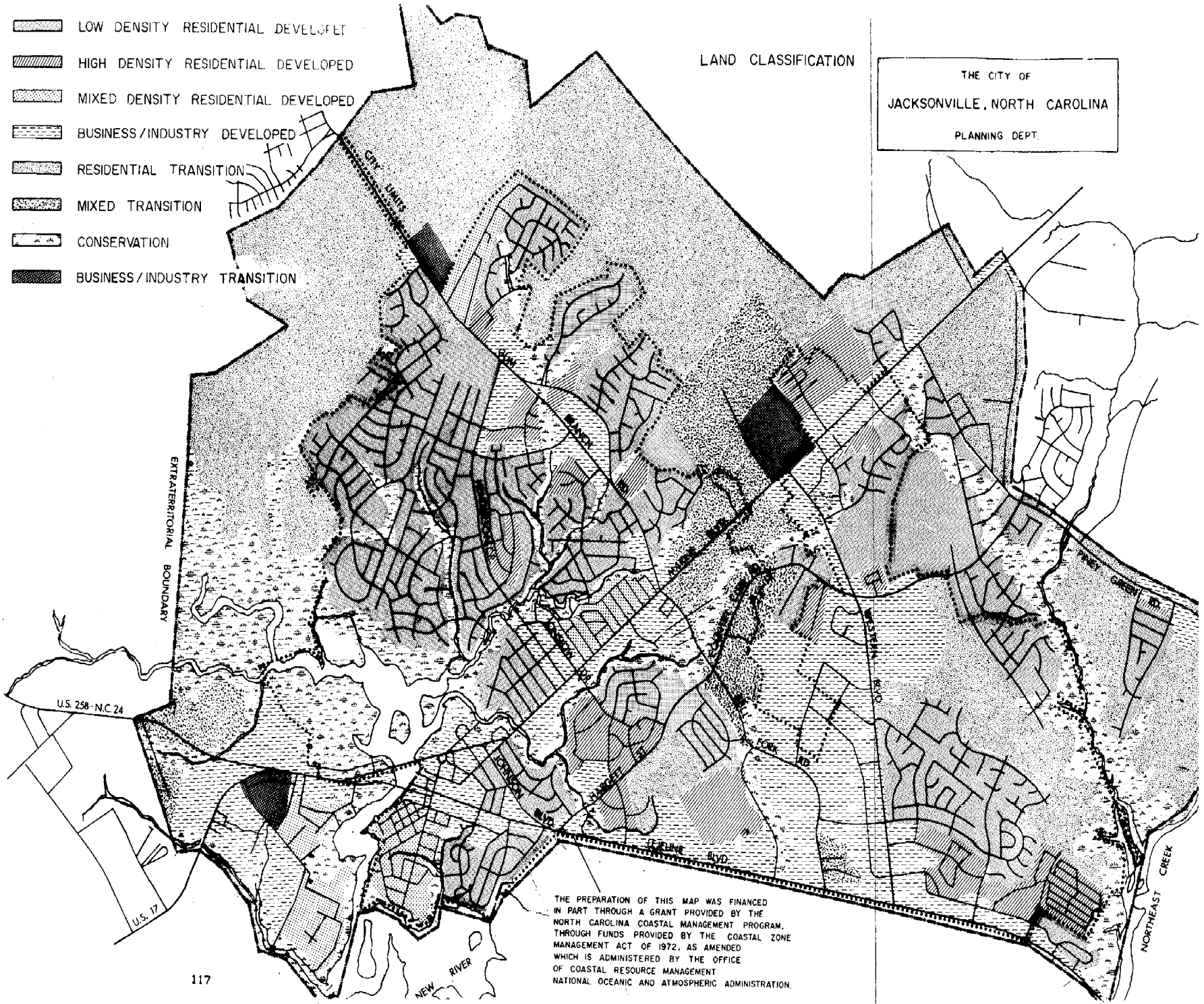
Mixed Transition Areas (MT) are found both on the perimeter and within the center of the urban core. MT's are areas that are in a state of transition which makes it impossible to identify whether they will develop for residential, commercial, or industrial purposes. Some of the MT's may in fact develop so that a portion might be commercial and the rest a mixture of low and high density residential. The majority of the MT's within the Bell Fork Road/Country Club Road corridors are large lot developments which are currently (although sparsely) developed for a mixture of residential and commercial uses. Within the next 10 years, local land economics will dictate the future of these and other transition areas, but it is currently impossible to determine the intensity of projected development which may occur.

Business/Industrial Transition Areas

Business/Industrial Transition Areas (BT) are found in the Jacksonville city limits. BT's are projected to be the commercial center for surrounding residential development. These business areas are projected to develop as do commercial roads in keeping with the policy to discourage strip-commercial development.

CONSERVATION AREAS

Conservation Areas (C) denotes those areas within the City's planning jurisdiction that need effective long-term management and protection because of their scenic and/or natural productive values. The conservation class as depicted on the Land Classification Map includes all Public Trust Waters, Estuarine Waters, Estuarine Shorelines, (as discussed in detail in Chapter VII) and all that area falling within the 100 year floodplain. These areas should be protected from urban runoff and construction activities that might increase the City's flood liability, or introduce pollution into the sensitive environment.


LOW DENSITY RESIDENTIAL DEVELOPED
HIGH DENSITY RESIDENTIAL DEVELOPED
MIXED DENSITY RESIDENTIAL DEVELOPED
BUSINESS / INDUSTRY DEVELOPED
RESIDENTIAL TRANSITION
MIXED TRANSITION
CONSERVATION
BUSINESS / INDUSTRY TRANSITION
LAND CLASSIFICATION
THE CITY OF
JACKSONVILLE, NORTH CAROLINA
PLANNING DEPT.
CITY LIMITS
EXTRATERRITORIAL BOUNDARY
U.S. 258 - N.C. 24
U.S. 17
NEW RIVER
NORTHEAST CREEK
PINEY GREEN RD.
THE PREPARATION OF THIS MAP WAS FINANCED IN PART THROUGH A GRANT PROVIDED BY THE NORTH CAROLINA COASTAL MANAGEMENT PROGRAM, THROUGH FUNDS PROVIDED BY THE COASTAL ZONE MANAGEMENT ACT OF 1972, AS AMENDED WHICH IS ADMINISTERED BY THE OFFICE OF COASTAL RESOURCE MANAGEMENT NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

PART XIII

Appendix

Appendix 1

Public Participation

Public participation in the Land Use Plan Update was extremely beneficial to the development of land use issues, policies, and implementation. It should be noted that such participation was gained not only from those attending scheduled C.A.M.A. Land Use Plan Update meetings, but also from the input received from the public at regularly scheduled planning board and city council meetings. The City Planning Staff has made a sincere effort to produce a concise and effective Update based upon general public opinions as expressed at such meetings and in one-on-one contacts.

An initial meeting was held with the Jacksonville Planning Board to inform them of the goals and objectives of the Update. At that time, the importance of public participation was stressed as was the desire to develop a good, workable plan.

Many different techniques were used to involve the public. These techniques included television and radio spots, newspaper articles, and public meetings. The first public information meeting was conducted on January 9, 1985. At that meeting, citizens expressed that the following interests/concerns be addressed in the Update: 1) land classification, 2) the New River, 3) environmental concerns, and 4) future development backlashes.

A second public meeting was held on May 29, 1985. During this meeting, citizens expressed concern about constraints on water and sewer systems, transportation deficiencies, and the City's willingness to approve large capital expenditures for facility improvements. The Update has dealt with each of the aforementioned concerns and has attempted to offer solutions as well as practical data which might be useful in anticipating future problems.

The attached pages reflect newspaper articles and notifications of public information meetings as they appeared in the "Jacksonville Daily News" during the planning and writing stages of the 1985 C.A.M.A. Land Use Plan Update.

