MOREHEAD CITY

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SPECIAL LAND USE PLAN UPDATE

1982

MOREHEAD CITY, NORTH CAROLINA

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JULY 1982

ABSTRACT

TITLE:	Special Land Use Plan Update for the Town of Morehead City, North Carolina
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ABSTRACT:	The Special Land Use Plan Update contains information regarding the future growth of the Town of Morehead City with particular emphasis on the land use and environmental effects of coal transportation on the Town.

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CHAPTER I: INTRODUCTION

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PROBLEM STATEMENT

The Board of Commissioners of the Town of Morehead City has authorized this "special" Land Use Update because of recently announced intentions of several coal companies to export a maximum of approximately 15-20 million tons of coal from the State Ports Authority Terminals at Morehead City and adjacent Radio Island.

Tha announcement of these plans has generated some public debate among the local population concerning the impacts of such facilities on the Town. As early as Spring 1980, discussions were being held between the State Ports Authority (SPA) and Alla-Ohio Valley Coals, Inc. (AOV). At that time Alla-Ohio was interested in and desirous of obtaining and developing a coal export terminal with deep water capability for the export of its product. In turn, the SPA was interested in maximizing the use of its Port Facilities System by developing a coal export capability. The result of this mutual interest was a lease agreement entered into on the 6th of October, 1980, by and between SPA and Alla-Ohio.

The announcement of the lease agreement instigated numerous questions and concerns from Carteret County and Morehead City residents. Most of these concerns were expressed during a Citizens' Meeting held on November 7, 1980, at the Carteret County Courthouse. A review of the minutes of that meeting and of other meetings held since that time shows major concern over transportation and environmental issues.

The primary transportation related problems involve the proposed rail shipment

of a maximum of 3 million tons of coal through the Town of Morehead City. Impacts of noise, coal dust, vibration, and effects on local vehicular and pedestrian traffic have surfaced as major concerns. Other overall impacts of new coal handling facilities on the Town's general environmental quality have been expressed. As a result of these and similar concerns expressed by citizens and local governments, the State of North Carolina Coastal Resources Commission (CRC) has funded a series of studies to assist local governments in coping with the impacts of coal related facility development. This "special" Land Use Update, funded by CRC, is designed to assist Morehead City in preparing for and coping with the changes associated with the development of coal facilities and related support services.

UPDATE OBJECTIVES

Morehead City is not a heavily industrialized town. The industrial land uses are primarily light-industrial in nature and include a garment factory, roofing plant, and some boat and metal works. This pattern of light industrial activity has remained constant for several years, i.e. there has not been any pressure for major industrial development within the Town. Morehead City's Land Use Plan and Policies therefore, have not been geared towards industrial activity.

The arrival of coal export facilities on Radio Island and the SPA could conceivably open a new era for the Town and, with this new era, a demand for industrial and support facilities, the type of which the Town has never experienced before. More importantly, these new facilities, if located within the Town's corporate limits, could severely test the governmental services and capabilities of the Town.

Given this lack of experience in dealing with the effects of heavy industry, the overall objectives of this Land Use Update are to:

1. identify expected new coal facilities and allied industrial facilities and uses;
2. identify future changes and impacts associated with newly developing facilities;
3. assess direct impacts of coal transportation on the land uses in the Town's major transportation corridor;
4. recommend new transportation corridor land uses;
5. recommend overall land use changes in the Town; and
6. recommend changes to the Town's zoning ordinances and regulatory mechanisms to help accomodate future industrialization.

The overall effect of this report should be to better acquaint Town officials and residents with the potential for and impacts of future industrialization in and around Morehead City and to provide recommendations on how to cope with these changes, once they arrive.

This report has been prepared in two phases. Phase I provides an overview of the coal export situation, a review of Morehead City's existing conditions, and a brief discussion concerning proposed export facilities. This is followed by a discussion of the impacts of coal on Morehead's major transportation corridor and the town in general, concluded by four brief land use scenarios using 3 and 15 million ton export projections.

Phase II of the report analyzes all existing federal, state and local land and environmental permit programs and regulations and provides recommendations on how Morehead City can improve its land use and zoning programs in the face of possible rapid changes in the complexion of the community.

CHAPTER II: COAL EXPORT OVERVIEW

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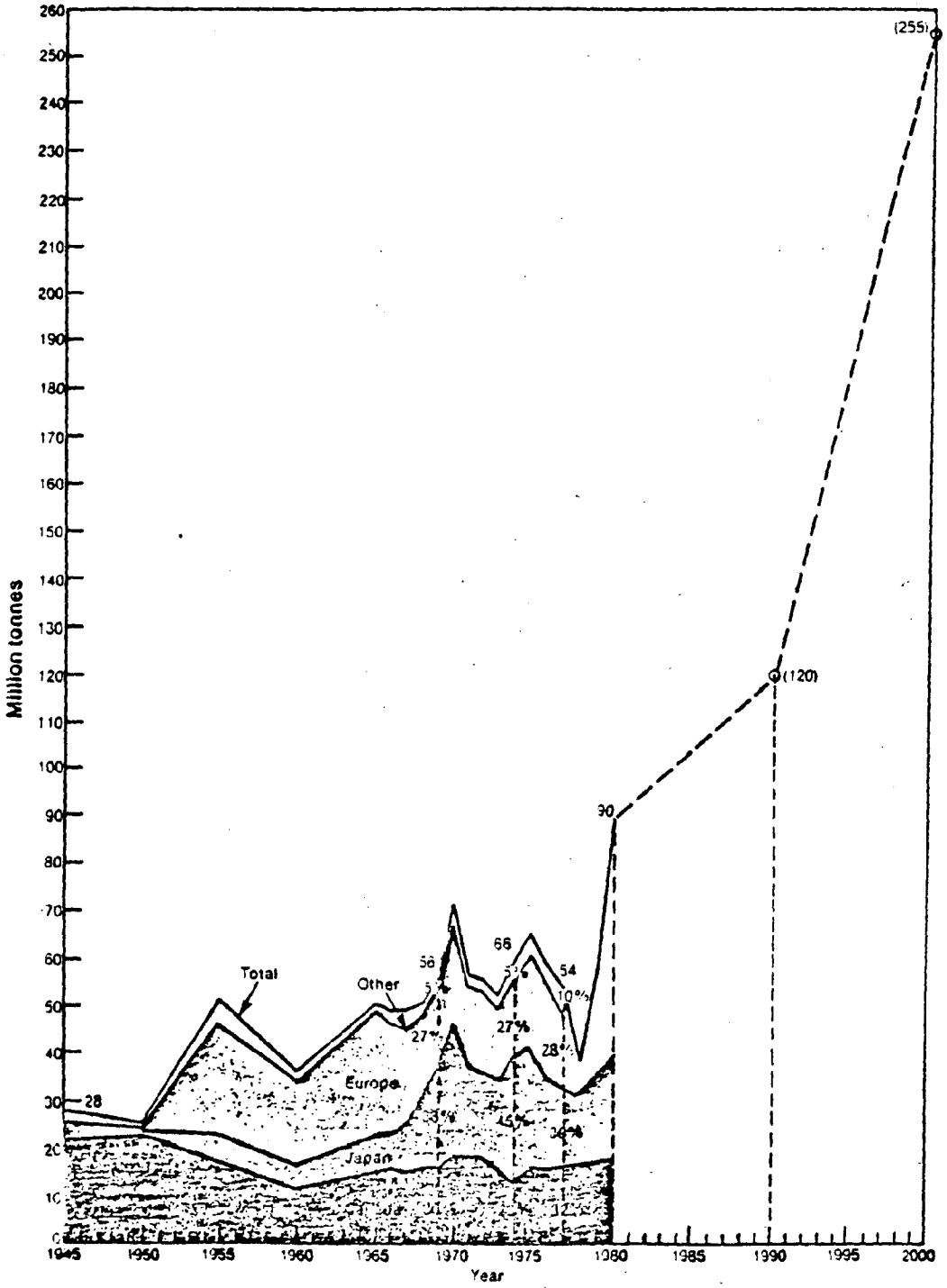
The demand for U.S. coal has helped push total coal exports to a record 90 million tons in 1980 - a 39% leap over 1979 figures. This has, in turn, touched off a major expansion of U.S. coal port facilities to reduce present congestion and to handle anticipated growth which, according to the Office of Technology Assessment, some experts project will be as high as 225 million tons by the year 2000. (See Figure 1.)

The reasons for this drastic increase in demand are many. Among the most important are the recent increase in the number of utilities which are currently converting electric generating plants from oil to lower cost steam coal; increasing use of metallurgical coal which is used in the steelmaking process; and greater availability of recoverable coal reserves (relative to oil and gas). Also, increases in the demand for export coal have been directly attributed to disruptions in production experienced by two of the other primary suppliers of coal to Europe and Japan -- Poland and Australia.

This increasing demand for coal has exerted a number of physical, operational, and administrative burdens on existing port-handling facilities, particularly at major coal ports along the eastern seaborad.

Traditionally, the ports of Hampton Roads, Baltimore, Philadelphia, Mobile and New Orleans have handled almost all of the U.S. coal exports destined for foreign markets. These ports have all been operating at near-100% capacity for quite some

Figure 1 —History and Projection of U.S. Coal Exports



Note: Steam coal at 30 percent of total in 1980 is expected to grow to 78 percent by 2000.

SOURCES: History-Coal data book. Projection-ICE Task Force with constant 1980 metallurgical coal added.

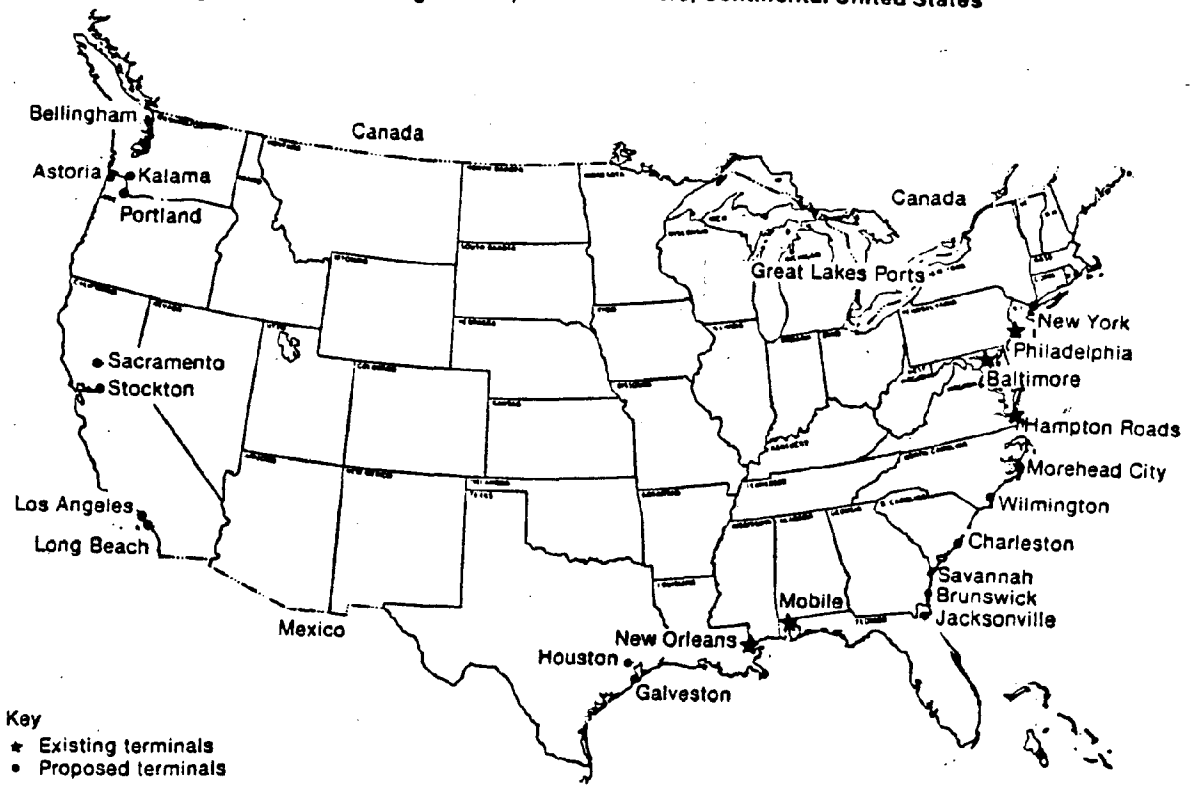
time. Long lines of ships, some waiting more than two months, are now waiting just outside of Baltimore and Hampton Roads harbors.

Understandably, coal buyers and exporters are concerned about these costly delays. Many ships awaiting entry to Baltimore and Hampton Roads harbors are incurring demurrage costs of $15,000 to $20,000 per day. Not only are these demurrage charges passed along to buyers, but the congestion has also cost the U.S. coal industry about 8 to 10 million tons of lost sales over the past year.

There appears to be little doubt that the demand for export coal will continue to increase drastically during the coming years. In response to this growing demand, Coal Export Task Force projects that U.S. coal export terminal capacity could expand from the congested 94.4 million-ton level of 1980 to as much as 277.8 million tons per year by 1985. This projection is based on terminal expansion projects of 23 million tons presently underway coupled with commitments for an additional 160.4 million tons.

Nearly two dozen ports have announced plans for new coal export facilities. On the eastern seaboard, expansion is underway not only at Norfolk, Newport News, and Baltimore -- currently the most active coal ports -- but also at Camden, New Jersey; Philadelphia; Morehead City and Wilmington, North Carolina; Charleston, Savannah, and Brunswick, Georgia. (See Figure 2 .) In fact, if all of these proposed expansions for export terminal facilities take place, officials at the North Carolina Coastal Energy Impact Program (CEIP) anticipate that coal could easily become the region's major export commodity during this decade.

Figure 2 —Existing and Proposed Coal Piers, Continental United States



SOURCE: Office of Technology Assessment.

Specifically, during the past year, eight coal companies have expressed a desire to develop coal export facilities in the State of North Carolina alone. Combined company estimates of export volumes approach 90 million tons annually by 1990 and around 50 million tons in 1985. The large majority of North Carolina export coal will move through the Port of Morehead City. Operated by Alla-Ohio Valley, the State Ports Terminal in Morehead City is the only existing coal export facility in North Carolina and has an effective capacity of three million tons annually.

Due to its proximity to existing coal fields and strategic location on the North Carolina coast, the Port of Morehead City as well as the adjacent Radio Island, are prime candidates for site expansion of export facilities. Alla-Ohio, as a producer and major exporter of coal, wishes to obtain a coal export terminal with deepwater capabilities, while the State Ports Authority is interested in developing a new facility for handling coal exports. Morehead City meets the locational requirements of both.

However, despite its obvious advantages, Morehead City as a potential expansion site is not without its problems. In addition to the normal environmental and community impacts associated with the development of coal export terminals and their associated support facilities, Morehead City is significantly impacted by transportation-related factors caused by the movement of coal from its source to the export facility.

Current immediate rail access to the port is available only by way of the New Bern-Morehead City corridor of Southern Railway which bisects both cities and many smaller communities between them. Three miles of this rail line run directly through the heart of Morehead City. The Town already suffers minor inconveniences due to this situation.

Generally, the location of new or expanding industrial-type facilities can have profound effects on communities. Predicting the magnitude of these effects, or changes, is often difficult, but must be addressed if the "character" of the community is to be preserved. If appropriate attention is given to these changes before they occur, their impacts can, in most cases, be anticipated. Decision-makers can then maximize positive impacts for the benefit of the community, while simultaneously minimizing negative externalities.

Generally, the negative effects of coal transportation by rail are of two kinds: environmental effects and impacts at grade crossings. The first category is composed of increased noise, dust, air and water pollution, and vibration from railroad movement through towns. Impacts at grade crossings are associated with increased accidents, delays, impedence of emergency vehicles, and disruption of vehicular and pedestrian traffic.

There are a number of alternative solutions available which could greatly reduce the impacts of railroads on communities -- installation of automatic gates and flashing signals at crossings, rescheduling trains so that they do not pass through town during rush hours, separating the cars of stopped trains to permit emergency vehicles to pass through, and vehicular rerouting are just a few

techniques which address the problem retroactively.

Of course, the expansion of export facilities at the Port of Morehead and the proposed development of Radio Island will have impacts on Morehead City above and beyond those listed above. Increased industrial development brings with it more people. Though the transshipment of coal is a capital rather than labor-intensive industry, the introduction of new deep-water export capabilities will more than likely encourage exporters of other commodities to relocate in the area as well.

The Town of Morehead then becomes responsible for accommodating more traffic, more noise, more development, and more pollution, as well as providing more housing, more health care services, more public utilities, and more services (i.e. police and fire protection). Large scale development also means the introduction of new support services -- new commercial activity, new residential and hotel/motel facilities, new schools and hospitals and so forth.

There is little doubt that increasing coal export activities in Morehead City will have tremendous impacts on the Town. Again, in order to move vehicular traffic, respond quickly to emergency situations, maintain water and sewer services, strengthen the Downtown Commercial District, preserve property values, accomodate anticipated growth, and generally protect the character of the community, anticipated changes to be caused by expansion of export facilities must be addressed before they take place.

Probably the most effective and least costly manner in which to do this is to utilize proper land use planning to accomodate growth while purposely minimizing the negative impacts of this growth. This can be accomplished by carefully situating various uses in a manner which lessens potential conflicts caused by the juxtaposition of incompatible land uses.

CHAPTER III: EXISTING CONDITIONS

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The most recent available statistics from the 1980 Census and the Carteret County Statistical Abstract were used to update existing data found in the 1980 Morehead Land Use Plan. Since only one year has elapsed since that study, much of this information will change only slightly, it at all. Changes which have occurred during that period will become much more significant in subsequent sections of this report.

As with the 1980 study, growth and demand estimates were based on a number of factors such as population estimates, 201 planning projections, building permits issued, annexation patterns/policy and economic conditions.

Existing plans were examined, utilized and refined where appropriate.

POPULATION

An examination of the 1980 Census of Population and Housing estimates the total population of Morehead City to be 4,359. At the time of the 1980 Land Use Study, projections provided by the Carteret County Complex 201 Facility Plan estimated that the population would increase to 5,800, a 10.8% increase over the 1970 census figure of 5,233. Rather, the actual 1980 Census estimate is a 16.7% decrease from the 1970 figure. This trend is consistent with the previous decade (1960-1970) in which there was a decrease of 6.3%.

Population in the Morehead City planning area has continued to increase more

rapidly in the one-mile extraterritorial jurisdiction than within the town limits. A review of building permits from 1976 through 1981 indicates that there were 40 new homes built within the town limits. While 242 residences and 104 mobile homes were constructed in the one-mile planning area, more specifically, building permits were issued for 53 new homes and 55 mobile homes in the extraterritorial jurisdiction within the past 2 years alone. In contrast, permits were issued for only 7 new homes and 2 mobile homes within the town limits during the same period. Since the time of the 1980 study, 90 more building permits for new homes and mobile homes were issued in the extraterritorial jurisdiction than in the town itself.

The 1980 Census data distributes Morehead City's population by age and sex as follows.

Table 1. POPULATION BY AGE AND SEX

AGE	TOTAL	% OF TOTAL	MALE	FEMALE
Under 13 years	721	16.5	361	360
14 to 17 years	280	6.5	151	129
18 to 21 years	252	5.8	131	121
22 to 29 years	496	11.4	246	250
30 to 34 years	286	6.6	136	150
35 to 44 years	449	10.3	219	230
45 to 54 years	440	10.0	185	255
55 to 59 years	272	6.4	117	155
60 to 64 years	309	7.0	125	184
65 to 74 years	494	11.3	196	298
75 to 84 years	249	5.7	89	160
85 years and over	111	2.5	24	87
TOTAL	4,359	100.0	1,980	2,379

Over the years Morehead City has experienced an influx of tourists during approximately six months of the year. Spring and Fall fishing may extend the season by two or three months. This trend has been due to the recreational facilities in the area and the access to ocean activities on East Bogue Banks.

It was previously estimated that the area's seasonal population increased by approximately 20,000 during the summer months. The recent development of resort type residences, mostly condominiums, on Bogue Banks has increased this figure substantially.

ECONOMY

Morehead City is still the largest town in Carteret County and is the retail trade center for the county. A majority of retail and sales establishments in the county are located within Morehead City. The Town contains over 50 percent of the county's apparel and accessory stores; furniture, home furnishings, and equipment stores; eating places; drug stores and proprietary stores. The following chart, Gross Retail Sales for Carteret County, prepared by the State Department of Budget and Management, gives an indication of the retail sales throughout the county.

Table 2: RETAIL SALES

	1978-79	1980-81
1% Retail Sales	$ 1,028,562	$ 1,706,522
2% Auto, Planes, Boats	11,740,201	10,204,757
Apparel	3,065,955	3,397,879
Automobile	22,650,706	27,355,503
Food	58,193,859	77,876,509
Furniture	8,117,888	10,081,558
General Merchandise	26,483,868	34,234,233
Building Materials	11,512,447	12,111,085
Unclassified Group	31,398,236	38,081,705
TOTALS	$174,191,722	$215,049,751

Source: North Carolina Department of Revenue

The town serves not only as a trading center for county residents, but also as a tourist center for the many visitors that travel to the coast each year. (A considerable amount of the expenditures calculated above take place in Morehead City due to the many tourist-related businesses and restaurants.) The following chart indicates the growing number of travel expenditures in Carteret County.

Table 3: TRAVEL EXPENDITURES

1973	$ 8,607,000
1974	$ 9,117,000
1975	$ 9,714,000
1976	$11,007,000

Table 3. TRAVEL EXPENDITURES (Continued)

1977	$15,200,000
1978	$16,937,000
1979	$17,038,000
1980	$18,685,000
1981	$22,362,000

Source: Carteret County Economic Development Council

Of primary importance for the purposes of this study are the Morehead State Port facilities, which have a profound impact on the local economy. The volume of business handled by the port gives some indication of the port's potential value to the overall economy of the county. Recent trends have indicated that the value of imports has fluctuated considerably while the value of exports has steadily increased. The total amount of business has remained relatively high.

Table 4. NORTH CAROLINA STATE PORTS TERMINAL
MOREHEAD CITY, NORTH CAROLINA

	General Cargo Import	General Cargo Export	Asphalt and Petroleum	Military	Grand Total
1974	$538,683.74	$559,680.80	$252,537.75	$ 5,623.28	$1,103,987.82
1975	395,133.36	610,823.58	156,375.39	3,192.84	1,009,149.78
1976	718,409.66	764,535.07	141,388.36	11,594.03	1,494,538.76
1977	160,087.54	871,251.36	708,604.22	4,962.70	1,744,905.82
1978	275,308.36	947,665.29	771,218.42	23,380.97	2,017,573.04

LABOR FORCE

An examination of the most recent available employment statistics for Carteret County reveals that total county employment has fluctuated over the past five years. According to labor force estimates published by the North Carolina Employment Security Commission, total county employment in 1980 was 14,050. Total unemployment in 1980 was 8.1%. The local labor force can be classified into the following employment categories:

Table 5. LABOR FORCE ESTIMATES - CARTERET COUNTY

YEAR	TOTAL EMPLOYMENT	MANUFACTURING	TRADE	SERVICE	GOVERNMENT	AGRICULTURAL	OTHER	RATE OF UNEMPLOYMENT
1976	13,040	2,010	2,540	1,550	1,800	430	3,580	7.7
1977	13,400	2,080	2,580	1,690	1,860	360	4,830	8.2
1978	14,390	2,210	2,950	1,760	2,160	330	4,980	6.2
1979	13,930	2,070	3,160	1,800	2,160	310	4,430	6.6
1980	14,000	2,160	3,420	2,040	2,230	280	3,870	8.1

LAND CLASSIFICATION

The Coastal Area Management Act has required that all land within the twenty coastal counties, including municipalities, be classified in one of five land classifications. The land classifications described in the 1980 Land Use Plan are still applicable. There is a likelihood that changes will have to be made as development occurs. This system of land classification will assure that proper services are planned before the development occurs.

