

Joint Exhibit 15



City of North Port

COMPREHENSIVE PLAN

1988–1998

Adopted March 15, 1989

The City of North Port Comprehensive Plan

TABLE OF CONTENTS

Element 1: Future Land Use	1
Element 2: Traffic Circulation	54
Element 3: Housing	97
Element 4: Sanitary Sewer	125
Element 5: Solid Waste	147
Element 6: Drainage	168
Element 7: Potable Water	198
Element 8: Natural Groundwater Aquifer Recharge	222
Element 9: Conservation and Coastal Zone Management	235
Element 10: Recreation and Open Space	296
Element 11: Intergovernmental Coordination	323
Element 12: Capital Improvements	352

APPENDIX

Monitoring & Evaluation Procedures	399
List of Non-Applicable Requirements of 9J-5, FAC	406
List of Acronyms Contained in the Plan	408

FUTURE LAND USE

Table of Contents

Introduction.....	4
Inventory.....	5
General Setting	5
Description of Land Use	7
Overview of Platted Lands	7
Residential	9
Commercial	10
Industrial	10
Agricultural	10
Recreation	11
Conservation	11
Public Facilities	11
Vacant/Undeveloped	12
Service/Facility Availability	12
Natural Resources	13
Summary	13
Topography	14
Climate	14
Geology	14
Hydrology	14
Soils	15
Minerals	15
Wetlands	15

Flooding	15
Analysis.....	18
Future Land Use: Potential For Growth	18
Population Projections	18
Economy	23
 Analysis of Natural Conditions Affecting Development	 25
Soil Suitability for Development	25
Topography and Slope: Runoff and Drainage Constraints	26
Wetland Resources	26
River and Stream Resources	27
Woodland Resources	27
Groundwater Resources	27
Financial/Environmental Costs	28
 Analysis of Man-made Conditions Affecting Development	 29
Platted Lands	29
Department of Community Affairs Agreement of 1978	31
Florida Statutes, Chapter 298: North Port Water Control District	31
Existing Development Agreements	32
..... 1984 Road Agreement	32
..... Three-Party Agreement	32
..... Myakka Estates Settlement Agreement	33
..... Panacea Development Order	33
 The Future Land Use Plan.....	 35
Guiding Growth Management Strategy	35
Urban Infill Area	36
Myakka Estates	36

Future Growth Areas: Planned Community Development Districts	37
I-75 Interchanges	38
Unplatted Corridors	38
Panacea	39
Futrell Property	39
Goals, Objectives & Policies.....	44
Endnotes.....	53

List of Tables

Table I: Summary of Land Uses, North Port 1988	13
Table II: Population Estimates for the City, 1980- 1987	18
Table III: Water Connection Rates for the City, 1987-1988	19
Table IV: Summary of Housing and Population Projections, 1988-1999	20
Table V: Projected Spatial Distribution of Peak Season Population, 1988, 1993 and 1998	21
Table VI: Unemployment Data for South Sarasota County, February 1988	23
Table VII: Projected Demand for Commerce, 1988-1999	24
Table VIII: Commercial and Industrial Uses, 1993 and 1998	24
Table IX: Panacea Phasing Schedule	39

List of Maps

Map 1: General Location Map of the City of North Port	6
Map 2: Existing Land Use Map	8
Map 3: Soils	16
Map 4: Existing Habitat Map	17
Map 5: North Port Planning Districts and Traffic Zones	22
Map 6: Future Land Use Map	40
Map 7: Existing Population Densities: 1988	41
Map 8: Projected Population Density: 1993	42
Map 9: Projected Population Density: 1998	43

INTRODUCTION

As the traditional keystone of the Comprehensive Plan, the Future Land Use Element sets forth the physical plan for the future development of the City. The Future Land Use Element describes the appropriate policies regulating the location and development of all land uses. The Future Land Use Element sets forth not only the density and intensity of land uses appropriate for all locations but also considers other factors affecting land use development, such as timing, cost, and current development trends.

While each element within the Comprehensive Plan is important, the Future Land Use Element is arguably the most essential as it must be consistent with all other Comprehensive Plan Elements and articulate the Goals, Objectives, and Policies of these other Elements in the form of specific land use policies.

The Existing Land Use Map included as part of this Element describes the location and distribution of land uses in the City of North Port as of 1988. The Future Land Use Map (also included in this Element) is the focus of the Comprehensive Plan. It indicates the proposed location and distribution of land uses in the year 1988 and beyond. All policies contained within this plan must be consistent with the Future Land Use Map. Apparent inconsistencies among policies are resolved by the Future Land Use Map itself or at the more detailed scale of project planning and in specific development proposals. All land development regulations in effect subsequent to the adoption of this plan must be consistent with the Future Land Use Map, and the associated goals, objectives and policies.

This Element addresses land use for all of the incorporated area of North Port. However, due to the predominantly platted and undeveloped character of the City (only 7% of total 74.5 sq. miles developed), growth management strategies have been outlined to ensure that the delivery of urban services and related capital improvements are provided in a manner which encourages compact, cost effective growth.

This Plan Element is a required Element; the minimum criteria for its contents are established in Chapter 9J-5, FAC. This Plan Element was formulated to be consistent with those criteria as well as relevant sections of Chapter 163, Part II, F.S., the State Comprehensive Plan, and the Comprehensive Regional Policy Plan.

As a means to further the goals, objectives and policies of the State Comprehensive Plan, the Comprehensive Regional Policy Plan, as well as those identified within the elements of the City Plan, several growth management concepts, common to all other elements of the City Plan, have been promoted within this Future Land Use Element and have been summarized as follows:

- Compact urban development has been stressed within the Land Use, "Infrastructure", and Capital Improvements Elements through the use of urban infill and growth areas, transfer of development rights, clustering of land use intensities and densities, and cost effective distribution of public facilities;
- The provision of facilities concurrent with development is emphasized in the Intergovernmental Coordination, "Infrastructure", Traffic Circulation, and especially in the Capital Improvement Elements where projected phasing is demonstrated;
- Economic feasibility is demonstrated in the Capital Improvements Element, and in the level of service standards of all elements where projected needs obviously were considered too expensive to overcome within the planning timeframe of that element; and phased, incremental expansion of facilities and services are identified.
- Intergovernmental Coordination receives primary emphasis in the element so named, and is also reinforced in the policies of each element to ensure local consistency and compliance with regional and state plans.

- Internal consistency needs considered in all other elements have been addressed in the Capital Improvement, the Future Land Use, and the Intergovernmental Coordination elements to ensure internal consistency within this plan and its implementation strategies.
- Level of Service (LOS) standards have been set in each of the "facilities-oriented" elements (Recreation, Traffic Circulation, "Infrastructure" and Coastal Management) and form a basis for the Capital Improvements Element, where they have been repeated as adopted policies; and
- Consistency with state and regional plans is explained and outlined in the Intergovernmental Coordination Element and provides a means of incorporating regional plan consistency into the local plan.

INVENTORY

GENERAL SETTING

The City of North Port is located in Southwest Florida and is in the southeast corner of Sarasota County bordering Charlotte County (see Map 1 on page 6). The land area of the City encompasses 74.5 square miles, and as such, covers one-seventh of Sarasota County, and represents the third largest incorporated area in the State of Florida.

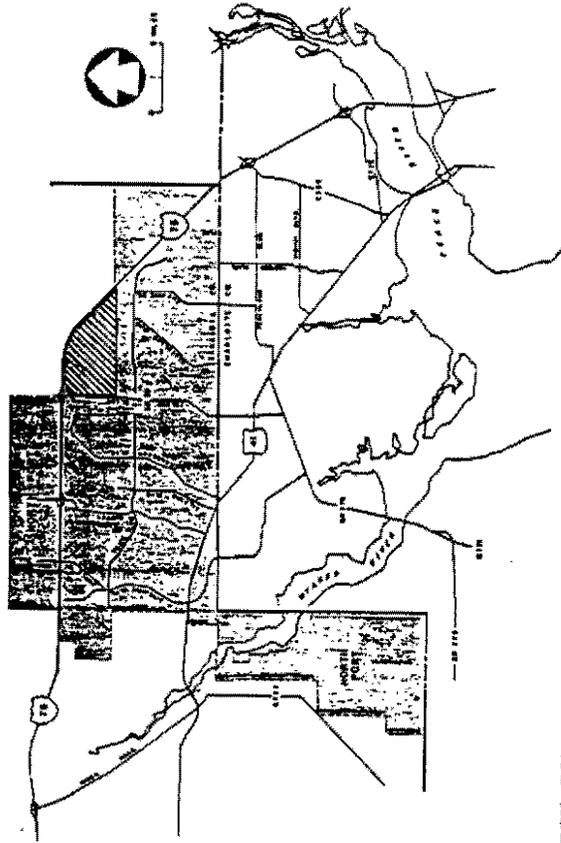
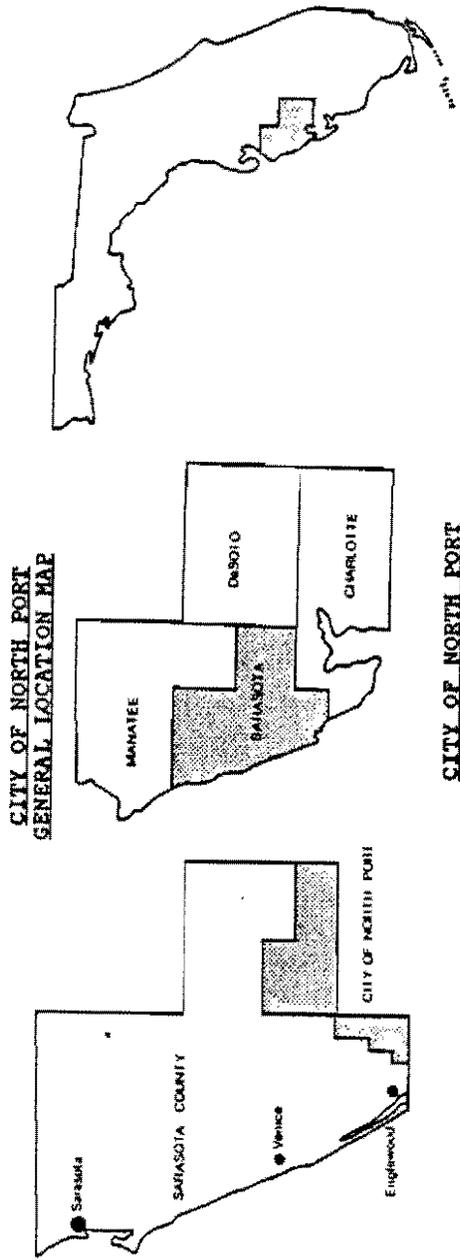
The City of North Port consists of four basic districts and separate areas. The first is somewhat rectangular in shape with a major east-west axis and is approximately 54 square miles in area. This area, which is commonly referred to as "North Port", is bounded on the east by Sarasota County and on the south by Charlotte County. In its southwest corner, the presently developed urban area of North Port is located. Approximately ninety percent of this area is currently platted and the entire area is improved with roads and drainage facilities necessary for installment land sales practices of the primary land owner; General Development Corporation.

The second area is also somewhat rectangular in shape with a major north-south axis. This area is commonly referred to as "Myakka Estates" and is southwest of the first area with its northeast corner contiguous with the southwest corner of the first (North Port) area. It is bordered on the east and south by Charlotte County, on the north and west by Sarasota County, and is approximately 15 square miles in area.

Subject to a Development of Regional Impact (DRI) review, the final development order covering this area was issued in 1982. Though road and drainage improvements to this area are yet to begin, nine (9) of twelve (12) subdivisions have been platted and recorded, with installment land sales practices in effect by the primary land owner; General Development Corporation. As platted, these two primary land areas of the City are currently zoned and regulated under the City's Zoning Ordinance adopted in 1965.

Though contiguous to the first district previously mentioned, the third distinct land area of the City consists of 3.6 square miles, and is commonly referred to as "Panacea". Annexed into the City in 1981, this land area had been subject to a Development of Regional Impact (DRI) review, with the final development order for the property issued in 1986. Approved as a Planned Commerce Development (PCD) district, this property, scheduled for development phased over a thirty (30) year timeframe, will provide for a mixture of residential, commercial, industrial, governmental, and institutional uses. Under separate ownership than GDC, this property will be developed in accordance with updated land development and zoning regulations adopted by the City in 1986.

The fourth separate district of the City covers a two (2) square mile area and is commonly referred to as the "Futrell" property. Located contiguous to the northwest boundary of the City's core area and landlocked to the north by I-75, this property is owned under Trust and currently zoned Agricultural. Development of this property is not anticipated within the ten year timeframe of this Comprehensive Plan. Future use of this proper-



SOURCE: CITY OF NORTH PORT
PLANNING AND ZONING DEPARTMENT, 1988

ty, however, is intended to be designed as a Planned Community Development (PCD) district, similar to that of the Panacea district referenced previously. The Existing Land Use Map on page 8 provides the locational context of these four separate districts as defined.

Within the boundaries of the City lie five (5) important features affecting future growth and development. These features include; the Myakka River, the Myakkahatchee Creek, U.S. 41, SR 39, and I-75. As depicted on Map 1, the limited access interstate of I-75 runs through the northern section of the City for 14.3 miles, and will most definitely play an important role in land use development at the Sumter and Toledo Blade interchanges including the Panacea property. U.S. 41 runs for 3.5 miles through the southwest section of North Port where the developed urban area of the City is located. Infill of urban development along the U.S. 41 corridor is expected to continue, and has been identified as such within the context of this Comprehensive Plan. SR 39, or Toledo Blade Boulevard as it is more commonly known, runs for 4.6 miles through a largely uninhabited rural area in a north-south direction from I-75 to U.S. 41 in Charlotte County. As the Panacea DRI and the Port Charlotte Town Center (Murdock Center DRI) develop, Toledo Blade Boulevard is projected to become one of the most heavily travelled roads within the City's corporate limits. The Myakkahatchee Creek provides the City with an abundance of historical, recreational and potable water resources. The value and importance of this natural feature is further identified within the Coastal/Conservation Element of this plan warranting special protection through growth management policies. The Myakka River, located within the Myakka Estates area of the City has been designated as an "Outstanding Florida Waterway (OFW)" and "Wild and Scenic" classification by the State. Though development within this "Myakka Estates Area" of the City has yet to commence, future development along this portion of the River shall be closely monitored to mitigate any and all environmental impacts.