Public hearing scheduled

By M.L. CHRISTENBURY
Daily News Staff

Jacksonville residents will get a chance Wednesday to tell city officials how they would like their city to develop.

A public meeting is scheduled for 7 p.m. at City Hall to seek suggestions on what to include in the 1985 Coastal Area Management Act land-use plan, said City Planner Horace Mann.

All coastal communities are required by law to revise a land-use plan every five years, he said.

The state considers changing coastal conditions and high growth near the seashore as factors necessitating land-use planning, Mann said.

The city's 1980 plan addressed such issues as economic development, recreation land development, redevelopment of downtown, and resource protection and management of the New River and flood-hazard areas.

The plan also discouraged strip commercial development, Mann said. "We prefer shopping centers with limited access to highways rather than driveway after driveway emptying onto a road," he said.

The plan also should identify constraints to development such as limited access to water and sewer facilities, Mann said.

"We want to coordinate the growth of Jacksonville within the scope of our resources," he said. "We wouldn't want to put an industrial user at the end of a four-inch water line."

Laurie Suess, Jacksonville's urban planner, is responsible for drafting the revised land-use plan. The expanded Planning Department staff has given the city the opportunity to develop the plan in-house, Mann said. Before, consultants were hired to fulfill the CAMA requirement.

Ms. Suess urges Jacksonville residents to attend the meeting to let the Planning Department know how they would like to see the city grow.

"Do people want sprawling growth or do they want to control it?" Ms. Suess said. "We want to know what the people want the city to look like in 10 years."

Two criticize city's planning

By M.L. CHRISTENBURY
Daily News Staff

Jacksonville resident Alberto Quayat and developer Gary Mercer criticized the City Council Wednesday night at a public meeting for not practicing long-term planning for Jacksonville.

The two Jacksonville residents were the only ones who attended the meeting held by city officials to seek ideas on what to include in a revised Coastal Area Management Act land-use plan.

The document will guide the growth of Jacksonville for the next five years, said Laurie Suess, the city's urban planner. "It is what they (the City Council) should base their development decisions on," she said.

But Mercer said that the city's sincerity in using citizen comment is debatable.

He said that city officials have told him that they knew about sewer overflow problems in the Mill Creek watershed five years ago and still have not solved the problem.

"If we're going to offer input now and they're not going to pay attention to it, then we might as well go home now," Mercer said.

Quayat agreed. "By sweeping the problems under the rug, we don't gain anything," he said.

Mercer chastised the council for not allowing building permits to be issued in the Mill Creek basin.

The council enacted the restriction until it determines the legality of a proposal to not allow multi-family developments to hook on to the city's overburdened water and sewer system until a larger sewer line is installed two years from now.

Because of the ban on building permits, Mercer said he has 28 lots within the area that he cannot develop even though he has paid the city utility access fees for some of the lots.

City wants planning suggestions

By M.L. CHRISTENBURY
Daily News Staff

Jacksonville residents will get a chance Wednesday to tell city officials how they would like their city to develop.

"We can address any issue that the people want," said City Planner Horace Mann.

A public meeting is scheduled for 7 p.m. at City Hall to seek suggestions on what to include in the 1985 Coastal Area Management Act land-use plan, Mann said.

"All coastal communities are required by law to update a land-use plan every five years," he said. "Changing coastal conditions and high growth because of the seashore are factors necessitating land-use planning."

The city's 1980 land-use plan addressed such issues as economic development, recreation land development, redevelopment of downtown, and resource protection and management of the New River and flood-hazard areas.

The plan also discouraged strip commercial development, Mann said. "We prefer shopping centers with limited access to highways rather than driveway after driveway emptying onto a road," he said.

The plan includes projections for the future and identifies constraints to development such as limited access to water and sewer facilities, Mann said.

"We don't want to sit in an ivory tower and say Utopia should be a certain way," he said. "If a person is concerned about adult businesses or the need for better roads, here is their chance to bring that issue to the forefront."

An expanded Planning Department staff afforded city planners the time to develop the revised land-use plan themselves, Mann said. Before, consultants were hired to fulfill the CAMA requirement.

"We feel like we have a much better product," he said. "It's more responsive to the concerns of the citizens of Jacksonville."

Haskell Rhett of the state Department of Natural Resources and Community Development will attend the meeting to answer questions about the CAMA plan, Mann said.

PUBLIC INFORMATION MEETING
CITY OF JACKSONVILLE CAMA LAND USE PLAN UPDATE
WEDNESDAY JANUARY 9, 1985 7:00 P.M.
CITY HALL COUNCIL CHAMBERS

The City of Jacksonville will conduct an administrative public information meeting for the purpose of soliciting citizens concerns which should be addressed in the Land Use Plan Update. This CAMA Plan is a fundamental planning tool which will be used to guide the growth and development of the City for the next 10 years. All interested citizens should attend or contact the City Planning Department at 455-2600, ext. 236 for more information.

Jan. 8, 1985

PUBLIC INFORMATION MEETING
CITY OF JACKSONVILLE CAMA LAND USE PLAN UPDATE
WEDNESDAY MAY 29, 1985 7:00 P.M.
CITY HALL COUNCIL CHAMBERS

The City of Jacksonville will conduct an administrative public information meeting for the purpose of soliciting citizens concerns which should be addressed in the Land Use Plan Update.

The 1985 CAMA Land Use Plan Update will help determine the direction and nature of growth for the City of Jacksonville and its extraterritorial jurisdiction for the next 10 years. The Plan will include land use and relevant policy issues that are important in deciding the future of the City.

All interested citizens should attend or contact the City Planning Department at 455-2600, extension 236 for more information.

May 25, 28, 1985

CITY OF JACKSONVILLE

FLOOD DAMAGE PREVENTION ORDINANCE

ARTICLE 1. STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

SECTION A. STATUTORY AUTHORIZATION

The Legislature of the State of North Carolina has in General Statutes 160A-458.1 delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the City Council of Jacksonville, North Carolina does ordain as follows:

SECTION B. FINDINGS OF FACT

(1) The flood hazard areas of the Jacksonville Planning Area are subject to periodic inundation which can result in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

(2) These flood losses are caused by the cumulative effect of obstructions in flood plains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, flood-proofed, or otherwise unprotected from flood damage.

SECTION C. STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

(1) restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;

(2) require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(3) control the alteration of natural flood plains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;

(4) control filling, grading, dredging and other development which may increase erosion or flood damage; and

(5) prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

SECTION D. OBJECTIVES

The objectives of this ordinance are:

(1) to protect human life and health;

(2) to minimize expenditure of public money for costly flood control projects;

(3) to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(4) to minimize prolonged business interruptions;

(5) to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in flood plains;

(6) to help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas; and

(7) to insure that potential home buyers are notified that property is in a flood area.

ARTICLE 2. DEFINITIONS

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have a common usage and to give this ordinance its most reasonable application.

Appeal means a request for a review of the City Engineer's interpretation of any provision of this ordinance or a request for a variance.

Area of shallow flooding means a designated AO Zone on a community's flood insurance rate map (FIRM) with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident.

Area of special flood hazard is the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year.

Base flood means the flood having a one percent chance of being equaled or exceeded in any given year (100-year flood).

Basement means that portion of a building between floor and ceiling, which may be partly below and partly above grade.

Building means any structure built for support, shelter, or enclosure for any occupancy or storage.

Development means any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining,

dredging, filling, grading, paving, excavation or drilling operations.

Existing mobile home park or mobile home subdivision means a parcel (or contiguous parcels) of land divided into two or more mobile home lots for rent or sale for which the construction of facilities for servicing the lot on which the mobile home is to be affixed (including at a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) is completed before the effective date of this ordinance.