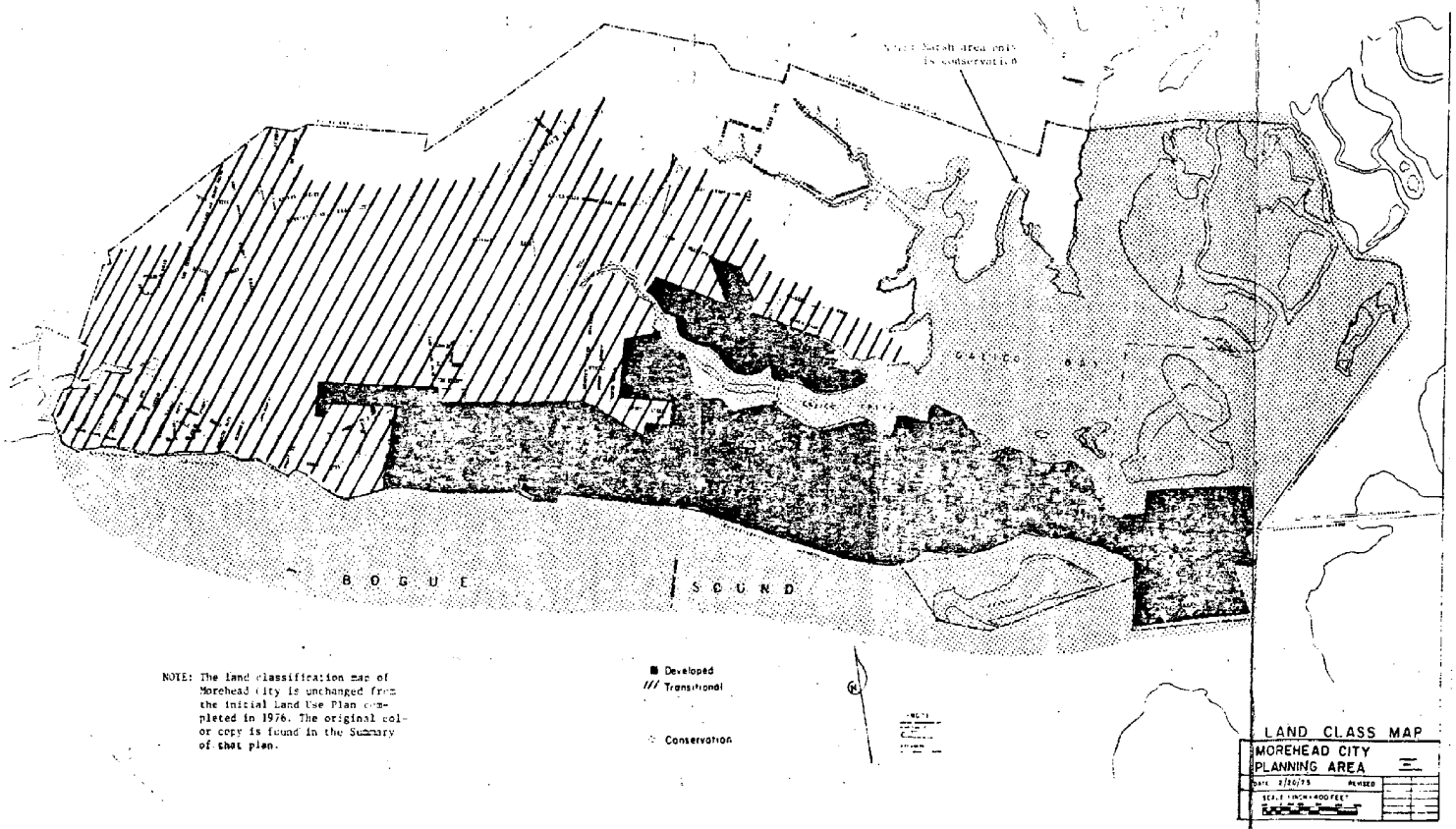
The five land classes that have been designated to all the land area of this county include (1) developed, (2) transitional, (3) community, (4) rural, and (5) conservation. These five classes provide a framework to be used by local governments to identify the general use of all lands within each county. It is hoped that this classification system will help coordinate and encourage consistency between all local land use policies, and those of the state. Of the five land classifications designated, only four are pertinent to Morehead City and its planning area at this time. (See Figure 3 page 21.)

1. Developed

   Purpose: The Developed class identifies developed lands which are presently provided with essential public services. Consequently, it is distinguished from areas where significant growth and/or new service requirements will occur. Continued development and redevelopment should be encouraged to provide for the orderly growth in the area.

   Description: Developed lands are areas within the corporate limits of Morehead City that have existing public services including water and sewer systems, educational systems, and road systems -- all of

Figure 3 - Land Classification



NOTE: The land classification map of Morehead City is unchanged from the initial Land Use Plan completed in 1976. The original color copy is found in the Summary of that plan.

which are able to support the present population and its accompanying land uses including residential, commercial, industrial, and institutional. The majority of these areas have already been developed. Minimal changes are expected to occur here.

2. Transition

Purpose: The Transition class identifies lands where moderate to high density growth is to be encouraged and where any such growth that is permitted by local regulation will be provided with the necessary public services.

Description: Most of the area north and west of Morehead City within the one-mile planning area has been classified as transition. The minimum services which will be required are the necessary water and sewer facilities, educational services, and roads.

According to Table 7, page 30, 174 building permits for new residential construction and mobile homes have been issued within the past three years in the transition area. When this figure is multiplied by 2.66, the estimated average number of people per household, the resulting increase in population would be an increase of 330. This yearly figure yields a projected population increase of 3,300 over the next ten years within the transition area.

It should be noted that the multiplier of 2.66 was derived from the 1980 Census data and is different from the 2.9 figure used in the 1980 Land Use Plan.

3. Community

Purpose: The Community class identifies existing and new clusters of low density development not requiring major public services.

Description: Not applicable to Morehead City.

4. Rural

Purpose: The Rural class identifies land for long-term management for productive resource utilization, and where limited public services will be provided. Development in such areas should be compatible with resource production.

Description: The Rural class includes all lands not in the Developed, Transition, Community and Conservation classes.

5. Conservation

Purpose: The Conservation class identifies land which should be maintained essentially in its natural state and where very limited or no public services will be provided.

Description: Lands to be placed in the Conservation class are the least desirable for development because:

1) they are too fragile to withstand development without losing their natural value; and/or
2) they have severe or hazardous limitations to development; and/or
3) though they are not fragile or hazardous, the natural resources they represent are too valuable to endanger by development.

In Morehead City, these conservation areas include wetlands, estuarine erosion areas, and floodways.

EXISTING LAND USE

The existing land uses identified and classified by the CAMA Land Use Plan in 1976 are still largely applicable today with a few important exceptions which are detailed below. The existing land uses in Morehead City are still organized into five use categories. A listing is given below of the typical uses in each of the general categories.

1. Residential - This category includes single family homes, apartments, duplexes, mobile homes, cottages and cabins.
2. Commercial - This category includes retail and service trade. A retail store is one that sells physical goods as opposed to intangible services. Such stores include clothing stores, drug stores, service stations and grocery stores. Service stores trade in intangible goods. This sub-category includes motels, banks, and professional offices.
3. Industrial - This category includes all industrial uses. Unoffensive industrial uses include such operations as wholesale storage, and the production of textiles and apparels. Other industrial uses include boat manufacturers, metal works and metal shops.
4. Public and Semi-Public - This category includes schools, churches, governmental facilities, recreational facilities, cemeteries and various types of rights-of-way.

5. Undeveloped Land - This category includes land that is vacant. In the extraterritorial area, undeveloped land is often used for agriculture, woodland, and in the case of shallow estuarine areas, for replenishing the valuable fish supply.

An analysis of existing land use activities which have occurred since the initial CAMA plan was completed has been conducted by city officials. The following development trends and patterns have emerged.

1. Residential - Residential development continues to occupy the largest percentage of the developed land within the city. Single-family dwellings increased by 14 during the period from 1979 through 1981. Residential additions accounted for 248 permits within the town limits alone. A large number of these permits were issued in the area extending north of Highway 70-A, westward from Maple Lane, to the town limits. Also, two nursing homes have located in this area.

   The largest increase in residential development has occurred in the one-mile planning area, primarily in the vicinity of Hedrick Boulevard and Country Club Road. From 1979 to 1981 there were 92 building permits issued for construction of residences and 106 permits for residential additions in the one-mile planning area. Additionally, 82 mobile homes were located in this area for a total of 174 new residences in the one-area. Growth has not been as rapid during the past two years. This is probably due, in large part, to soaring costs of construction and spiraling inflation rates. Growth is continuing, however.

2. Commercial - The pattern of commercial land use in Morehead City is still lineal. The pattern follows a line that extends along Arendell Street for four blocks from Seventh Street to Eleventh Street. Also in the downtown area there is a large amount of waterfront or marine commercial development along Shepard and Evans Streets between Ninth and Fourth Streets. These provide moorings for many of the charter boats and locations for fish houses and waterfront restaurants.

   Since the 1980 study was completed, 71 new permits for professional, retail and/or restaurant uses have been issued in the town itself. For the same category, 17 permits have been issued in the extra-territorial jurisdiction.

   Commercial development has been particularly heavy along Highway 70 West outside of the one-mile planning area and indications are that this pattern will continue. Building permits are numerous in this area.

   Scattered shopping places are still found throughout Morehead City, existing most commonly as non-conforming uses. The town is, however, making a conscientious effort through its zoning ordinance to avoid past problems associated with mixed incompatible uses and strip commercial development. Between 1979 and 1981, 71 building permits were issued for construction of commercial and professional facilities. In addition, 17 were issued in the extraterritorial jurisdiction.

3. Industrial - Morehead City's current industrial uses are virtually the same as identified in the initial plan. The principal industrial uses in the area are boat and metal works, a garment factory, a roofing plant, and the port activity which includes storage and bulk goods shipping. The port activity consists of nearly 150 acres on the extreme eastern tip of the peninsula on which Morehead City is located.

   In the period between 1979 and 1981, 8 new building permits were issued within the town for industrial development. All of these were issued in 1981. One extraterritorial permit was also issued in 1981.

   There is still ample undeveloped land in the planning area which could support light industrial activity.

4. Public and Semi-Public - This category includes schools, churches, governmental facilities, recreational facilities, cemeteries and various types of right-of-way. Between 1979 and 1981, permits were issued for 5 churches in the town proper, and 4 schools and/or churches (combined category) in the one-mile planning area. No new government facilities have been constructed since the last study.

5. Undeveloped Land - Undeveloped land is placed into three categories: farmland, vacant in-town, and wooded and estuarine.

   Land used for farmland in the planning area has been decreasing as residential development continues to expand.

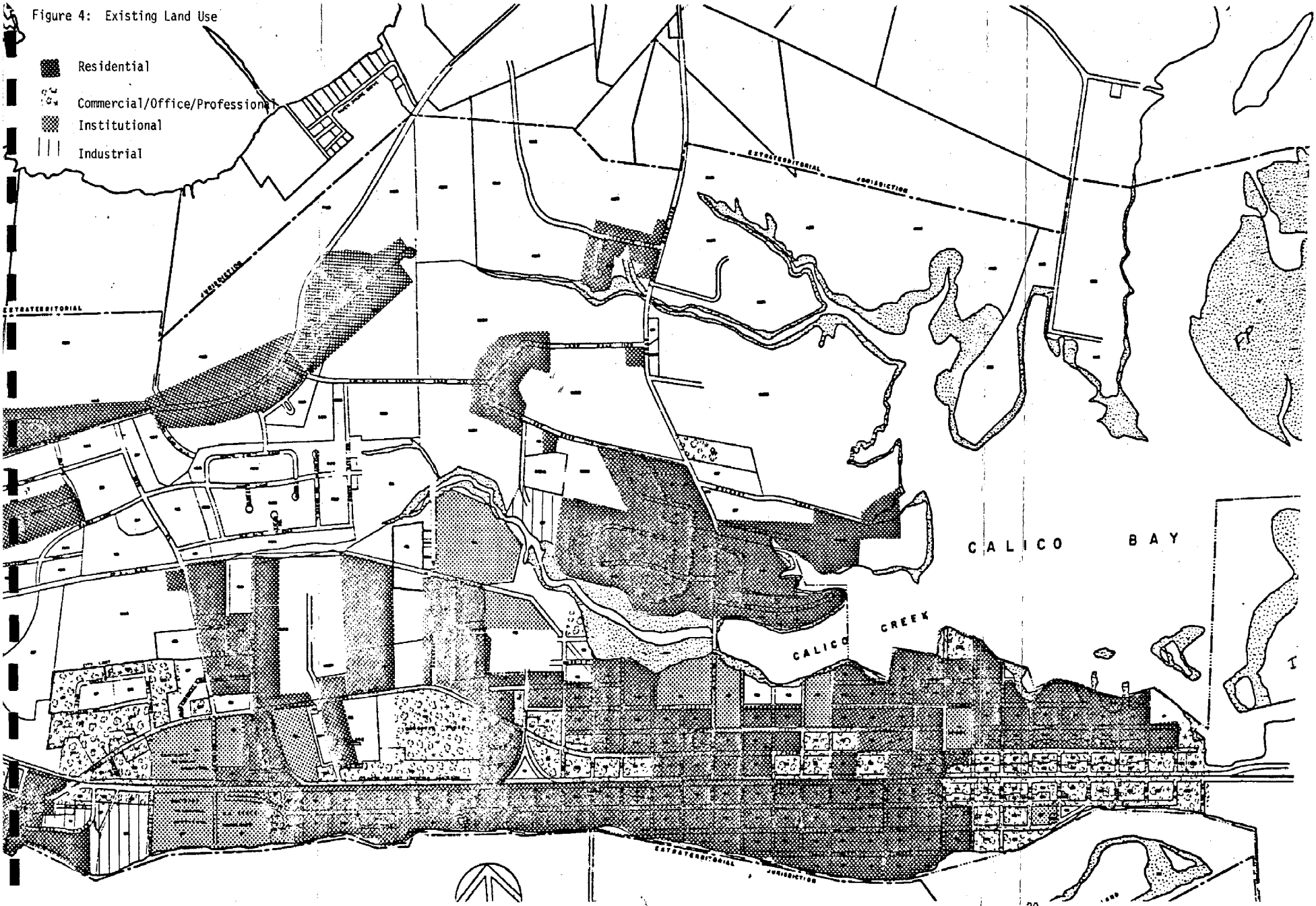
Usable vacant land in Morehead City is still generally scattered throughout the town in small lots. The vacant land in the downtown area is primarily used for parking.

In the one-mile planning area, wooded land, swamp and spoils still occupy a large percentage of land in the total planning area. This includes a large amount of tidal marsh land in the northeast section of the planning area. This land will probably not be developed for residential use before the year 2000. The future potential of this land for estuarine purposes is still to be determined.

There is, however, extensive land still undeveloped which could possibly be used for light industrial development in the one-mile planning area. At last count, there were 28 parcels of 3 acres or more that were currently undeveloped. The suitability of these parcels for industrial development are discussed in a subsequent section.

The existing Land Use Map contained in the 1980 Land Use Plan was not accurate. Instead, please refer to the map on page 29, for identifying the location of existing land uses.

Figure 4: Existing Land Use



In summary, the following chart categorizes the number and types of planning permits issued since the last study was completed.

Table 6. PERMITS ISSUED WITHIN CITY LIMITS

TYPE	1979	1980	1981	Total
New Housing	7	3	4	14
Housing Additions	67	96	85	248
Professional	15	14	4	33
Repairs/Renovations	106	113	117	336
Churches/Schools	0	0	5	5
Multi-family	1	3	1	5
Retail/Commercial/Restaurants	17	8	13	38
Garages/Accessories	0	0	14	14
Industrial	0	0	8	8
Signs	0	0	10	10
Docks and Piers	0	0	10	10
Mobile Homes	0	0	2	2
Other Structures	45	0	0	45
TOTAL	258	237	273	768

Table 7. PERMITS ISSUED IN EXTRATERRITORIAL JURISDICTION

TYPE	1979	1980	1981	Total
New Housing	39	29	24	92
Housing Additions	25	52	29	106
Professional	1	6	2	9
Repairs/Renovations	15	15	8	38
Churches/Schools	4	0	0	4
Multi-family	0	0	0	0
Retail/Commercial/Restaurants	3	3	2	8
Garages/Accessories	0	0	10	10
Industrial	0	0	1	1
Signs	0	0	5	5
Docks and Piers	0	0	0	0
Mobile Homes	26	26	30	82
Other Structures	34	0	0	34
TOTAL	147	131	111	389

The map on page 31 illustrates the heaviest concentrations of new permit activity.

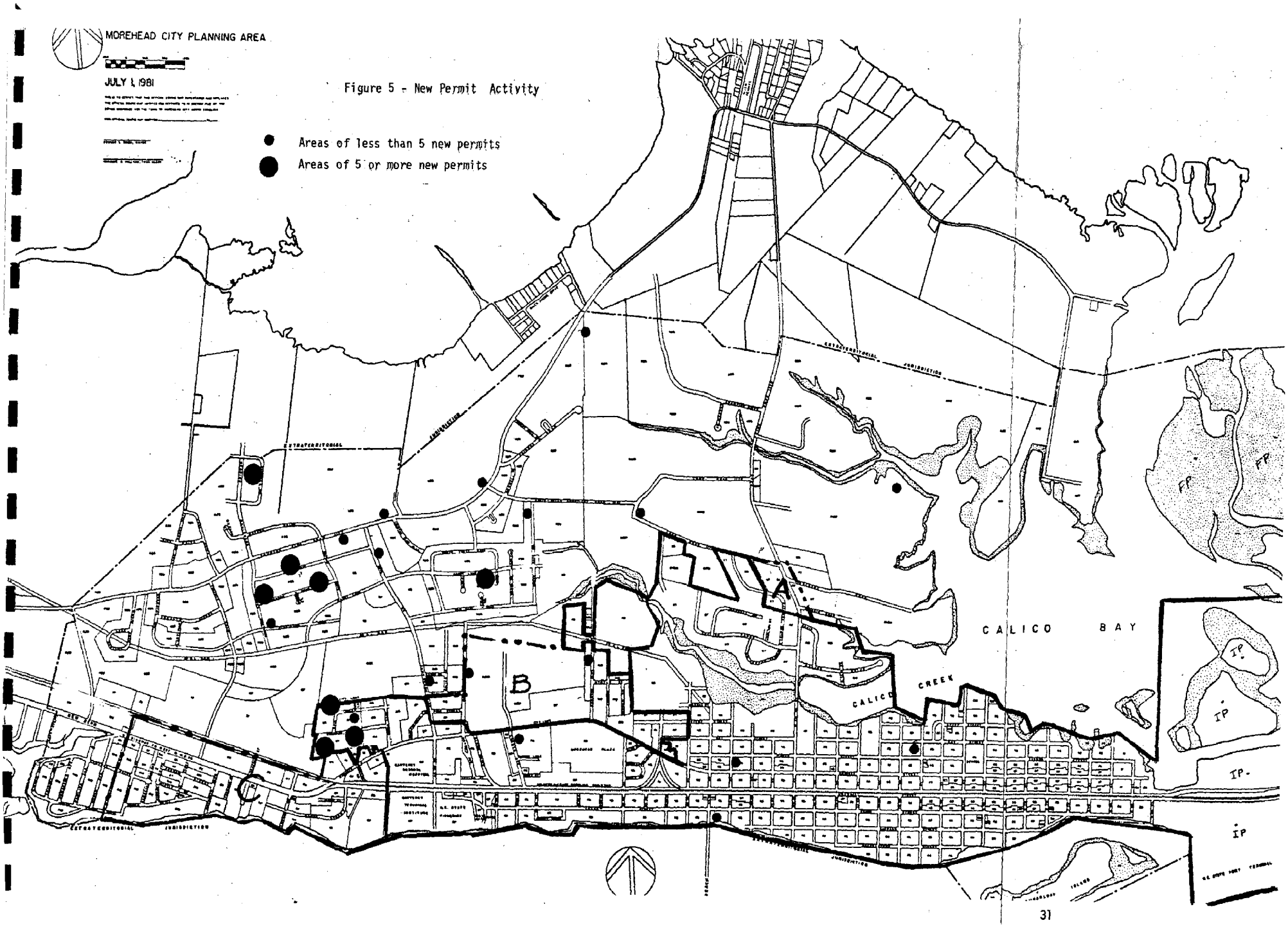


Figure 5 - New Permit Activity

It is appropriate to mention here that the three areas shown in Figure 5 are presently under consideration for annexation to the Town of Morehead City. This annexation is scheduled to take place within the next two years.

These areas will increase the town's population and will also add significantly to existing land uses. Most of the land is presently zoned for residential use; however, property zoned for industrial, office/professional, industrial and highway uses is also present. More importantly, there are three plots of three or more acres which are currently vacant and ready for development.

CONSTRAINTS

This section of the report analyzes the general suitability of vacant land in the Morehead City area for development with particular emphasis on light industrial activities. Consideration has been given to physical limitations, fragile areas, and areas with resource potential. By identifying these areas, effective decisions can be made regarding future uses of land which are in the best interest of the area's economic well-being while not causing adverse effects on the environment or public welfare.

1. Land Availability and Suitability - An identification was made of areas having conditions which make development costly or may cause undesirable consequences if developed. Included in these areas are availability of hazard areas, soil limitations, water supply areas and environmentally sensitive areas.

   The primary constraint to development in the Morehead City area is the

availability of land suitable for development. Discussion of any other constraints (i.e. soils, water and sewer, hazard areas, etc.) are relevant if analysis of these constraints can be applied to actual sites which are currently undeveloped. For the purposes of this study, only vacant areas of three or more acres, as identified on page 34, will be addressed.

Morehead City is a peninsula which is, for the most part, surrounded by water. This fact, coupled with the existence of vast areas of swamps and marshlands, has spatially constricted the town's growth. No land suitable for any sizeable development, particularly of an industrial nature, is still available within the town's corporate limits.

There are, however, several tracts of undeveloped land within the one-mile planning area which are large enough to support industrial development. Three of these are located within the areas slated for annexation. Refer to Figure 6, page 34, for the location of these lots.

The majority of these undeveloped parcels are located along the railroad tracks and are west of the intersection of Highway 70A. Most of the other parcels are located north of the city around Smith-Mills Shortcut Road and Crab Point Road. However, their proximity, in all directions, to already developed residential neighborhoods makes them less suitable for industrial use. Yet, for port-related activities, it must be recognized that these locations are on or near the bay which could be advantageous from an economic perspective.

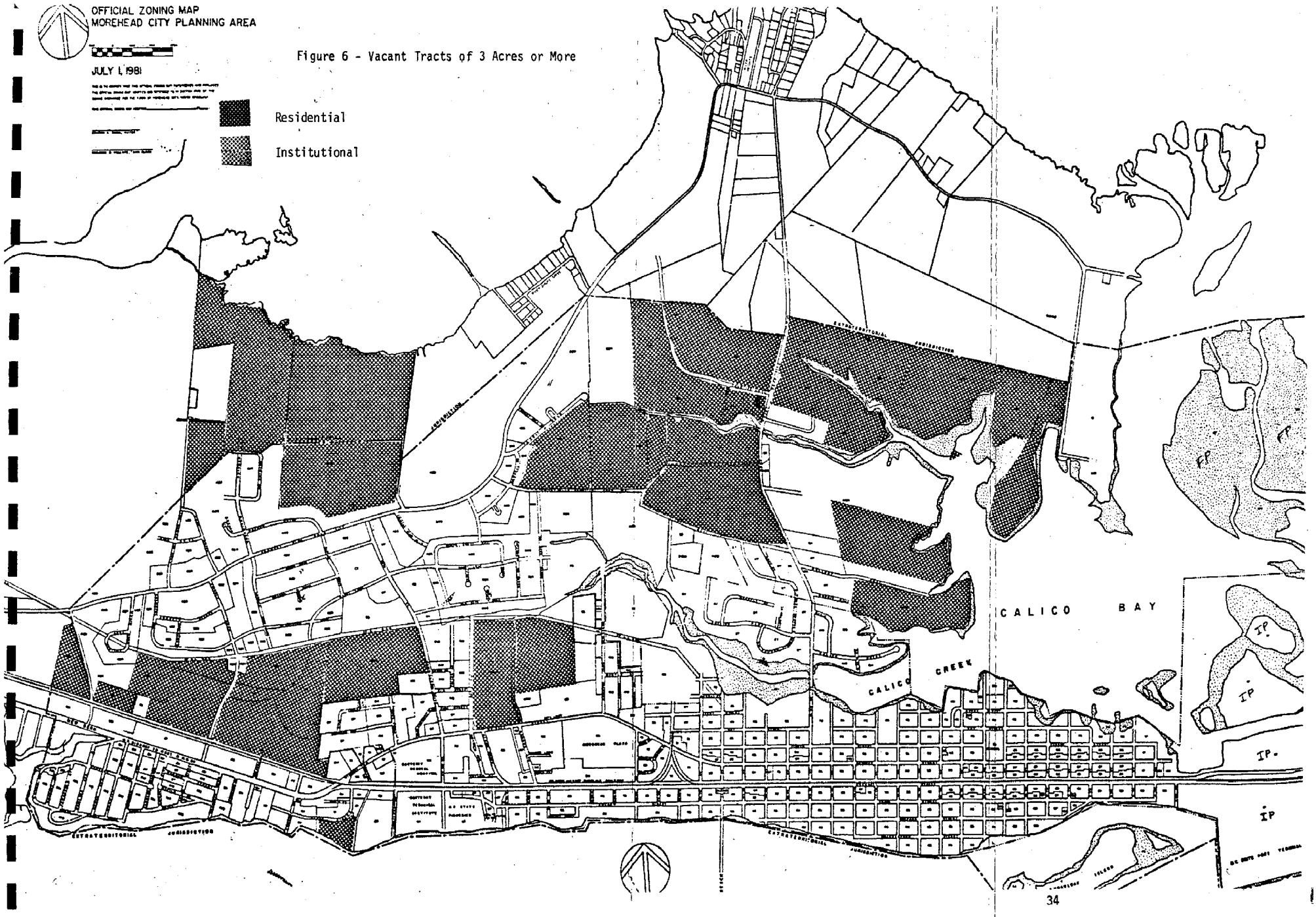


Figure 6 - Vacant Tracts of 3 Acres or More

Close proximity to the port facility could provide substantial savings in transportation costs as well as reduce the environmental impacts of additional transportation of commodities to the port through the center of town.