Though the land area of the City encompasses 74.5 square miles as described, and more than 800 miles of roadways and 85 miles of drainage canals have been constructed by the original developer, only 7% of available properties have been developed and improved as of 1988. Accordingly, the potential for increased urban development within the locational setting of the community will necessitate increased coordination between the City and its adjacent areas of Charlotte and Sarasota Counties.

DESCRIPTION OF LAND USE

Overview of Platted Lands

The land area of the City encompasses 74.5 square miles. Of this total land area, approximately 69 square miles (92%) had been originally incorporated under the sole ownership of the General Development Corporation (GDC). As one of the largest land owners in the State of Florida, the land development practices of GDC involve pre-platting of properties for installment land sales of individual lots over a ten-year timeframe. Within the City of North Port, this marketing strategy involves the sale of approximately 86,000 lots.

Prior to incorporation as a Chartered City in 1959, and subsequent platting of subdivisions, much of the area now known as North Port was flood prone land used as grazing and timber ranges.

Between the late 1950's and early 1970's, almost 900,000 subdivided lots were platted in Charlotte, Lee and Sarasota counties. This "platting" was the formal procedure taken by the original landowners to officially record maps of their subdivisions. Recording of the plats consisted of filing the appropriate surveyed maps with the county involved and showing that all the existing requirements had been fulfilled. Approval of the plats simply consisted of a County Commission confirming that the plat requirements had been fulfilled. The filing of a plat was also necessary before the lots could be legally and effectively marketed. Once the plat was accepted, land development activity began. The development of these subdivisions constituted a significant physical undertaking because many areas within the subdivisions were wetlands which required excavating canals to both drain the land and provide the necessary fill for road construction and lot development.

While the extraordinary amount of subdivided and improved yet undeveloped land appears premature relative to existing demands, it represents an inventory available for future population needs and reflects a recent example of what has been an historic process of real estate development in the United States.

Residential

Given that North Port was originally marketed as a retirement community, it is not surprising that the dominant land use in the City is low density residential. Of the current total of 86,560 platted lots in the City, 85,479 or over 99 percent are for residential use (this includes 857 lots that are zoned for agricultural use in the Estates area but are in reality used for residential estate purposes). These 85,479 platted residential lots are distributed as follows:

- Single-family 84,392
- Duplexes 835
- Multi-family 252

As can be seen single-family housing is by far and away the major residential land use accounting for 99 percent of all residential lots. Multi-family housing, in contrast, accounts for less than one-tenth of one percent of residential land use in the City. In addition to the lots listed above, the City has 865 mobile homes.

However, as indicated below, only a relatively small percentage of the total number of platted lots for residential use in the City have been developed to date, especially in the case of single-family housing:

<u>Housing Type</u>	<u>Percent Developed</u>
Single-family	5.0
Duplexes	23.0
Multi-family	65.0

Present residential development is concentrated within a 3 mile radius along both sides of U.S. 41 in the southwestern section (excluding Myakka Estates) of the City. However, residential development is starting to expand outward from this core area to the east towards the MacCaughey waterway and to the north along Price Boulevard. The western portion of the Agricultural Estates area located in the northwest corner of the City is also an area of new residential growth.

As highlighted above, the City currently has a limited supply of higher density (multi-family) residential land uses. The City's developed stock of multi-family housing consists primarily of the Fairway Villas located adjacent to the North Port Country Club, and the new St. Andrews Ukrainian Church Condominium development located along Biscayne Drive north of U.S. 41. There does appear to exist, however, a demand for more multi-family housing in the City. Both church organizations and private developers have expressed interest in constructing additional multi-family housing to accommodate this growing demand.

While there does exist additional vacant unplatted tract acreage zoned for future higher density residential use, the amount may not be sufficient to accommodate the projected future demand for multi-family housing beyond the year 2000. Thus, as discussed further below and in the Housing Element, the City intends to designate additional areas on the Future Land Use Map for higher density residential use, within identified growth areas, and along identified transportation corridors.

Commercial

There are approximately 1,049 acres of land reserved for commercial uses in the City. This represents less than 2 percent of the total acreage found in the City. To date, out of this 1,049 acres, only 174 lots have been platted, of which only 54 have been developed. Although the City's commercial base presently appears limited, it in fact reflects the City's relatively small population and hence limited market. All of the existing commercial development in the City is presently located along U.S. 41 in plazas or in strip developments located along frontage roads. The major commercial plazas in North Port presently include:

- Biscayne Plaza
- North Port Village Shopping Center (Winn Dixie)
- North Port Shopping Center (Post Office)
- Holiday Plaza
- North Port Mall

Additional locations where land is zoned for commercial development include the Panacea Planned Commerce Development (PCD) District (180 acres), and within the identified growth areas of I-75 and Toledo Blade and Sumter Boulevards, and at strategic locations throughout the platted areas of the City. In the case of Panacea, development is not anticipated for another 3-5 years. Given the growing demand for public services and a limited existing tax base, the City is actively seeking to expand and diversify its commercial base, and to encourage infill of commercial development along U.S. 41 where central sewer and water is available, and controlled access is provided through frontage roads.

Industrial

There are presently 282 acres zoned for light industrial use in the City which represents 1 percent of the City's total land area. Of this total, however, 277 acres or 98 percent is located in the Panacea Planned Commerce District which, as noted above, is not scheduled for development in the immediate future. The remaining 4 acres of light industrial land is located along Trott Circle just off Pan American Boulevard. There are presently 35 platted lots along Trott Circle of which only 16 remain vacant and available. Thus, for projected industrial demands, there is at present a shortage of land available upon which to locate.

As the case with commercial development, the City would like to attract new light industries and encourage the expansion of existing ones in order to help diversify the City's limited economic base. However without additional lands zoned for industrial development, the prospect for significant growth in this area will remain limited in the immediate future. The City therefore intends to designate additional areas on the Future Land Use Map within identified growth areas where industrial uses will be permitted. This is discussed in further detail elsewhere in this Element.

Agricultural

The City contains 3,611 acres of land available for agricultural use which represents 8 percent of the City's total land area. None of this land has been developed to date for any kind of agricultural activity. The above figure does not include 857 platted lots in the Estates area which, as mentioned above, are zoned for agricultural use but are in fact used for residential Estates purposes. The City does not have any income producing farms or farm households as defined by the U.S. Census Bureau.

While there are no agricultural uses in the City at present, there is the possibility that some small scale agricultural related businesses such as grain/feed stores and farmer markets may develop in the near future.

However, it is expected that most of the 3,611 acres of currently vacant land zoned for agricultural use will eventually be developed for urban uses. Until such time, however, the City intends to preserve these lands for their currently designated use until market demand matures.

Recreation

North Port has a total of approximately 1,001 acres of land designated for recreation and open space use. Of this total, 185 acres are publicly owned and the remaining 826 acres are in private hands. The 185 acres of publicly owned recreation and open space areas includes 56 acres of land for neighborhood parks, 58 acres of land for community parks, and 56 acres of land for open space. The City's two community parks are the 40 acre Butler Park and the Dallas White Recreational Complex.

Of the 826 acres of privately owned recreation areas, only 254 acres are presently developed. Developed areas/facilities include the North Port Country Club and Yacht Club, the Holiday Park and Jockey Club Associations, and Little Salt Spring. The remaining undeveloped privately owned recreation areas consist of 213 sites owned and designated by General Development Corporation (GDC) as potential future park sites.

The Recreation and Open Space Element provides a detailed inventory of all the publicly and privately owned recreation areas and facilities. Also in that Element, an analysis is presented which indicates that the City possesses and adequate overall supply of developed recreation and open space areas to meet both its existing and future needs over the next 5 years.

Conservation

In the City's first comprehensive Plan, two major archaeological resource land use areas were identified: Little Salt Spring and the Atwater Drive site. As discussed in detail in the Conservation and Coastal Zone Management Element, Little Salt Spring (located along Price Boulevard to the east of the Elementary School) is one of the most important archaeological finds in the entire country. The relative significance of the Atwater Drive site has not been fully determined and thus the City intends to encourage further research and protection.

Since the development of the first Comprehensive Plan, another major archaeological resource area has been identified. An archaic Indian midden burial ground is located in the slough across from Little Salt Spring. As discussed further below in this Element, due to the importance of all three sites, the City intends to designate their land use as conservation/restricted, wherein urban development is intended to be strictly regulated. Also discussed further below, the City intends to designate on the Future Land Use Map the lands located along the Myakkahatchee Creek and the Myakka River as conservation/restricted, wherein urban development is intended to be strongly regulated, to ensure the mitigation of any environmental impacts.

Public Facilities

This category includes public buildings, schools, utilities, and transportation facilities. The City has 62 acres of land available for public buildings. Presently a little over 8 acres of this total are actually developed. The major public buildings in the City include City Hall, the fire and police stations, the post office, the library, and the public works garage. At present, these facilities are adequate to meet existing demands. In terms of school use, the City has over 560 acres of land available for future school sites. The North Port Elementary School is, however, the only school in operation in the City to date. The School stands on 47 acres of land. For use in determining adequacy of proposed school sites, the School Board of Sarasota County relies on the following guidelines:

Elementary School	15 to 20 acres
Middle School	35 to 40 acres

High School

55 to 60 acres

Current planning recommendations regarding schools for the North Port area during the next ten years include:

Elementary School

1993

Middle School

1995

Elementary School

1998

As such, the City intends to work closely with the Sarasota County School Board to determine optimum locations and acreage available to meet these ten year projections. The location of future potential school sites is discussed in the Inter-Governmental Coordination Element.

In addition to educational facilities, and as identified within the Housing element, there is a need to accommodate the growing demands for health-related facilities in the City. Accordingly, 66 acres of land located within the City's existing urban core shall be designated on the future land use map to accommodate demands.

As the City develops, and the demand for administrative services increase, additional lands will be necessary to accommodate government use. As designated on the future land use map, 2836 acres of land in the City have been identified as growth areas, while privately owned platted lands located throughout the City have been reserved for future public use. The timing and development of these lands to accommodate public use, however, is not yet determined, pending economic feasibility. As referenced in the Capital Improvement Element, a siting and space facilities feasibility study is intended to be completed to help identify future acquisition schedules and optimum locational needs.

Concerning public utilities, 318 acres of land has been set aside, 27 acres of which have been developed. Major developed public utility sites include the North Port Water and Sewer Treatment Plants. Land used for transportation facilities includes U.S. 41, SR 39, local roads, I-75 and their right-of-ways.

Vacant/Undeveloped

The City has over 8,700 acres of unplatted, undeveloped tracts of land located throughout the City. This represents nearly 20 percent of the City's total land area. In addition, the City has over 80,000 lots which have been platted but to date remain undeveloped. These lands are considered more than adequate to accommodate foreseeable growth projections. In turn, vacant, unplatted growth areas as designated on the future land use map covering 2836 acres are considered adequate to meet future market demands.

Service/Facility Availability

An analysis of the availability of facilities and services to serve the existing land uses detailed in Table I below is provided in each element of the Plan as referenced below:

<u>Element</u>	<u>Pages</u>
Traffic Circulation	54-66
Housing	95-101
Sewer	123-125
Solid Waste	143-146
Drainage	171-173
Potable Water	198-201
Natural Groundwater and Aquifer Recharge	215

<u>Element</u>	<u>Pages</u>
Recreation and Open Space	292-295
Conservation and Coastal Zone Management	236-238, 244-247
Intergovernmental	320-323
Capital Improvements	342-351

TABLE I
SUMMARY OF LAND USES, NORTH PORT 1988

<u>Use</u>	<u>Total Acres</u>	<u>Acres Developed</u>	<u>% Developed</u>
Residential	27,458	.1635	6.0
- Single Family	26,749	.1337	5.0
- Duplex	191	.44	23.0
- Multi Family	350	.75	21.5
- Mobile Homes	179	.179	100.0
Commercial	1,049	.26	2.5
Industrial (Light)	282	.4	1.5
Agriculture	3,611	.0	0.0
Recreation	1,001	.334	33.4
Conservation	796	.0	0.0
Public facilities	1,146	.150	13.0
- Schools	591	.47	8.0
- Public Buildings	62	.8	12.9
- Utilities	319	.27	8.4
- Churches	174	.68	39.0
Other*	12,312	.0	0.0
TOTAL	47,676	.2149	4.5

* Includes roads, road rights-of-way, waterbodies and other miscellaneous vacant acreage.

NATURAL RESOURCES

SUMMARY

As stated in the Conservation and Coastal Zone Management Element (CCZME), the City of North Port is a community of mostly platted lands whose development began in the mid 1950's.

Prior to platting for urban development, what is now the City was composed primarily of pine/palmetto flat-woods, live oak and slash pine highlands, and freshwater and saltwater marshes, all subject to inundation during Southwest Florida's subtropical rainy season.

As also noted in the CCZME, the natural resources of the area suffered substantial degradation during the platting process. However, the integrity of ecological and natural systems within undeveloped and unplatted areas of the City remains largely undisturbed—evidence, perhaps, of some degree of foresight and planning even in the less-enlightened times of the City's early development.

Mitigation of the effects of more than 30 years of growth and development is a matter of the highest priority for the City, particularly since North Port's predominantly residential economic base is so dependent on the

continued attractiveness of the City's natural amenities. The City's strategy for doing so is outlined in the CCZME and detailed in the Ground Water, Sewer, Solid Waste and Potable Water Sub-Elements.

Exploitation of natural resources within the City is almost exclusively related to residential construction and the existing and future demand for recreational amenities, including water-dependent and water-related uses. The CCZME and the Recreation and Open Space Element include detailed discussions of this pivotal reality of life in the City of North Port.

TOPOGRAPHY

The City of North Port was built on lands classified as Gulf Coastal Lowlands (source: Southwest Florida Ecological Characterization Atlas, 1984, reprinted in Part One of the SWFRPC Regional Policy Plan, page 1-13).

Elevations within the City range from 10 to 25 feet above sea level. Topography is flat and gently sloping from the City's northeastern "highlands" to the southwestern riverine lands lying along the Myakka River.

Some of the lowest elevations lie along the Myakkahatchee Creek, an area known locally as the Big Slough. The Creek enters the City at a point roughly midway along its northern border, and flows southwesterly to its confluence with the Myakka River in the northern portion of the Myakka Estates area.

CLIMATE

Typical of Southwest Florida, North Port's climate is subtropical. Monthly average temperatures range from 64.3 degrees Fahrenheit in January to 82.6 degrees in August. Freezes are rare.