Expansion of an existing mobile home park or mobile home subdivision means the preparation of additional sites by the construction of facilities for servicing the lots on which the mobile homes are to be affixed (including the installation of utilities, either final site grading or pouring of concrete pads, or the construction of streets). Any expansion is considered "new construction."

Flood or flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) the overflow of inland or tidal waters;

(2) the unusual and rapid accumulation of runoff of surface waters from any source.

Flood Hazard Boundary Map (FHBM) means an official map of a community, issued by the Federal Emergency Management Agency, where the boundaries of the areas of special flood hazard have been defined as Zone A

Flood Insurance Rate Map (FIRM) means an official map of a community, on which the Federal Emergency Management Agency has delineated both areas of special flood hazard and the risk premium zones applicable to the community.

Flood Insurance Study is the official report provided by the Federal Emergency Agency. The report contains flood profiles, as well as the Flood Boundary-Floodway Map and the water surface elevation of the base flood.

Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Floor means the top surface of an enclosed area in a building (including basement), i.e. - top of a slab in concrete slab construction or top of wood flooring in wood frame construction. The term does not include the floor of a garage used solely for parking vehicles.

Highest Adjacent Grade means the highest natural elevation of the ground surface, prior to construction, next to the proposed walls of a structure.

Mean Sea Level means the average height of the sea for all stages of the tide. It is used as a reference for establishing various elevations within the flood plain. For purposes of this ordinance, the term is synonymous with National Geodetic Vertical Datum (NGVD).

Mobile home means a structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. It does not include recreation vehicles or travel trailers.

National Geodetic Vertical Datum (NGVD) as corrected in 1929 is a vertical control used as a reference for establishing varying elevations within the flood plain.

New construction means structures for which the start of construction commenced on or after the effective date of this ordinance.

New mobile home park or mobile home subdivision means a parcel or contiguous parcels of land divided into two or more mobile home lots for rent or sale for which the construction of facilities for servicing the lot on which the mobile home is to be affixed (including, at a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and

the construction of streets) is completed on or after the effective date of this ordinance.

Start of construction means the first placement of permanent construction of a structure (other than a mobile home) on a site, such as the pouring of slabs or footings or any work beyond the stage of excavation, including the relocation of a structure. Permanent construction does not include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not a part of the main structure. For a structure (other than a mobile home) without a basement or poured footings, the start of construction means the affixing of the mobile home to its permanent site. For mobile homes within mobile home parks or mobile home subdivisions, start of construction is the date on which the construction of facilities for servicing the site on which the mobile home is to be affixed (including, at a minimum, the construction of streets, either final site grading or the pouring of concrete pads and installation of utilities) is completed.

Structure means a walled and roofed building that is principally above ground, a mobile home, a gas or liquid storage tank, or other man-made facilities or infrastructures.

Substantial improvement means, any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure, either (1) before the improvement or repair is started, or (2) if the structure has been damaged and is being restored, before the damage occurred. For the purpose of this definition substantial improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state and local health, sanitary, or safety code specifications which are solely necessary to assure safe living

conditions, or (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

Variance is a grant of relief to a person from the requirements of this ordinance which permits construction in a manner otherwise prohibited by this ordinance where specific enforcement would result in unnecessary hardship.

ARTICLE 3. GENERAL PROVISIONS

SECTION A. LANDS TO WHICH THIS ORDINANCE APPLIES

This ordinance shall apply to all areas of special flood hazard within the jurisdiction of the City of Jacksonville, North Carolina.

SECTION B. BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Emergency Management Agency in its Flood Insurance Study for the City of Jacksonville, North Carolina, dated May 18, 1983, with accompanying maps and other supporting data, and any revision thereto are adopted by reference and declared to be a part of this ordinance.

SECTION C. ESTABLISHMENT OF DEVELOPMENT PERMIT

A development permit shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities.

SECTION D. COMPLIANCE

No structure or land shall hereafter be located, extended, converted, or structurally altered without full compliance with the terms of this ordinance and other applicable regulations.

SECTION E. ABROGATION AND GREATER RESTRICTIONS

This ordinance is not intended to repeal, abrogate, impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlay, whichever imposes the more stringent restrictions shall prevail.

SECTION F. INTERPRETATIONS

In the interpretation and application of this ordinance all provisions shall be: (1) considered as minimum requirements; (2) liberally construed in favor of the governing body; and (3) deemed neither to limit nor repeal any other powers granted under state statutes.

SECTION G. WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the City of Jacksonville, North Carolina, or by any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

SECTION H. PENALTIES FOR VIOLATION

Violation of the provisions of this ordinance or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall constitute a misdemeanor. Any person who violates this ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than $50 or imprisoned for not more than 30 days, or both,

and in addition shall pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the City of Jacksonville, North Carolina, from taking such other lawful action as is necessary to prevent or remedy any violation.

ARTICLE 4. ADMINSTRATION

SECTION A. DESIGNATION OF CITY OF JACKSONVILLE ENGINEER

The City Engineer is hereby appointed to administer and implement the provisions of this ordinance.

SECTION B. PERMIT PROCEDURES

Application for a development permit shall be made to the City Engineer on forms furnished by him, prior to any development or building activities, and may include, but not be limited to, the following plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials; drainage facilities, and the location of the foregoing. Specifically, the following information is required.

(1) Elevation in relation to mean sea level of the proposed lowest floor (including basement) of all structures,

(2) Elevation in relation to mean sea level to which any nonresidential structure will be flood-proofed,

(3) Provide a certificate from a registered professional engineer or architect that the nonresidential flood-proofed structure meets the flood-proofing criteria in Article 5, Section B (2),

(4) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development,

(5) Provide a floor elevation or flood-proofing certification after the lowest floor is completed. Within twenty one

calendar days of establishment of the lowest floor elevation, or flood-proofing by whatever construction means, or upon placement of the horizontal structural members of the lowest floor, whichever is applicable, it shall be the duty of the permit holder to submit to the City Engineer a certification of the elevation of the lowest portion of the horizontal structural members of the lowest floor, whichever is applicable, as built, in relation to mean sea level. Said certification shall be prepared by or under the direct supervision of a registered land surveyor or professional engineer and certified by same. When flood-proofing is utilized for a particular building, said certification shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. Any work done within the twenty one day calendar period and prior to submission of the certification shall be at the permit holder's risk. The City Engineer shall review the floor elevation survey data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to further progressive work being permitted to proceed. Failure to submit the survey or failure to make said corrections required hereby, shall be cause to issue a stop-work order for the project.

SECTION C. <u>DUTIES AND RESPONSIBILITIES OF THE CITY ENGINEER</u>

Duties of the City Engineer shall include, but not be limited to:

(1) Review all development permits to assure that the permit requirements of this ordinance have been satisfied.

(2) Advise permittee that additional federal or state permits may be required, and if specific federal or state permits are known, require that copies of such permits be provided and maintained on file with the development permit.

(3) Notify adjacent communities and the North Carolina Department of Natural Resources and Community Development prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

(4) Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

(5) Verify and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, in accordance with Article 4, Section B (5).

(6) Verify and record the actual elevation (in relation to mean sea level) to which the new or substantially improved structures have been flood-proofed, in accordance with Article 4, Section B (5).

(7) When flood-proofing is utilized for a particular structure, the City Engineer shall obtain certification from a registered professional engineer or architect.

(8) Where interpretation is needed as to the exact location of boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the City Engineer shall make the necessary interpretation. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.

(9) When base flood elevation data has not been provided in accordance with Article 3, Section B, then the City Engineer shall obtain, review, and reasonably utilize any base flood elevation data available from a federal, state, or other source, in order to administer the provisions of Article 5.

(10) All records pertaining to the provisions of this ordinance shall be maintained in the office of the City Engineer and shall be open for public inspection.