2. Hazard Areas - There are two types of hazard areas in the Morehead City planning area: man-made and natural. Man-made hazards include the state port, bulk oil storage tanks, and the railroad. The state port contains storage tanks for acid as well as oil. The acid tanks could explode and emit toxic gases. In addition to the bulk oil storage tanks located at the port, there are many located throughout the city which constitute man-made hazard areas: Texas Gulf, J. M. Davis Industries, Colonial Oil Industries, Geer Oil Company, Carolina Oil and Distributing Company, Wheatley Oil Company, Potter's Bulk Storage, Coastal Oil Company and Exxon Heating Oil.

   The railroad which traverses Arendell Street, carries rail tank cars loaded with highly flammable aviation gas and JP-4 and JP-5 fuel. The area extending one block on either side of Arendell Street is subject to this hazard in the event that an accident would occur. Many of the areas available for industrial development are adjacent to the railroad and are therefore subject to this hazard.

   Natural hazard areas are areas where uncontrolled or incompatible development could unreasonably endanger life or property, and/or other areas especially vulnerable to erosion, flooding or other adverse effects of sand, wind and water. The natural hazard areas in Morehead

City include the estuarine erodible and flood hazard areas.

Estuarine erodible areas are areas above ordinary high water levels where excessive erosion has a high probability of occurring. Sound erosion is found in and around the shoreline that fronts on the intra-coastal waterway. Many of the vacant parcels front the shoreline and are thereby susceptible to excessive erosion. This then is a very important consideration for the site-planning stage of any type of development. The area from 10th Street to 35th Street is listed as an estaurine erodible area.

The coastal floodplain is defined as the land areas adjacent to coastal sounds, estuaries, or the ocean which are prone to flooding from storms with an annual probability of one percent or greater (100 year storm). These lands are subject to flooding or wave action during severe storms or hurricanes and can endanger life or property if uncontrolled, incompatible or improper development occurs. (See Figure 7.)

It should be pointed out that coastal North Carolina is presently undergoing a re-evaluation of its flood hazard areas. The newly published flood map for Morehead City should be available during the 1982 calendar year. Projected flood levels are expected to be higher for Morehead City, thereby placing more of the Town's land in flood prone areas.

3. Fragile Areas - Fragile areas are those which could be easily damaged or destroyed by inappropriate or poorly planned development. In the

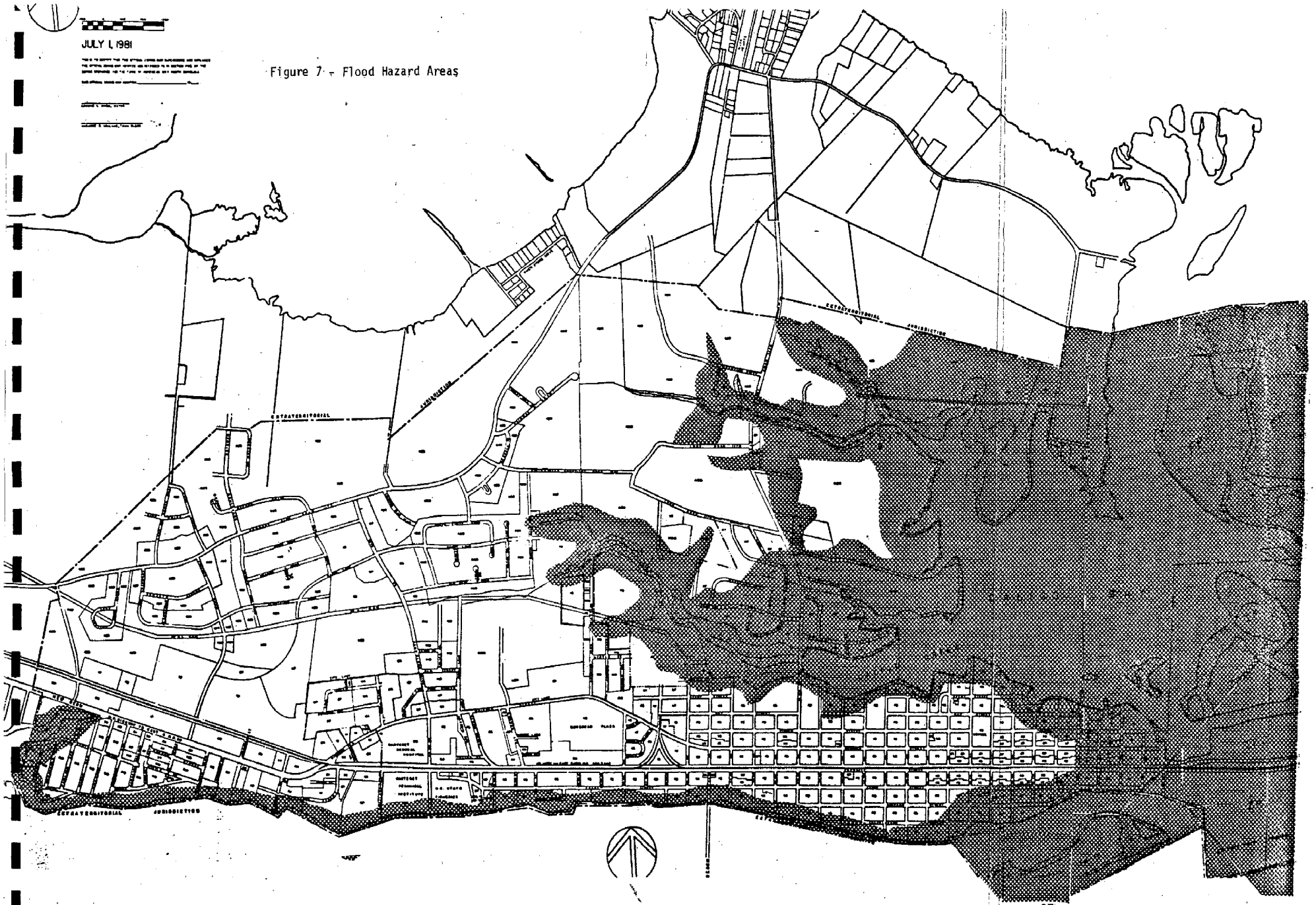


Figure 7 - Flood Hazard Areas

coastal zone, competition between development and environment has in many instances, caused an alteration, impairment, or destruction of wetlands, sand dunes, ocean beaches and shorelines, estuarine waters, public trust waters, complex natural areas, areas that sustain remnant species, areas containing unique geologic formations, registered natural landmarks, archaeological and historic sites, and others. It should be noted then, that "Fragile Areas" is a general term referring to all natural systems which may be impacted by development.

A discussion of the presence or absence of each of the fragile areas in Morehead City follows. A description of the location of each type of fragile areas is also included.

a. Coastal Wetlands - Coastal wetlands are defined as any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides, provided this shall not include hurricane or tropical storm tides. There are many areas in Morehead City considered coastal wetlands. These areas include the marsh area on the north shore of Morehead City which lies on Calico Bay; the perimeter of Calico Creek; the remainder of Calico Bay and its tributaries, including small islands north of the state port property and most of the Newport marshes; the fringe marsh areas along the east of 4th Street to the State Port property; the marshes on Sugarloaf Island which lies south of Morehead City; and the marshes along Bogue Sound. Much of the vacant property described earlier is partially wetland.

b. 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. All the water surrounding Morehead City is included in estuarine waters.

c. Estuarine Shorelines - Non-ocean shorelines which are particularly vulnerable to erosion, flooding, or other adverse effects of wind and water and are intimately connected to the estuary. Most of the study area's shorelines are in this category.

d. Public Trust Waters - Public trust waters are defined as all natural bodies of water subject to measurable lunar tides and land thereunder to the mean high water mark. Public trust waters generally include all the waters surrounding Morehead City. Again, much of the subject property is bounded by public trust waters.

The other areas distinguished as fragile areas are not applicable to Morehead City.

4. Community Facilities Demand

a. Water

Morehead City has just completed expansion of its municipal water system. Elevated storage is 1,000,000 gallons, the maximum daily capacity is 3,000,000 gallons and the peak load is 1,100,000 gallons. Permits are required for additional wells,

but the quantities calculated in the Castle Hayne aquifer are adequate for projected growth in the area. Projections are based on growth anticipated without regard for port facility expansion.

b. Sewer

The waste treatment facility serving Morehead City at present will not be able to handle the projected 1990 population. The existing facilities treating flows will not consistently discharge wastewater that will be within current or proposed effluent limitation parameters. Renovation of existing facilities, construction of additional treatment processes, and reduction of infiltration/inflow will be required to adequately treat wastewater flows projected for the Morehead City service area.

According to the engineers for the town's 201 Plan, the present treatment plant is, however, scheduled to be upgraded within the next three years to accomodate projected 1990 population.

It is important to note that projections of adequate water facilities and plans to upgrade existing waste treatment facilities do not take into consideration the anticipated growth which will result from any significant industrial development in the area. Not only must industrial facilities themselves be adequately served, but provisions must be made for ensuing residential development.

The provision of public utilities is an important consideration to industries considering development in a municipality. As the installation of utility infrastructure is a costly capital expense, industries desire to locate in areas where utilities already exist, or are close-by.

Figure 9 on page 46 shows the location of undeveloped parcels available for industrial development. Based on existing infrastructure, most of the vacant sites are appropriate for industrial use.

c. Transportation

Easy vehicular access to the site is another important criterion for any development activity. The map on page 46 also shows existing streets and rail rights-of-way in the Morehead City area.

Major thoroughfare additions are proposed or underway in the area. If development is to be encouraged in Morehead City, additions must be strategically located and be consistent with the Town's development policies.

5. Soils - Morehead City is on a peninsula that ranges from sea level to about 25 feet in elevation. The soils have formed a sandy and loamy coastal plain sediment. Soils at the lowest elevation are in brackish marshland that is a critical component of the coastal eco-system. In upland areas the main limitation to urban use is wetness. The soils that are in depressions or at low elevations have a seasonal high water table and are subject to flooding during severe storms. Response to

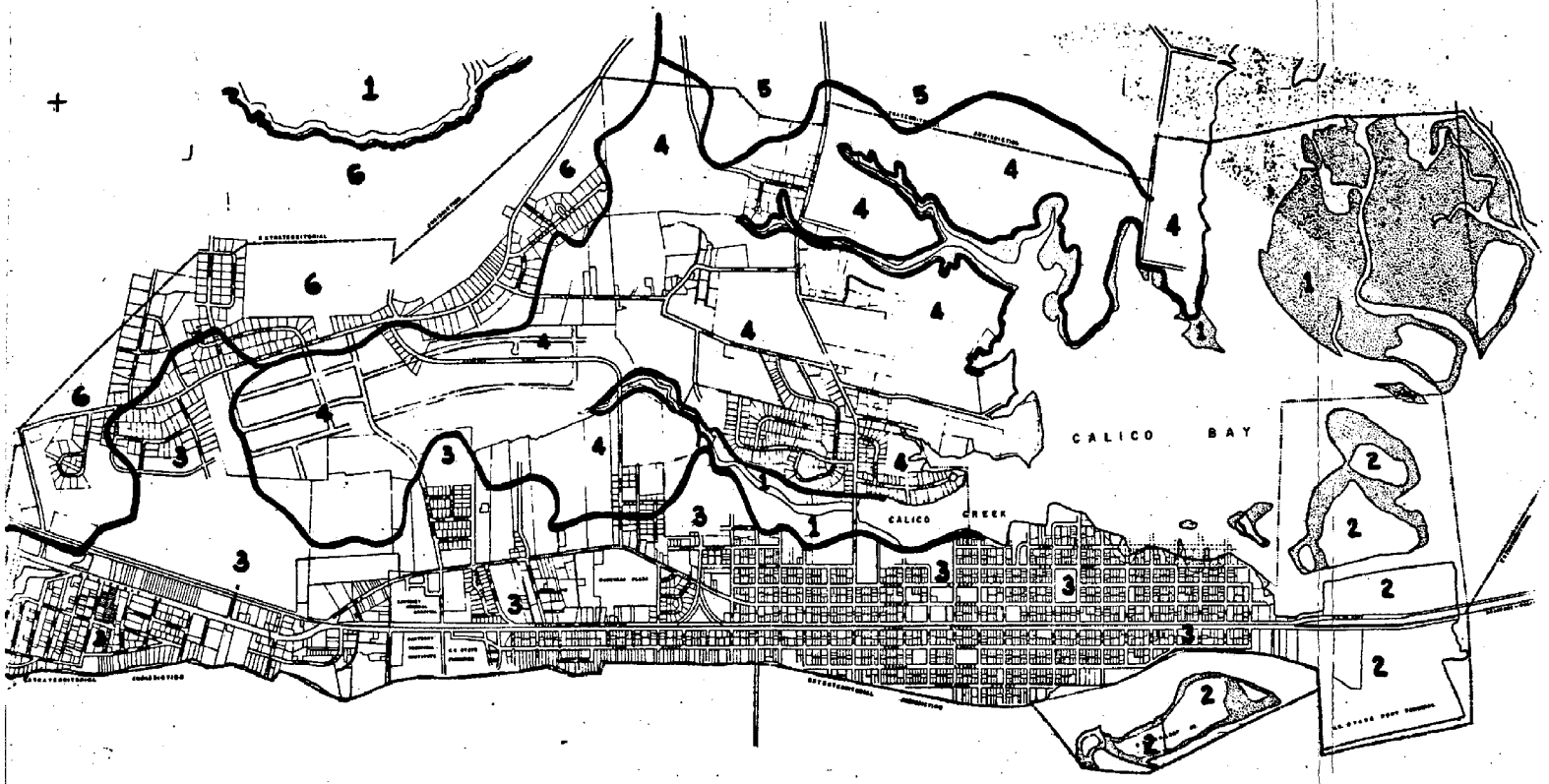
artificial drainage is usually good if suitable outlets are available. Other soil properties are generally favorable for urban use. The well drained soils in the higher, more convex areas are well suited for urban use.

The six soil association areas are shown on the general soil map found on page 43. Each of these soil associations has one to three major soils which occur together in a characteristic and repeating pattern. Other soils also occur but to a lesser extent. Detailed soil information is necessary for the planning of specific sites. Detailed soil maps and interpretations are available at the Carteret Soil and Water Conservation District Office in Beaufort. Detailed descriptions of the major soils in the area are included in Appendix B. However, they can be briefly described as follows:

GENERAL SOIL AREAS

1. CARTERET: Nearly level, poorly drained sandy soils in coastal marshes.
2. NEWHAN-CARTERET: Nearly level to sloping, excessively drained areas where sandy dredge spoil has been placed on coastal marshes.
3. MANDARIN-WANDO-LEON: Nearly level to gently sloping, somewhat excessively drained to poorly drained sandy soils on upland.
4. ALTAVISTA-AUGUSTA-TOMOTLEY: Nearly level, moderately well drained to poorly drained loamy soils on uplands.
5. ARAPAHOE-TOMOTLEY: Nearly level, poorly and very poorly drained loamy soils on uplands.
6. AUTRYVILLE-ARAPAHOE: Gently sloping, well drained loamy soils on ridges and nearly level, very poorly drained soils in and on uplands.

Figure 8 - Soils Map



In the past, it has been cheaper to build further from downtown along the peninsula than to fill land near downtown. The area with better soil and drainage has been and will continue to be developed first. When the demand for more land closer to town increases, land filling may become a more common occurrence unless prohibited by state laws protecting marshlands.

With specific reference to available sites for industrial purposes, according to the soil map shown on page 43, most of the tracts of undeveloped land which are large enough to support light industrial activity are located in areas containing Altavista-Augusta-Tomotley soil types. As described previously, these soils are nearly level, and depending on the particular site, may be moderately to poorly drained. This is an important consideration because it affects not only the feasibility, but also the cost of industrial development in these areas.

Based on soil survey data contained in the 1980 Land Use Plan, the suitability of Altavista-Augusta-Tomotley soils for development without the installation of artificial drainage is poor due to severe wetness. This has significant implications for industrial activity in these areas. Response to artificial drainage is generally good; however, the costs of such activity can easily become prohibitive. If industries find it cost-effective to install the proper drainage facilities, these parcels can be conducive to light industrial activity.

There are also some undeveloped tracts of three or more acres consisting of Mandarin-Wando-Leon and Autreyville-Arapahoe soils. As with Altavista-Augusta-Tomotley soil types, Mandarin-Wando-Leon soils suffer from problems with wetness. However, response to artificial drainage is good and these can be made suitable for most urban uses.

The remainder of the undeveloped tracts have Autreyville-Arapahoe soils. Autreyville soil is well suited to urban use, and usually comprises about 65 percent of the Autreyville-Arapahoe soil type. On the other hand, Arapahoe soils suffer from frequent flooding. Adequate drainage outlets are difficult to construct due to the low elevation of the area. Suitability of development on these soils types is site-specific.

Based on all of the constraints identified above, the following sites are recommended as being the most suitable for future development.

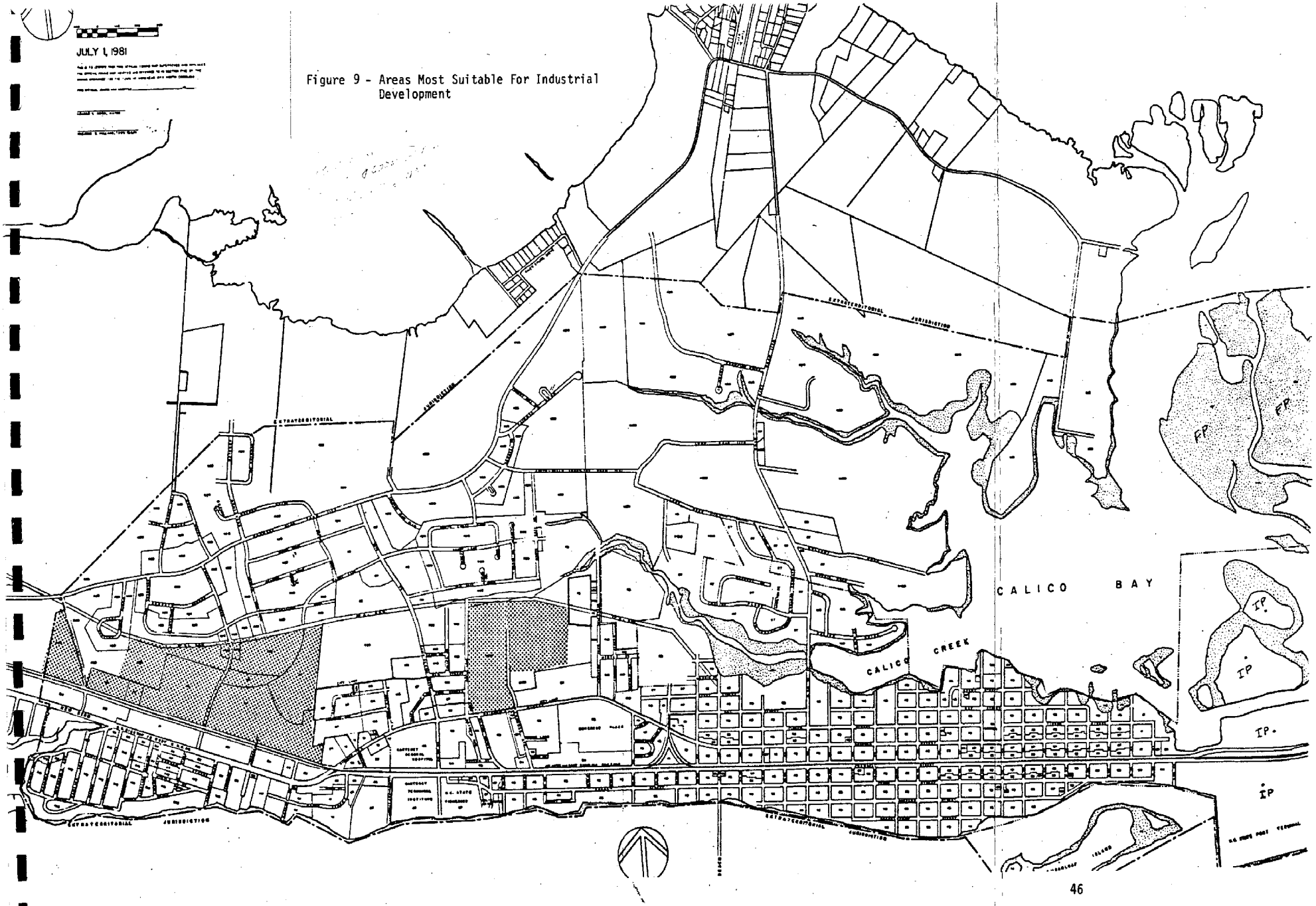


Figure 9 - Areas Most Suitable For Industrial Development

CHAPTER IV: FUTURE EXPORT FACILITIES INVENTORY

CHAPTER IV: FUTURE EXPORT FACILITIES INVENTORY

PROJECTED NEW AND EXPANDED FACILITIES: PORT OF MOREHEAD

Alla-Ohio and the State Ports Authority have proposed the development of expanded export facilities at the Port of Morehead City. A throughput of six to ten million tons of coal annually has been assumed for the Morehead terminal utilizing unit trains averaging 100 cars per train. Thus, 100 unit trains of 10,000 tons each would be required annually to move each million tons. For a six to ten million ton facility, this would necessitate two or three unit trains per day through Morehead.

PROJECTED NEW AND EXPANDED FACILITIES: RADIO ISLAND

Gulf-Interstate has proposed an export facility for Radio Island. This facility would ship high quality steam coal to European customers under long-term contracts. The 77-acre site would be developed to export five million tons per year initially with staged development to a 20 million ton-per-year design capacity.

Specific development plans for the Radio Island site had not been made public at the time of this writing. Due to concern for rail impacts using the existing New Bern-Morehead City corridor, alternative means of transporting coal to the site are presently under consideration. Among those being considered are barges, slurry pipelines, covered conveyors, and the use of alternative rail routes.

Assuming that rail transportation is used, startup capacity would require an average of 1.6 unit trains per day delivering nothing but coal to the facility, according to the Corps of Engineers. This would eventually reach a capacity of eight unit trains per day. The trains would operate on a loop track enclosing 41 acres.

In addition to those facilities listed above, other companies are discussing the development of facilities on Radio Island. At the time of this writing, these plans had not been made public. More specific information will be detailed in the Radio Island Plan now being written.

The following chart illustrates approximate coal export capacities for the Morehead City/Radio Island area:

TABLE 8: COAL EXPORT

CAPACITY ESTIMATES

COAL EXPORT CAPACITY ESTIMATES
(million tons annually)

Morehead City Sites

Date	Alla-Ohio	Gulf Interstate	American Coal
1981	1.5		
1982	3.0		1.5
1983	3.0		1.5
1984	6.0	15	6.0
1985	7.0	15	6.0
1986	8.0	15	6.0
1987	9.0	15	6.0
1988	10.0	15	6.0
1989	11.0	20	6.0
1990	12.0	20	6.0

CHAPTER V: EXPECTED GENERAL IMPACTS OF PROPOSED EXPORT FACILITIES ON THE TOWN

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It is difficult to adequately assess the impacts of proposed facilities on the Town without information concerning the exact composition, extent and likelihood of those facilities. However, some conclusions are apparent and have been detailed in this chapter.

POPULATION

According to the 1980 Land Use Plan, it has been the policy of Morehead City to remain "a relatively small, friendly, tourist-oriented community. The future population growth patterns of Morehead City are primarily based on two factors: (1) the desires of the people and (2) the capability of the land to sustain a growing population. The following chart illustrates the projected population of Morehead City for the next fifty years, as estimated in the 1976 CAMA Land Use Plan.

Table 9: POPULATION PROJECTIONS

	1980	1985	2000	2025
Morehead City	5,800*	6,100	7,100	9,500
One-Mile Planning Area	2,500	3,765	4,200	6,100

*Note that the CAMA estimate for 1980 is higher than the 1980 census estimate of 4,359 by 1,441 persons.

These projections were made by Planning Board and the Town Board of Commissioners

prior to the announcement of proposed expansion of coal port facilities. The proposed expansion at the State Ports Authority terminal is not expected to generate a substantial amount of employment. This is due to the fact that AOV is expanding an existing operational facility. For example, rather than hiring new security guards or maintenance personnel, AOV will probably be able to utilize existing employees in an expanded capacity. At 3 million tons, therefore, any population increases will be minimal.