Based on data collected over a 41-year period at the Myakka River State Park northwest of the City, the North Port area receives 56 inches of rainfall in an average year. The months of June through September account for about 60 percent of annual rainfall.

The winter dry season, with daily highs averaging in the mid-60's to the low 70's, is a potent encouragement to tourism and home-building for seasonal as well as permanent, year-round use.

GEOLOGY

Southern Sarasota County, encompassing all of the City of North Port, emerged from the ocean more than one million years ago during the Pleistocene geologic epoch as a consequence of declining sea level.

As discussed above under Topography, the City's geology consists of Gulf Coastal Lowlands, described in the following paragraph excerpted from the SWFRPC Regional Policy Plan, Part One: A Description of the Region:

"...Found in northwest Lee County and most of Sarasota and Charlotte Counties, the Gulf Coastal Lowlands are separated from the Desoto Plain by marine terraces that developed on the south side of the Peace River Valley. The transition from upland to shoreline occurs as a broad, gently southwestward sloping plain composed of depositional sediments of marine origin. These sediments are aligned generally parallel to the coastline, an arrangement which indicates their formation by marine forces (Southwest Florida Ecological Characterization Atlas, 1984)."

HYDROLOGY

This topic is discussed at length in the CCZME and the Drainage and Ground Water Sub-Elements.

Three aquifers--the surficial aquifer ("water table"), the intermediate aquifer and the Floridan aquifer--make up the groundwater system underlying the City of North Port.

The surficial aquifer is charged by rainfall and discharged through 85 miles of freshwater drainage canals into the Myakkahatchee Creek, and ultimately into the Myakka River.

The Myakkahatchee Creek flows generally from the northeast to the southwest. A bypass channel called the Myakkahatchee Relief Canal parallels the creek from the east-to-west--running from the Snover Waterway in the north to US 41 in the south. Together, these features constitute the keystone of the City's primary drainage system.

SOILS

The soils in the City consist of nearly level and somewhat poorly drained acid and/or sweet fine sands. Some of these sands are underlain by calcareous materials at shallow depths.

Approximately 70 percent of the City is covered with a soil association composed of Immokalee, Leon, Pomello and a very small amount of Ona and Scranton. These soils occur either as knolls, low narrow ridges and broad flats between sloughs, or interspersed with numerous small to large shallow grassy ponds. The remaining portion of the City consists basically of two soil associations: the first is Adamsville, Parkwood and Bradenton, which supports hammock-type vegetation consisting primarily of palm and oak trees; and the second is Pompano, Plummer, Delray, Rutlege, Felda and Manatee, which are found in shallow ponds and sloughs. These soils associations are depicted on the Soils Map below.

MINERALS

As stated in the CCZME, commercial extraction of minerals is virtually nonexistent in the City of North Port. Employing a very broad definition, the one possible exception might be the use of sand, shells, marls and clays for fill in the construction industry.

WETLANDS

The City of North Port's Existing Land Use Survey (June 1, 1987) states that the City contains 1,226 acres of wetlands, for the most part consisting of scattered, shallow depressions. These wetlands are shown on the Existing Habitat Map below. As also shown, coastal marches along the Myakka River provide pristine areas for shellfish harvesting and rookeries to thrive.

In addition to these natural features, five wetlands with a combined area of 56 acres were constructed by General Development Corporation under the terms of the 1982-83 DER Consent Order (OGC File No. 82-0128). Three of these are located along the Snover Waterway, one on the New Castle Waterway and one on the upper reaches of the Cocoplum Waterway in the eastern portion of the City. As of this writing, the DER had not given its formal approval to these man-made wetlands as constructed.

FLOODING

As noted above in the Hydrology section, the Myakkahatchee Creek and the Myakkahatchee Relief Canal are the central features upon which the primary, secondary and tertiary drainage systems of the City depend.

The area adjacent to the Creek and north of the Snover Waterway is subject to flooding during the rainy season. In fact, the so-called "No-Name Storm" of 1982 caused flooding in the upper reaches of the Creek which closely approximates the 100-year flood zone shown on the FEMA Flood Insurance Rate Map for the City.

Another area of flooding lies in the northwest corner of the City along the R-36 drainage channel. The most serious flooding occurs along the upper, east-west sections of the channel, but some flooding also occurs along the western boundary of the City along the drainage right-of-way of R-36.

According to the Southwest Florida Hurricane Study (1987), portions of the City lie within all five storm category zones, and most of the developed portion of the City is within the Category 3 zone. In the event of a major storm, the Myakka River would be the source of considerable flooding.

ANALYSIS

FUTURE LAND USE: POTENTIAL FOR GROWTH

POPULATION PROJECTIONS

The population of the City of North Port was projected for the period 1988-1999 by Florida Environmental Inc., a private consulting firm. In accordance with Chapter 9J-5.005 (2)(e)1 of the Florida Administrative Code, the Methodology used to derive these projections, and the projections themselves are described below.

METHODOLOGY

Population projections were made using the recent growth rate of the City as estimated using 1980 Census and the Bureau of Economic and Business Research (BEBR) population data. This rate was applied to an updated inventory of dwelling units in the City, demographic coefficients, and occupancy rates to project population growth.

Growth Rate

Table II below presents population estimates for the City of North Port from 1980 through 1987. The data sources are the 1980 Census (1980) and the BEBR (1981-1987).

TABLE II
POPULATION ESTIMATES FOR THE CITY OF NORTH PORT; 1980-1987

<u>Year</u>	<u>Population</u>
1980	6,205
1981	6,807
1982	7,208
1983	7,661
1984	8,006
1985	8,331
1986	8,490
1987	8,828

Using the methods of least squares, the following exponential equation was fit to the data set with a R2 coefficient of .96:

$$\text{Population} = (6152.94)(1.049)^{\text{Year}}$$

The compounded percentage growth rate was approximately 5% (1.049 - 1.0) which was used to project the North Port population from 1988 through 1999.

Demographics

The average household sizes for Sarasota and Charlotte Counties were averaged to arrive at an estimate of 2.2 persons. The average household size estimate for Sarasota County was 2.21 persons on April 1, 1986, and the Charlotte County estimate was 2.19 persons per household. This information was taken from the 1987 Florida Statistical Abstract (pp. 48,49).

Two occupancy rates were estimated for North Port to reflect the seasonal or peak population and the permanent population. The ratio of inactive to active water connections obtained from General Development Utilities for representative months were used.

The February and March 1988 connection data reported in Table III below were used to represent the peak occupancy rate of 95%. Also reported in Table III is the July and August 1987 connection data used to represent the permanent occupancy rate of 77%.

School age population estimates are based on the ratio of Sarasota County school age population to permanent population as reported in the 1987 Florida Statistical Abstract (pp.49,79). The ratio used represents students in K-12 categories and is 9.26% of total population.

**TABLE III
WATER CONNECTION RATES FOR THE CITY OF NORTH PORT, 1987-1988**

Month	Year	Active	Inactive	Occupancy Rate %
February	1988	5,555	312	95
March	1988	5,555	318	95
July	1987	4,449	1,332	77
August	1987	4,461	1,335	77

RESULTS

The 4.94% growth rate was used to develop dwelling unit projections for the City of North Port. Dwelling units were then multiplied by the corresponding occupancy rate (peak or permanent) and household size to arrive at total population estimates. The school age population was then estimated by multiplying the school age population ratio by the permanent population estimate. The results are summarized in Table IV below.

The data indicate that by 1993 the permanent population of the City is expected to reach over 12,500 while the peak season population will rise to over 15,500. By 1998, the City's permanent and peak season population is forecasted to increase to 16,448 and 20,293 respectively.

The spatial distribution of the City's population over the period 1998-1999 was also projected based on an updated version of a growth model developed originally for the greater Port Charlotte Area by Paul Van Buskirk and Associates in 1980.

TABLE IV
SUMMARY OF HOUSING AND POPULATION PROJECTIONS
CITY OF NORTH PORT; 1988-1999

<u>Year</u>	<u>Housing</u>			<u>Population</u>		
	<u>Total</u>	<u>S.F.</u>	<u>M.F.</u>	<u>Peak</u>	<u>Permanent</u>	<u>School</u>
1988	5,868	4,710	1,158	12,264	9,940	920
1989	6,111	4,913	1,198	12,772	10,352	959
1990	6,393	5,145	1,248	13,361	10,830	1,003
1991	6,710	5,407	1,303	14,024	11,367	1,053
1992	7,058	5,685	1,373	14,752	11,957	1,107
1993	7,439	6,006	1,433	15,547	12,601	1,167
1994	7,859	6,336	1,523	16,425	13,313	1,233
1995	8,291	6,668	1,623	17,329	14,046	1,301
1996	8,761	7,028	1,733	18,311	14,842	1,374
1997	9,249	7,381	1,868	19,331	15,668	1,451
1998	9,710	7,752	1,958	20,293	16,448	1,523
<u>1999</u>	<u>10,145</u>	<u>8,134</u>	<u>2,011</u>	<u>21,203</u>	<u>17,185</u>	<u>1,591</u>

SOURCE: Florida Environmental Inc., 1988.

Data Base

An extensive data base was developed for the model and updated from 1" - 600' scale aerial photography, plat maps of the study area, field surveys and Master Land Use Plans. The 1" - 600' scale aerial photography used to update the Model was flown January 13, 1987. The number of existing single family and multi-family dwelling units within traffic zones were accurately determined for the model. To complete the baseline update through July 1, 1987, the certificates of occupancy issued since January 13, 1987 were obtained from the City of North Port and entered into the appropriate zones.

Growth Model

The updated Growth Model for North Port contains 132 traffic zones (TZ) within six larger planning districts (PD) as depicted on Map 5 below. This design facilitates tracking the spatial distribution of growth in North Port. The traffic zones are the basic planning unit used in the model.

TZ's grow at varying rates based on the percentage of buildout and the number of dwelling units in the zone. A logistic growth curve is applied individually to distribute the projections within TZ's.

Table V below presents the projected distribution of North Port's peak season population by Planning District for 1988, 1993, and 1998. The data indicate that as of 1988, nearly 97 percent of the City's total peak season population was located within Planning District 12 which corresponds to the City's Urban Infill Area. The data also show that over the course of the 10 year planning period that the most of the City's new population growth will continue to occur within Planning District 12, albeit at a slower rate than in the past.

TABLE V
PROJECTED SPATIAL DISTRIBUTION OF PEAK SEASON
POPULATION; NORTH PORT 1988, 1993, AND 1998

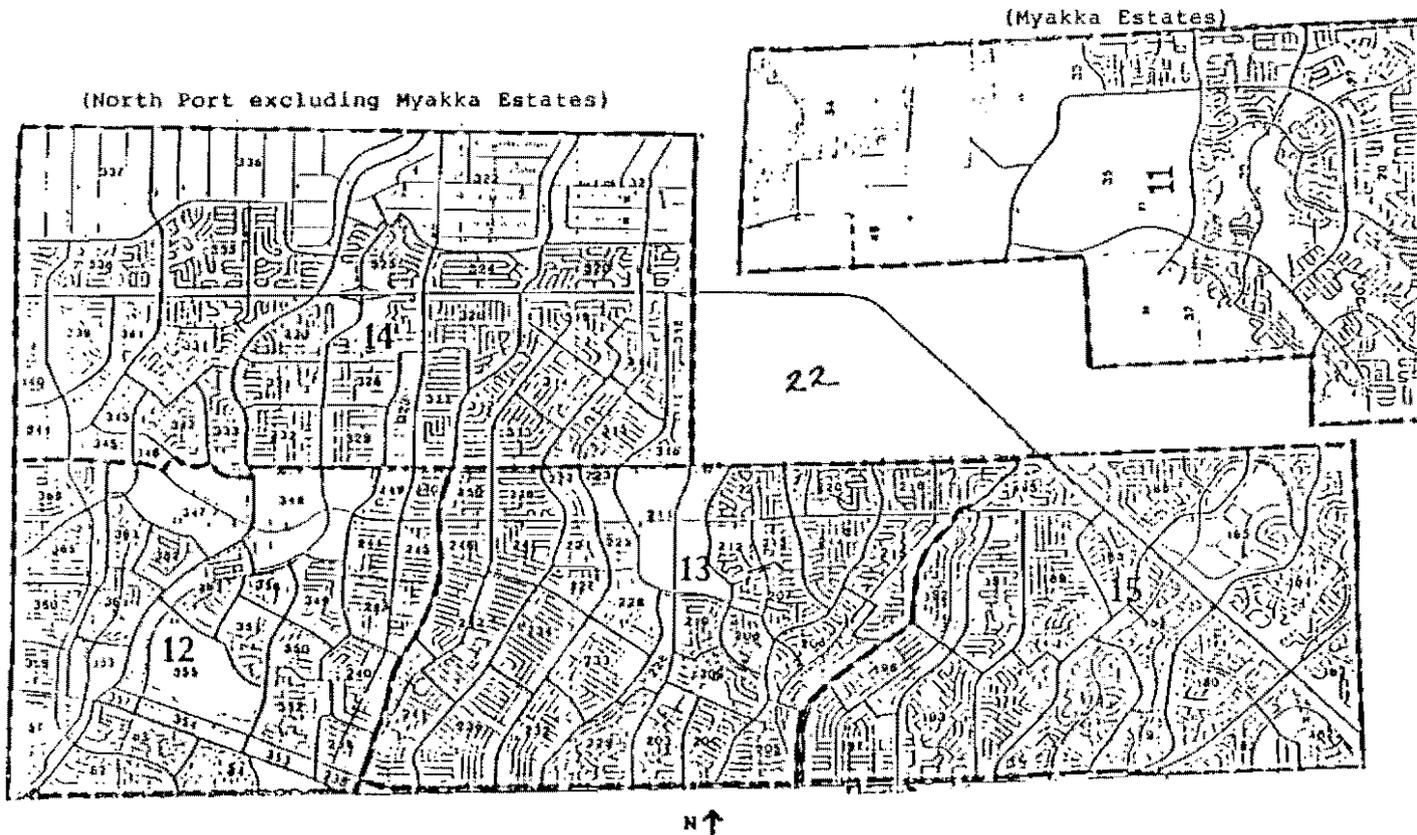
PD	1988		1993		1998	
	No.	%	No.	%	No.	%
11	4	-	4	-	118	-
12	11878	96.9	14013	90.2	16637	82.0
13	170	1.4	500	3.2	749	3.7
14	207	1.7	777	5.0	1269	6.3
15	4	-	5	-	27	-
22	0	-	249	1.6	1492	7.3
Total	12264	100.0	15547	100.0	20293	100.0

SOURCE: Florida Environmental Inc., 1988.