SECTION D. VARIANCE PROCEDURES

(1) The Board of Adjustment as established by the City of Jacksonville shall hear and decide appeals and requests for variances from the requirements of this ordinance.

(2) The Board of Adjustment shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the City Engineer in the enforcement or administration of this ordinance.

(3) Any person aggrieved by the decision of the Board of Adjustment or any taxpayer may appeal such decision to the Superior court, as provided in General Statutes 143-215.57(c).

(4) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places without regard to the procedures set forth in the remainder of this section.

(5) In passing upon such application, the Board of Adjustment shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and:

(a) the danger that materials may be swept onto other lands to the injury of others;

(b) the danger of life and property due to flooding or erosion damage;

(c) the susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(d) the importance of the services provided by the proposed facility to the community;

(e) the necessity of the facility in a waterfront location, where applicable;

(f) the availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;

(g) the compatibility of the proposed use with existing and anticipated development;

(h) the relationship of the proposed use to the comprehensive plan and flood plain management program for that area;

(i) the safety of access to the property in times of flood for ordinary and emergency vehicles;

(j) the expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and

(k) the costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, electrical and water systems, and streets and bridges.

(6) Upon consideration of the factors listed above and the purposes of this ordinance, the Board of Adjustment may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

(7) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(8) Conditions for variances:

(a) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief;

(b) Variances shall only be issued upon (i) a showing of good and sufficient cause; (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant; and (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

(c) Any applicant to whom a variance is granted shall be given written notice specifying the difference between the base flood elevation and the elevation to which the structure is to be built and stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

(d) The City Engineer shall maintain the records of all appeal actions and report any variances to the Federal Emergency Management Agency upon request.

ARTICLE 5. PROVISIONS FOR FLOOD HAZARD REDUCTION

SECTION A. GENERAL STANDARDS

In all areas of special flood hazard the following provisions are required:

(1) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure;

(2) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;

(3) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

(4) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems;

(5) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters;

(6) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding;

(7) Any alteration, repair, reconstruction, or improvements to a structure which is in compliance with the provisions of this ordinance, shall meet the requirements of new construction as contained in this ordinance.

SECTION B. SPECIFIC STANDARDS

In all areas of special flood hazard where base flood elevation data has been provided, as set forth in Article 3, Section B, or Article 4, Section C (9), the following provisions are required:

(1) Residential Construction - New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated no lower than 1 foot above base flood elevation.

(2) Non-residential Construction - New construction or substantial improvement of any commercial, industrial, or other non-residential structure shall either have the lowest floor, including basement, elevated no lower than 1 foot above the level of the base flood elevation, or , together with attendant utility and sanitary facilities, be flood-proofed so that all areas of the structure below the required elevation are water tight and with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the official as set forth in Article 4, Section B (3).

(3) Mobile Homes

(a) No mobile home shall be placed in a floodway or coastal high hazard area, except in an existing mobile home park

or existing mobile home subdivision.

(b) All mobile homes shall be anchored to resist flotation, collapse, or lateral movement by providing over-the-top and frame ties to ground anchors. Specific requirements shall be that:

(i) over-the-top ties be provided at each end of the mobile home, with one additional tie per side at an intermediate location on mobile homes of less than fifty feet and one additional tie per side for mobile homes of fifty feet of more;

(ii) frame ties be provided at each corner of the home with four additional ties per side at intermediate points for mobile homes less than fifty feet long and one additional tie for mobile homes of fifty feet or longer;

(iii) all components of the anchoring system be capable of carrying a force of 4,800 pounds; and

(iv) any additions to the mobile home be similarly anchored.

(c) For new mobile home parks and subdivisions; for expansions to existing mobile home parks and subdivisions; for existing mobile parks and subdivisions where the repair, reconstruction or improvement of the streets, utilities and pads equal or exceed fifty percent of value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced); and, for mobile homes not placed in a mobile home park or subdivision require:

(i) stands or lots are elevated on compacted fill or on pilings so that the lowest floor of the mobile home will be at or above the base flood level;

(ii) adequate surface drainage and access for a hauler are provided; and

(iii) in the instance of elevation on pilings; (1) lots are large enough to permit steps; (2) piling

foundations are placed in stable soil no more than ten feet apart; and (3) reinforcement is provided for pilings more than six feet above the ground level.

(4) Floodways - Located within areas of special flood hazard established in Article 3, Section B, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and has erosion potential, the following provisions shall apply:

(a) Prohibit encroachments, including fill, new construction, substantial improvements and other development unless certification (with supporting technical data) by a registered professional engineer is provided demonstrating that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge;

(b) If Article 5, Section B (4) (a), is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article 5.

(c) Prohibit the placement of any mobile homes, except in an existing mobile home park or existing mobile home subdivision.

SECTION C. STANDARDS FOR STREAMS WITHOUT ESTABLISHED BASE FLOOD ELEVATIONS AND/OR FLOODWAYS

Located within the areas of special flood hazard established in Article 3, Section B, where small streams exist but where no base flood data has been provided or where no floodways have been provided, the following provisions apply:

(1) No encroachments, including fill material or structures shall be located within a distance of the stream bank equal to 5 times the width of the stream at the top of bank by twenty feet on each side from top of bank, whichever is greater, unless certification by a registered professional engineer is provided demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

(2) New construction or substantial improvements of structures shall be elevated or flood-proofed in accordance with elevations established in accordance with Article 4, Section C (9).

SECTION D. STANDARDS FOR SUBDIVISION PROPOSALS

(1) All subdivision proposals shall be consistent with the need to minimize flood damage;

(2) All subdivision proposals shall have public utilities and facilities such as sewer, electrical and water systems located and constructed to minimize flood damage;

(3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards; and

(4) Base flood elevation data shall be provided for subdivision proposals and other proposed development which is greater than the lesser of fifty lots or five acres.

SECTION E. STANDARDS FOR AREAS OF SHALLOW FLOODING (AO ZONES)

Located within the areas of special flood hazard established in Article 3, Section B, are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one to three feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate; therefore, the following provisions apply:

(1) All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to the depth number specified on the Flood Insurance Rate Map, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated, at least 2 feet above the highest adjacent grade.

(2) All new construction and substantial improvements of nonresidential structures shall:

(a) have the lowest floor, including basement, elevated to the depth number specified on the Flood Insurance Rate Map, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated at least 2 feet above the highest adjacent grade or,

(b) together with attendant utility and sanitary facilities be completely flood-proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

ONSLOW COUNTY HURRICANE RESPONSE PLAN

I. AUTHORITIES

A. North Carolina General Statutes, Chapter 166.

B. Civil Preparedness Resolution for Jacksonville-Onslow.

II. REFERENCES

A. North Carolina Disaster Relief and Assistance Plan (NCDR&AP)

B. Jacksonville-Onslow Disaster Operations Plan

C. Jacksonville-Onslow-American National Red Cross Agreement

III. PURPOSE AND SCOPE

A. Purpose: This Plan has been developed to provide for an orderly and coordinated evacuation of endangered areas to minimize the effects of hurricanes on residents and visitors in Onslow County. The Plan provides for the alerting of selected officials, the evacuation of the public from danger areas, and designation of shelters for evacuees. It also provides for reentry into evacuated areas when the threat to persons is ended.

B. Scope: This Hurricane Evacuation Plan is a single-purpose contingency plan and is a part of an all encompassing local disaster operation plan which specifies functional emergency responsibilities (reference II.B.)

IV. ORGANIZATION

A. Evacuation Action: Hurricane evacuation involves all areas under County jurisdiction and Municipal jurisdiction. As joint action is required by County and Municipal governments, a joint organization for decision making and use of resources is needed. A Control Group and a Support Group are hereby established for this purpose.