On the other hand, if Radio Island develops to its full potential in excess of 15 million tons, and if there are significant new developments in Morehead City as a result of Outer Continental Shelf (OCS) land-based activities, some measurable differences in Morehead City's future growth, both in numbers and composition will occur. Until all of the development possibilities become more clear, it is reasonable at this time to assume that Morehead City will continue to grow at its normal expected rate as indicated in the 1976 Land Use Plan population projections. Next calendar year, however, the Town Planning Board and the City Council should revise the Town's population projections to reflect the expected impacts of (1) Radio Island, (2) OCS activities and (3) the lowered 1980 census population count.

ECONOMY AND LABOR FORCE

New industries contribute to local economies in several ways. They provide employment and hence payroll for workers to spend. The local tax base may be expanded or new industries may provide more business for established companies.

The formation of new businesses to provide new or additional services may be initiated.

Jobs Generated

Records indicate that the SPA has hired 46 full-time and 16 part-time workers to operate the Alla-Ohio Valley coal facility in Morehead City. In addition to the workers at SPA, there have been a few additional positions created due to the AOV coal shipments. These include workers in shipping and testing companies. Including the SPA workers, approximately 68 full-time and 23 part-time positions in the area have been filled in connection with the coal storage facility. There have also been additional jobs created due to the transportation of coal. Southern Railway estimates that they will use an additional 24 workers to ship the coal for the AOV facility.

Employment multipliers are used to estimate how many jobs will be created when an industry comes into a community. Studies done by the U.S. Department of Commerce, Bureau of Economic Analysis using the Regional Industrial Multiplier System II (RIMSII) indicate that employment multipliers for the Morehead City area will be in the 1.5 to 2.5 range. The jobs reported above indicate an employment multiplier of approximately 1.5. That is, the 46 full-time positions at SPA created a total of 68 full-time positions in Carteret County: 46 x 1.5 = 68. Due to the fact that the AOV facility is an expansion of an existing operating facility, many of the positions will be filled by merely broadening the duties of existing personnel. The majority of new jobs to be created will be generated by the Radio Island facility.

Employment and Payroll Estimates for Facilities

Information was obtained from each coal export company proposing coal export activity in Morehead City or on Radio Island in order to identify the estimated work force and payroll generated by these facilities. This information is presented below.

Table 10: ESTIMATED EMPLOYMENT AND PAYROLL FOR FACILITIES

Morehead City	No. Workers	Annual Payroll
Alla-Ohio	46 full-time 16 part-time	$1,300,000
AOV Expanded	N/A	N/A
Gulf Interstate	85	$3,000,000

Development Jobs

Businesses involved in the construction of these facilities include construction and construction service companies, fence suppliers, marine services, restaurants, motels, auto rental firms, commercial printing firms, heating and air conditioning firms, real estate firms, and others. During the construction phase Alla-Ohio Valley employed over 150 people and most of those jobs were full-time. Most of the workers were locally hired. AOV indicates that they spent over $2.5 million of the $5 million investment with the State of North Carolina.

Local Revenue

1. Coal Vessel Dockings*

   Each coal ship that loads coal at the Morehead City Port generates

substantial economic benefits for various business firms in the area. Assuming that the "average" coal ship that docks at Morehead City Port will load about 40,000 tons, will have a crew of approximately 30 men and will remain "on berth" about four days, approximate local business revenues for the next two years are estimated to be $1,098,604 annually.

Primary services involved in these revenues for local businesses include pilot fees, tug services, line handlers, draft surveys, agency fees, freight forwarders fees, chandlery services, and crew expenditures while the ship is on berth.

2. Morehead City Port Revenues*

The Morehead City Port is paid a substantial fee each time a coal ship arrives to load coal. The "average" coal ship that docks at Morehead City Port will be registered at about 40,000 Gross Registered Tons and will remain "on berth" about four days. Based on these estimates, coal ship docking charges at Morehead City should generate approximately $1,911,360 annually for 1982 and 1983.

In return the City provides the following services to the Port:

a. water and sewer
b. fire protection
c. police protection
d. garbage collection

In addition, the current lease agreement between the North Carolina State Ports Authority and Alla-Ohio Valley provides for substantial revenues for the Ports Authority during the term of the lease. Based on the current lease agreement and projected throughput tonnages, annual net revenues for the Morehead City Port directly related to exporting coal, including docking charges, should be approximately $2,761,360 annually over the next two years.

According to the ECU study, conducted by Paul Tschetter, each ton of coal shipped from North Carolina will generate approximately $5.55 for the local community and $.87 for the Morehead City Port in 1981. In 1982 and 1983, these per ton benefits are $2.31 and $2.27 for the local community and $.92 each year for the Morehead City Port.

Further, it is estimated that each coal train will bring with it approximately $18,000 annually for the local community in 1982 and 1983.

(* Estimates for each of these sections were calculated by Paul Tschetter of East Carolina University.)

Taxes

1. Railroads

Railroad companies pay property taxes to the counties and cities through which their tracks run. Each year the State reassesses the railroads' property. Each affected county and city then applies its own property tax rate to determine the railroads' taxes. The re-

assessments made by the State tend to increase as the amount of rail traffic increases.

Several of the railroad companies are currently in court protesting the 1980 State assessments. It will not be possible to determine how these tax receipts will change due to increased coal traffic until the court case is settled. Settlement is expected in June 1982. Any change in tax receipts will be felt in all North Carolina counties through which the coal trains run.

2. Coal Storage Facilities

Privately-owned or leased facilities located on State Ports land pay the applicable city and county property taxes. These include the current Alla-Ohio facility and the proposed expansion.

If a company owns the land on which it is planning to develop the facility, then the net real estate taxes to the local government will probably not increase with the building of the facility. However, an increase in personal property tax assessment may be expected. The personal property tax is based on the company's investment in machinery and equipment, with an allowance for depreciation. The coal itself will probably be exempt from taxes for the first four years of operation as legislated under the Machinery Act.

Loss of Tax Receipts Due to Property Devaluation

It has been suggested that local property tax revenues might decrease due to property devaluation around the coal storage facilities. It is not possible to estimate whether or not this would happen or what the revenue effect would be. The issue of taxable property along the rail line is discussed elsewhere in this report.

Re-evaluations are required once every eight years, although a county can re-evaluate every four years if desired. Carteret County was re-evaluated in 1980 and does not plan another evaluation before 1988.

Transportation

Given a 3 million ton scenario, the impacts of coal transportation by rail on the Town will be minimal. As discussed more thoroughly in Chapter VII, the volume of train traffic required to move 3 million tons of coal annually through Morehead City is not substantially greater than the one train per day that presently passes through town. Since most residents are accustomed to these trains, impacts will not be that significant.

On the other hand, if the State Ports Authority and Radio Island facilities are developed as proposed, train traffic, and the noise and vibration generated therefrom, will increase to undesirable levels. Several trains per day through the corridor would be clearly unacceptable.

In addition to increased rail traffic, expansion of the coal port facilities, coupled with any associated industrial development elsewhere, will result in increased

vehicular traffic generated by work trips to and from the various sites. All of the aforementioned transportation problems will be compounded during the summer tourist season.

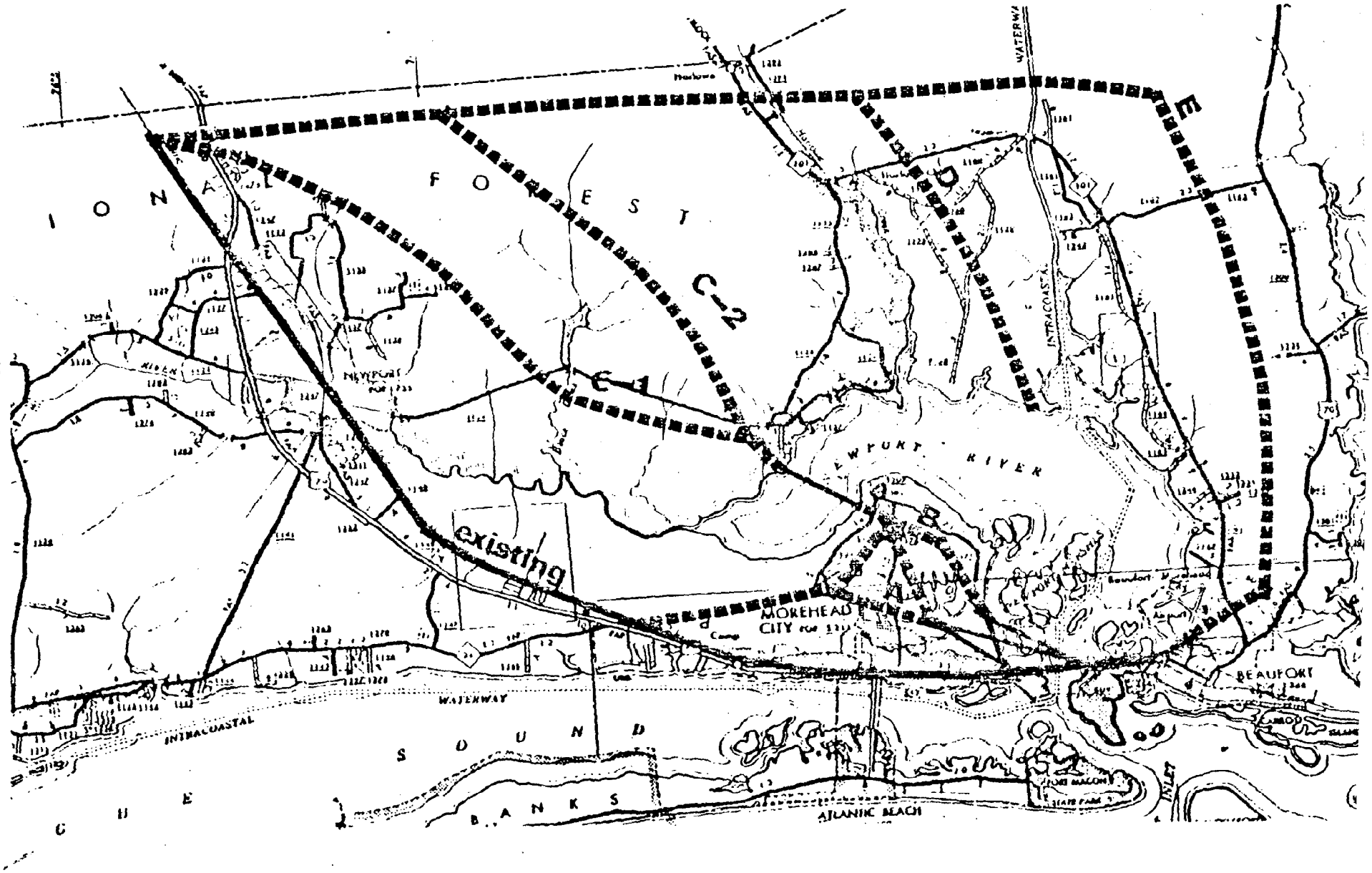
Alternate methods of transporting coal into the port facility are presently being studied inlight of the potential for adverse impacts along the corridor. Work done by the North Carolina Department of Transportation to date has identified four alternate rail bypass routes. (See map on page 60.) Admittedly, each route has substantial associated problems. The following chart provides a brief comparison of each alternative. (Route D has been identified but has not been given detailed study.)

Table 11: ALTERNATE BYPASS ROUTES

	A	B	C	E
Preliminary Cost Estimates	$20-30 Million	$25-35 M.	$50-70 M.	$50-70M.
Number of existing residences within 250' either side of route	51	39	41	35
Number existing commercial/govt. bldgs. within 250' either side of route	11	12	11	2
Distance through coastal wetlands of primary nursery & shellfish areas	5,000'	6,000'	11,000'	2,000'
Additional distance through salt water marshes and other designated wetlands	0	0	1,600'	0
Additional distance through bogs or pocosins	0	0	10,500'	33,000'
Total distance through water-related areas	5,000'	6,000'	23,100'	35,200'
Total distance through National Forest	0	0	22,500'	43,500'

Investigation of rail-barge and rail-slurry pipeline combinations from the New Bern area is in process. The rail-barge alternative is probably not a possibility; there is not enough capacity in the Intracoastal Waterway. The pipeline may be a possibility but it is not being counted on very strongly.

Figure 10: Morehead City Rail Bypass Draft Alternatives
As Presented At Radio Island Task Force Meeting March 2, 1982



ENVIRONMENTAL ISSUES

Air Quality

The extent to which the ambient air quality will be affected by coal transfer operations and terminal facilities will depend on the equipment, storage, and transportation facilities used. The greatest problem is posed by fugutive coal dust emissions which are common to most transfer/terminal operations. These emissions usually come from open storage and from spillage during transfer.

It is difficult if not impossible to accurately predict the total amount of fugitive emissions which will be generated from any particular coal terminal site. However, these emissions are continuous, and therefore should be analyzed as part of any future environmental impact analysis.

Noise

The environmental impacts of noise from transfer/terminal facilities will depend upon quantity and quality of noise generated; distance of the facility to residential or natural communities; ability of surrounding terrain to buffer noise; and existing land uses in the vicinity of the site. Each of these factors should be considered in the siting and approval of future facilities by the Town.

Water Quality

Loading, unloading, stacking, and reclaiming coal may contribute to changes in water quality due to the interaction of water with fugitive dust emissions and coal spillage generated by these operations. Water contaminated by coal may be degraded in quality, taking on suspended and dissolved solids. The amount of

water quality degradation would therefore be a function of the quantity and quality of coal dust and spillage and the characteristics of the water.

The discharge of untreated chemicals and contaminated runoff from coal piles into surface or groundwater can cause several adverse environmental impacts such as altering the pH of receiving streams; increasing the concentration of trace metals, which when biomagnified in the food chain, adversely affect humans as well as animals; percolating through soils and contaminating groundwater; and reducing the oxygen content of water. Approval of future coal facilities must be contingent upon satisfactory resolution of possible water quality problems which that facility might generate.

Marine Fisheries and Ecology

Secondary effects of development of coal export facilities could have adverse impacts on coastal fishery resources. The need to deepen and enlarge existing channel and basin facilities, and to create new ones, will present site-specific problems of habitat alteration through dredging and the larger problem of soil disposal. As with other impacts, the effects of new facilities on the area's ecology must be determined on a case-by-case basis.

CONCLUSION

Without more definitive information concerning specific projects, it is difficult to assess the difference in the overall environmental quality in the Town resulting from 3 or 15 million tons per year of coal export. It is assumed that each coal export project will satisfy appropriate environmental regulations and there-

fore environmental quality should not degrade in a significant manner, under either scenario. However, as mentioned elsewhere in this report, the environmental effects of 15 million tons being transported by rail through the town will have considerable negative environmental effects on the town's major transportation corridor.

CHAPTER VI: LAND USE SCENARIOS FOR TOWN

CHAPTER VI: LAND USE SCENARIOS FOR TOWN

SCENARIO ONE: 3 MILLION TONS ANNUALLY

With the exception of minimal additional industrial growth and the minor changes noted in the 1980 Land Use Plan, the town's overall land use policies and programs should remain basically the same.

Continued growth can be expected. This would be consistent with trends in building permit activity, existing zoning patterns, soil classifications and population projections.

The 1980 Land Use Plan illustrates general land use trends that can be expected for conditions up to and including the shipment of 3 million tons of coal annually through Morehead City.

Particular growth trends can be summarized as follows:

1. Limited industrial development may occur along the northern side of Highway 70 West from the corporate limits to the extraterritorial boundary.
2. Residential development will continue north of Highway 70 along Hendrick Boulevard around Country Club Road, Sunny Drive and Meadow Drive. New permit activity has been heaviest in this area.
3. Annexation of Areas "A," "B," and "C" as identified by the map on page 31, will most likely occur, thereby adding those existing land uses to the city.

SCENARIO TWO: 15 MILLION TONS ANNUALLY

For the purposes of this study, a 10-year period (through 1992) is assumed for the 15 million ton scenario. It may take this long for the full extent of development, and subsequently the associated impacts, to be felt.

As mentioned throughout Chapter V and again in Chapter VII, the amount of trains necessary to transport 15 million tons of coal through Morehead City would have unacceptable adverse impacts on the Town. These would be primarily in the areas of noise levels, dust, air and water quality, vibration, transportation (accidents, inconvenience, impedence of emergency services), commercial activity and property values.

The anticipated land use implications of this increased rail traffic and its associated impacts would include, but not be limited to, the following:

1. An increase in the amount of land devoted to industrial activity, particularly the area north of Highway 70 West extending from the corporate limits to the extraterritorial boundary, and perhaps beyond. This area is prime for industrial expansion because it is already easily accessible by highway and rail. Industrial activity will also begin to extend into the CBD from the adjacent port facilities. This is highly inconsistent with the Town's ongoing downtown revitalization efforts.
2. As a result of encroaching industrial activity, the "CD" as it is known today, will probably move further westward on Arendell Street as commercial establishments are gradually displaced. This too, is highly inconsistent with the Town's downtown revitalization efforts.

3. Further, noise level which would result from the movement of 15 million tons would be totally unacceptable for residential use. As commercial activity increases, more residential units along Arendell Street will probably be displaced.
4. Increasing populations will require additional housing units, preferably near places of employment. Therefore, residential activity will probably increase north of the industrial areas described above, and around existing residential developments.
5. As population increases, community facilities will need to be expanded to service them. Hence, institutional and recreational uses will increase, proportionate to population increases.
6. Increasing commercial activity, particularly in the CBD, will probably result in extending the CBD another block or so north and south of Arendell Street as well as extending it linearly. This will minimize the amount of additional CBD commercial frontage on Arendell Street.
7. However, as adverse impacts of increased train traffic become greater, the Town may wish to rezone much of the corridor to office/professional type uses as residents move out in order to protect future residential uses from excessive noise. Rezoning will not protect residential households that choose to remain in the impacted area.
8. More Commercial-Marina (CMD) uses will probably be generated around the Port as a result of export activity.

It must be recognized that if alternate modes of transporting coal into the Port which bypass Morehead City are implemented, the impacts of 15 million tons of coal will be altered. For example, if a bypass rail line is constructed north of the Town, industrial activity would probably gravitate that way also. This would certainly relieve congestion along the corridor and would change the complexion of land use in the Town. However, it must be realized that the potential problems would not disappear, they would merely be displaced.

The future land use plan provided herein is not intended to be a definitive description of what must take place or what should take place, but rather a guide which, based on sound planning principles, describes what can reasonably be anticipated should the 15 million ton scenario become reality. Since these expected trends are clearly incompatible with the desires of local residents or officials, this guide should be used to assist local decision-makers in preparing for or fighting against the possibility of 15 million tons of coal being shipped through Morehead City each year.

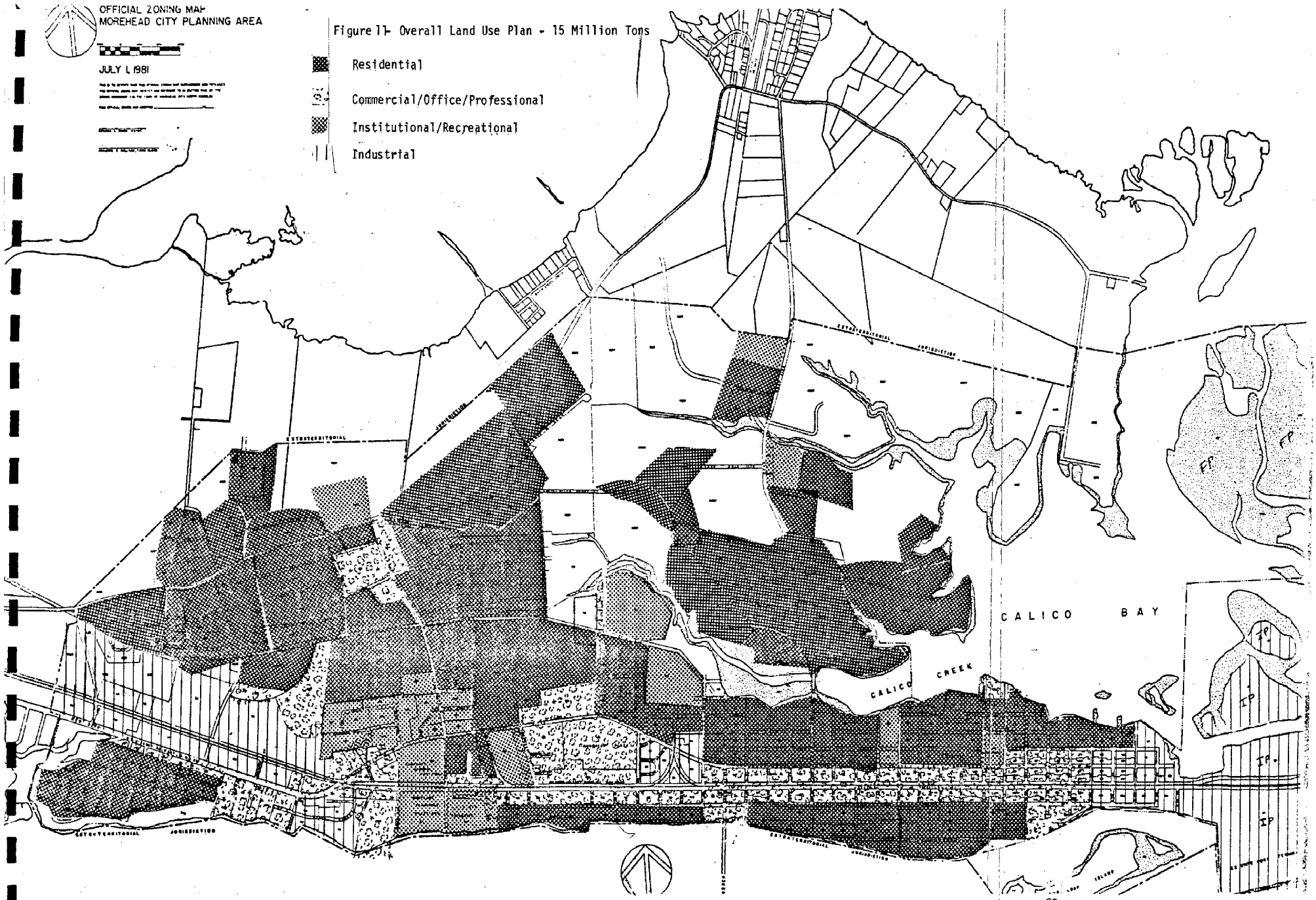


Figure 11- Overall Land Use Plan - 15 Million Tons

CHAPTER VII: MOREHEAD TRANSPORTATION CORRIDOR ANALYSIS

CHAPTER VII: MOREHEAD TRANSPORTATION CORRIDOR ANALYSIS

At present, the only existing rail access to the Port of Morehead City, as well as to proposed export terminal facilities on Radio Island, is via the New Bern-Morehead City Corridor of Southern Railway. As a matter of fact, three miles of this track bisect not only residential neighborhoods in Morehead City, but the town's Downtown Commercial District as well. Many of these structures throughout town are extremely close to the tracks and are therefore susceptible to adverse impacts of rail traffic through the town.

For the purposes of this report, the study area, hereinafter referred to as "the corridor," will be limited to the area directly impacted by train traffic through Morehead City. This area is comprised of all properties with frontage on Arendell Street, on either side of the railroad tracks for the entire length of Morehead City. This area, approximately three miles in length, extends from the intersection of Arendell Street and Highway 70A, easterly to the Port of Morehead City.

It is the purpose of this study to (1) describe existing conditions within the rail corridor, (2) briefly identify adverse environmental and economic impacts imposed on existing land uses by increased rail traffic and (3) recommend changes in the land use patterns of the corridor which are reflective of expected impacts of increased rail traffic.

It is important to note that though this study deals directly with only those properties fronting the tracks, some impacts -- namely noise and vibration --

affect properties beyond these boundaries and may deserve further attention. These impacts will be discussed in greater detail in the Environmental Impact Study currently underway by SSA/WE.

EXISTING CONDITIONS

Vehicular and Pedestrian Traffic Loads

As mentioned previously, the New Bern-Morehead City corridor of Southern Railway runs through the median of Arendell Street for the entire length of the study area. There are no bridges or tunnels at any of the intersections along the corridor. There are 38 streets which intersect Arendell Street throughout the corridor necessitating through or turning movements. All crossings are at-grade, meaning that all vehicles and pedestrians wishing either to cross Arendell Street or turn onto or off of it must cross the railroad tracks.

There are six traffic lights along Arendell. They are located at 7th, 8th, 9th, 10th, 24th and 30th Streets. However, in most cases, these lights do not correspond with major traffic generators as identified by local officials. Congested intersections without signalization have been identified by city officials as 4th, 5th, 6th, 20th, and 28th Streets, 34th Street, 35 Street, and at intersection of Arendell Street (U.S. Highway 70 West) and Bridges Street extension.