Land Availability to Meet Population Projections

Presently in North Port 86,560 lots have been platted for development. Of this total, 85,479, or over 99 percent are for residential use. Of these lots, only some 6 percent have been developed to date leaving over 80,000 lots available to accommodate the projected 8,000 increase in population over the ten-year time frame 1988-1998. Thus, more than enough land is available to accommodate the City's projected population increase.

CITY OF NORTH PORT
Planning District and Traffic Zones



Source: Florida Environmental Inc., 1988

ECONOMY

The economy of North Port is intricately tied to that of Sarasota and Charlotte Counties as well as to the entire Southwest Florida Region. In recent years, the growth of the Region's labor force has exceeded population growth. This has contributed to an active economy and historically low unemployment. While unemployment data for North Port is not available, Table VI below presents unemployment figures for the south Sarasota County area as of February 1988.

**TABLE VI
UNEMPLOYMENT DATA FOR SOUTH SARASOTA COUNTY, FEBRUARY 1988**

<u>Category</u>	<u>Number</u>
Civilian Labor Force	82,743
Number of Employed	79,984
Number of Unemployed	2,759

Source: Florida State Department of Labor, February 1988

The data indicate that the south County area has a 3.3 percent unemployment rate. This compares very favorably to the Statewide and national averages of 5.2 and 7.2 percent for the same period.

The economic base of the Region is dominated by the Trade and Services sectors which as of 1984 accounted for 30.2 and 25.4 percent of total non-agricultural employment.

In North Port, the local economic base is heavily influenced by its long-time status as a predominantly single-family residential retirement community. Like most other retirement communities, there are very few industrial (light) uses found in the City and the commercial sector is dominated by trade and service establishments. This rather limited economic base is exacerbated by both the City's relatively small population (1988 permanent population of 9,500) which limits market demand as well as by its geographic location between two larger and more economically diversified municipalities; Ft. Myers and Sarasota. Existing industrial and commercial uses found in North Port were discussed in Section II above. Projections of the future demand for commerce and industry in the City are presented in Table VII below.

The retail and service employment estimates in Table VII were based on the number of employees per square foot. Industrial estimates were based on the relationship between acres and employment. The historical relationships of employment and per capita demand for commercial space were developed using data from similar Florida communities.

The data indicates that by 1993 there will exist a demand for 252,000 square feet (gross leasable area) of retail space, 126,000 square feet of space for services (including offices) and 23 acres for industrial uses. By 1998 the demand for retail and service space is projected to increase to 329,000 and 164,000 square feet respectively while the need for industrial acreage is forecasted to grow to 36 acres.

Table VIII below compares these projections of future demand with the supply of available land for commercial and industrial uses.

The data indicates that the City has a more than adequate supply of land to accommodate projected future commercial development through 1998. Although future commercial development is projected to continue to concentrate along U.S. 41, the City also has designated the following areas as Future Growth Areas where commercial development will be encouraged (see Future Land Use Plan section IV):

TABLE VII
PROJECTED DEMAND FOR COMMERCE; NORTH PORT 1988-1999

<u>YEAR</u>	<u>Retail</u>	<u>Service</u>	<u>Industrial</u>
	<u>Square Feet (100)</u>		<u>Acres</u>
1988	179	89	10
1989	197	93	12
1990	217	108	14
1991	227	114	16
1992	239	120	18
1993	252	126	20
1994	266	133	23
1995	281	140	26
1996	297	148	29
1997	313	157	32
1998	329	164	36
1999	344	172	39

SOURCE: Florida Environmental Inc. August 1988

TABLE VIII
COMMERCIAL AND INDUSTRIAL USES; NORTH PORT 1993 AND 1998

<u>Category</u>	<u>1993</u>			<u>1998</u>		
	<u>Demand</u>	<u>Supply</u>	<u>Need</u>	<u>Demand</u>	<u>Supply</u>	<u>Need</u>
Commercial (Acres)	34.70	1022.03	-0-	45.27	1022.03	-0-
Industrial	20.00	7.00	13.00	36.00	282.00	-0-

Source: North Port Planning & Zoning Department, August 1988

- Panacea DRI
- Myakka Estates DRI
- Futrell Property
- I-75 and Toledo Blade
- I-75 and Sumter Interchange
- I-75 and Raintree Interchange
- Toledo Blade and Price Intersection (4 tracts of land)
- Sumter and Price Intersection (4 tracts of land)

As previously mentioned, the extension of central water, central sewer and electrical utilities to several of these sites may be a limiting factor in their development. The City will actively investigate available subsidies such as Community Development Block Grants and Industrial Development Bonds to facilitate the extension of essential infrastructure necessary to accommodate commercial development in these areas.

The data in Table VIII above indicates that over the period 1993-1998, the City faces a deficit of available land upon which the projected demand for new industry can be accommodated. By 1998, however, this deficit is expected to be eliminated owing primarily to the development of the Panacea DRI growth area which is scheduled to contain 275 acres available for light industry uses. In addition, the other growth areas mentioned above will also make land available for light industrial uses.

ANALYSIS OF NATURAL CONDITIONS AFFECTING DEVELOPMENT

SOIL SUITABILITY FOR DEVELOPMENT

The City of North Port Soil Association Map, based on the Sarasota County Soil Survey, Series 1954, USDA Soil Conservation Service, offers a general graphic representation of soil suitability for development within the City. As can easily be seen, no areas within the City are rated any better than "somewhat poorly drained."

The Adamsville-Pompano Association is considered suitable for development. The Immokalee-Myakka-Pompano, Myakka-Immokalee-Basinger, Scranton Variety-Ona-Placid, and the Pompano-Delray Associations are marginal for development. The tidal marshes and swamps are unsuitable for development because of periodic flooding, low strength and wetness.

As discussed in the Sanitary Sewer Sub-element, all of the soils within the City have severe limitations for septic tank absorption or drain fields.

Soils data of the Florida Soils Atlas and the Soil Conservation Service have been examined as to their suitability for urban and specialized development and have been classified by the Florida Regional Coastal Zone Management Atlas, Region 9, Southwest Florida (September 1975) as either suitable, marginal, or unsuitable for development. The description of the soils in each as well as the factors determining the classifications are discussed below.

Suitable for Development:

The Adamsville-Pompano Association is considered suitable for development primarily because of moderate limitations for dwellings, light industry, and roads and streets. Severe limitations exist, however, for sanitary facilities. These soils are suitable for development if proper environmental safeguards are implemented.

Marginal for Development:

The Immokalee-Myakka-Pompano, Myakka-Immokalee-Basinger, Scranton Variety-Ona-Placid, and the Pompano-Delray Associations are considered marginal primarily because of the severe limitations for shallow excavations, dwellings, light industry, and roads and streets. These soils require special treatment prior to development.

Unsuitable for Development:

The tidal marshes and swamps are unsuitable for development because of periodic flooding, low strength, and wetness. As a potential for community development including recreational development and open land and wildlife habitat, these soils are severely limited.

TOPOGRAPHY AND SLOPE: RUNOFF AND DRAINAGE CONSTRAINTS

The gently sloping character of the City's topography, coupled with poor soil percolation in many areas, means that certain specific areas of the City are unsuited to development due to poor drainage.

The Myakkahatchee Creek has limited capacity to drain not only runoff from lands within the City, but also the agricultural lands immediately to the north. Those lands lying along the Creek north of the Snover Waterway are all within the FEMA flood zone, and consequently have extremely limited development potential.

Persistent drainage problems also exist in the northwest corner of the City in the Estates platted subdivision.

In the southern portion of the City, the low-lying areas adjacent to the Myakka River and the Creek's confluence with it are most vulnerable to hurricane inundation.

As noted in the CIE, topographical mapping of the Big Slough watershed is anticipated to be complete by the SWFWMD in 1990. This should provide the City with baseline data to be used for further analysis in mitigating existing drainage problems.

In addition, and as referenced in the CIE and Drainage Elements, completion of the modified plan of reclamation will also serve to correct existing deficiencies found within the City's primary drainage system.

WETLAND RESOURCES

The conservation and protection of wetlands in the face of continued and accelerating development is a prime objective of the City. The CCZME states that the City will have a wetland protection ordinance by 1990 aimed at achieving the delicate balance between flood prevention and the preservation of water quality, freshwater storage capacity and wildlife habitat.

The inestimable value of the City's remaining wetlands as wildlife habitat was highlighted in undeniable fashion in the November 1983 DER Consent Order. One of the provisions of that Order required General Development Corporation to mitigate some of the effects of large-scale dredge and fill activities through the creation of five new wetlands.

By way of further enhancing the value of wetlands for wildlife habitat, the City intends to require that upland buffers be provided adjacent to wetlands. In addition, adoption of an updated dredge and fill ordinance by 1990, and increased coordination with the FDER and the SWFWMD should provide further protection of wetland resources.

RIVER AND STREAM RESOURCES

The Myakkahatchee Creek and the Myakka River, with their great natural beauty, constitute two of the most irresistible lures to development within the City. But as has been repeatedly stated, however, these lands possess the most serious limitations to development to be found anywhere in North Port.

Some 264 lots have been platted for residential development along the northern reaches of the Creek above the Snover Waterway. Only one home has been built in this area, but the rest of the lots are either under contract for sale, or are owned outright, by General Development Corporation.

The City intends to discourage development along the Creek through all practicable means, including lot-swap programs, transfer of development rights and the last-resort option of land purchase. An ad hoc group known as the Big Slough Watershed Advisory Committee will be making recommendations to the City Commission regarding preservation of the Creek's natural values and enhancement of its drainage capacity.

The entire length of the Myakkahatchee Creek and the Myakka River inside the City's borders has been designated as a "Conservation-Restricted Zone" on the Future Land Use Map. The boundaries of the "Conservation Restricted" area are consistent with the boundaries of the FEMA "A" 100-year flood zone. As a consequence, residential development in the area will be further restricted and controlled through scheduled revisions to the City's land development regulations. Post-disaster redevelopment plans are further detailed on page 268 of the Conservation and Coastal Zone Management Element.

Further discussion of the City's policies for dealing with development pressures in the Creek area is contained within the CCZME.

The State-mandated Myakka River Management Plan, currently under development, will address various means to ensure maintenance and enhancement of the River's resource values. As a co-developer of the plan along with the other participants of the Myakka River Management Coordinating Council, the City intends to incorporate this plan into the City's own growth management plan upon review and adoption by the City Commission.

WOODLAND RESOURCES

Pine timber harvesting as a commercial enterprise virtually ceased in the 1940's. In the initial phases of the City's development in the late 1950's and early to mid-'60's, mass clearing of trees was an accepted technique for platted lot subdivision.

Now, a full generation later, woodland resources are valued as part and parcel of the ecological birthright of all City residents. The City intends to protect that birthright through the enactment of a comprehensive landscape/tree ordinance sometime before the expiration of the five-year planning period.

GROUNDWATER RESOURCES

The extreme vulnerability of groundwater resources to pollution and contamination from urban development is a concern expressed repeatedly in the Ground Water, Potable Water, Sewer and Solid Waste Sub-elements of the City's growth management plan. Discouraging the use of septic tanks, identifying and capping or valving free-flowing artesian wells, monitoring potential leachate from the City's landfill, and improving the City's stormwater management system through a carefully considered capital improvements program, are just a few of the protective strategies outlined in the Goals, Objectives & Policies sections of these sub-elements.

The CCZME singles out the Myakkahatchee Creek for special protection in recognition of its classification as a Class I potable water source. The Creek is the primary source of raw water supplying the North Port Water

Treatment Plant; the plant's potable water output is apportioned on a roughly 50-50 basis between the City and adjacent areas of Charlotte and Sarasota County.

FINANCIAL/ENVIRONMENTAL COSTS

The protection of sensitive ecosystems, wetlands, creeks and rivers of North Port cannot be accomplished without the harmonious cooperation of both the development and regulatory sectors. In order to protect these natural resources, a concerted effort will be required on the part of the City to insure that required natural resource protection is a standard consideration in every development proposal review. While this element addresses some of these concerns in the Goals, Objectives and Policies Section, specific guidelines will be considered for inclusion in the State-mandated land development regulations to be adopted by the City to implement the Comprehensive Plan.

In addition, and as a means to further the preservation and protection of nonrenewable environmental resources, financial resources when economically feasible shall be appropriated within the Plan's Capital Improvement Element which reflects these desires. At present, 93% of properties within the City of North Port which are available for urban development remain vacant. Through annual, incremental appropriations and land development regulations, pristine environmental resources of today can remain in their natural state for the use and enjoyment of future generations.

As noted below, the cost to restore environmental resources which are no longer functional is extremely high.

SARASOTA BAY RESTORATION

Federal share, \$400,000/year for 5 years under the National Estuary Program (75%);

Local share (City of Sarasota, Manatee and Sarasota Counties, SWFWMD, and possibly other entities), 25% or \$134,000/year for 5 years.

TOTAL ANNUAL EXPENDITURES: \$534,000

TOTAL EXPENDITURES OVER 5 YEAR PERIOD: \$2,670,000

TAMPA BAY RESTORATION

Federal share: \$100-200,000; tentatively estimated

State share: through SWIM, \$2 million from the 1987 legislature, plus another \$500,000 from the water management district; the '88 legislature added another \$2 million appropriation, and the water management district another \$500,000.

TOTAL: \$5 million for the two-year period, plus as yet undetermined federal funding.

CITY OF NORTH PORT: WATER QUALITY IMPROVEMENT

\$525,000 appropriated in the Pollution Control Recovery Trust Fund as received from GDC and administered by FDER to restore and improve water quality within the City of North Port.

SOURCE: Southwest Florida Water Management District (SWFWMD), 1988.

As such, it is the intent of this Comprehensive Plan, through proactive planning, to minimize future degradation of natural resources, and thereby limit the use of future financial outlays for costly reconstruction. Con-

tinuous efforts shall be applied and coordinated through the City's Planning and Environmental Departments, to include:

1. Designation of lands along the Myakka River and Myakkahatchee Creek as, "Conservation-Restricted," wherein strict land development regulations shall be adopted and enforced.
2. Continued participation in the Myakka River Management Coordinating Council for subsequent adoption and implementation of a Management Plan, upon completion.
3. Increased coordination and compliance with the Charlotte Harbor Management Plan.
4. Adoption of revised land development regulations and stormwater management to mitigate environmental impacts of urban development.
5. Continued monitoring and enforcement of air and water pollution regulations.
6. Where economically feasible, acquisition of environmentally sensitive lands.