B. Control Group:

1. Mission: To exercise overall direction and control of hurricane evacuation operations including decisions to institute county-wide increased readiness conditions and such other actions deemed necessary in response to the situation.

2. Composition:

a. The Chairman of the County Board of Commissioners - Group Chairman

b. The Mayors (or their representatives) of:

(1) Jacksonville

(2) Swansboro

(3) Holly Ridge

(4) Richlands

c. County Emergency Management Coordinator - Advisor

3. Line of Succession: In the event that any of the members of the Control Group are not available, each primary member will be succeeded by alternates who will have the responsibility and authority of the primary member (See Attachment 1).

C. Support Group:

1. Mission: To provide personnel and material resources for the implementation of preplanned actions and actions as directed by the Control Group; to provide direction to personnel engaged in operations; and to provide information, data, and recommendations to the Control Group.

2. Composition:

a. County Manager - Group Chief
b. Sheriff
c. Director of Social Services
d. Superintendent of Schools
e. County Health Director
f. County Auditor
g. County Tax Assessor
h. County Fire Marshall

i. Public Information Officer

j. Rescue Squad Representation

k. State Highway Patrol Liaison Officer

l. Red Cross Liaison Officer

m. Jacksonville City Manager

n. Communications

D. Operational Locations: The Control and Support Groups will be located in the Emergency Operating Center (EOC) Agriculture Building to facilitate coordination. Should it become necessary to move the groups to an alternate EOC location, the new location will be the Carolina Telephone and Telegraph Office.

V. CONCEPT OF OPERATIONS

The Onslow County concept for hurricane evacuation calls for:

A. Early alerting of officials and concerned agencies in the entire County.

B. Overall direction and decision making by a Control Group.

C. Increased readiness actions taken progressively as the hurricane approaches and as the threat of injury and damage increases.

D. Evacuation of residents and visitors on beaches and in threatened low-lying areas upon decision of the Control Group.

E. Movement of evacuees to designated and operating public shelters, or out of Onslow County and the threatened area.

F. Mass care for evacuees in predesignated shelters in accordance with agreements.

G. Reentry of evacuees to evacuated areas when authorized by the Control Group and when the hurricane threat has passed or damage assessments indicate that reentry is feasible.

H. Local governments request State and/or Federal assistance, as necessary, before or after a hurricane (See NCDR&AP, Annexes D, E, F, and G).

VI. WARNING AND ALERT SYSTEM

The system for dissemination of hurricane watches and warnings and for notification of departments and populace that the evacuation plan will be executed, is shown as a flow chart (See Attachment 2).

VII. INCREASED READINESS ACTION CHECKLIST

(See Attachment 3 - Checklist and Attachment 4 - Condition/Action Flow Chart).

A. Readiness Conditions: The following increased readiness conditions are established:

Condition 5	Hurricane Season (June 1 - November 30)
Condition 4	Alert - Hurricane Advisory
Condition 3	Hurricane Watch - Approximately 48 hours to forecasted landfall.
Condition 2	Hurricane Warning - Approximately 24 hours to forecasted landfall.
Condition 1	Twelve hours or less to forecasted landfall
Condition 0	Landfall
Reentry	Threat removed or damage assessment allows

B. The Control Group will declare the condition. The Support Group will implement actions for each condition when announced.

VIII. EVACUATION AREAS, ROUTES, AND SHELTER LOCATIONS

(See Attachment 5)

A. General:

1. Evacuation routes and designated shelters for beach areas are as indicated on Attachment 5.

2. Other residents wishing to seek shelter (mobile home residents or persons living in any structure which does not provide adequate protection) should go to the nearest designated shelter.

B. Shelter:

1. A shelter is defined as a predesignated structure of sufficient strength to withstand high winds, which is located in an area not subject to flooding or storm surge and which will safeguard a given number of evacuees.

2. Onslow County is responsible for providing shelter for all residents and visitors in Onslow County. Onslow County will also provide shelter for residents of Pender or other surrounding counties to the maximum extent possible.

3. Shelters will be operated by the Onslow County Chapter of the American National Red Cross supplemented by school system personnel if needed as per agreement (reference II.C).

4. Shelters will be opened only on an as-needed basis. Locations of operating shelters will be announced on local radio stations.

5. Evacuees will be instructed to bring blankets, light sleeping cots, battery operated radios, flashlights, and special medicinal and dietary needs (including baby needs) for the duration of the shelter period.

6. Persons living on West Onslow Beach may take shelter in Topsail High School or Topsail Elementary School in Pender County if they so desire.

IX. REENTRY

A. Upon cancellation of all hurricane warnings and watches which include Onslow County and when no damage has been experienced, the Control Group will authorize reentry to all evacuated areas.

B. When hurricane damages have resulted, reentry to evacuated areas will be based upon damage assessments in any rescue or other relief operations in progress. Reentry will be authorized by

Control Group to specific evacuated areas and under conditions specified.

C. Decisions of the Control Group will be broadcast by the P. I. O.

X. RESPONSIBILITIES

A. Local:

1. Control Group: Overall direction (as directed in Paragraph IV.B)

2. Support Group: As shown in responsibility blocks on the Increased Readiness Action Checklist, Attachment 3.

3. County Emergency Management Coordinator:

a. Serves as advisor to the Control Group.

b. Coordinates actions of the Support Group and operations involving local nongovernment organizations and operations of forces from outside the County.

c. Operates the County EOC.

d. Furnishes Situation Reports to the State EOC.

e. Develops and conducts exercises to test and evaluate this Plan.

B. State and Federal Agencies:

1. National Weather Service: Provides hurricane watches, warnings, and related weather information.

2. U.S. Coast Guard:

   a. Provides warnings to ships and boats in affected coastal areas.

   b. Assists in coastal evacuation upon request.

3. Commander, Marine Corps Base, Camp Lejeune - Commander, Marine Corps Air Station: Maintains liaison and coordinates actions with County EOC.

4. State Highway Patrol:

   a. Operates State Warning Point and passes weather information via Police Information Network (PIN).

   b. Responsible for traffic control on State Highway Systems.

5. State Division of Emergency Management:

a. Receives requests for assistance, coordinates State actions, and arranges for assistance from Federal agencies.

b. Area "C" Emergency Management Coordinator:

(1) Assists in coordination of evacuation efforts.

(2) Assists in coordination of State assistance.

XI. COMMUNICATIONS

A. Communications will be in accordance with Annex B, NCDR&AP and appropriate local plans.

B. The Sheriff operates the County Severe Weather Warning System and Traffic Control Points.

C. The Communications Officer will insure communications between the Control and Support Groups and shelters.

XII. PUBLIC INFORMATION

A. The Public Information Officer (PIO) will provide information to the public via the news media and otherwise based upon decisions of the Control Group to include the following:

1. Precautionary/preparatory measures recommended for the public.
2. Evacuation instructions.
3. Reentry instructions.
4. Damage information.

B. Warnings to the public are disseminated by the news media (radio, TV, and newspapers), from National Weather Service Bulletins, and advisories and statements as received directly and as provided through the warning system.

XIII. EXERCISES

An exercise will be conducted annually to test and evaluate this Plan.