Table 12. MAJOR TRAFFIC GENERATORS

Generator	Location
N.C. State Port Authority	Eastern boundary of the study area
Theater	14th Street
Commercial establishments	Between 17th and 18th Streets, North of Arendell and north side of 3400 block of Arendell Street
Bogue Banks	South on 24th Street
Morehead Plaza	28th Street, 30th Street
Schools	North via 28th Street, Glenn Drive
Post Office	North on 35th Street
Carteret General Hospital	West of 35th Street (north of Arendell)
Carteret Technical College	West of 35th Street (south of Arendell)
Offices	Bonner Avenue, 35th Street, Highway 70A

Of these major generators, only the 24th Street intersection leading to the bridge to Bogue Banks has a traffic light. Vehicular and pedestrian traffic loads crossing Arendell are heaviest at these intersections. (See map on page 73.)

The following average daily trip (ADT) estimates were calculated for the specified areas along Arendell Street, consistent with the map on page 74.

Table 13. AVERAGE DAILY TRIPS

Approximate Location on Arendell Street	ADT (1981 figures)
4th Street	13,800
Southbound on 24th Street	15,090
Just west of 24th Street	19,900
Bruton Street	19,800
Lockart Road	27,000

Figure 12 Major Traffic Generators

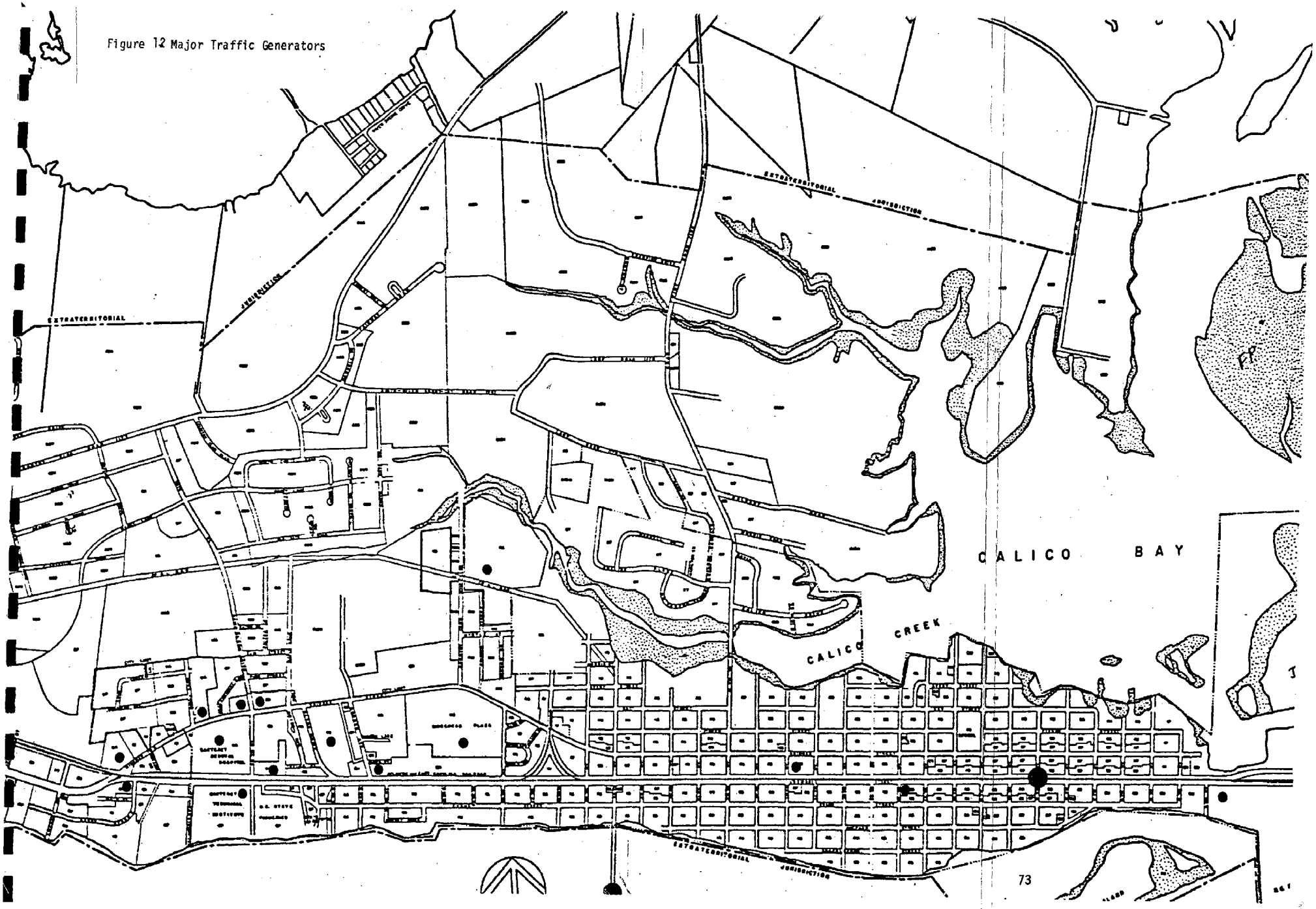
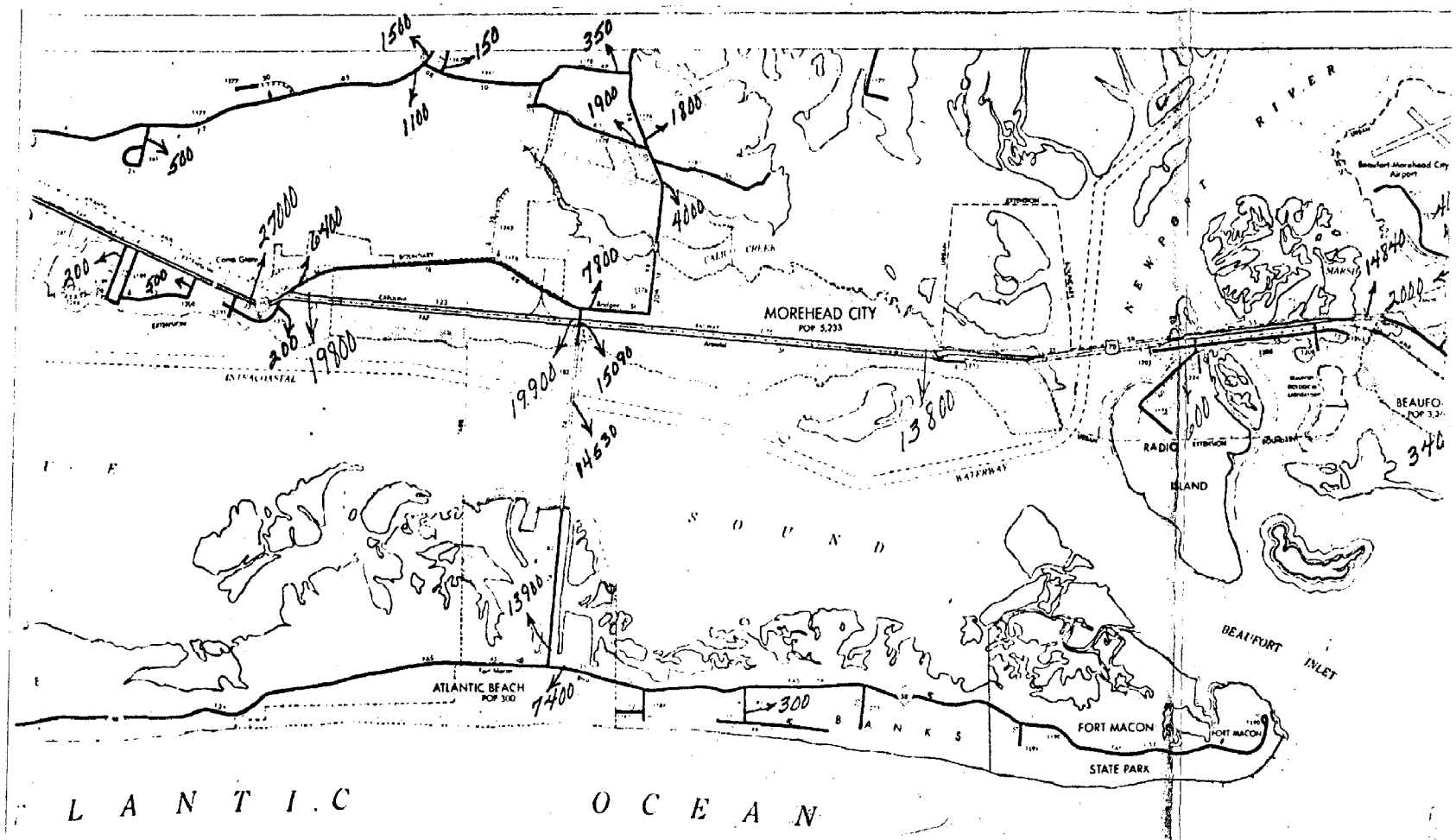


Figure 13- Average Daily Trips



Carteret County's many unique natural assets are a major attraction for visitors. The seasonal population in the county has become more significant in recent years with Bogue Banks being the focal point for seasonal residents. According to the 1980 CAMA Land Use Plan, the year-round population of 2,000 on Bogue Banks swells to 25,000 during the summer months. This has significant impacts on transportation along the rail corridor in Morehead because at present, there is only one bridge connecting the barrier island with Morehead City.

ADTs for 1981 calculated at the south end of the Atlantic Beach Bridge by the N.C. Statewide Planning Survey range from a low of 9,153 in January to a high of 22,871 in July.

The traffic problems that adversely impact Morehead City are caused primarily by summer weekend traffic, which is related to the number of visitors to east Bogue Banks. The extent to which this traffic will increase in the future depends on the growth in population of east Bogue Banks. According to the Draft EIS for the proposed new bridge across Bogue Sound, summer population estimates and projections for east Bogue Banks alone are as follows:

	1980	1995	2000
Atlantic Beach	7,850	8,300	13,200
Other*	13,000	16,800	21,000

*These areas include Indian Beach/Salter Path, Pine Knoll Shores, and the land between Fort Macon State Park and Indian Beach/Salter Path which is outside the planning limits of the three cities mentioned.

Existing vehicular and pedestrian volume problems are aggravated by train traffic through town. As a train passes through Morehead City, movement at each intersection is delayed for the time it takes for the entire train to cross.

Currently, only one train per day travels through Morehead City. As per Sec. 19-26 of the Town Ordinance, maximum speed limits for all trains within the corporate limits are imposed as follows:

Twenty (20) miles per hour from 24th Street westwardly to the western municipal limits; and

Fifteen (15) miles per hour from 24th Street eastwardly to the eastern municipal limits.

These relatively slow-moving trains are considered no more than a nuisance right now. Having come through the City at this frequency for many years most residents are accustomed to the present level of train traffic.

To date no coal trains have travelled through the town since Alla-Ohio was awarded the three-year lease contract in October 1980. However, the additional train traffic that would result from increased coal export activities would certainly have a much greater impact on vehicular and pedestrian traffic.

Other studies are presently being conducted by Stottler Stagg and Associates/ Wang Engineering Company which address the traffic problem in more detail.

Land Uses

In terms of absolute numbers, residential properties are the land uses most frequently impacted by trains along the corridor. Based on aerial photographs taken by the North Carolina Department of Transportation, Division of Highways, there are approximately 154 residences with frontage on Arendell Street between 4th Street on the east and Highway 70A on the west. These are all directly impacted by rail movement along the corridor.

The town's Downtown Commercial District (CD) is bisected by Arendell Street, and therefore, by the railroad tracks. In the area bounded by 5th Street on the east and 18th Street on the west, 20 city blocks of commercial, professional and/or service establishments front Arendell Street. Most of these commercial buildings on Arendell Street house more than one establishment and entail more than one floor.

Many of the commercial and residential buildings on Arendell Street are quite close to the train tracks. A random survey of 25 properties from the City Hall at 706 Arendell Street westward to 34th conducted by the Town indicates that the average distance from the rail centerline to the front door of the property is 84.36 feet. More importantly, almost all of these buildings were less than 75 feet from the rail centerline. This fact has significant implications with reference to impacts from rail transportation which will be discussed in the sections on the impacts of noise and vibration which follow.

Other rail impacted establishments in the study area include Morehead Plaza along with several smaller commercial establishments located westerly on Arendell Street; industrial uses located between 25th and 28th Streets; the Fire Station near Bonner Avenue; the school at Glenn Drive; Carteret Technical College; and perhaps most important, Carteret General Hospital.

At last count, city officials estimated that there were 11 unoccupied buildings facing Arendell Street in the downtown CBD between 4th and 12th Streets. Further, aerial photographs indicate 6 parcels of various sizes which are presently undeveloped. These vacant buildings and undeveloped tracts will be of primary concern when addressing the regulation of future land uses.

TOWN ORDINANCES AND POLICIES REGARDING RAILROADS

Ordinance No. 1981-9 regarding the operation of railroad trains within the municipal limits of Morehead City, was adopted on June 9, 1981. This ordinance was necessitated by several factors: (1) rail traffic has increased recently due to the addition of coal trains and other tonnage; (2) this increased traffic through town makes necessary the imposition of appropriate speed limits in order to protect the public safety; and (3) the tracks divide the Town of Morehead City and cross numerous road intersections in town, blocking vehicular and pedestrian traffic when a train is on the railroad, increasing the possibility of making fire protection, police protection, and ambulance service difficult or impossible should trains stand on these intersections for extended periods of time.

Pursuant to the ordinance, the following provisions are set forth:

1. No train shall sound its whistle or horn while within the corporate limits of the Town of Morehead City except at the Twenty-fourth Street intersection and when a train is moving westwardly approaching or crossing the Fourth Street intersection. While moving along the track within the municipal limits of the Town of Morehead City, all trains shall burn their headlights and shall ring their bells.
2. No train shall be left standing so as to block the Fourth Street intersection for more than ten (10) consecutive minutes,
3. From 7:00 A.M. through 6:00 P.M., no standing train shall block the intersection of Seventh, Eighth, Ninth, Tenth, and Eleventh Streets for more than ten (10) consecutive minutes.
4. Maximum speed limits for all trains within the corporate limits of the Town of Morehead City are imposed as follows:
    a. Twenty (20) miles per hour from Twenty-Fourth Street westwardly to the western municipal limits.
    b. Fifteen (15) miles per hour from Twenty-Fourth Street eastwardly to the eastern municipal limits.
5. In the event that any train should have a mechanical failure or other problem preventing its moving, the time limit for blocking of intersections shall be extended to not more than thirty (30) minutes.

A thirty minute time limit may not be realistic in light of the complexity of many mechanical failures. This section of the ordinance should be re-evaluated.

PROJECTED GENERAL EFFECTS OF COAL TRANSPORTATION ON CORRIDOR

Noise

Noise resulting from train movement is a complex mixture of sounds generated by many different pieces of equipment and operations. The major sources of railroad-generated noise are listed as follows in order of descending noise levels. For diesel-electric trains: horns, car coupling, diesel exhaust muffler, diesel engine and surrounding casing, cooling fans, wheel/rail interaction, electrical generators, empty cars with loose chains or vibrating parts, and bells/whistles. For electric locomotives, major sources of noise are: horn, cooling blowers, wheel/rail interaction and electric traction motors.

Braking the locomotive from high speeds produces the most noise because of the brake-cooling blowers. Other than these periods of high-speed braking, the electric locomotive is considerably quieter than the diesel-electric locomotive. Southern Railway, the rail line which currently operates through Morehead City uses diesel-electric locomotives.

Trains generally cause noise levels of 80 to 100 decibels average sound level (dBA) at 50 feet from the source. As a relative source of comparison, the dBA levels of some familiar sounds are listed below:

Table 13 COMPARATIVE NOISE LEVELS

OUTDOOR	INDOOR	NOISE LEVEL db(A)
Threshold of Pain	Threshold of Pain	140
Jet Take-off, 200 ft.		120
Train Warning Whistle		120
	Rock Band	110
Maximum Train, 50 ft.		108
Jet Fly-over, 1,000 ft.		105
Maximum Train, 100 ft.		102
Lawn Mower, 3 ft.		95
Average Train, 50 ft.		86
	Garbage Disposal, 3 ft.	80
Average Train, 100 ft.	Shouting, 3 ft.	80
	Vacuum Cleaner, 10 ft.	70
Commercial Area	Normal Speech, 3 ft.	65
	Large Business Office	55
Threshold of Hearing	Threshold of Hearing	5

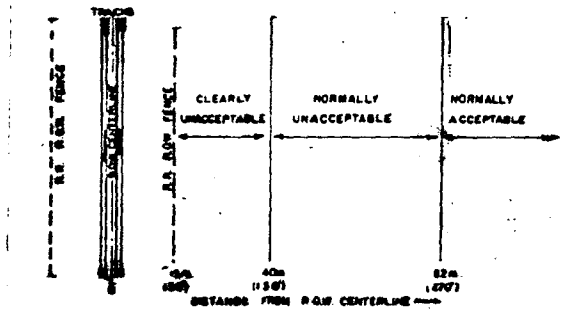
SOURCE: Adapted from Fundamentals and Abatement of Highway Traffic Noise, U.S. Department of Transportation, 1973.

The noise generated by rail operations may produce significant impacts on nearby residential property as shall be discussed in the chapter on property values. These impacts are dependent upon a number of factors, such as the number of operations per day or night, proximity of residential properties to the railway, quality of the track, number of railcars in the train, and train speed.

A recent study of the impact of railroad noise on residential land planning* suggests that, according to the Department of Housing and Urban Development (HUD) acceptability criteria (Circular No. 1390.2), property lying further than 270 feet from the railroad right-of-way centerline was found to be normally acceptable for residential use. Residential structures located there do not necessarily require special noise abatement construction, but it is advisable to follow certain acoustical principles.

The HUD limitation for normally unacceptable regions is that the noise not be damaging to human hearing, that is 90 dBA. The figure below shows that 90 dBA can occur up to 270 feet from the right-of-way centerline. New residential construction should be avoided here, if at all possible.

Figure 14: Impact of Noise on Residential Property



* Campanella, A.J. "Railroad Noise Impact on Residential Land Planning," Community Noise ASTM STP 692, R.J. Peppin and C.W. Rodman, Eds. American Society for Testing and Materials, 1979, pp. 276-87.

All of the residential property fronting Arendell Street and most of the occupied property fronting Bridges and Evans Streets as well as side streets in the area, is located less than 270 feet from the right-of-way centerline and is therefore in an area deemed "normally unacceptable" by HUD's criteria. This includes approximately 164 residential structures facing Arendell Street. The map on page 84 shows generally how property adjacent to Arendell Street is impacted by railroad noise.

Noise is a serious public health problem. Though hearing loss is the most easily quantifiable noise hazard, it may not be the most serious threat to health. Mounting evidence from recent studies, both in this country and abroad, suggests that there are other, equally, if not more serious hazards -- high blood pressure and other heart-related disorders, circulatory problems, ulcers, asthma, headaches, fatigue, colitis, among others. These health hazards must be recognized and accounted for when considering potential future land uses on vacant and existing property adjacent to Arendell Street.

Coal Dust/Air Quality

Although coal dust from the transportation of coal by rail was once a problem, today most coal shippers spray their coal with either water or oil as it is loaded if they consider its surface moisture insufficient to prevent fugitive dust from escaping. A recent study concluded that "... coal dust pollution from modern unit trains - at least in the west - is not a significant environmental problem."

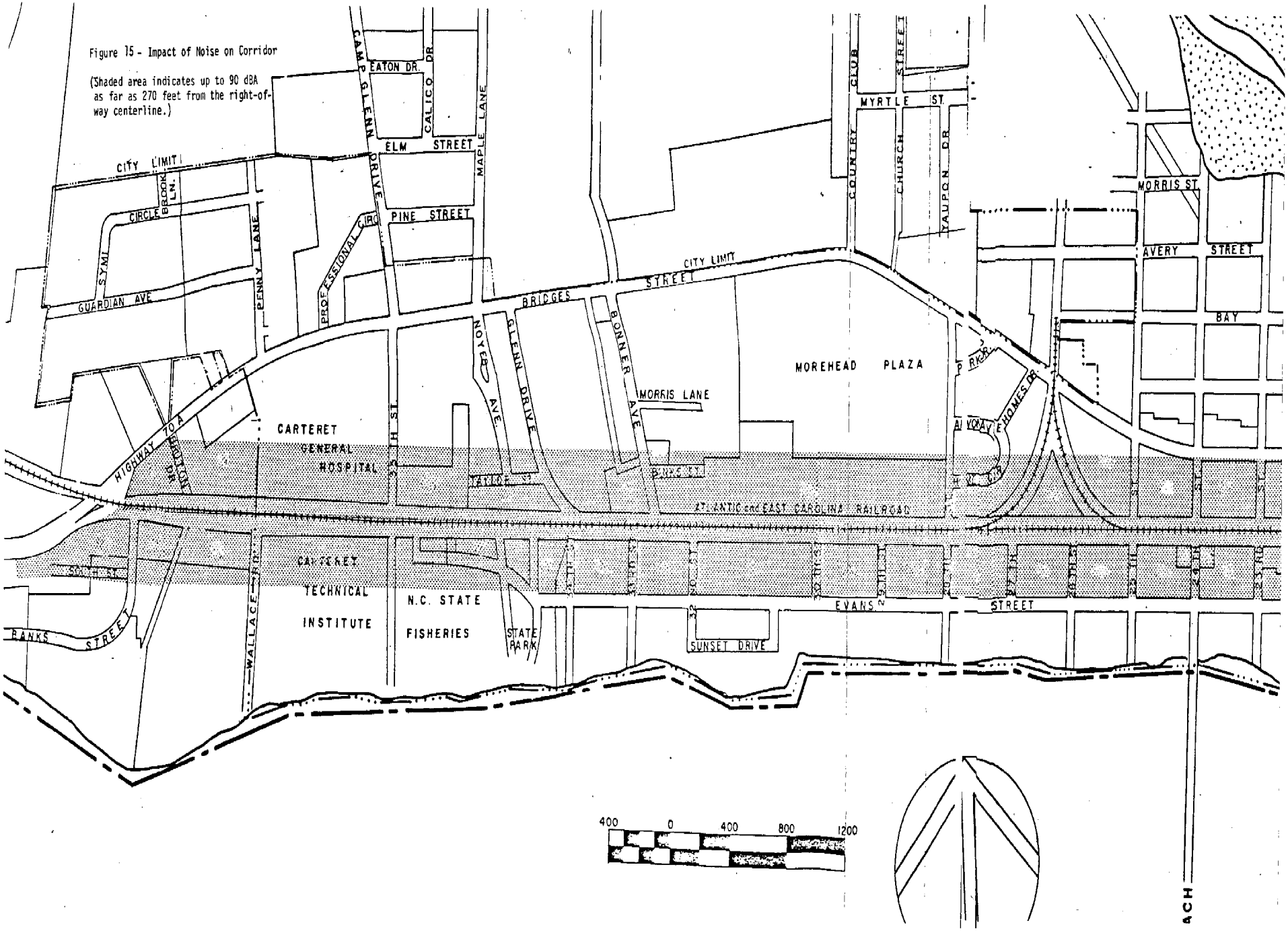
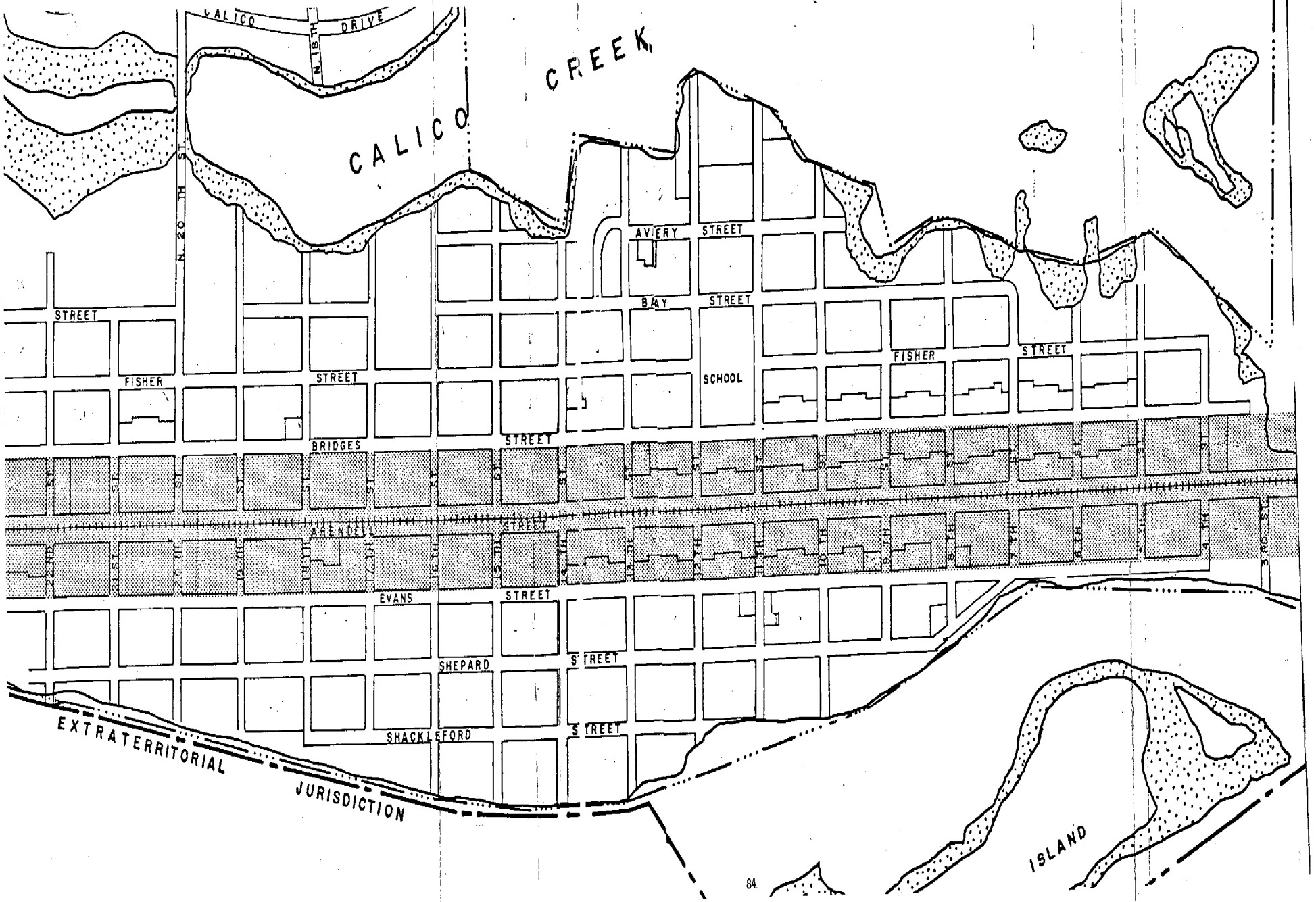


Figure 15 - Impact of Noise on Corridor

(Shaded area indicates up to 90 dBA as far as 270 feet from the right-of-way centerline.)