ANALYSIS OF MAN-MADE CONDITIONS AFFECTING DEVELOPMENT

PLATTED LANDS

The problem of what can be done with previously subdivided land which has not yet been constructed upon or built out, and which no longer complies with subdivision rules and regulations, has become quite serious in jurisdictions all over the United States. Real estate in many areas was platted in small-lot residential subdivisions with little consideration for the impact on water supply, sewage disposal, transportation, etc., which would accompany build-out. When initially platted, these subdivisions were the dream of real estate developers. Today, these areas present numerous current and potential problems for local governments in the delivery of cost effective urban services.

An increasing influx of settlers has awakened a recognition that some remedial measures must be initiated to protect not only those who have already moved in, but also those who have invested in a lot and hope to retire there or sell the lot for profit.

The lots in these subdivisions were marketed for single-family residential development in aggressive promotional campaigns, and have now been sold to thousands of owners scattered throughout the United States and abroad. Many of these owners have apparently purchased their lots for investment and not for personal use since, after many years, fewer than 10% have homes on them. Yet the potential population of the platted lands exceeds the projected total population of the area well into the next century, implying that a significant number of lots may never be built upon at all.

Many of the subdivisions fail to meet contemporary standards for development design and natural resources management. The planning, by today's State and local standards, was considered inadequate. Some were not planned for complete basic services, and lot purchasers were often promised only roads for access and a canal system for drainage. Furthermore, the platting and sale of the lots were not phased to coincide with any expected rate of occupancy. Instead, virtually all of the lots were marketed as fast as the company could

plat and sell them. It also appears that the developers of the large subdivisions failed to undertake studies to determine whether the hydrological systems in the areas were adequate.

In sum, the absence of sophisticated public regulation, which itself reflected a general lack of public awareness, allowed developers to proceed with subdivisions which were designed to produce lot sales, as opposed to viable long-run communities. Although many of the developers later began to respond to the need for community stability, these early actions have made the task a difficult one to accomplish by small communities such as North Port.

Future land acquisition, and operations and maintenance costs may be high relative to platting of subdivisions based upon today's planning standards and developer exactions. Data on the original subdivisions platted in the North Port area indicate that 83% of the land had been allocated to lots, while only about 8% had been allocated to parks and recreational land. This is significantly less than the 25% open-space allocation advocated by most planners today. By contrast, GDC has planned to allocate over 25% of the land within the Myakka Estates development to "natural greenways" and open space.

As population pressure on the Charlotte Harbor area increases and building on the subdivided lots intensifies, these large subdivisions appear to present three major concerns for state and local government authorities, planners, and present and future residents of the area—both for the lots in their current state and if built out. These concerns are: the provision of basic public services; the protection of the physical environment; and the quality of community life.

Within the City of North Port, higher maintenance and liability costs may be attributed to the acceptance of road and drainage improvements throughout the 75 square mile area. Mitigation of adverse impacts from urbanization will be needed to be applied on a lot-by-lot building permit application stage, rather than at the plat-approval stage of development. The City's Comprehensive Plan seeks to analyze the impact of these limitations with regard to the growth management requirements of F.A.C. Rule 9J-5.

The 1985 Growth Management Act, the 1986 "Glitch Act", and Rule 9J-5 of the Florida Department of Community Affairs (DCA) were written with DRI's and large-scale PUDs in mind. By failing to acknowledge the realities of existing platted lands subdivisions, the Legislature in effect treated the individual lot owner in the same manner in which he treats developers. Building permit applications for single family dwellings generally become mini-PUD applications.

Rule 9J-5 requires that our Future Land Use Element contain at least one policy to provide "that facilities and services meet the locally established level of service standards, and are available concurrent with the impacts of development, or that development orders and permits are specifically conditioned on the availability of the facilities and services necessary to serve the proposed development; and that facilities that provide utility service to the various land uses are authorized at the same time as the land uses are authorized". {9J-5. 006 (3) (c) 3; emphasis added}.

Though North Port's City-wide levels of service (LOS) are adequate, except for the identified future growth areas, greater controls will be necessary at the lot-by-lot building permit stage to achieve the state mandate, rather than at the plat approval stage.

In recognizing the private property rights of multiple landowners, and the limited fiscal resources of local government, North Port will attempt to achieve compact orderly growth consistent with the 1985 Growth Management Act of Florida by designating future growth areas, updating existing land development regulations, and adoption of innovative land use concepts such as "Transfer of Development Rights (TDR's).

In order to protect environmentally sensitive areas, a transfer of development rights process will be considered for adoption. Utilizing this technique, development rights are transferred from a transfer zone to a receiving zone. The transfer zones are some of the areas to which the Conservation - Restricted Use classification applies, such as lands along the Myakkahatchee Creek and Indian midden area. Land owners in these areas

will be able to voluntarily transfer their property rights to the receiving zone. The receiving zones shall be those growth areas (PCD's) as depicted on the future land use map. The receiving zones consist of land where higher density development could be accommodated. Most of the parcels within proposed receiving zones are undeveloped unplatted parcels located in areas where land development regulations will provide for mitigation of environmental impacts. Much of the area was selected to effect infill, and make the best use of the infrastructure and urban services intended to be provided there. The formal Transfer of Development Rights Ordinance is expected to be prepared for consideration by 1990.

Other innovative land use concepts may be considered and voluntarily applied such as condemnation, consolidation, assembly and replatting of vacant lands. These concepts, however, may require additional direction and action at the State level of government prior to their effective use by local governments.

At present, and as previously noted, only 7% of North Port has been developed. Though constrained by previously platted lands, with implementation of the Goals, Objectives and Policies contained within this Comprehensive Plan, it is anticipated that development of the remaining 93% will be consistent with the spirit and intent of Florida's 1985 Growth Management Act.

In dealing with this issue, the City of North Port will first determine areas which will be served by public facilities during the planning time frame. Platted subdivisions which will remain outside of the areas to be served by public facilities during the planning time frame will be identified and made subject to development regulations based on studies of the anticipated growth, the character of the land, and facility availability. Further, policies will be adopted to establish thresholds which would trigger the provision of public facilities. Special assessments may also be considered to finance urban services which are demanded from property owners located outside of the defined growth areas. In addition, North Port will also consider implementing transfer of development rights or lot-swapping programs to encourage development within the areas to be served by public facilities. Any and all such services shall be delivered based upon economic feasibility.

DEPARTMENT OF COMMUNITY AFFAIRS AGREEMENT OF 1978

An agreement was entered into between General Development Corporation (GDC) and the Department of Administration, Division of State Planning (DCA) on February 10, 1978, to resolve differences in the interpretation and application of Chapter 380, Florida Statutes (Developments of Regional Impact).

Interpretation of this agreement remains unclear, as the City was not a party to this agreement.

It would, however, appear to impact upon the City relative to Florida Statutes, Chapter 163: Local Government Comprehensive Planning and Land Development Regulation Act, and in addition, impact upon our local efforts to encourage development within unplatted growth areas where central urban services would be provided, consistent with the 1985 Growth Management Act.

As such, increased coordination with the DCA will be necessary to ensure consistency between the Master Land Use Plan of GDC and the Future Land Use Plan of the City of North Port.

FLORIDA STATUTES, CHAPTER 298: NORTH PORT WATER CONTROL DISTRICT

The North Port Water Control District (NPWCD) is an independent public agency duly established in 1974 pursuant to the provisions of Chapter 298, Florida Statutes. This law provides for the creation of water control districts to provide drainage to lands owned by multiple owners. The NPWCD is managed by a Board of three supervisors, each serving a three year term. One member of the Board of Supervisors is elected each year at an annual meeting. Votes are cast on the basis of landholdings, regardless of residency. Likewise,

funds to operate the NPWCD are obtained from an annual assessment levied based on land area served by the District.

The NPWCD has within its boundaries approximately 35,000 acres, the majority of the platted land within the City. Its objective is to construct, operate, and maintain an integrated system of water control which will provide adequate drainage for developed areas, protect against flooding and conserve water for domestic supply and wildlife enhancement. The District's management plan is detailed in the 1977 Plan of Reclamation.

The Plan of Reclamation prepared for the North Port Water Control District states that the object of the design is to provide protection for the City from damages generated by a 10-year frequency, 5-day duration storm event. Following these design standards, a waterway system with control structures was designed to meet the drainage needs of the City at its ultimate build-out. No documentation about the design of the Plan of Reclamation or its implementation appears to exist. In particular, information about safety factors or the sensitivity of the various system components for meeting the drainage criteria at build-out is unavailable. Likewise, there is neither a definitive schedule for completion of the Plan of Reclamation nor an estimate of the current level of completion.

Normally districts operating under Chapter 298, F.S. carry out required capital improvements with funding provided by an assessment on the landowners who will benefit by such improvements. In the case of the NPWCD, GDC agreed to carry out the entire work program called for by the Plan of Reclamation at its own expense. Under this agreement, the drainage infrastructure would be completed and turned over to the District for operation and maintenance. This procedure of construction by GDC and acceptance by NPWCD for operation and maintenance has been followed for plat units and other improvements completed since activation of the District in 1977, and it is anticipated to be followed for construction of subdivisions not yet completed by GDC.

Given that the Plan of Reclamation has been altered under a DER Consent Order with GDC and that some aspects of the system may not be buildable under current environmental regulations, the NPWCD or GDC needs to analyze the system under various construction scenarios to determine whether the level of service adopted in the Plan will be achieved at build-out. Additional information regarding the Plan of Reclamation and the NPWCD is provided in the Drainage Element.

EXISTING DEVELOPMENT AGREEMENTS

1984 Road Agreement

In February, 1984, an agreement was executed between the City and the General Development Corporation (GDC). This agreement specifies that GDC's obligation is to complete roads and drainage facilities in accordance with the requirements of the City in effect on the date of plat approval, including:

- 1) Completion of all items on approved construction drawings which though platted, were not previously completed.

The agreement provides that upon satisfaction of specified conditions, the City will accept the road and drainage facilities for maintenance.

Three-Party Agreement

In October, 1984, a three-party agreement was made between the City of North Port, the North Port Water Control District, and the General Development Corporation. Terms of this agreement provide for the construction, ownership, maintenance, repair and control of primary, secondary and tertiary drainage facilities located within the City's corporate limits.

The facilities include, but are not limited to, drainage rights of way, easements, water control structures, canals, bridges, culverts, ponds, and other drainage facilities comprising a primary, secondary, and tertiary surface water management system.

For and in consideration of the premises contained in the agreement, the parties agreed as conceptually outlined in attached exhibits, the general location of the drainage facilities to be accepted by the City and the North Port Water Control District, respectively, upon construction by the General Development Corporation.

Myakka Estates Settlement Agreement

On September 9, 1974, the City of North Port issued a Master Development Order for the entire Myakka Estates Development in Sarasota County within the City of North Port. General Development Corporation subsequently submitted a Development of Regional Impact known as Myakka Estates Units 5, 6 and 7. The City of North Port entered its Development Order on June 26, 1975, pursuant to Chapter 380, Florida Statutes, which approved the development of regional impact proposed by General Development Corporation known as Myakka Estates Units 5, 6 and 7. Approval of Myakka Units 5, 6 and 7 was denied by order of the Florida Land and Water Adjudicatory Commission, and this order was appealed by General Development Corporation. On February 16, 1982, all matters in dispute concerning the development of Myakka Estates Units 5, 6 and 7 were settled. Under the settlement agreement, this area of the City of North Port, Myakka Estates 5, 6 and 7 will contain 2,535 single-family residential lots and 720 medium-density residential units. These units have been platted and recorded and currently marketed under installment land sales.

The overall residential density for the unvested areas shall not exceed 1.00 dwelling units per acre. The residential development will include single-family estates and ranchettes, and multi-family medium-density units.

The agreement made in February 1982 also states: "The development which will occur in Myakka Estates shall contain sufficient commercial utility or service sites to support the development and to provide adequate facilities for proposed residents of the area." The following nonresidential uses are anticipated in the non-vested sections of Myakka Estates:

- Commercial
- Institutional
 - Public safety and government
 - Worship centers
 - Schools
- Recreational
 - Parks
- Utilities

As approved, construction of roads and drainage facilities for subdivision units 1-4 are expected to be complete within the next five (5) years by GDC. Subsequently, development of individual lots is anticipated to begin shortly thereafter.

Panacea Development Order

The Panacea property located along I-75 at the Toledo Blade interchange, and covering 2300 acres was annexed into the City in 1981. Subsequently, an Application for Development Approval (ADA) was submitted to the City in 1984, reviewed through the Development of Regional Impact (DRI) process, and approved in 1986.

The development order, as approved, provided for the development of 5300 residential units, 987,000 square feet of commercial, 2,754,000 square feet of light industrial, and 365,000 square feet of office space. The precise location and character of land uses within Panacea shall be determined at the time of Site and Development Plan submittal. All land use and development within Panacea shall be implemented in accordance with

the City's Planned Commerce Development (PCD) District Ordinance of 1986, and consistent with the conditions contained in the development order (Ordinance No. 86-96).

Originally issued for development to be phased over a 30 year timeframe (1986 - 2016), a request for extension submitted by the developer, and approved by the City Commission provides for a three (3) year extension prior to the start of development. As such, construction of the Panacea property will commence by June of 1991 (Additional detail is outlined in The Future Land Use Plan section of this Future Land Use Element).

THE FUTURE LAND USE PLAN

Guiding Growth Management Strategy

Currently there are three existing land use problems in the City of North Port, which require coordinated growth management. These problems are: development in environmentally sensitive areas; development in areas not served by urban services or infrastructure; and the limited economic base.

This portion of the Future Land Use Element discusses the plan for locating future land uses in the City which will help to resolve these problems while accommodating future growth. Aspects such as timing of development and provision of services will also be discussed. The key component of this portion of the Future Land Use Element is the Future Land Use Map on page 40, which graphically depicts the locations of future land uses within the City.