ATTACHMENT NO. 1

CONTROL GROUP

LINE OF SUCCESSION

To assure continuity of responsibility for governmental functions of direction and control of emergency operational efforts, the following lines of succession to offices are established:

1.	Chairman of the Onslow County Board	a.	Vice Chairman	b.	In the absence of Chairman and Vice Chairman, the members present may choose a temporary chairman
2.	Mayor of Jacksonville	a.	Mayor Pro Tempore	b.	The next senior member of the council
3.	Mayor of Swansboro	a.	The Town Commissioner that received the most votes	b.	The Chief of Police
4.	Mayor of Holly Ridge	a.	Mayor Pro Tempore	b.	Present Town Commissioners elect temporary mayor
5.	Mayor of Richlands	a.	Mayor Pro Tempore	b.	Town councilman receiving the largest vote count
6.	Emergency Management Coordinator	a.	Operations Chief	b.	Communications Chief

HURRICANE EVACUATION PLAN

I. GENERAL

Certain areas of Onslow County can be termed high risk areas and should be evacuated prior to the time a hurricane strikes. The most vulnerable areas are the barrier islands (beach areas) and low lying areas adjacent to the sounds and marshes between the barrier islands and the mainland. The only developed beach community in the County is West Onslow Beach and most of the attention relative to the evacuation of residents or occupants must concentrate on this highly vulnerable area. Attention must also be given to sound front developed areas and communities such as Sneads Ferry and Swansboro; however, multiple evacuation routes are generally available and the areas are relatively accessible to high ground.

Other areas, such as portions of the City of Jacksonville are flood prone, (either from rising water or high rainfall runoff), and limited evacuation of these areas may be required. Camp Lejeune is also subject to similar flooding problems in some areas, but local military authorities will manage this problem within this own resources; however, close coordination should be effected between Onslow County and U.S. Marine Corps Base authorities.

II. EVACUATION PLAN

The general plan for evacuation of threatened areas of the County are briefly summarized in the Onslow County Hurricane Evacuation Plan (Attachment No. 5 of the Onslow County Hurricane Response Plan). This single page flyer is attached hereto and is also available for widespread distribution to interested and/or affected citizens throughout the County. The circumstances requiring evacuation, evacuation routes and emergency shelters are clearly depicted on the plan.

III. EVACUATION CONSIDERATIONS

As mentioned above, evacuation of County areas other than the barrier island beaches does not appear to represent a difficult problem. Some access roads are low-lying and persons living below approximately six (6) feet above mean sea level (m.s.l.) should seek higher ground before flood tides reach that level. The Swansboro, Sneads Ferry, and intervening low-lying mainland areas fall in this category. Generally, evacuation of these areas three (3) to five (5) hours before a storm is scheduled to strike the mainland should provide adequate lead time for safe evacuation of these areas. Development densities in these areas is low, so traffic flow or road congestion should not represent a problem. Persons living in these areas should be prepared to evacuate on short notice when Condition 1 is announced.

The barrier island (beach) areas are an entirely different situation. Access routes are restricted and in some cases inferior. Although the Onslow County coastline is fairly long (approximately 27 miles), less than

half of this (about 12 miles) is developed or inhabited by permanent or seasonal residents. The Hammocks Beach State Park island is undeveloped and should be evacuated and closed completely during a threatened hurricane storm period. The coastline within the Camp Lejeune Marine Corps Base is under the jurisdiction of military authorities. Thus, the primary area requiring careful evacuation planning is West Onslow Beach. The remainder of this discussion focuses on that area.

IV. EVACUATION TIMES ANALYSIS 1./

The amount of time it takes to safely evacuate an area depends on the level of development and number of people in the area at any one time. It depends on the condition of roads and bridges along the evacuation route. It also depends on the attitudes of local residents and visitors and the strength of particular storm.

Evacuation time has four components: mobilization time, travel time, queuing delay time, and pre-landfall hazards time.

Mobilization time is the period between the issuance of the evacuation order and the departure time of the last vehicle from the vulnerable area. It depends to a large extent on the attitudes and response time of residents. Travel time is the period necessary for the vehicles to travel the length of the evacuation route at an anticipated operating speed assuming no traffic delays (queuing). Queuing delay time is defined as the time spent by vehicles in traffic james resulting when the capacities of the evacuation routes are exceeded by the number of vehicles entering those routes.

Mobilization time, travel time, and queuing delay time together constitute the community's "clearance time" - the total time needed to move all evacuees to temporary shelter once an evacuation order is issued. Pre-landfall hazards time is the time before the eye of the hurricane reaches the community when the storm surge or sustained high winds render evacuation routes impassable. The National Hurricane Center issues warnings based on its predictions of the time the eye is expected to reach land. However, the storm surge and sustained winds can strike the community hours before the eye does. This pre-landfall hazards time cannot be used for safely moving evacuees; it is greater for more intense storms.

Estimating these various components of evacuation time remains a complicated task due to uncertainty regarding the intensity, timing, and other characteristics of any particular storm and uncertainty regarding the willingness of local residents and visitors to evacuate. Current estimation techniques involve:

1./ William D McElyea, David J. Brower, David R. Godschalk. Before the Storm; Management Development to Reduce Hurricane Damages. Ocean and Coastal Ecology Program Center for Urban and Regional Studies, UNC/Chapel Hill; August 1982.

1. estimating storm surge levels, wind speeds, and their time of arrival before the eye's landfall for storms of different intensities;

2. identifying points along the evacuation route that are subject to flooding;

3. estimating the total number of people and automobiles that must be evacuated;

4. estimating the carrying capacity of roads along the evacuation route;

5. identifying any bottlenecks or other points along the route that could delay traffic;

6. estimating the timing of traffic movement and traffic levels along the route; and

7. estimating the time it will take people to respond to an evacuation order.

Much of the evacuation time needed boils down to the level of development, resident population, and visitor population in areas that need to be evacuated, relative to the carrying capacity of the evacuation route. If the level of development of high hazard areas exceeds the route's capacity for safe and timely evacuation, the community can expect to suffer numerous casualties during a major storm. Local officials should bear in mind that the National Hurricane Center's hurricane warnings (usually used as the signal to evacuate) are issued 12 hours before the eye is expected to hit land. Flooding and hurricane-strength winds can precede the landfall by several hours, depending on the storms size and intensity.

The Planning and Research Branch of the North Carolina Department of Transportation (DOT), (Larry R. Goode), prepared an internal memorandum for evacuation of Onslow and Pender Counties (beach communities). A copy of this memo is attached hereto as Appendix A. This brief study estimates an evacuation time of 7 to 9 hours for the beach complex of Topsail (Ashe) Island. The primary problem relative to the West Onslow Beach area is that the analysis credits only 1,300 people evacuating northward from the area over N. C. Highway 210. Never-the-less, the analysis gives indication of the extended time required to evacuate the area.

Evacuation time estimating techniques are further refined by John R. Stone in his UNC sea grant working paper 83-2 entitled, "Hurricane Emergency Planning: Estimating Evacuation Times for Non-Metropolitan Coastal Communities" 2./ This excellent analysis closely parallels but

2./ Also included as a reference 11./ in a report to the Onslow County Board of Commissioners entitled: Hurricane Storm Mitigation and Post- Disaster Reconstruction Plans for Onslow County, North Carolina (January 1984), by Henry von Oesen and Associates, Inc

refines the DOT estimate approach referenced above. It also provides a shore cut calculation method for simple evacuation networks like West Onslow Beach. Textural references and the evacuation time calculating technique in the following subparagraphs are borrowed from Stone's works.

West Onslow Beach Evacuation Time Estimate

A. Evacuation area: West Onslow Beach is a barrier island which forms the southeastern border of Onslow County facing the Atlantic Ocean. Elevations range from 0 to a little over 20 feet m.s.l. at its highest point. The width ranges from less than one quarter to just over one half mile. The area lies entirely within the hurricane flood zone. There is a single two lane road (N.C. Highway) running north to south over the entire length of the island. It is connected to the mainland by a relatively new high level fixed span two lane bridge about four miles from the north end of the island. (New River Inlet). Route 210 also extends southward (through Surf City) with connections to the mainland over a two lane swing bridge at an elevation of about 14 feet above the Atlantic Intracoastal Waterway (AIWW). For several reasons, it is recommended that all West Onslow Beach traffic evacuate northward as shown on the evacuation plan map.