CALICO CREEK
CALICO DRIVE
N. 18 TH ST.
N. 20 TH ST.
AVERY STREET
BAY STREET
SCHOOL
FISHER STREET
BRIDGES STREET
ARENDEL STREET
EVANS STREET
SHEPARD STREET
SHACKLEFORD STREET
EXTRATERRITORIAL JURISDICTION
ISLAND
22ND ST.
21ST ST.
20TH ST.
19TH ST.
18TH ST.
17TH ST.
16TH ST.
15TH ST.
14TH ST.
13TH ST.
12TH ST.
11TH ST.
10TH ST.
9TH ST.
8TH ST.
7TH ST.
6TH ST.
5TH ST.
3RD ST.

The problem with coal dust is caused by fugitive particulate emissions generated by coal transport and storage operations. These particulates contain small concentrations of lead, mercury, beryllium, and trace metals. Uncontrolled airborne fugitive particles may leave the terminal and can potentially cause water quality problems and nuisance problems such as soiling. Small quantities of gaseous pollutants are emitted from coal storage piles and diesel fuel combustion from trains, on-site vehicles and ships. Visible emissions may result from coal handling operations.

Along with the potential direct air quality effects that may be associated with the coal export facilities themselves, secondary air quality impacts may occur. For example, more frequent use of certain railroad lines which extend through downtown areas or near transportation corridors may create traffic congestion or aggravate existing congestion problems which would lead to increased motor vehicle emissions. Increased emissions of carbon monoxide might create air pollution problems where the railroad line and highway intersect, while increased emissions of hydrocarbons or nitrogen oxides would contribute to areawide pollutant concentrations.

The extent to which coal export facilities indirectly impact air quality depends upon the traffic patterns, roadway and railway configurations, traffic volumes and peak volume periods, and frequency and duration of railway movements. Although it is not likely that train movements alone will cause a significant air pollution problem, train movements interfere with normal traffic patterns creating a vehicular emission problem.

Vibration

Vibration is an often mentioned, but poorly documented environmental impact of coal train traffic. The effects depend upon train speed, population density, soil conditions, the structural conditions of surrounding buildings, and land use patterns.

Vibration refers to ground transmitted oscillations. These perceptible earth movements run generally on the order of a few thousandths of an inch. The following chart shows approximate vibration readings for trains moving rapidly.

Table 15. VIBRATION READINGS

Distance	Vibration
10 ft from source	2 thousandths of an inch
35 ft from source	1 thousandths of an inch
75 ft from source	0.6 thousandths of an inch

(Source: Planning Advisory Service, Industrial Performance Standards, Report No. 272, Sept 1971)

Various structures along rail lines used by coal unit trains will be susceptible to increased vibration compared to present conditions with little or no coal train traffic. In addition to underlying lines, residences, stores, public facilities, industrial plants, and warehouses lying close

(within 100 yards) to rail lines will be affected. In many small towns, such as Morehead City, numerous structures are immediately adjacent to the railroad right-of-way. As stated previously, many residential properties along the Morehead Corridor are situated less than 75 feet from the right-of-way centerline, definitely making them susceptible to the effects of vibration.

TRANSPORTATION

Given a 3 million ton per year scenario, transportation impacts on the corridor will be minimal. As mentioned previously, the one train per day which would be required to move 3 million tons would not pose any significant incremental problem. The average daily train delay has been estimated at only 2.7 minutes per train. This volume of train traffice is, however, considered a nuisance or an annoyance. That perception would undoubtedly continue. Probably more so than any other factor, residents' attitudes towards the movement of coal, rather than the trains themselves, will determine the level of citizen complaints at the 3 million ton per year level.

On the other hand, if 15 million tons are to be transported, the situation will change drastically. It has been estimated that as many as 10 trains (5 coal trains going to the Port and 5 empty trains leaving it) will be required to move 15 million tons per day. In both cases, the following assumptions have been made:

1. average length of a coal car will be 53 feet;
2. 100 tons of coal will be carried per car; and
3. each coal train will consist of 80 cars.

Given 15 million tons annually, the daily time delay will still be 2.7 minutes per

train. However, with 10 trains per day, the total daily time delay would average 27 minutes. As the amount of time delay increases, citizen complaints will certainly increase also. (See chart on page 89 .)

Increased coal train traffic will impact the corridor to varying degrees in a number of ways. These include, but are not limited to, increasing:

1. delays for emergency vehicles;
2. accidents at grade crossings;
3. interference with the conduct of daily business and commercial activity;
4. air emission problems; and
5. strain on underground utilities. (Note that on August 26, 1981, a City water main ruptured in the vicinity of the Port elevated water tank. The rupture was reportedly caused by railroad coal traffic over the water main. The new section of railroad tracks that was installed to accommodate coal traffic was installed without adequate ground cover over the water main).

As mentioned previously, should an alternative method for transporting 15 million tons of coal <u>around</u> Morehead City be used, impacts will not be as severe along the corridor. Of course impacts will vary with the alternative selected. (See map on page 68 .) In that case, the impacts of the 3 million to scenario would be more appropriate.

Impact on Commercial Land Uses

As with residential land uses, commercial activity would probably be minimally impacted by train traffic through Morehead City if only 3 million tons of

Table 16. CALCULATION OF AVERAGE TRAFFIC DELAY BY COAL TRAINS IN THE TOWN OF MOREHEAD CITY

Assumption: Average length of coal car: 53 feet
100 tons of coal will be carried per car
Each coal train consists of 80 cars

Train Speed Mile/ Hour*	3 Million Tons of Coal per Year			10 Million Tons of Coal per Year			15 Million Tons of Coal per Year		
	No. of trains per day both ways**	Daily time delay per train	Total daily time delay	No. of trains per day both ways**	Daily time delay per train	Total daily time delay	No. of trains per day both ways**	Daily time delay per train	Total daily time delay
5	2	10 min.	20 min.	7	10 min.	70 min.	10	10 min.	100 min.
10	2	5 min.	10 min.	7	5 min.	35 min.	10	5 min.	50 min.
15	2	3 min.	6 min.	7	3 min.	21 min.	10	3 min.	30 min.
20	2	2.5 min.	5 min.	7	2.5 min.	17.5 min.	10	2.5 min.	25 min.

*The Town Ordinance Sec. 19-126 indicates that maximum speed limits for all trains within the corporate limits of the town are imposed as:

Twenty (20) miles per hour from Twenty-Fourth Street westwardly to the western municipal limits
Fifteen (15) miles per hour from Twnety-Fourth Street eastwardly to the eastern municipal limits

**The coal train westwardly and empty train eastwardly are covered.

coal per year were to be transported. Again, this is due primarily to the fact that most residents are accustomed to similar traffic volumes already. At 3 million tons, train traffic would probably not be much more than a nuisance or an annoyance.

If the volume of coal transported increases to 15 million tons per year, this situation would surely change. Much of the business and shopping done in the Downtown Commercial District is done by people who travel there by car. Even now, there appears to be growing competition from neighborhood shopping centers moving westward of the CBD. These same shopping centers are less likely to be inconvenienced by slower moving trains. More frequent movement of trains moving slowly through the Downtown Commercial District would heighten this problem of loss of business from the CBD. As shoppers find it more and more inconvenient to drive around slow moving trains or wait for them to pass, they may be more likely to shop in areas other than downtown.

In addition to vehicular circulation problems, there are pedestrian problems as well. One of the attractive features of downtown shopping and business areas has always been the ability to reach a wide variety of establishments quickly and conveniently by foot. If there is a significant increase in train traffic, business activity could be negatively affected because frequent trains would disrupt the flow of pedestrian traffic which must move from one side of Arendell Street to another.

The interruption of conversation and/or concentration which would result

from increased train noise would also serve as a disincentive to conduct business in the Central Business District.

Impact on Property Values

The impact of train traffic on residential property values is a difficult one to quantify. It is widely accepted that noise associated with trains is an annoyance and can cause or contribute to a number of physical and psychological disorders. However, its empirical effect on residential property assessments in dollars is almost impossible to determine.

Given a 3 million ton per year scenario, the amount of coal train traffic and its impact on housing values should be minimal. As one area appraiser cited, trains have been passing through New Bern and Morehead at the rate of 1 or 2 per day for "as long as anyone can remember." Because these trains have become an habitual part of the Morehead community, their negative effect on property values has neutralized over time. Any decline in housing values occurring recently can probably be more accurately attributed to declining market conditions caused by rapidly rising construction costs and interest rates.

Should the transportation of coal through Morehead rise much above the 3 million ton per year level, however, the impact on property values may be substantially different. As the volume of coal train traffic increases, increased noise and vibration could begin to have observable negative effects on residential property values. A decline in assessed value of

residential properties would result in a decrease in the city's overall tax base. This would result in lower tax revenues.

On the other hand, if the 15 million ton scenario becomes a reality, the upgrading of much of the impacted residential property to more profitable uses (namely commercial, office/professional or industrial) could serve not only to preserve the city's present tax yield, but may also act as a positive tax multiplier. Therefore, how the city handles land uses along the impacted corridor will affect the tax base.

It is not being suggested that the Town rezone all of the impacted property at present. But rather that should the volume of trains increase significantly making residential uses totally incompatible, rezoning may then become necessary.

CHAPTER VIII: PROJECTED CORRIDOR LAND USE

CHAPTER VIII: PROJECTED CORRIDOR LAND USE

SCENARIO ONE: 3 MILLION TONS ANNUALLY

As indicated throughout the study, the shipment of 3 million tons annually through Morehead would only minimally impact land uses along the corridor. It is assumed that existing uses took the railroad into consideration when they first decided to move into the corridor. Therefore, if the Town can limit train traffic to 3 million tons annually, existing land uses would be acceptable, particularly in light of the fact that most of the land throughout the corridor has already been developed. The rezoning of some properties, which are or may become vacant throughout the corridor from residential to office/commercial and/or professional uses would be appropriate. However, "spot zoning" should be avoided.

In the Downtown Commercial District, the city should continue to strongly encourage utilization of existing structures for commercial use, consistent with their ongoing revitalization efforts.

Since most of the corridor has already been developed, existing land uses provide an accurate assessment of the 3 million ton scenario. For that reason, a separate land use map for 3 million tons has not been prepared.

SCENARIO TWO: 15 MILLION TONS

As with the overall Land Use Plan, a 10 year design period (through 1992) is assumed for this scenario. Adverse impacts of the transport of 15 million tons through the corridor would be most severe in the areas of noise and vibration.

The map on page 84 , indicates the extent to which residential and commercial properties are impacted by noise. Approximately 154 residential properties have direct frontage on Arendell Street.

Though noise is not a significant problem at present, the number of trains required to transport 15 million tons of coal along the corridor would generate noise levels that would be totally unacceptable for residential use. For that reason, land uses along the corridor would gradually change from residential to office/ professional uses as residents begin to move away. (See the map on page 96.) The extent to which commercial, office and professional uses extend westward along Arendell will depend primarily upon the ability of the local market to absorb these activities. Rezoning these properties to more profitable uses will positively impact the Town by increasing local tax yields.

However, an addition to the general trends described in Chapter VI, the movement of 15 million tons can be expected to have certain disbenefits:

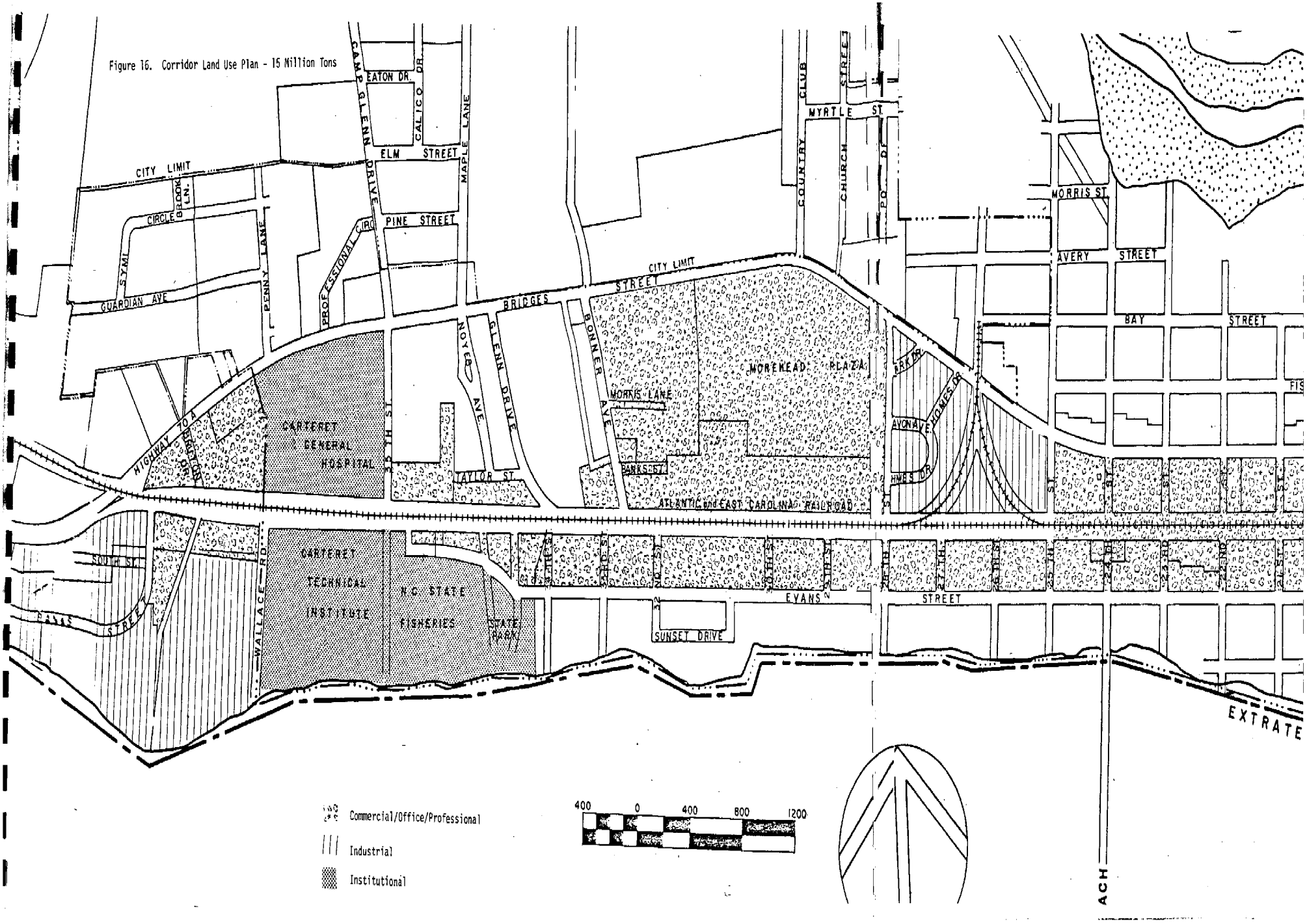
1. a long strip of commercial development is likely to develop as associated industrial activity around the port pushes the Downtown Commercial District westwardly along Arendell Street;
2. more vacant properties will probably crop up along the corridor as increased noise causes more and more residents to leave their homes. Properties closest to the CD will probably be converted first into commercial or office/professional uses. Until enough new or expanded business activity occupy abandoned structures, they will remain vacant. As people move out, however, the Town will need

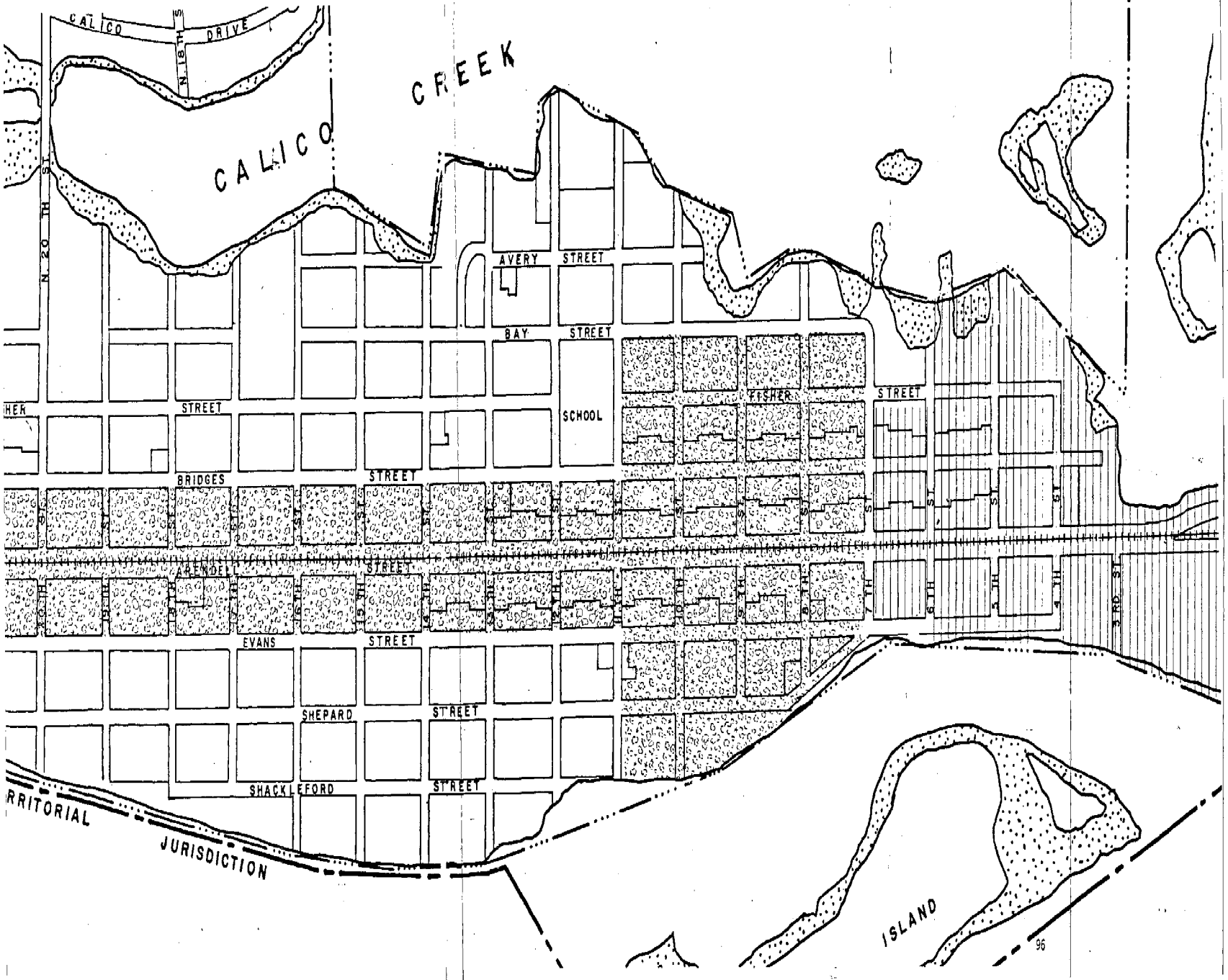
to rezone the property for higher uses, in order to avoid continued residential use. Again, it must be re-emphasized that this is not a suggested solution, but rather what would be most appropriate <u>if</u> 15 million tons per year were to be permitted;

3. The area closest to the SPA would either become very light, small scale industrial, or business catering to the type of industrial activity at the SPA Terminal or on Radio Island. The compatibility of these businesses with existing Downtown Commercial District business is questionable. Should the use in fact prove to be incompatible, the encroachment of these new business on the Downtown Commercial District would be inconsistent with the Town's downtown revitalization efforts.

If the Town of Morehead City wants Arendell Street to retain its residential character, the 15 million ton scenario must not be permitted.

Figure 16. Corridor Land Use Plan - 15 Million Tons




CALICO DRIVE
N. 18TH ST.
CALICO CREEK
N. 20TH ST.
AVERY STREET
BAY STREET
SCHOOL
FISHER STREET
STREET
BRIDGES STREET
ARUNDEL STREET
EVANS STREET
SHEPARD STREET
SHACKLEFORD STREET
TERRITORIAL JURISDICTION
ISLAND
96

PHASE II

CHAPTER IX: ZONING ORDINANCE REVIEW

CHAPTER IX: ZONING ORDINANCE REVIEW

PROCEDURE FOR REZONING

Pursuant to Sections 14 through 14-8 of the Zoning Ordinance for the Town of Morehead City, the following procedure for amending the ordinance has been officially adopted.

A petition for zoning amendment may be initiated by the Town Board Commissioners, the Planning Board, any department or agency of the Town, or the owner of any property within the zoning jurisdiction of the Town of Morehead City, North Carolina. Filing fee is $25. Applicant must also be charged for all postage for notification of adjacent property oweners and any additional cost for advertising.

The application must be filed with the Administrator of this ordinance at least fifteen (15) days prior to the date on which it is to be introduced to the Planning Board. The Administrator of this ordinance shall be responsible for presenting the application to the Planning Board. Each application is to be signed, be in duplicate, and shall contain at least the following information:

1. the applicant's name in full, applicant's address, and description of the property to be rezoned;
2. applicant's interest in the property and the type of rezoning requested;
3. if the proposed change would require a change in the zoning map, an accurate diagram of the property proposed for rezoning showing:
    a. all property lines with dimensions; north arrow;
    b. adjoining streets with rights-of-way and paving widths;

c. the location of all structures;

d. the use of all land;

e. zoning classification of all abutting zoning districts;

f. comprehensive site plan if the application is for commercial, industrial, or multi-family development; and

4. a statement regarding the changing conditions as opposed to those proposed and set forth in the Morehead City Land Development Plan, in the planning area or in the town, generally, that make the proposed amendment reasonably necessary to the promotion of the public health, safety, and general welfare.

(Refer to Appendix A for copy of the actual Application For Change of Zoning in the Morehead City Planning Area.)

Unless initiated by the Planning Board, the Board of Commissioners submits all proposed amendments to the zoning ordinance to the Planning Board for review and recommendation. The Planning Board has forty-five (45) days within which to submit its report. If the Planning Board fails to submit a report within the above period, it is assumed to have approved the proposed amendment.

A public hearing is then held by the Board of Commissioners before the adoption of any proposed amendment to the zoning ordinance. A notice of the public hearing must be given once a week for two (2) successive calendar weeks in a local newspaper in the Town of Morehead City. The first notice must be not less than fifteen (15) days prior to the date established for the public hearing.

Should the Board of Commissioners deny an application for rezoning, the Board will not thereafter accept any other application for the same change of zoning affecting the same property, or any portion thereof, until the expiration of six (6) months from the date of such previous denial.

If the application is approved, the rezoning becomes effective immediately and is to be so indicated on the official map within seven (7) days of the Board hearing.

In the case of a protest against an amendment, supplement, change, modification, or repeal signed by the owners of twenty (20) percent or more of the area of the lots included in such proposed change, or of those immediately adjacent, either in the rear or on either side, extending one hundred (100) feet therefrom, or of those directly opposite extending one hundred (100) feet from the street frontage of such opposite lots, the amendment will not become effective except by favorable vote of three-fourths (3/4) of all members of the Board of Commissioners. (N.C. G.S. 160A-385.)