The Future Land Use Map is a broad plan of proposed future land uses consistent with the projected residential, commercial, and industrial growth. The future Land Use Map is conceptual only and is to serve as a planning guide for future land use allocations. The City may deviate from the Future Land Use Map upon a determination by the City Commission that such a deviation is in the public interest. The Future Land Use Plan is derived from the following sources and superimposed on the City's Base Map:

- Population projections 1988-1998.
- Objectives and Policies of the Plan.
- Inventories, surveys and analyses.
- Citizen Advisory Committee Workshops.

Three additional maps have also been included in the Future Land Use Element and are located after the Future Land Use Map on page 40. These maps depict the projected spatial distribution of population for the years 1988, 1993, and 1998. The maps indicate that the majority of the City's population growth over the 10-year planning time frame 1988-1998 will occur within the urban Infill Area (see "Urban Infill Area" below).

The Future Land Use Plan itself incorporates the following growth management strategies to ensure orderly, compact growth consistent with the Florida Growth Management Plan of 1985.

- 1) Delineation of the City's Urban Infill Area wherein 90% of the existing population resides, and wherein the majority of growth is anticipated to occur over the ten-year timeframe of this plan.
- 2) Identification of all privately owned lands which are designated and reserved for future public use on GDC's Master Land Use Plan, including:
 - a) park sites
 - b) public utility sites
 - c) school sites
 - d) civic/education/recreation sites
- 3) Identification of unplatted lands as future growth areas wherein Planned Community Development (PCD) Districts are intended to be designated (refer to section IV. D.).

- 4) Designation of unplatted land within the urban infill area adjacent to the existing health care center as "Health-Related Facilities/Adult Congregate Living."
- 5) Designation of lands along the Myakka River and the Myakkahatchee Creek, Little Salt Spring, the related archaic Indian burial grounds, and the Atwater archaeological site as "Conservation-Restricted", wherein strict land development regulations shall be applied to future development.
- 6) Designation of adjacent lands along the corridor of I-75, Sumter Boulevard, and Toledo Blade Boulevard as high density residential.

Urban Infill Area

It is anticipated that the majority of the growth in the City of North Port over the next ten (10) years will occur relatively contiguous to the present developed area of North Port. The urban area of North Port is currently in the southwest quadrant of the City adjacent to U.S. 41, north between the western corporate limits to the Snover Waterway, and easterly to the MacCaughey Waterway, as identified on the Future Land Use Map. The planning and development activities anticipated in this area include:

- location of low-density residential growth areas.
- Location of medium and high density residential growth areas.
- Location of planned community development districts.
- Location of educational facilities.
- Location of neighborhood shopping facilities.
- Location of future health and medical related facilities.

It is anticipated that, within this identified urban area, public services and facilities can be economically and efficiently extended to meet the needs of the projected population. The Urban Infill Area is based upon past and present development patterns, anticipated growth areas, and the 1994 and 1998 population and dwelling unit projections. The past and present development patterns, anticipated growth areas, and the population and dwelling unit projections were explained in previous sections of this element. The Planned water and sewer service area is explained in the Infrastructure Element.

The potential for continued urban sprawl occurring in North Port is significant due to the extent of the City boundaries, and the amount of land that has been platted, sold, and provided with road access. Although a large portion of the growth in the City of North Port over the next ten (10) years is anticipated to occur in the general area just described, development will also occur in other currently undeveloped areas of the City, including Myakka Estates.

Myakka Estates

Based upon the development order issued through the Development of Regional Impact (DRI) process, and subject to installment land sales practices, the transfer of deeds and subsequent growth is anticipated to begin within the lower portions of Myakka Estates, including units 1-4 over the next ten (10) year timeframe.

The Myakka Estates area covers 14.9 square miles (9536 acres) with a total of 10,546 dwelling units proposed. As per the Myakka Estates Final Settlement Order of February, 1982, Units 1-4 with 4987 dwelling units proposed has been vested, while Units 5-12 are allowed an additional 5559 dwelling units. Of the total 10,546

dwelling units proposed for Myakka Estates 1-12, 1234 Units are designated as multi-family, and 9312 units are designated as single-family estates and ranchettes. As such, the residential density of Myakka Estates Units 5-12 is 1.00 dwelling unit per acre, while the overall density for Myakka Estates Units 1-12 is 1.10 dwelling units per acre.

The future land uses in Myakka Estates are shown on the Future Land Use Map as a guide to anticipated development activities. Included are:

- Location of areas designated for low-density residential use.
- Location of areas designated for medium density residential use.
- Location of proposed educational facility sites.
- Location of proposed neighborhood and community shopping sites.
- Location of park sites and worship center sites.

Development within this area may unduly burden the City's fiscal capability and responsibilities of providing services for the public health, safety, and welfare. The level of fiscal impact will vary, however, depending upon the size and location of the proposed developments, and the developer's willingness to provide these additional facilities and services necessitated by the project proposals. Past trends have shown that of all platted and deeded properties subject to installment land sales, only 10% have been developed to date. As such, the timing of growth and associated demand for services within Myakka Estates shall be closely monitored to determine the most cost effective means of servicing this area of the City.

Future Growth Areas: Planned Community Development Districts

As described earlier, the predominance of platted lands limit the City's ability to control the type, timing and phasing of growth and the provision of central services to accommodate such growth. However, and as identified on the Future Land Use Map, strategically located unplatted lands remain available to accommodate future market demands for development. These areas are anticipated to be developed in a concentrated manner, where public services and facilities necessary to sustain basic community needs can be provided in an efficient and economic manner, without undue burden upon the City's fiscal resources.

The purpose of the Planned Community Development (PCD) Districts is to provide areas for coordinated development of industrial commercial, service, residential and government uses within a park-like setting to meet market demand. The establishment of these Districts provides a mechanism to attract major employers to the City, which can contribute to the diversification of the economic base in a manner consistent with the Comprehensive Plan. The PCD District shall provide for a variety of uses where project components and land use relationships are physically and functionally integrated. This concept incorporates a wide range of traditional industrial uses with a variety of non-industrial activities which may support or otherwise relate to the commerce/industrial economic base of the City. Generally, PCD land use groups provide for: 1) Light Industrial and Warehousing, 2) Office, Professional and Institutional, 3) Commercial, 4) Residential, and 5) Government uses. These land use designations are designed to protect adjacent development from the potentially adverse impacts associated with industrial development, and to promote efficient and economic land use among functionally integrated activities.

It is assumed that timing and phasing of development within these growth areas will evolve based upon market demands. It is further the intent of this PCD designation that where economically feasible, centralized sewer, water and related infrastructure shall be provided by the developer. This District is intended to be applied to those unplatted and undeveloped areas as reflected on the Future Land Use Map, along Sumter and

Toledo Blade Boulevards, the Panacea property, the Futrell property, the I-75/Sumter interchange, the I-75 Toledo Blade interchange, and the proposed Raintree Boulevard interchange.

I-75 INTERCHANGES

The opening of the Interstate Highway interchanges within the City of North Port will have an effect on the growth patterns in the City over the next twenty-five years. There are two interchanges located in North Port, one at Sumter Boulevard, and a second at State Road 39 (Toledo Blade Boulevard).

Completed and opened to traffic in 1981, the public, through FDOT funds, has invested substantially in the construction of I-75 which facilitates the flow of traffic and tourists along the west coast of Florida. Accordingly, the Sumter and Toledo Blade interchanges were opened to traffic in 1985 to facilitate development to service the travelling public. Though land use development of interchanges along the I-75 corridor has only recently evolved, future demands to accommodate services at these two interchanges are anticipated in the near future to provide returns on past public investments in the construction of Interstate-75.

In response to increased growth and projected future growth of the surrounding communities, Charlotte County and DeSoto County have proposed that FDOT designate the Raintree Boulevard intersection with I-75 as a possible site for a future interchange. If approved, this interchange would provide additional access to the Interstate from the extreme eastern part of the City. It would also open up land use changes for future commercialization or industrialization at that point. The City intends to coordinate closely with the FDOT and surrounding jurisdictions in evaluating the future demand and feasibility for designing an interchange at this location.

UNPLATTED CORRIDORS

Access to Interstate 75 via Sumter Boulevard increases the potential for infill in residential and nonresidential development along this collector between the existing urban area and Interstate 75. Similarly, access to the Interstate Highway by means of State Road 39 may initiate growth in undeveloped areas along this corridor between Hillsborough Boulevard and I-75. The revised Future Land Use Map includes, as a guide, the locations of anticipated future land uses along Sumter Boulevard, and along the State Road 39 corridor, north of Hillsborough Boulevard.

Four large tracts of land located at the intersection of Price and Toledo Blade Boulevards are unplatted and presently zoned for agricultural use. In addition, four large tracts of land located at the intersection of Price and Sumter Boulevards are also unplatted and presently zoned for agricultural use. These areas have the potential to accommodate future demands for industrial, commercial, and medium to high density residential lands. As depicted on the future land use map, these areas shall be developed as planned community development districts to ensure a park-like setting accommodated by central sewer, central water and related infrastructure.

Similarly, the growth area located within the Urban Infill Area along Price Boulevard west of Sumter is under consideration as the future "Town Center" to accommodate the expansion of North Port's administrative offices and government-related facilities.

The 636 acre parcel which is located at the SR 39/Price Blvd. intersection is designated as P.U.D.E. on the Master Land Use Plan of General Development Properties filed with the Bureau of Land and Water Management, Division of State Planning. It is anticipated this area will someday become the industrial center for the City of North Port. The location is afforded excellent access, via SR 39 and Price Boulevard, one of the future primary east/west arterials. The parcel is buffered from adjacent platted residential areas by waterways and a proposed linear park system.

The 2,306 acre tract located south and west of I-75, east of SR 39 and north of the Snover Waterway was annexed to the City of North Port in January of 1981. Reviewed as a Development of Regional Impact (DRI), a final development order for Panacea was issued by the City in June of 1986. As approved, development as a Planned Commerce District shall be phased in five (5) year increments over a thirty year timeframe. Though commencement of development has been extended to 1991, land use shall be phased in accordance with the following schedule, to include centralized infrastructure of sewer, water, roads and drainage at the expense of the developer (City of North Port Resolution No. 86-96 and No. 86-100).

TABLE IX
PANACEA PHASING SCHEDULE

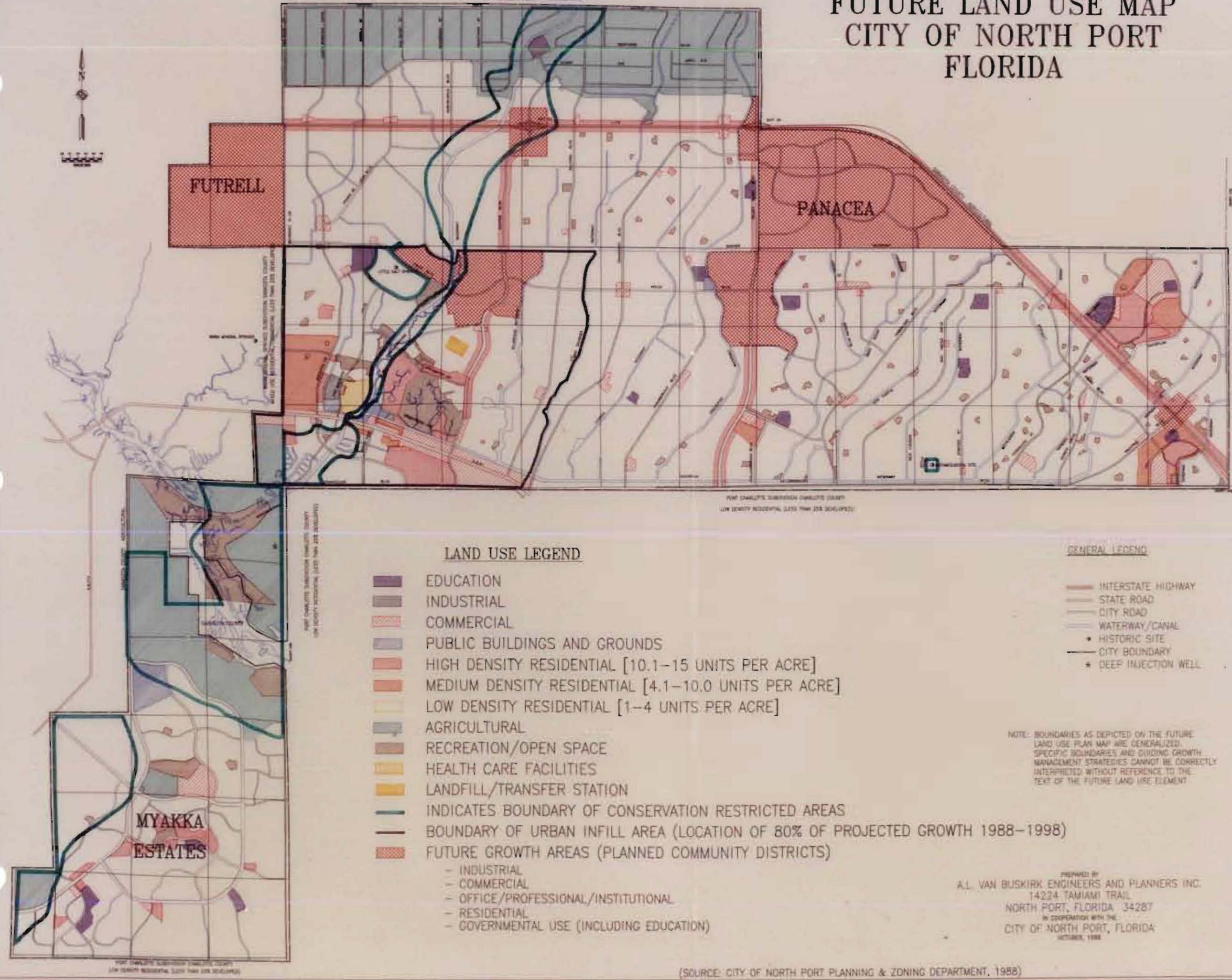
Phase/Year	Residential Units	Commercial SQ FT (EST)	LT Industrial SQ FT (EST)	Office SQ FT (EST)
I (1986-1992)	832	414,000	793,000	32,000
II (1992-1998)	970	198,000	798,000	51,000
III (1998-2004)	1,118	145,000	839,000	73,000
IV (2004-2010)	1,267	130,000	137,000	95,000
V (2010-2015)	<u>1,113</u>	<u>100,000</u>	<u>187,000</u>	<u>114,000</u>
TOTALS	5,300	987,000	2,754,000	365,000

SOURCE: Panacea DRI, 1984.