B. Hurricane Scenario: In 1954, when Hurricane Hazel hit North Carolina, a high-water mark from the tidal surge (excluding wave action) of 16 feet above mean sea level was recorded at the South Brunswick County region. This is the surge expected from a Category 4 storm which could similarly effect the Topsail Island area. A storm of this magnitude could be expected there roughly once every 100 years. Assuming the hurricane eye from such a storm crossed over West Onslow Beach, it is likely that nearly 90 percent of the flood zone would be flooded. The possibility of flooding will be increased by the likelihood of torrential rains and the primary evacuation route would be completely inundated.

C. Hazards Time: A complete analysis for the surge and gale-force wind hazards time components of evacuation time would require a computer simulation of the storm. However, prior detailed analysis descriptions of a Category 4 storm suggest that low-lying escape routes may be cut by rising water as early as three to five hours before the hurricane eye arrives. This estimate for roadway inundation time is consistent with a storm which moves at a typical 10 mph forward speed and has a surge that extends about 30 miles out from the hurricane eye.

An investigation and inspection of the evacuation route (N.C. Highway 210) reveals that portions of the road are at elevations of about 6 to 7 feet above mean sea level. Fortuitously, the lowest points are at the southern boundary (at the Surf City north limit) and along much of highly developed north end of the beach area between the bridge crossing point and New River Inlet. In many areas, the road passes extremely close to the ocean (where low dunes may or may not exist), which further increases the roads vulnerability to tide and wave attack. Finally, the immediate approach road section to the high level

bridge crossing is at an elevation below 8 feet m.s.l. Thus, the escape access to the bridge itself could be inundated relatively early in the storm period. The excellent new high level bridge represents no impediment to rapid evacuation of controlled vehicular traffic.

Gale force winds and blinding rain can also combine to make it virtually impossible to drive a vehicle on the evacuation route. Wind analysis for barrier islands and coastal areas in Florida suggest that gale-force winds may precede landfall of the eye be as much as six hours.

Based on the above, a cut-off time of 3 to 5 hours is used in preparing this estimate.

D. Mobilization time: As previously mentioned, mobilization time for a community may vary somewhat. However, actual data suggests that it may take over five hours for everyone to begin the evacuation.

A value of three to four hours would find 80 percent to 90 percent of the evacuees on their way and is used in this analysis.

E. Travel time: Evacuation travel is based on the length of the evacuation route and the assumed uninterrupted operating speed of the evacuation vehicles. Assuming an evacuee lives at the southern end of NC 210 on West Onslow Beach (at Surf City Town limits), he or she must travel six and one half (6 1/2) miles to reach bridge. It is another seven miles to Dixon School (recommended shelter), giving a total evacuation distance of about 14 miles. Assuming storm conditions and evacuation traffic, yet uninterrupted travel, an average operating speed of 35 mph could be maintained on the two-way, two-lane rural roads of the evacuation area. The "free-flow" travel time is, therefore:

Travel Time = Distance/Speed
14 miles/35 mph
0.40 hours
24 minutes

This estimate does not include queuing delay which is determined below.

F. Queuing time delay: It is anticipated that all of the evacuees will originate on West Onslow Beach. It is possible that some occupants of Surf City and Topsail Beach to the south may opt to attempt to evacuate northward over Route 210 through West Onslow Beach; however, this should be discouraged and evacuees from those communities should continue to exit the area over the swing span bridge and N. C. Highway 50 that serves these communities. Additionally, Highway 210 may be flooded early in the vicinity north of the Surf City Town limits as previously mentioned.

The primary constraint to rapid evacuation of West Onslow Beach residents and visitors is the limited carrying capacity of the principal evacuation route, N. C. Highway 210. As mentioned in paragraph C above, extensive portions of this road are at elevations as low as 6 feet m.s.l. and consequently may become impassable during early tide surge and gale conditions that may exist several hours before the hurricane makes a landfall. This coupled with the marginal condition of the road will influence queuing delay times for the area.

The Onslow County Land Use Plan projects a maximum population density of West Onslow Beach in 1990 of 10,335 people. Based on the rapid growth experienced in the area in the past five years, this projection is considered to be quite low; however, for purposes of this analysis, a peak population of 10,000 is used.

In order to estimate the queuing delay time during a particular time period of the evacuation, the traffic demand and the restrictive road capacity must be know. For the purposes of this analysis, the following will be assumed:

1. 10,000 persons evacuated.

2. The average automobile occupancy is 2.5 person per vehicle.

3. 20 percent of the evacuees leave before the order is given.

4. The remaining 80 percent of the evacuees leave over a 3.5 hour period.

5. Traffic control officers will be stationed at intersections thereby mitigating the usual intersection capacity constraints.

6. Intersection turning traffic is negligible compared to the evacuation traffic.

7. Traffic moves at "level of service D to E," with one lane for evacuation and one lane for emergency vehicles.

The evacuation rate or traffic demand is thus,

Evacuation Traffic Demand = (No. of evacuees/vehicle occupancy)
X (1 percent remaining after order)
X (1/evacuation period)

or

ETD = (10,000/2.5) (.80) (1/3.5)
= 900 vehicles/hour (3,200 vehicles in 3.5 hours)

Under the planning assumptions outlined above, DOT sources indicate Route 210 should have carrying capacity about 900 to 1,000 vehicles per hour under optimum conditions: however, the 22-foot width and marginal road condition would reduce this to an assumed ideal capacity of 550 to 825 vehicles per hour. If it is further assumed that under storm conditions, this ideal capacity will be reduced by fluctuation in traffic demand, wind blown debris and winds, it is estimated that the actual evacuation capacity will be only half (50 percent) of the ideal capacity. The road carrying capacity becomes a "bottleneck" in the evacuation process. Thus:

Evacuation Capacity = Ideal capacity x 0.50

Evacuation Capacity = 275 to 400 vehicles per hour (assume 300)

Based on accepted prior study duty, the maximum amount of individual vehicular delay is given by the following formula:

Queuing delay time = (Duration of bottleneck) X (1-Bottleneck capacity/average demand)

Hence,

Queuing delay time = (3.5) (1-300/900) = 2 hours

Note: The new high level bridge carrying capacity exceeds the road carrying capacity by a considerable degree and is not considered to be a restricting factor.

G. Total Evacuation Time: The total evacuation time is the summation of the following components:

Cut-Off Time	3-5 hours
Mobilization Time	3-4 hours
Travel Time	0.5 hours
Queuing Delay Time	2-3 hours
Total	8-13 hours

V. DISCUSSION

As explained in the previously referenced Stone report, the evacuation time estimate of 8 to 13 hours is based on a Category 4 hurricane scenario and is dependent on a number of assumptions. These include the assumed number of evacuees, auto occupancy rate, community response, roadway inundation time, to name but a few. Changing the assumptions will change the time estimates. It is interesting to note, however, that certain tradeoffs exists. For example, much importance is placed on community awareness and rapid response to evacuation orders. Unfortunately, it is felt that a sensitivity analysis would show that an earlier mobilization of the evacuees will lead to higher traffic demands and more queuing delay.

What is gained in response time is lost to traffic delay if bottlenecks exist on the evacuation route.

Looking specifically at the West Onslow estimate of 8 to 13 hours evacuation time, it is seen that the figure is consistent with estimates for roughly similar island situations in Lee County, Florida (7). The estimate is also consistent with the Holden Beach evacuation plan which indicates that evacuation orders will be issued when a hurricane is within 12 hours of landfall.

Finally, further analysis of the future development potential and ultimate development density of West Onslow Beach indicates that the peak summer population could reach well over 30,000 people. This population increase would seriously impact the above estimate and extend projected evacuation times.