Any petition for an amendment to this ordinance may be withdrawn at any time at the discretion of the person initiating such a request, upon written notice to the Town Administrator.

Morehead's rezoning process is a thorough one. In order to further ensure its effective enforcement, the following recommendations are presented:

1. that an addition be made to Sec. 14-3 which officially requires that a list must be included which contains the names of all residents

and/or property owners within a 800 foot radius of the subject property;

2. that Chapter Five, Section 5-3 of the new zoning ordinance be strictly enforced and implemented by the Town. One Town official should be specifically assigned the task of making the changes in ink on the official map, to be initialled by him or herself and the Mayor. Further, each year the map should be officially amended or updated.

   Also, the same procedure should be formally adopted regarding the amendment of the town's official zoning ordinance. Though these procedures are generally practiced, there should be a formal statement in the document itself.

LOCATION OF EXISTING IU AND IP DISTRICTS

According to the most recent zoning map provided by town officials, there are presently five IU districts within the town's corporate limits. Three are located east of Morehead Plaza in the area bounded by Bay Street on the north, 25th Street on the east, Arendell Street on the south, and the railroad tracks on the west. The remaining two are located between 15th and 17th Street bounded by Fisher Street on the north and Bridges Street on the south. All of these areas are relatively small.

Also, there are two small areas zoned IU in Annex Area "B", just north of the three areas described above. Annex Area "C" contains five IU districts. Four front Highway 70-A at or near the intersection of Bruton Street. The other is located at the southwestern intersection of South and Banks Streets.

There are two very large (more than 3-acre tracks located in the extraterritorial jurisdiction north of the railroad tracks on either side of Friendly Road).

There are only three small IP districts within the town's corporate limits. One block each, they are located east of 5th Street bounded by the bay on the north and northeast, 4th Street on the east, and Arendell Street on the south. The entire State Ports Authority Terminal is zoned IP, along with the island directly north of it. One IP district is also located in Annex Area "C," north of Highway 70 west between Friendly Road and Raleigh Avenue. These districts are shown in Figure 5.

Existing Permitted Uses

Zone IU

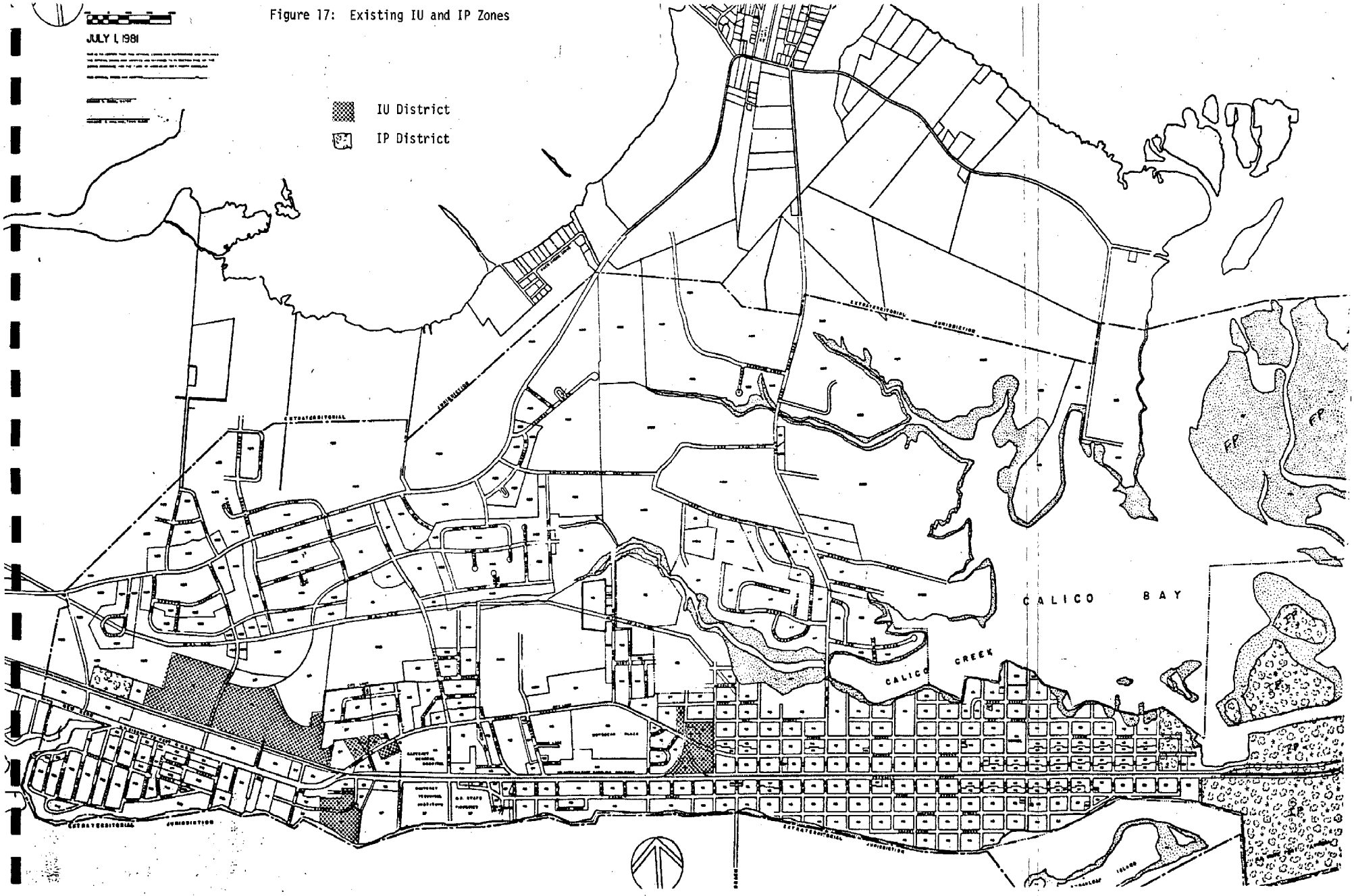
Pursuant to Section 7-19 of the Zoning Ordinance for the Town of Morehead City, the Unoffensive Industry District (IU) is designed to "provide for and protect areas for those uses of an industrial, warehousing and storage nature which do not create noise, odor, smoke, dust, airborne debris, or other objectional characteristics which might be detrimental to surrounding neighborhoods either residential, commercial, or industrial or to the other uses permitted in the district."

The following uses are permitted in zones designated "IU."

1. Airport and related activity
2. Automobile rental agency
3. Bakery
4. Bottling plant

5. Building contractor and related activities
6. Building supplies and materials sales and storage
7. Circus, carnival, fair
8. Cold storage and freezing plant, ice storage
9. Farm implement sales and storage
10. Feed and grain sales and storage
11. Greenhouse and plant nursery
12. Laundry and dry cleaning plant
13. Marine equipment sales
14. Marine club or organization
15. Marine cabinet or metal shop
16. Marine electronic sales or repair
17. Outdoor advertising sign
18. Principal use sign
19. Printing and letter shop
20. Public utility building or use
21. Railroad freight and passenger station
22. Restaurant
23. Service station
24. Temporary sign
25. Tire recapping plant
26. Tobacco redrying
27. Truck stop
28. Truck terminal
29. Wholesale fish sales
30. Wholesaling and warehousing
31. Water conditioning service

Figure 17: Existing IU and IP Zones



In addition, the following "special" uses are permitted in zones designated "IU."

1. Other unoffensive industrial activities which, in the opinion of the Board of Adjustment, are compatible with the permitted uses in this district.
2. Junk yard or auto graveyard
3. Fire stations and other public buildings

Zone IP

Pursuant to Section 7-20, the Port-Industrial District (IP) is designed to "provide and protect areas from those uses which would offend the community by excessive noise, odor, smoke, dust, airborne debris, or any other objectionable characteristic which might be detrimental to the health, safety, and welfare of surrounding neighborhoods and the community.

The following uses are permitted in zones designated as "IP."

1. Permitted uses of the IU district
2. Chemical storage
3. Bulk petroleum plant and storage
4. Feed and grain mixing
5. Fish processing - edible only
6. Lime and fertilizer storage
7. Meat packing plant
8. Outdoor advertising sign
9. Radio and television towers and substations
10. Railroad and freight classification

11. Service station
12. Stone and gravel works
13. Truck stop

In addition, these special uses are also permitted in zones designated "IP."

1. Sanitary land fill
2. Public utility building or use
3. Upholstery shop
4. Fire stations and other public buildings

CHAPTER X: MAJOR LAND AND ENVIRONMENTAL REGULATIONS AND PERMITS

CHAPTER X: MAJOR LAND AND ENVIRONMENTAL REGULATIONS AND PERMITS

This section of the plan details the various federal and state permits and regulations with which coal export facilities must comply. This section will provide local officials with a quick reference guide to the various permits and programs which will be invoked as new facilities are proposed in and around Morehead City. A further objective of this compilation is to familiarize town officials with these otherwise unfamilar programs so they will participate more fully in the permit and regulatory process of the federal and state governments. A further and equally important reason for this review is to determine if gaps exist between these various permit programs.

A review of the various permit programs indicates that, used properly, the existing web of federal, state and local programs should, with few exceptions, provide ample opportunity for review and comment of major development. However, in order to assure protection of community values and the local environment, this plan recommends, in later sections, the adoption of local goals, policies, and development standards to supplement and strengthen already existing land use and zoning programs. Furthermore, this section makes other recommendations concerning the Town's involvement in federal and state permit programs.

CAMA PERMITS

The Federal Coastal Zone Management Act of 1972 (33 U.S.C. Section 401, 33-C.F.R. Section 114.01) and subsequent amendments of 1976 established an assistance pro-

gram available to those state coastal management programs which have been approved by the National Oceanic and Atmospheric Administration's (NOAA) Office of Coastal Zone Management (OCZM). The North Carolina Coastal Management Program, based largely on the 1974 North Carolina Coastal Area Management Act (CAMA) (G.S. Section 113 A-100), was prepared by OCZM on September 1, 1978. The primary policy-making body for the program is the Coastal Resources Commission (CRC).

According to the Management Program and CAMA, any development activities occuring wholly or partially in designated areas of environmental concern (AECs) require a CAMA development permit. The definition of AECs is set out in detail in the State Guidelines for Areas of Environmental Concern (15 N.A.C. 7H), but basically include coastal wetlands, estuarine waters, public trust areas, estuarine shoreline, ocean hazard areas (including beaches, frontal dunes, inlet lands, and other areas subject to excessive erosion or flood damage), and some natural and cultural resource areas. Development activities outside these AECs are not required to obtain a CAMA development permit, but are still subject to other applicable federal, state, and local regulatory authorities which will be discussed in subsequent sections of this report. These authorities are required to consider coastal policies in their permit or regulatory decisions.

The authority for administering the program is shared by the Office of Coastal Management and local government units in the coastal areas. The OCM processes applications for CAMA "major development" permits, "Development" is defined as "any activity in a duly designated area of environmental concern" (except as provided in G.S. 113A-103(5)(b) and 15 NCAC 7K .0100) "involving, requiring, or

consisting of the construction or enlargement of a structure; excavation; dredging, filling; dumping; removal of clay, silt, sand, gravel or minerals; bulkheading, driving of pilings; clearing or alteration of land as an adjunct of construction alteration or removal of sand dunes; alteration of the shore, bank or bottom of the Atlantic Ocean or any sound, bay, river, creek, stream, lake or canal." (15 NCAC 7J .0101(2)

"Major development," which falls under the jurisdiction of OCM, is defined as any development which:

1. requires permission, licensing, approval, certification of authorization in any form by Environmental Management Commission, Mining Control Board, or the Department of Human Resources, Natural Resources and Community Development, or Administration;
2. occupies a land or water area in excess of 20 acres;
3. contemplates drilling for or excavating natural resources on land or underwater; or
4. occupies, on a single parcel, a structure or structures in excess of a ground area of 60,000 square feet.

"Minor development," which falls under the purview of local governments, refers to any development other than major.

The AECs requiring CAMA development permits in the Morehead City area have been defined by CAMA officials as being composed of all shoreline areas extending 75 feet from the mean high water mark.

The formal process of obtaining a CAMA major development permit begins with the submission of an application to OCM or to the Regional Field Office of DNRCD. The application is then circulated to several other state agencies for review and comment and public notice of the proposed development is published.

Although the processing of the permit application is handled by OCM, the final decision to grant or deny a permit is made by the CRC. CAMA directs that the CRC consider the following criteria in making their permit decision:

1. the State Guidelines for AECs promulgated under CAMA;
2. local land use plans;
3. general policy guidelines for the coastal area promulgated by the CRC; and
4. any other criteria listed in G.S. Section 113A-120.

One of the key provisions of the Coastal Area Management Act is the establishment of joint planning efforts between state and local governments in areas in the coastal zone. CAMA requires that a land use plan be developed for all the localities in the coastal zone area, and these plans must be approved by the CRC according to guidelines developed by the CRC. These land use plans must be consulted by the CRC in issuing CAMA development permits, and all permit decisions must be consistent with those land use plans.

ENVIRONMENTAL IMPACT ASSESSMENTS

The development of any coal export facility requires state and/or federal permits and is subject to some degree of regulatory control. The type(s) of permits

required is dependent on the site and operational procedure. The need for different permits must be determined on an individual basis. Most permits relate to a particular aspect of the facility (i.e. water discharge standards, volume and quality of air emissions, etc.).

Of the various regulatory or permit requirements, only two address full development or total project review, including primary and secondary effects and which allows ample opportunity for review and comment by government agencies and the public. Such reviews may be necessary under the National Environmental Policy Act (NEPA) or the North Carolina Environmental Policy Act (SEPA).

Federal Environmental Impact Assessment

The National Environmental Policy Act (NEPA) requires that an Environmental Impact Statement (EIS) be prepared by the responsible federal agency for major federal actions which will significantly affect the environment.

According to NEPA, "major federal actions" are defined as actions with major environmental effects which are subject to federal control and responsibility. This includes the issuance of permits. Coal exporting terminals which require federal permit approval could be considered major federal actions and thus may require an EIS. This determination is made by the lead federal agency taking action. In the case of proposed coal export facilities at the Port of Morehead City, the lead agency would probably be the Army Corps of Engineers since any construction work in or affecting navigable waters must be approved by the Corps through the permitting process.

If prepared, the EIS would include an assessment of primary and related secondary impacts for coal projects. Major impact issues to be addressed would be developed by a "scoping meeting" for the specific project covering environmental, social and economic factors.

If the Corps decides that an EIS will not be prepared, a "negative declaration" is issued for review by the public and governmental agencies. Prior to a decision on issuance of any applicable permit, a brief environmental assessment of the proposed action is prepared for the files by the applicant. This is a much less formal document that describes the particulars of the site, the operational approach to the project, and generally, what changes will be made to the existing environment.

State Requirements

Pursuant to the State Environmental Policy Act (SEPA), any project which involves the expenditure of state monies for actions which may significantly affect the quality of the state's environment must be documented by an environmental statement or negative declaration. If a state funded project also utilizes federal funds, then the applicant meets those requirements for environmental review of the federal agency in lieu of state requirements.

The North Carolina EIS would probably not be required for the proposed coal facilities at the Port of Morehead City since state monies would not be expended for these projects. However, SEPA does allow local governments by ordinance to require an EIS for certain development activities. The appropriate local officials may want to consider the possibility of having Morehead City require EIS's under SEPA.

For both Federal and State EISs, it is recommended that Morehead City officials attend all relevant meetings in the future. It is important that they be abreast of and involved in all development decisions affecting Morehead City. Furthermore, the goals and policies set forth herein should be used as guiding instruments in their deliberations on any EIS.

A second and distinct form of state environmental review is the environmental impact assessment (EIA) which is required under G.S. 143B-437 for any "new or expanding industry or manufacturing plant" locating in North Carolina. According to the statute:

> The Department of Commerce shall conduct an evaluation in conjunction with the Department of Natural Resources and Community Development of the effects on the State's natural and economic environment of any new or expanding industry or manufacturing plant locating in North Carolina. (NCGS 143B-437).

Implementation of this statute to date has been informal and the processing and issuance of environmental permits is considered by Commerce as compliance with the statute.

Morehead City should examine the possibility of requesting the state to invoke this statute in those instances in which new or expanding industry is proposed for the Town and for which no federal EIS, SEPA, or CAMA action or permit is required.

OTHER STATE AND FEDERAL REQUIREMENTS

Water Quality

Federal Requirements

North Carolina General Statutes mandate a wastewater discharge permit program

in GS 143-215.1. In addition, Section 402 of the Federal Water Pollution Control Act of 1972 requires that EPA administer a permitting program for point source discharges into surface waters. This program, entitled the National Pollutant Discharge and Elimination System (NPDES), has been delegated by the U.S.EPA to the State and is administered by the North Carolina Division of Environmental Management (DEM).

An NPDES permit is required for any proposed project which would involve the construction, alteration, extension and/or operation of any sewer system, treatment works, or disposal system which would result in a discharge to surface waters.

For coal handling facilities in North Carolina, all runoff from coal storage, handling, and processing areas must be contained, stored, monitored and treated to meet final effluent limits stipulated in a NPDES permit if discharge to the surface waters is considered as ultimate disposal.

With regard to industrial development in general, if a municipality were planning to extend the existing municipal water and sewer system in order to serve a new facility, the municipality would have to obtain an NPDES permit for such an extension. An NPDES permit would also be required if the facility had a pretreatment system which would discharge to a publicly owned treatment works.

To obtain a NPDES permit, a company or individual must file an application and provide production rates for various parameters of pollutants, and site limitations. DEM will then process this application by generating a draft permit which contains discharge limits based on State Water Quality Standards or Best Practicable

Treatment Standards (BPT), whichever is more stringent. Once prepared, the draft permit will be made available for public review and comment for thirty (30) days.

Following the issuance of a NPDES permit, the applicant must file final plans and specifications for proposed treatment works with the DEM for review and Authorization to Construct. Only after issuance of the Authorization to Construct can the company enter into a contract to construct waste treatment facilities.

In addition to the NPDES regulations, any person who engages in an activity that may result in a discharge to navigable waters, and which requires a federal permit, must obtain a 401 Water Quality Certification. Based on Section 401 of the Federal Water Pollution Control Act of 1972, this permit requires that such a discharge be in compliance with state water quality standards.

Since the activity associated with construction of coal terminals would require Corps of Engineers permits, a 401 Water Quality Certification would likely be required. The North Carolina Division of Environmental Management (DEM) is the certifying agency.

State Requirements

If a project proposes to use a disposal system in which its waste is not discharged to surface waters or to an existing sewage system, this will require a Permit for Waste Not Discharged to Surface Waters, otherwise known as a "nondischarge permit" instead of a NPDES permit.

The permit program, administered by DEM, also mandates a nondischarge permit for

any project involving the construction, alteration, or extension and/or operation of any sewer system or treatment works which does not discharge to surface waters.

Septic tank systems of over 3,000 gallons per day design capacity, except those receiving industrial process wastewater, are included in the program and require a state nondischarge permit. Septic tank systems under 3,000 gallons per day design capacity do not require a state permit but must be approved by the local health department.

Water Supply

State Requirements

Any industrial development requires a water supply system, and various state permits and supply system approvals might be necessary for this system, depending on the source of the water. If the facility is able to tap onto an existing public water supply system, without modifications to that system, then no permit or special approval would be required.

If access to a public water supply system is unavailable, a well would have to be constructed to provide water. A Well Construction Permit must be obtained from DEM if the well has a design capacity of 100,000 gallons per day or greater. Also, a Water Use Permit from DEM is required in "capacity use areas" if the facility is going to withdraw surface water or groundwater in excess of 100,000 gallons per day.

That portion of Carteret County north of US Highway 70 is a designated capacity use area and any facilities locating in this area are subject to the Water Use Permit requirements.

If the industry itself provides piped water for human consumption to at least 25 individuals per day, for at least 60 days of the year, or has at least 15 service connections, the system would be considered a public water system. If this is the case, the industry must submit its water supply system plans for approval by the Department of Human Resources (DHR). DHR must approve the proposed well site and may impose certain limitations on the use of the designated public water supply watershed. The water supply system must meet the criteria established by DHR regulations.

Sediment Control

State Requirements

Any proposed land-disturbing activity which will be undertaken on a tract of land of one or more acres and will involve uncovering more than one contiguous acre will require the submission of the Sedimentation Control Plan to the Division of the Land Resources (DLR). "Land-disturbing activity" is defined in the statute as any use of the land that results in a change in the natural cover to topography and that may cause or contribute to sedimentation. The control plan must provide sediment control for the calculated peak rates of runoff from a 10-year frequency storm. The plan should also include a description of the proposed development of the site, measures to meet mandatory and performance

standards, and protection of stream banks and channels downstream.

Local governments may supercede the state law by adopting their own erosion control ordinances, which must be at least as stringent as the state law.

Service Roads

State Requirements

New industrial developments will require that access roads be built to connect the site with a state system street or highway. Before construction of such a road, the industry would have to obtain a driveway permit through the local District Engineer for the North Carolina DOT. When built, the driveway must comply with DOT driveway entrance regulations.

Service roads may also be subject to other state permits, depending on what land is impacted.

NOISE

Noise Regulation

Although a community may traditionally have authority to control all of the various sources of community noise, recent legislation at the federal level and in some states has taken away, or preempted, the authority of communities to regulate certain types of noise sources.

At the federal level, the Noise Control Act of 1972 (49 U.S.C. Sections 4901 et seq.) contains provisions under which certain areas of state and local

authority have been pre-empted by EPA under Sections 6, 17 and 18 of the Act.

As an essential part of the Noise Control Act of 1972, Section 17 requires the Administrator to publish proposed noise emmission regulations that "shall include noise emission standards, setting such limits on noise emission resulting from operation of the equipment and facilities of surface carriers engaged in interstate commerce by railroad which reflect the degree of noise reduction achievable through the application of the best available technology, taking into account the cost of compliance."

Further, after the effective date of such a regulation, no state or political subdivision thereof may adopt or enforce any standard applicable to noise emissions resulting from the operation of the same equipment or facility of such carrier unless such standard is identical to a standard applicable to noise emissions resulting from such operations as prescribed by these regulations. The Administrator, after consultation with the Secretary of Transportation may, however, determine that the state or local standard, control, license, regulation, or restriction is necessitated by special local conditions and is not in conflict with regulations promulgated under Section 17.

According to EPA guidelines, state and local regulations on noise emissions resulting from the operation of equipment and facilities of surface carriers engaged in interstate commerce by railroad that are not pre-empted by applicable Federal regulations under Section 17 are subject to the Commerce Clause of the U.S. Constitution. Under that Clause, any state or local regulations that constitute an undue burden on interstate commerce cannot stand.

State and local governments can deal with railroad noise problems in several different ways. The first, the method adopted by EPA in the regulation, is to set emission standards on railroad equipment to reduce the noise produced at the source. Second, they can set noise emission standards on facilities where rail operations occur. A variation of this approach is the use of property line standards, for which measurements are taken at the railroad property boundaries. Third, they may impose affirmative requirements on railroad equipment or facilities ("design" or "equipment" standards), such as the installation of mufflers on locomotives, the elimination of wheel flats on rail cars, or the construction of noise barriers along right-of-way. A fourth possibility is to regulate, license, control or restrict the use, operation or movement of any equipment or facility, for example prohibiting idling of locomotives on sidings within communities or prohibiting railroad yard operations between the hours of 10:00 p.m. and 6:00 a.m. Fifth, a state or community may set receiving land-use standards for property line of residential property not to exceed 55 dBA. Each of these methods presents special problems that affect the determination of the pre-emptive relationship of the EPA railroad noise regulation.

Noise Control

Noise is a major rail-related problem as evidenced by the findings of this study and Morehead City's efforts to control noise of the railroad via the whistle ordinance. As indicated earlier in the plan, unacceptable noise levels directly affect approximately 154 households facing Arendell Street and may eventually have a significant detrimental effect on Arendell Street's environment. Speed is also a major problem. Speed of trains is easier to control

than is noise. Therefore, given the concern over noise, and the fact that it is more difficult to regulate, some suggestions for a coordinated noise control program are set forth herein. It should be noted that the techniques suggested are performanced-based.

Noise Ordinance

It is recommended that the Town of Morehead City adopt a noise control ordinance which will restrict the noise emitted from trains passing through town. However, the Town's Legal Counsel must make the final decision on whether or not such an ordinance would be legally appropriate for Morehead City's situation. Public Relations officials at Southern Railway indicated a desire to work cooperatively with local communities wherever possible. Unless the community's ordinances are totally unreasonable, Southern Railway attempts to comply, or at least compromise. To avoid legal complications, Southern Railway's Public Relations Officials should be consulted in the drafting of this ordinance.