THE FUTRELL PROPERTY

The Futrell property encompasses 1,280 acres, located south of I-75, north and west of the existing urban area in Sections 12, 13 and 14 of Township 39S, Range 20E. This property was annexed to the City of North Port on April 6, 1981, and is currently zoned Agricultural. As designated on the Future Land Use Map, development of the property shall also be provided in accordance with the "Planned Community Development (PCD) District concept". At present, however, development of this property is not anticipated to occur within the ten (10) year timeframe of the Comprehensive Plan.

FUTURE LAND USE MAP CITY OF NORTH PORT FLORIDA



LAND USE LEGEND

- EDUCATION
- INDUSTRIAL
- COMMERCIAL
- PUBLIC BUILDINGS AND GROUNDS
- HIGH DENSITY RESIDENTIAL [10.1-15 UNITS PER ACRE]
- MEDIUM DENSITY RESIDENTIAL [4.1-10.0 UNITS PER ACRE]
- LOW DENSITY RESIDENTIAL [1-4 UNITS PER ACRE]
- AGRICULTURAL
- RECREATION/OPEN SPACE
- HEALTH CARE FACILITIES
- LANDFILL/TRANSFER STATION
- INDICATES BOUNDARY OF CONSERVATION RESTRICTED AREAS
- BOUNDARY OF URBAN INFILL AREA (LOCATION OF 80% OF PROJECTED GROWTH 1988-1998)
- FUTURE GROWTH AREAS (PLANNED COMMUNITY DISTRICTS)
 - INDUSTRIAL
 - COMMERCIAL
 - OFFICE/PROFESSIONAL/INSTITUTIONAL
 - RESIDENTIAL
 - GOVERNMENTAL USE (INCLUDING EDUCATION)

GENERAL LEGEND

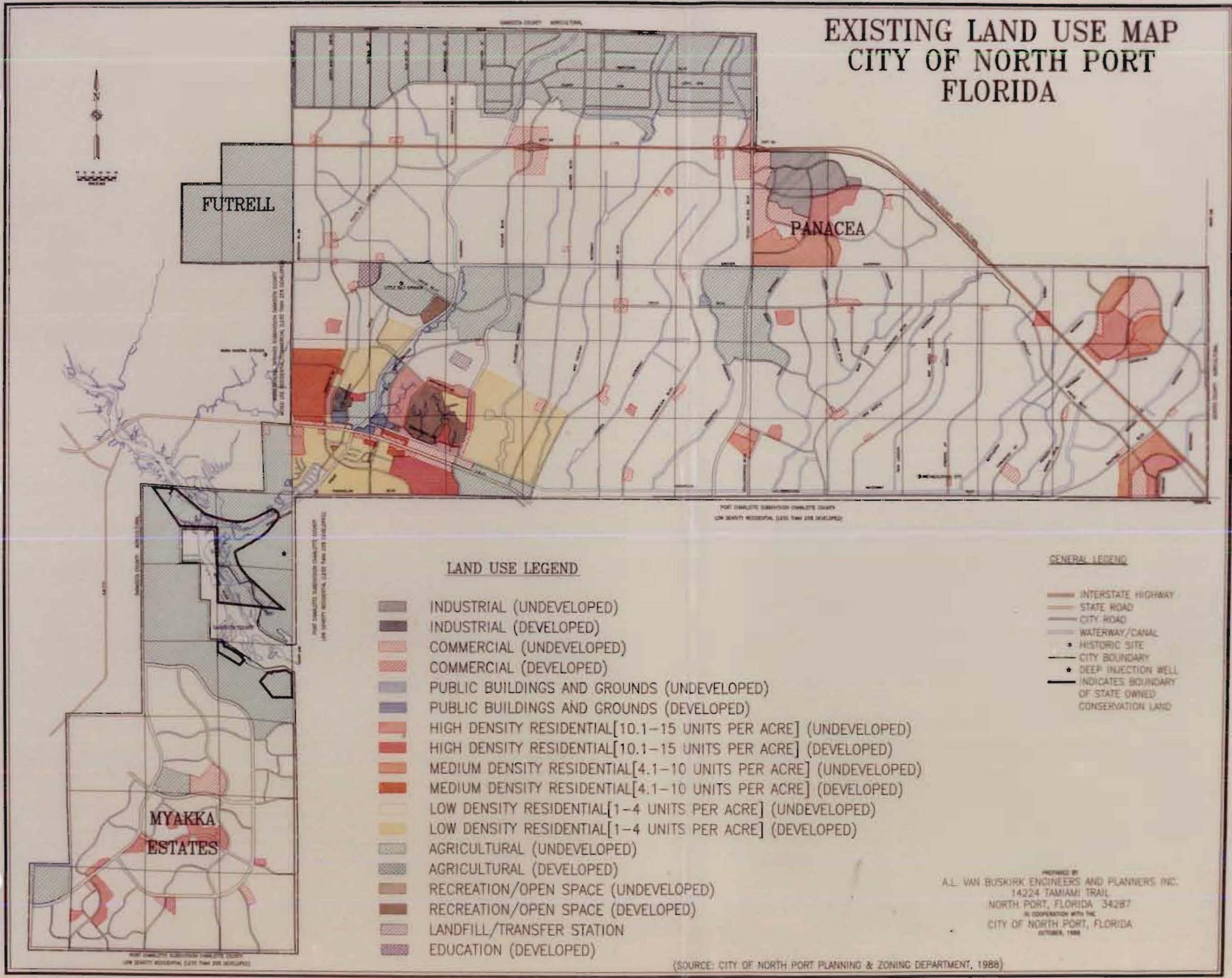
- INTERSTATE HIGHWAY
- STATE ROAD
- CITY ROAD
- WATERWAY/CANAL
- HISTORIC SITE
- CITY BOUNDARY
- DEEP INJECTION WELL

NOTE: BOUNDARIES AS DEPICTED ON THE FUTURE LAND USE PLAN MAP ARE GENERALIZED. SPECIFIC BOUNDARIES AND GUIDING GROWTH MANAGEMENT STRATEGIES CANNOT BE CORRECTLY INTERPRETED WITHOUT REFERENCE TO THE TEXT OF THE FUTURE LAND USE ELEMENT

PREPARED BY
A.L. VAN BUSKIRK, ENGINEERS AND PLANNERS, INC.
14224 TAMiami TRAIL
NORTH PORT, FLORIDA 34287
IN COOPERATION WITH THE
CITY OF NORTH PORT, FLORIDA
OCTOBER, 1988

(SOURCE: CITY OF NORTH PORT PLANNING & ZONING DEPARTMENT, 1988)

EXISTING LAND USE MAP CITY OF NORTH PORT FLORIDA



LAND USE LEGEND

- INDUSTRIAL (UNDEVELOPED)
- INDUSTRIAL (DEVELOPED)
- COMMERCIAL (UNDEVELOPED)
- COMMERCIAL (DEVELOPED)
- PUBLIC BUILDINGS AND GROUNDS (UNDEVELOPED)
- PUBLIC BUILDINGS AND GROUNDS (DEVELOPED)
- HIGH DENSITY RESIDENTIAL [10.1-15 UNITS PER ACRE] (UNDEVELOPED)
- HIGH DENSITY RESIDENTIAL [10.1-15 UNITS PER ACRE] (DEVELOPED)
- MEDIUM DENSITY RESIDENTIAL [4.1-10 UNITS PER ACRE] (UNDEVELOPED)
- MEDIUM DENSITY RESIDENTIAL [4.1-10 UNITS PER ACRE] (DEVELOPED)
- LOW DENSITY RESIDENTIAL [1-4 UNITS PER ACRE] (UNDEVELOPED)
- LOW DENSITY RESIDENTIAL [1-4 UNITS PER ACRE] (DEVELOPED)
- AGRICULTURAL (UNDEVELOPED)
- AGRICULTURAL (DEVELOPED)
- RECREATION/OPEN SPACE (UNDEVELOPED)
- RECREATION/OPEN SPACE (DEVELOPED)
- LANDFILL/TRANSFER STATION
- EDUCATION (DEVELOPED)

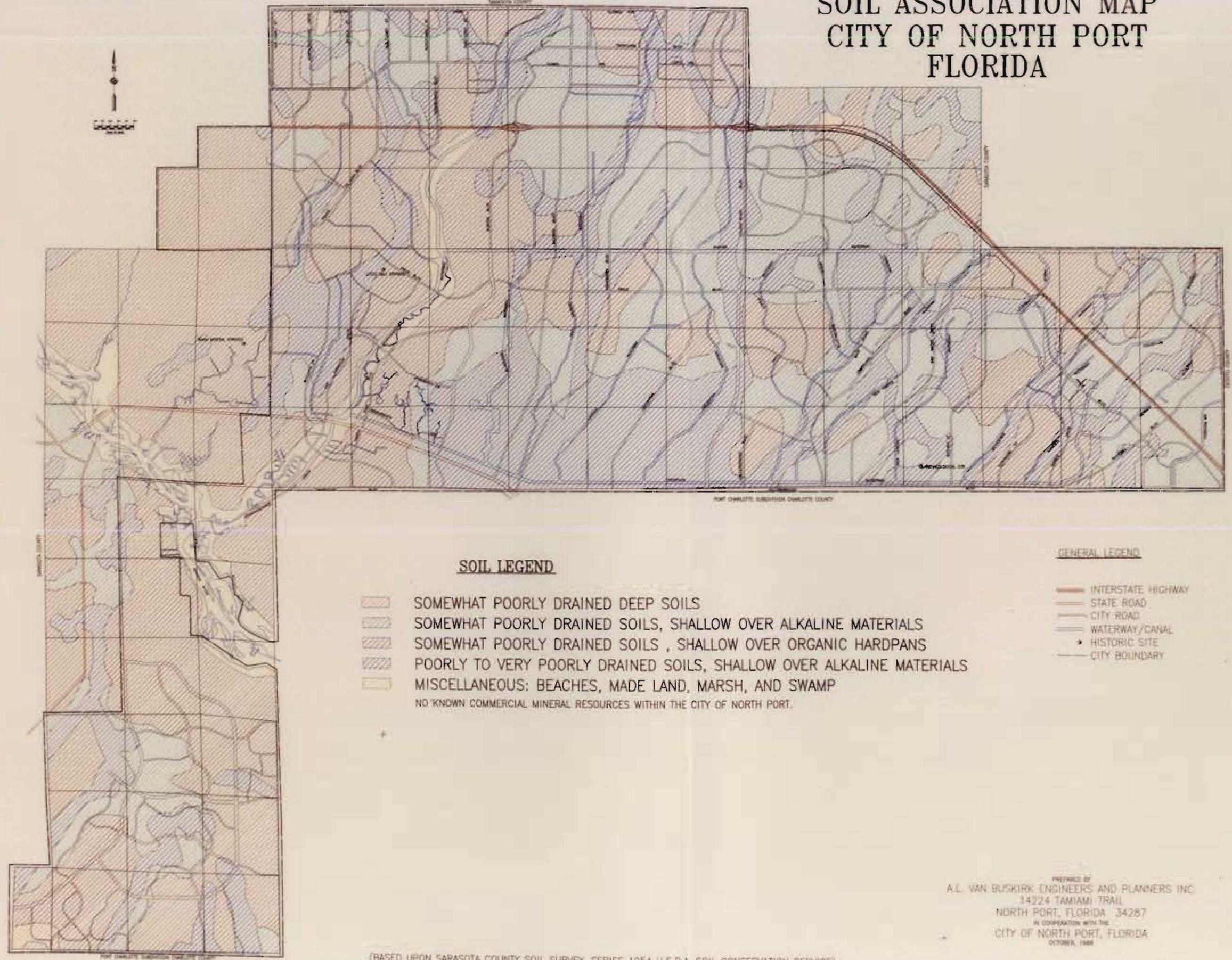
GENERAL LEGEND

- INTERSTATE HIGHWAY
- STATE ROAD
- CITY ROAD
- WATERWAY/DANAL
- HISTORIC SITE
- CITY BOUNDARY
- DEEP INJECTION WELL
- INDICATES BOUNDARY OF STATE OWNED CONSERVATION LAND

PREPARED BY
A.L. VAN BUSKIRK ENGINEERS AND PLANNERS INC.
14224 TAMiami TRAIL
NORTH PORT, FLORIDA 34287
IN COOPERATION WITH THE
CITY OF NORTH PORT, FLORIDA
OCTOBER, 1988

(SOURCE: CITY OF NORTH PORT PLANNING & ZONING DEPARTMENT, 1988)

SOIL ASSOCIATION MAP CITY OF NORTH PORT FLORIDA



SOIL LEGEND

-  SOMEWHAT POORLY DRAINED DEEP SOILS
 -  SOMEWHAT POORLY DRAINED SOILS, SHALLOW OVER ALKALINE MATERIALS
 -  SOMEWHAT POORLY DRAINED SOILS, SHALLOW OVER ORGANIC HARDPANS
 -  POORLY TO VERY POORLY DRAINED SOILS, SHALLOW OVER ALKALINE MATERIALS
 -  MISCELLANEOUS: BEACHES, MADE LAND, MARSH, AND SWAMP
- NO KNOWN COMMERCIAL MINERAL RESOURCES WITHIN THE CITY OF NORTH PORT.