SECTION X

CAUSES OF BLIGHT AND STRATEGIES

As a result of the 1980 census the City of Jacksonville was designated an entitlement city, funded at an annual level of approximately $285,000. Sixteen percent of these funds are currently appropriated for housing rehabilitation grants or loan subsidies, 2% appropriated for city utility tap fees assistance, 13% appropriated for the operation of a housing code enforcement program and clearance of dilapidated structures. These funding levels are set annually by City Council and are subject to changes in administrative philosophy.

Jacksonville's main community development objectives are the provision of adequate and healthful housing, adequate public facilities and amenities, and the elimination of blighting influences. To accomplish these objectives project activities funded by the 1983 entitlement allocation include paving or unimproved streets, replacement of undersized water mains, housing rehabilitation grants, and the development of a downtown parking area to encourage economic revitalization of the old downtown area.

The current emphasis is to upgrade the public infrastructure in lower income or otherwise blighted areas of the city through the use of community development grant funds. A large portion of these funds are being expended to upgrade the areas cited in this report as having concentrations of deteriorating housing. Community Development Block Grant funds are used to implement planning strategies identified in this report in areas of the city that are eligible under federal guidelines.

The following section attempts to identify the types of housing problems which causes blight. It also examines those planning strategies which might help alleviate future housing problem.

Causes of Blight	Strategies
Housing Stock Age	1. Housing code enforcement.
Age of Residents	1. Neighborhood help groups 2. Council on Aging volunteer programs
Fixed Income Levels	1. Rehabilitation grants 2. Loan subsidies
Renter Occupancy	1. Housing code enforcement 2. Rehabilitation assistance 3. Education programs
Absentee Landlords	1. Housing code enforcement
Absentee Heads of Households Temporary Absentee Occupants	1. Neighborhood help groups
Inappropriate Zoning Poor Transition Zoning Zoning Ordinance Structure (pyramid)	1. Active zoning program 2. Active zoning policy 3. Separate land uses - non-pyramid 4. Extend extraterritorial plan. juris.
Absence of Subdivision Techniques	1. Extend extraterritorial planning jurisdiction
Poor Subdivision Layout	1. Good subdivision review 2. Redevelopment of poorly designed areas
Lack of and/or Deterioration of Public Water System Lack of and/or Deterioration of Public Sewer System	1. Extension and rehabilitation through Community Development Funds 2. Tap fees assistance 3. Capital Improvements Programs

Causes of Blight	Strategies
Absence of Sidewalks	1. Extension through Community Development Funds 2. Extension through assessments 3. Sidewalk plan
Lack of Municipal Services	1. Annexation
Lack of Housing Code Enforcement	1. Adopt and actively enforce model code 2. Clearance assistance 3. Relocation assistance
Weatherization/Energy Conservation Problems	1. Weatherization assistance through Community Development Funds 2. Weatherization assistance through Council on Aging
Absence of Comprehensive Planning Program	1. Development of Comprehensive Plan
Proximity to Major Thoroughfares	1. Buffering 2. Use of transition zoning 3. Redevelopment
Inadequate Traffic Flow	1. Subarea studies by Transportation Planning Division
Inadequate Amount of Assisted Housing	1. Educate and assist local developers in applying for assisted housing. 2. Legislative action for appropriation
Intermingling of Land Uses and Housing Types	1. Better zoning 2. Zoning Ordinance Improvements 3. Redevelopment of Substandard Areas
Poor Drainage	1. Floodway regulations 2. Community Development Improvements 3. Assessed Improvements
Absence of Adequate Health Safety Ordinances	1. Adoption and enforcement of and nuisances ordinances
High Rate of Housing Demand High Rate of Housing Turnover High Rate of Housing Vacancy	1. Code Enforcement 2. Neighborhood help groups
Extension of Facilities to Housing Areas Isolated by Geographical Features	1. Capital Improvements Program 2. Active Land Use Planning

Causes of Blight	Strategies
Lack of Transportation to Commercial and Public Facilities	1. Improve pedistrian access 2. Investigate public transportation
Absence of Street Lighting	1. Conduct equity study 2. Install needed lighting
Absence of Park Facilities	1. Recreation dedication ordinance 2. Land and water conservation fund grants 3. Capital Improvements Plan
Lack of Paved Roads	1. Capital Improvements Plan 2. Powell Bill Funds 3. Paving Program

JACKSONVILLE COMMUNITY FACILITIES PLAN

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SOILS

According to the Soil Conservation Service of the United States Department of Agriculture there are a large number of soil types within Jacksonville and its extraterritorial jurisdiction. The following depicts the names and general descriptions of those soil types most commonly found:

Norfolk Series

The Norfolk Series consists of well drained nearly level to sloping soils on uplands in the coastal plain. In a representative profile, the surface layer is grayish brown loamy sand about 9 inches thick. The subsurface layer is light yellowish brown loamy sand, 5 inches thick. The subsoil extends to a depth of 82 inches. It is yellowish brown sandy loam in the upper part, yellowish brown sand clay loam in the middle part and mottled brownish yellow, strong brown, yellowish red sand clay loam in the lower part, slopes are 0 to 10 percent.

Goldsboro Series

The Goldsboro Series consists of nearly level to gently sloping, moderately well drained soils on coastal plain uplands. In a representative profile, the surface layer is grayish brown loamy sand about 8 inches thick. The subsurface layer is pale brown loamy sand 4 inches thick. The subsoil extends to 76 inches. It is brownish yellow sandy loam in the upper part, yellowish brown, pale brown and gray sandy clay loam in the middle part; and gray sandy loam and sandy clay loam in the lower part, slopes range from 0 to 5 percent.

Onslow Series

The Onslow Series consists of moderately well drained and somewhat poorly drained soils on nearly level to gently sloping uplands of the coastal plain. The surface layer is very dark gray loamy fine sand 4 inches thick. The subsurface layer is gray, very pale brown and reddish brown loamy fine sand 13 inches thick. The subsoil is 51 inches thick. It is brownish yellow fine sandy loam in the upper part; brownish yellow, light yellowish brown, strong brown and light gray sandy clay loam in the middle; and light gray sandy clay loam in the lower part, slopes are 0 to 3 percent.

Lynchburg Fine Sandy Loam

The Lynchburg Series consists of somewhat poorly drained, moderately permeable soils of the coastal plains. In a representative profile the surface layer is very dark gray loamy fine sand. The subsurface horizon is yellowish brown loamy fine sand. The upper subsoil is yellowish brown sandy clay loam with gray mottles. The lower subsoil is gray sandy clay loam with brown and red mottles.

Pantego Series

The Pantego Series consists of poorly drained, nearly level soils on coastal plan uplands. In a representative profile, the surface level is loam about 18 inches thick. It is black in the upper part, and very dark in lower part. The subsoil extends to 65 inches. It is very dark sandy clay loam in the upper part and gray sandy clay loam in middle and lower parts. The slopes are less than 2 percents.

Rains Series

The Rains Series consists of poorly drained, moderately permeable, soils of the coastal plains. In a representative profile, the surface layer is very dark gray sandy loam about 7 inches thick. The subsurface layer is light brownish gray sandy loam about 5 inches thick. The subsoil is about 67 inches thick. The upper 8 inches is gray sandy loam and the next 59 inches is gray sandy clay loam. The underlying material is gray sand to a depth of 85 inches. They formed in loamy fluvial and marine sediments, slopes are less than 2 percent.

Dorovan Muck

The Dorovan Series consists of very poorly drained, strongly acid soils with thick dark surfaces. The surface consists of decomposed organic matter to a depth of about 75 inches, the underlying layer is dark grayish brown sand.

While Goldsboro, Norfolk, and Onslow Series are well to moderately drained, each of the other soil types offer severe limitations to development.

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