A basic community noise ordinance usually contains provisions covering the following general categories, which are organized into articles of the ordinance:

1. definition of terms
2. grants of authority to administer and enforce the ordinance
3. prohibited acts, including performance standards and use and zone restrictions.
4. exceptions, variances, or permits
5. minumum qualifications for enforcement personnel
6. mandatory review of the act's effectiveness at regular intervals.

Traditionally noise ordinances have specified the type of land use permitted in an area, but more recently, they have become performance based. For example, an area zoned as light industrial might be required to meet a set of performance standards such as maximum allowable noise levels. According to a recent Pennsylvania State University study, data from more than 100 cities with operating noise ordinances show an average daytime allowable noise level of 57 decibels (dBA) and an average nightime allowable level of 53 dBA for residential neighborhoods. In business and commercial districts allowable levels for daytime and nightime are 63 dBA and 59 dBA respectively. In manufacturing and industrial areas, the average levels are 68 dBA during daytime hours and 64 dBA at night. Acceptable noise levels will vary with each community, dependent upon local conditions. For comparison purposes refer to Figure 15 on page 84 for comparable noise levels anticipated for rail traffic in Morehead City.

Comprehensive Planning and Noise

Land use policies should reflect a thorough consideration of the noise environment. Care must be taken to insure that development in the immediate environs of these sources is either discouraged or closely scrutinized in terms of its compatibility with the existing environment.

In order to decrease and/or prevent the many environmental noise pollution problems that can result from poor land use planning, Morehead City may wish to develop guidelines regarding noise criteria for planning. These guidelines may either be incorporated into the noise control ordinance or included in separate community land use planning guidelines. Regardless of where they appear, these guidelines should provide criteria for the placement of residential structures and sensitive institutions, such as hospitals, schools, or nursing homes, and should eliminate incompatible use of land in all newly developing areas, particularly near and

around coal transport and operating facilities.

With regard to the construction of housing and structures to be used for noise sensitive activities, guidelines should be set which mandate the maximum site exposure to sound. An example of such guidelines are those developed by the U.S. Department of Housing and Urban Development (HUD Circular 1390.2), which has site noise exposure criteria used to determine the acceptability of a site for use in HUD-funded projects.

The HUD guidelines state that property lying further than 270 feet from the railroad right-of-way centerline is normally acceptable for residential use. Conversely, property located less than 270 feet from the railroad right-of-way centerline is normally unacceptable. New residential construction should be avoided here, if at all possible.

Most of the property fronting Arendell Street is located less than 270 feet from the railroad right-of-way centerline, and is therefore subject to various levels of noise generated from the railroad. In fact many properties which face Bridges and Evans Streets are also indirectly impacted. (See map on page 84.)

As coal train traffic has been interrupted throughout the course of this study, actual noise level readings were not obtained. However, a study by SSA/WE to be released shortly will address this issue in more detail.

Because commercial and industrial land uses are not generally sensitive to exterior noise, it is not necessary to develop ambient sound level site criteria for these uses. However, because these uses often contain activities which

generate exterior sound, there should be some planning criteria controlling the amount of sound that a new or substantially modified commercial or industrial activity may be allowed to emit into the surrounding land uses. It is recommended that standards for the maximum sound levels for receiving land uses be developed and used as the planning criteria for new or modified commercial and industrial sources.

Thus, a person applying for a building permit for a structure to be used for a commercial or industrial purpose must include information in the application to show that the activities conducted when the property will be in full operation will not cause sound levels on nearby land uses which exceed the applicable receiving land use standards set by Morehead City for those uses.

Noise Barriers

In some cases, noise barriers are erected to diminish the impacts of noise on receiving land uses. Most often used in connection with highway noise abatement programs, these "noise walls" are generally steel, sound-reflecting barriers located between a highway, railroad or industrial noise source and the desired quiet zone.

Due to their prohibitive cost (average: $7 per square foot) and minimal reduction in actual noise levels, noise barriers are not recommended for the railroad corridor.

Landscaping

Careful planning of land contours and suitable planting of trees and shrubs along the edge of highways can also be used as barriers for sound reduction. "Natural" barriers of this type are generally more pleasing and may form psychological noise barriers; however, the amount of noise reduction that can be

obtained is limited. Furthermore, because of the location of the railroad track, it is virtually impossible to utilize natural barriers to reduce noise levels.

CHAPTER XI: RECOMMENDED LAND DEVELOPMENT OBJECTIVES AND POLICIES

CHAPTER XI: RECOMMENDED LAND DEVELOPMENT OBJECTIVES AND POLICIES

It is customary that before any major plan is developed for an area, or any detailed standards or regulations formulated, overall community goals and objectives should be established to provide guidelines for what is wanted and needed. The determination of such goals and objectives is not an end in itself but rather the means whereby more specific development policies, standards and/or regulations are examined.

A review of the 1976 and 1980 Land Use Plans reveals that neither sets forth any definitive goals or objectives which serve as a guide for local planning decisions. In the past, this may have been acceptable. In view of the fact that Morehead City was primarily a residential and tourist-oriented community, overall goals and objectives may not have been necessary. However, with the recent surge of industrial activity at the S.P.A. Terminal and Radio Island, along with the anticipation of increasing pressure for industrial growth around the Town, it has now become necessary to develop some basic public policy positions which will encompass the most fundamental questions dealing with future development in the Town.

Morehead City must be concerned with the possibility of increased industrialization because industrial activity:

1. is characterized by concentration in limited land areas;
2. requires locations with specialized characteristics;
3. usually requires relatively large tracts of land;
4. contributes significantly to the overall local economy;

5. involves complex linkages among industries and with other activities;
6. constitutes a major focus for transportations; and
7. can cause a myriad of undesirable environmental consequences if left uncontrolled.

Further, decision makers must also decide to what extent industrial activity should be allowed in the Morehead City area. How much development? Of what type? In what areas? All of these questions are important and must be addressed.

It is recommended that Town officials develop a set of objectives which they will be committed to utilizing whenever a rezoning or development decision is required. Use of these overall development objectives will result in a well-balanced and properly coordinated planning program that reflects the needs and desires of Morehead City residents.

Community goals and objectives may change. However, these changes will not invalidate the original goals and objectives. Rather they will indicate that the situation and environment has changed, thus necessitating a reevaluation of existing goals and the establishment of new and more relevant objectives.

Recommended Overall Objectives

Specific overall objectives for all development within the Town of Morehead City are recommended as follows:

- to ensure that all development within Morehead City and the one-mile extraterritorial jurisdiction harmoniously fits into the existing natural environment; and

- will not adversely affect existing uses, scenic character natural resources or property values in the surrounding areas;
- will meet federal, state and local environmental standards; and,
- includes adequate provisions for solid waste disposal, the control of offensive odors and intolerable noise, and the securing and maintenance of sufficient and healthful water supplies necessary to serve the population densities or land use intersities proposed.

o to encourage future growth to take place in compact clusters supported by adequate transportation facilities and related community facilities.

o to ensure that all development which takes place is properly located on soil types which are suitable to the nature of the undertaking and that the development will have a minimal adverse impact on the natural environment and its surroundings.

o to ensure that unplanned, uncoordinated and unrelated strip development of any kind should be prohibited, especially along major transportation routes.

o to ensure that all development within the planning area reflects the overall location standards, design criteria, and principles of land use arrangements.

o to promote orderly and systematic utilization of land within the planning area in such a way that the area can be provided with the necessary streets and community facilities in the most efficient manner possible.

o to promote maximum coordination and integration of land use, major streets, and community facilities.

o to generally promote the health, safety and welfare of citizens of Morehead City through rational land planning.

Recommended Policies for Industrial Development

As mentioned previously, the complexion of Morehead City's "character" is changing and will continue to do so as pressures for industrial growth continue. It cannot be overstated that local decision-makers must be equipped with coordinated development policies which will guide them in making decisions. Due to the industrial nature of many land use changes which may occur in the near future, industrial development policies are of special importance. If the overall goals and objectives of the community are to be met, these development policies must be instrumental in all future decisions concerning industrial rezoning and/or development.

Industrial development policies for Morehead City should include, but not be limited to the following:

All future industrial development in the Town of Morehead should:

- o occur in areas where the terrain is well-drained, free from flooding and has a good soil bearing capacity. Those areas outside the 100 year flood plain are most suitable in meeting this criteria. If industrial development is to occur in the flood plain, special permit conditions must be required.
- o be provided with, or easily accessible to, basic utilities such as water, sewers and electricity. Those land areas of the Town of Morehead which possess those basic utilities required by industrial users should be utilized for industrial purposes. This prevents the Town from having to provide those basic services to new areas, unless it is the express desire of the Town's Planning Board to do so.

- have direct access to one or more major transportation systems including highways, railroads, and water facilities where appropriate. Morehead City's primary rail and highway access is the "spine" which includes the railroad line and Highway 70. Outside of these immediate areas, all other transportation amenities are minimal.
- be located within easy commuting distance of employees. Locational choice theory indicates that the place of work should be close to the labor force. Because Morehead City is a small town, geographically speaking, this factor is not of major concern. However, as the town grows, it will become more critical.
- be located so as to avoid forcing major traffic through residential neighborhoods. Heavy industrial traffic can have a severe effect on residential neighborhoods; therefore, access to and from industrial locations should be such that residential streets will not be impacted by vehicular traffic. For this reason many areas north of the center of town are less desirable for industrial uses.
- be separated from adjacent and incompatible land uses by a buffer strip including streets, parks, open space, plantings and building setbacks for the mutual protection and desirability of both industrial and non-industrial land uses. Zoning and subdivision regulations for industrial uses should be strictly enforced. Also, as recommended elsewhere in this report, industrial performance standards should be developed to assure proper implementation of this policy. Such standards should not duplicate already existing Federal and State standards but rather should fill-in regulatory gaps in those already existing programs.

- be located so as to minimize any possible adverse effects on surrounding areas. The town can best implement this policy through required site plan reviews of all industrial rezonings by both the Planning Board and Town Board.
- be operated and maintained in a manner that will minimize or eliminate any detrimental effects. The Town Building Department and other departments under the Town Administrator should provide periodic routine visits to industrial locations to assure continued compliance with Town ordinances.

The Town should continue its commitment to providing services for development that is consistent with the above guidelines dependent upon economic and political feasibility.

Based on all of the above, industrial development should be encouraged particularly in the area northwest of the intersection of Highway 70 West and Arendell Street. (See map on page 46.) In terms of soil, easy accessibility, proximity to residential areas, availability of buffer zones, etc., this area is most well-suited for industrial development.

Implementation

Once overall objectives and policies have been established, an effective method of implementation must be adopted to insure that development activity is needed consistent with these goals and objectives.

The conventional zoning ordinance which Morehead City currently uses designates

two distinct categories of industrial or manufacturing districts, IP and IU. Within each of these, certain types of activities are permitted or excluded, in various locations within the city. The establishment types which were permitted, restricted, or prohibited by most zoning ordinance "use lists" are generally based on subjective judgment as to the characteristic amount of noise, odor, vibration, or other "nuisance" characteristics which are presumed to result from each type of activity.

One of the major problems with any traditional zoning ordinance "use list" is that it is difficult, and in many cases impossible, to anticipate the technological changes within a given type of industry which would decrease - or increase - the undesirable characteristics. Nor is it always possible to anticipate the proliferation of new types of industries. The inability to predict the emergence of coal export facilities as a major industrial land use in Morehead City is a prime example. Discussions with local planning officials in a number of port cities along the east coast have failed to identify a definitive list of industries that can be expected to develop as a result of coal port activity.

The traditional response to these deficiencies has been to amend the zoning ordinance time and time again to reflect the introduction of new industrial establishments. However, there is almost always a lag between the need for change and the actual change in the ordinance.

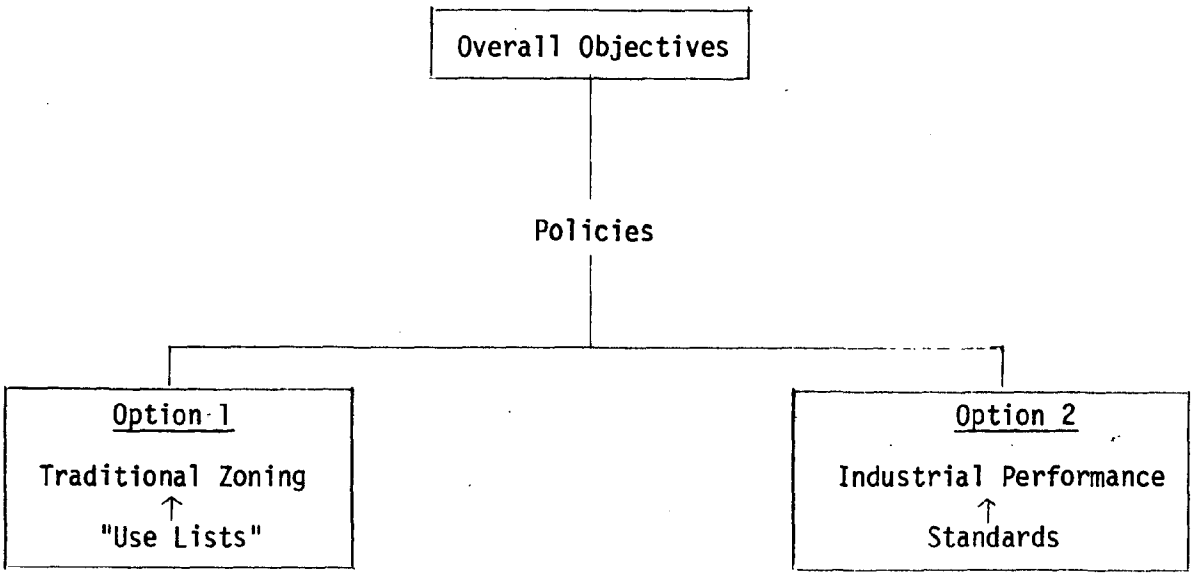
These difficulties have to a large extent been diminished or eliminated in some communities by the use of "performance standards" industrial zoning provisions. With such standards, any type of industrial activity is permitted in any industrial district, provided that the activity does not produce an undesirable amount or intensity of emission or result beyond a specified distance from the origin.

Rather than adding more activities to the list of uses permitted in the existing IP and/or IU districts, or creating an entirely new district, Morehead City officials should consider adopting simple performance standards on such items as noise, air and water quality, vibration, and the like. Careful review of all of the alternatives suggests that performance standards would be much more appropriate for Morehead City's special situation for two main reasons:

1. continued use of the traditional zoning "use list" will necessitate new amendments and updates each time an unanticipated industrial use or technological change in an existing use takes place. It would be impossible to accurately predict all the changes which may occur within the next several years. This continuous amendment and revision process would be quite costly and time-consuming for the Town; and
2. use of performance standards is much more effective and would give Morehead City officials more power to control the environmental impacts associated with industrial activities because new or expanding industries would be required to show how they will comply with these provisions <u>before</u> they are allowed to develop.

Performance standards industrial zoning is not without problems; such standards require some degree of technical expertise and enforcement abuses may occur. However, basing the location of industry on inherent characteristics rather than on an arbitrary listing of types of activities is a much more logical method of land planning.

The following diagram graphically depicts the two basic options for implementing objectives and policies which are available to Morehead City: (1) traditional zoning "Use Lists" and (2) performance standard zoning provisions.



Advantages

- o eliminates undesirable uses
- o easy to administer
- o understandable to the general public

Disadvantages

- o does not account for unanticipated uses
- o does not account for changes in technology
- o arbitrary list based on perceived characteristics

Advantages

- o accounts for unanticipated technological changes
- o more local control over environmental concerns
- o based on inherent characteristics

Disadvantages

- o technical expertise
- o enforcement

Other Overall Policies

As a result of existing and proposed industrial activity around the Town of Morehead City, industrial development policies have become the most important policies to consider at present. However, as with industrial policies, the 1976 and 1980 Land Use Plans do not address specific policies for commercial or residential development either. The following policies are submitted for review.

Residential development in and around Morehead City should:

- o be encouraged in areas where the terrain is best suited for development of the soundest and most aesthetically pleasing neighborhoods. Those areas north and west of town where residential permits are most frequent, are prime areas for continued residential activity;
- o be restricted in areas where the land is extremely unstable, poorly drained or subject to flooding; (Refer to Figure 8 on page 43.)
- o provide a variety of housing types and costs;
- o provide a choice of densities ranging from lower single-family densities to higher density multiple-family apartments located close to permanent open space, major streets and community shopping facilities;
- o be provided with water and sanitary sewer facilities, sidewalks, paved streets and storm drainage facilities. This is best accomplished by developing near existing utilities so that services can merely be expanded.
- o be provided internally with a system of collector and minor streets and bounded, but not penetrated, by arterial streets.

- be located and developed in such a manner so as to protect them from noise, dirt, fumes, and safety hazards of major streets, commercial and industrial areas.
- be free from the influence and possible encroachment of incompatible land uses. Residential development should be discouraged on property adjacent to the railroad tracks as well as to industrial activity. Buffer zones as well as sound acoustical principals should be utilized where appropriate.
- employ good design and high standards which utilize the natural environment to its best advantage.
- be in the form of cohesive neighborhoods supported by appropriate community and neighborhood facilities.

Commercial areas in general should be:

- centrally located to the particular trade area they are designed to serve.
- located, designed and developed in a compact and cost-efficient manner with adequate off-street parking, loading and unloading space, and internal walkways designed for pedestrian convenience and safety.
- located and developed so as to be easily accessible from different directions and should be bounded but not penetrated, by major streets.
- designed to provide for as much separation of pedestrian and vehicular traffic as possible.
- separated from incompatible land uses by means of a buffer strip including streets, open space, plantings and setbacks, particularly in commercial areas adjacent to the railroad tracks.
- composed of stores and shops offering a wide selection of shopping and comparison goods designed to meet the needs of both local and regional trade areas.

- be pedestrian-oriented, where appropriate, with stores and shops located in compact groupings along streets and malls designed for leisurely shopping and attractive surroundings.
- not be unplanned or uncontrolled so as to create "strip" commercial development. This is particularly important along Highway 70 West moving westward from the Downtown Commercial District.

In summary, the goals and objectives contained in this document are designed to serve as general guidelines for preparing, adopting and implementing a basic Land Use Plan for the Town of Morehead City. It cannot be overemphasized that these and/or similar objectives and policies should be used by decision-makers when considering <u>any</u> rezoning or development decision in or around Morehead City.

APPENDICES

APPENDIX A

APPLICATION FOR CHANGE
OF ZONING IN THE
MOREHEAD CITY PLANNING AREA

TO: The Morehead City Planning Board and the Morehead City Board of Commissioners

FROM: _____
(Name) (Complete Address)

I (we) the undersigned applicant(s), do hereby respectfully make application and request the Morehead City Planning Board and Morehead City Board of Commissioners to amend the Morehead City Zoning Ordinance and/or to amend the Official Zoning Map of Morehead City as hereinafter requested and in support of this application, the following fact are shown:

1. The property sought to be rezoned is located at _____

_____

_____

and is known as lot(s) No. _____. It has a frontage of _____ feet and a depth of _____ feet.

2. The property sought to be rezoned is owned by: _____

_____ as evidenced by deed from ____

_____ as recorded in Book _____, page _____

of the Registry of Deeds of Carteret County.

3. It is desired and requested that the above described property be rezoned from a _____ zoning classification to a _____ zoning classification.

4. Public water is, is not available to the above described property.

5. Public sewer is, is not available to the above described property.

6. The following is a list of all individuals, firms, businesses, or corporations owning property within eight hundred (800) feet in any direction including in front of above described property sought to be rezoned.

NAME MAILING ADDRESS

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

(8) _____

(9) _____

(10) _____

(11) _____

(12) _____

(13) _____

(14) _____

(15) _____

(16) _____

(17) _____

(18) _____

(19) _____

(20) _____

7. It is proposed that the following buildings will be constructed: _____

_____

_____.

8. Briefly, the zoning change will have the following impacts on the below listed community facilities and services:

(A) Public Water - _____

(B) Public Sewer - _____

(C) Streets - _____

(D) Refuse Collection - _____

(E) Fire Protection - _____

(F) Police Protection - _____

(G) Recreation Facilities - _____

(H) Other - _____

_____

_____.

9. The applicant shall make a statement regarding the proposed change as opposed to the proposed plans set forth in the Morehead City Land Development Plan and shall also indicate that the proposed change is reasonably necessary to the promotion of the public health, safety, and welfare. _____

_____

_____

_____

_____.

10. Attached is an accurate diagram of the property proposed for rezoning showing:

(a) North arrow and all property lines and accurate property line dementions.

(b) Location of all easements, rights-of-way, stormsewers, paving widths, and street names.

(c) Location of all structures.

(d) Zoning classification of all property within eight hundred (800) feet of the property sought to be rezoned.

11. Also attached is a comprehensive site plan (for commercial, industrial or multi-family development only).

_____ (DATE) _____ (APPLICANTS SIGNATURE)

****

DO NOT COMPLETE

FOR ADMINISTRATION PURPOSES

A. Rezoning Fee & Application recieved on _____, 19__.

B. Application is complete: Yes No

C. Deficiencies in application

(1)

(2)

(3)

D. Application scheduled for presentation

- To Planning Board on _____, 19__
- To Board of Commissioners on _____, 19__

Planning Board Action:_____

_____

_____

_____

_____

_____

_____ (SECRETARY) _____ (DATE)

Board of Commissioners Action: _____

_____

_____

_____

_____

_____

_____ (SECRETARY) _____ (DATE)

APPENDIX B

Soil types found in the Morehead City area are as follows:

a. CARTERET

This mapping unit consists of nearly level, poorly drained sandy soils in coastal marshes. The water table is at or near the surface continuously and the soils are subject to tidal flooding.

These soils are a critical component of the coastal eco-system and are unsuited for urban use.

b. NEWHAN-CARTERET

These are nearly level to sloping areas where sandy dredge spoil has been placed marshland. About 90 percent of the area has been filled with anywhere from 1 to 20 feet of sand. The filled areas consist of the excessively drained Newhan soils. Depth to the water table depends on the depth of fill. About 10 percent of the area is poorly drained Carteret soils in small areas of marsh.

This unit reflects urban development and channel maintenance at expense of coastal marshland. The suitability for further urban development of this mapping unit should be determined at specific sites.

c. MANDARIN-WANDO-LEON

This unit consists of nearly level to gently sloping, somewhat excessively drained to poorly drained sandy soils. Low areas also flood occasionally. It is about 35 percent Mandarin soils, 30 percent Wando soils and 25 percent Leon soils.

The moderately well drained Mandarin soils are on low ridges. These soils have a water table at a depth of 2 to 3.5 feet during rainy periods. This is caused by an organic stained, weakly cemented hardpan. Drainage for some urban uses such as septic tank absorption fields is often necessary. Response to artificial drainage is very good, although ditchbanks cave easily in the sandy soil. Also, these soils are extremely droughty and lawns and shrubs are often difficult to establish. Otherwise, Mandarin soils are suited for most urban uses.

The poorly drained Leon soils are in depressions. The seasonal high water table is within 1 foot of the surface during winter and spring and during rainy periods. There is a weakly cemented, organic stained hardpan within 2.5 feet of the surface. This layer interferes with drainage and temporarily perches the water table during rainy periods. These wet, sandy soils are poorly suited for most urban uses unless adequate artificial drainage is installed. Response to drainage is fair to good if an adequate outlet is available. Caving ditchbanks is also a problem because of the sandy texture.

d. ALTAVISTA-AUGUSTA-TOMOTLEY

These are nearly level, moderately well drained to poorly drained loamy soils. They are on broad, smooth to slightly convex areas near drainageways. Low areas may flood occasionally. This unit is about 45 percent Altavista soils, 30 percent Augusta soils and 15 percent Tomotley soils.

The moderately well drained Altavista soils are on the higher, slightly convex areas nearest to the drainageways. They have a seasonal high water table at depth of 2 to 2.5 feet. Wetness is the main limitation for urban use. Response to artificial drainage is good. Undrained areas have severe limitations for septic tank absorption fields and moderate limitations for most other urban uses. Drained areas are well suited for most urban uses.

The somewhat poorly drained Augusta soils are on smooth areas, slightly lower than Altavista soils. The seasonal high water table is 1 to 2 feet below the surface. Wetness is the main limitation for urban use. Response to artificial drainage is good if adequate outlets are available. Undrained areas have severe limitations for urban use. Drained areas have fair suitability for some urban uses.

f. AUTRYVILLE-ARAPAHOE

This unit consists of gently undulating ridges and depressions. It contains the highest elevations in the area and is about 65 percent Autryville and similar soils and 20 percent Arapahoe soils. About 10 percent of the unit is Leon soils.

The well drained Autryville soils are on gently sloping ridges. The seasonal highwater table is below 6 feet. This soil is well suited for urban use.

The very poorly drained Arapahoe soils are in low depressions. The seasonal highwater table is at or near the surface in winter and spring and during rainy periods. Flooding is frequent. Adequate outlets for drainage are difficult to develop because of the low elevation. Undrained areas are poorly suited for urban use because of wetness.

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