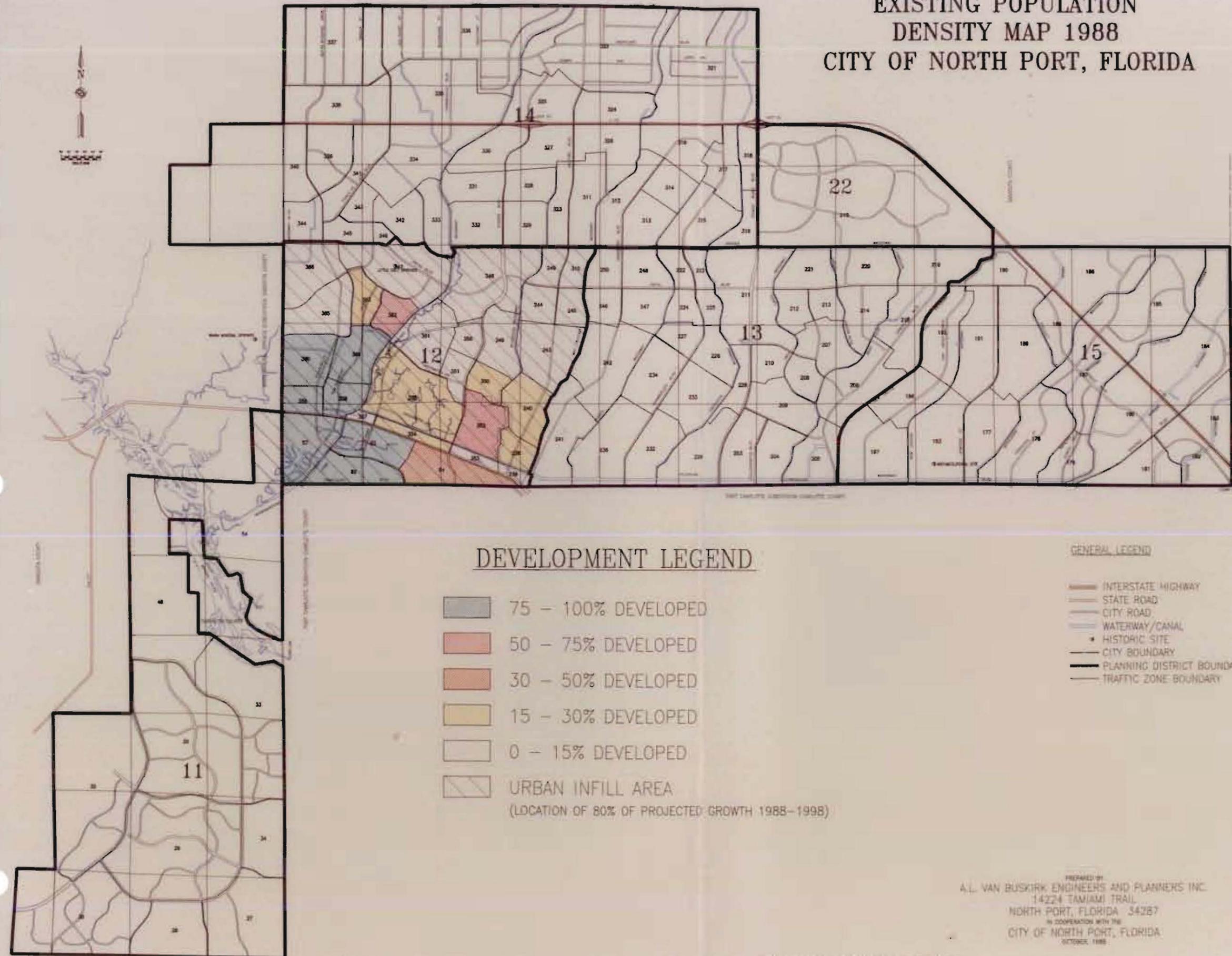
GENERAL LEGEND

-  INTERSTATE HIGHWAY
-  STATE ROAD
-  CITY ROAD
-  WATERWAY/CANAL
-  HISTORIC SITE
-  CITY BOUNDARY

PREPARED BY
 A.L. VAN BUSKIRK ENGINEERS AND PLANNERS INC.
 14224 TAMiami TRAIL
 NORTH PORT, FLORIDA 34287
 IN COOPERATION WITH THE
 CITY OF NORTH PORT, FLORIDA
 OCTOBER, 1988

(BASED UPON SARASOTA COUNTY SOIL SURVEY, SERIES 1954 U.S.D.A. SOIL CONSERVATION SERVICE)

EXISTING POPULATION DENSITY MAP 1988 CITY OF NORTH PORT, FLORIDA



DEVELOPMENT LEGEND

-  75 - 100% DEVELOPED
-  50 - 75% DEVELOPED
-  30 - 50% DEVELOPED
-  15 - 30% DEVELOPED
-  0 - 15% DEVELOPED
-  URBAN INFILL AREA
(LOCATION OF 80% OF PROJECTED GROWTH 1988-1998)

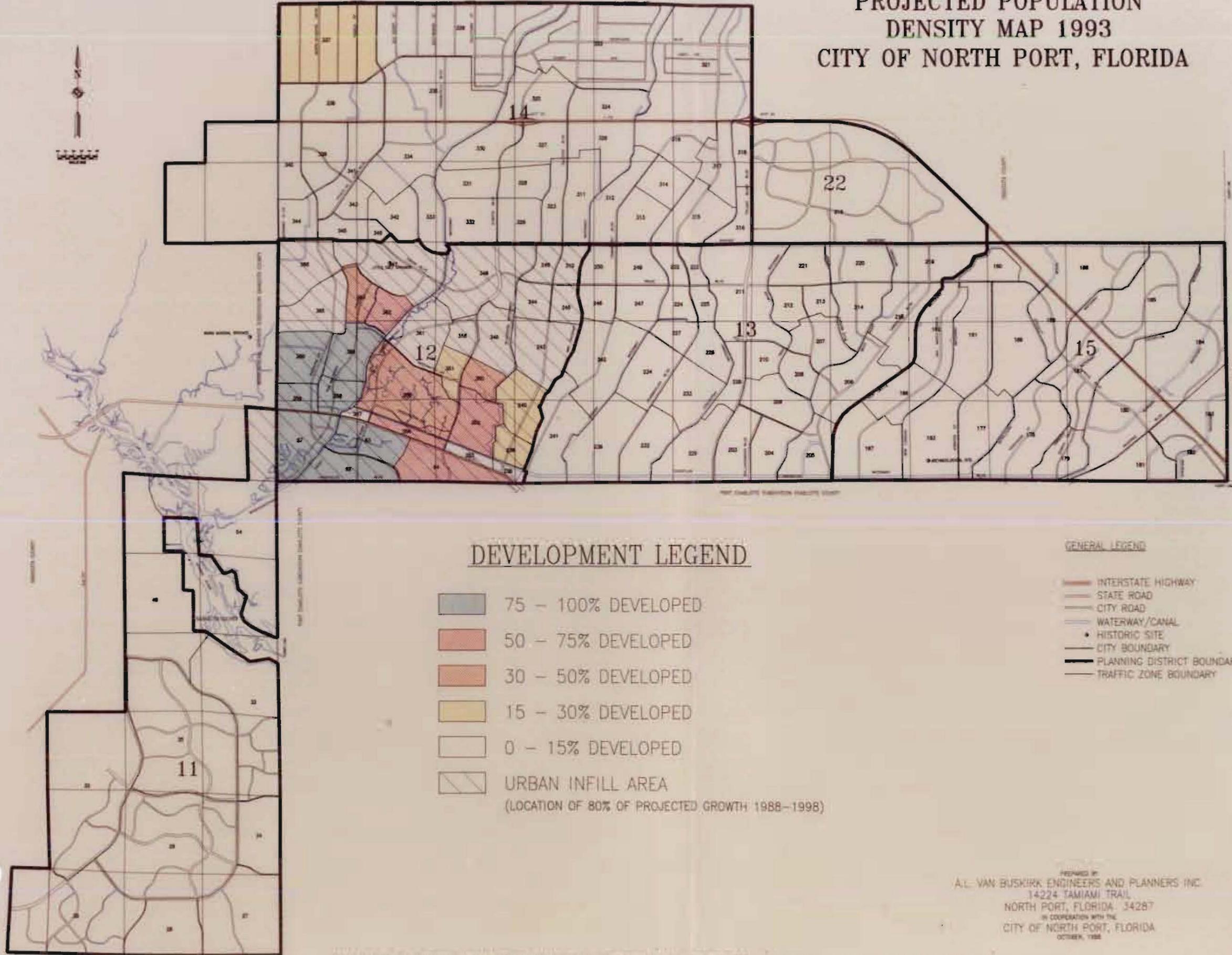
GENERAL LEGEND

-  INTERSTATE HIGHWAY
-  STATE ROAD
-  CITY ROAD
-  WATERWAY/CANAL
-  HISTORIC SITE
-  CITY BOUNDARY
-  PLANNING DISTRICT BOUNDARY
-  TRAFFIC ZONE BOUNDARY

PREPARED BY
A.L. VAN BUSKIRK ENGINEERS AND PLANNERS INC.
14224 TAMAMI TRAIL
NORTH PORT, FLORIDA 34287
IN COOPERATION WITH THE
CITY OF NORTH PORT, FLORIDA
OCTOBER, 1988

(SOURCE: BASED UPON STUDY DATED APRIL 25, 1988 BY FLORIDA ENVIRONMENTAL INC.)

PROJECTED POPULATION DENSITY MAP 1993 CITY OF NORTH PORT, FLORIDA



DEVELOPMENT LEGEND

- 75 - 100% DEVELOPED
- 50 - 75% DEVELOPED
- 30 - 50% DEVELOPED
- 15 - 30% DEVELOPED
- 0 - 15% DEVELOPED
- URBAN INFILL AREA
(LOCATION OF 80% OF PROJECTED GROWTH 1988-1998)

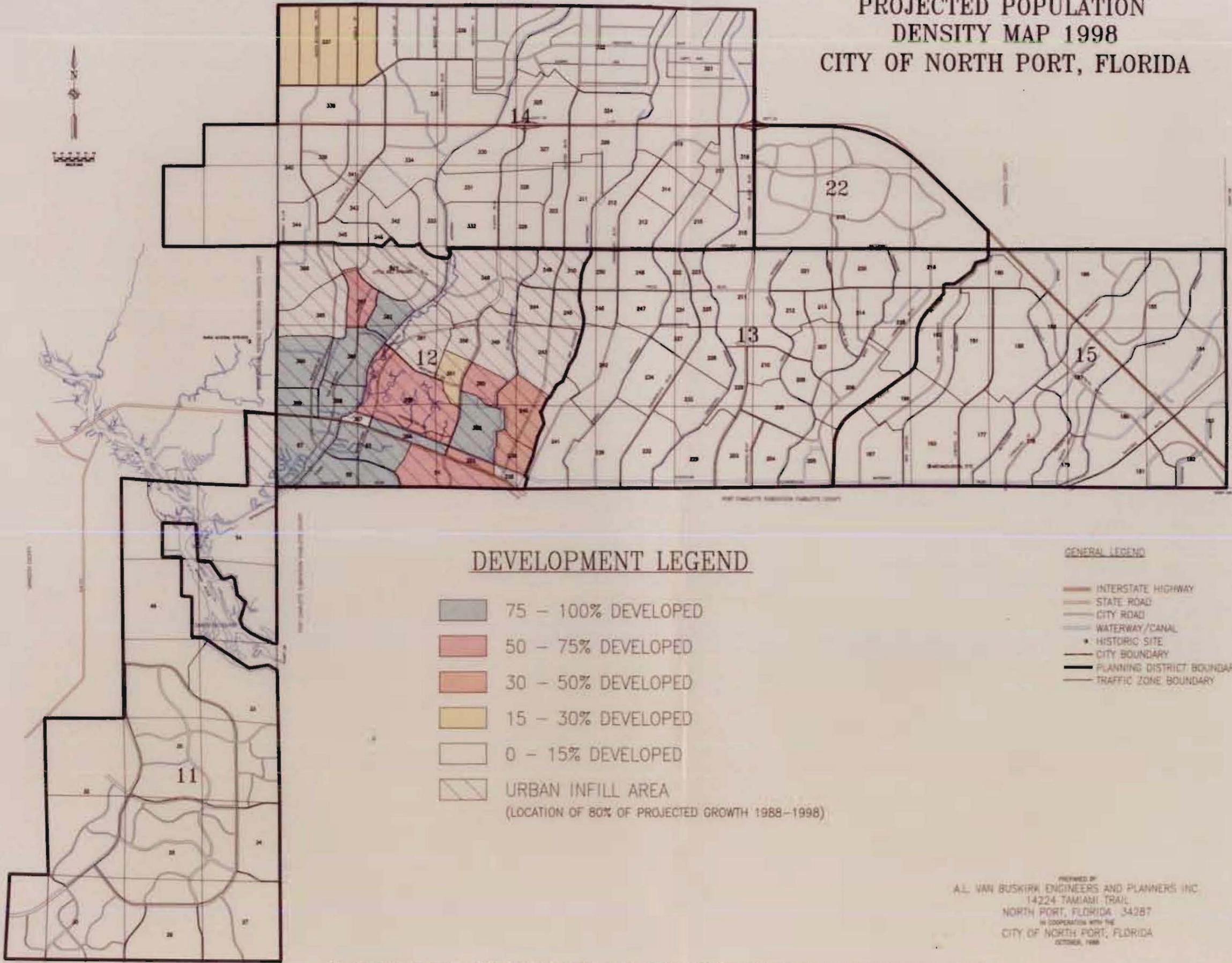
GENERAL LEGEND

- INTERSTATE HIGHWAY
- STATE ROAD
- CITY ROAD
- WATERWAY/CANAL
- HISTORIC SITE
- CITY BOUNDARY
- PLANNING DISTRICT BOUNDARY
- TRAFFIC ZONE BOUNDARY

PREPARED BY
 A.L. VAN BUSKIRK ENGINEERS AND PLANNERS, INC.
 14224 TAMiami TRAIL
 NORTH PORT, FLORIDA 34287
 IN COOPERATION WITH THE
 CITY OF NORTH PORT, FLORIDA
 OCTOBER, 1988

(SOURCE: BASED UPON STUDY DATED APRIL 25, 1988 BY FLORIDA ENVIRONMENTAL INC.)

PROJECTED POPULATION DENSITY MAP 1998 CITY OF NORTH PORT, FLORIDA



DEVELOPMENT LEGEND

- 75 - 100% DEVELOPED
- 50 - 75% DEVELOPED
- 30 - 50% DEVELOPED
- 15 - 30% DEVELOPED
- 0 - 15% DEVELOPED
- URBAN INFILL AREA
(LOCATION OF 80% OF PROJECTED GROWTH 1988-1998)

GENERAL LEGEND

- INTERSTATE HIGHWAY
- STATE ROAD
- CITY ROAD
- WATERWAY/CANAL
- HISTORIC SITE
- CITY BOUNDARY
- PLANNING DISTRICT BOUNDARY
- TRAFFIC ZONE BOUNDARY

PREPARED BY
 A.L. VAN BUSKIRK ENGINEERS AND PLANNERS INC.
 14224 TAMIAHI TRAIL
 NORTH PORT, FLORIDA 34287
 IN COOPERATION WITH THE
 CITY OF NORTH PORT, FLORIDA
 OCTOBER, 1988

(SOURCE: BASED UPON STUDY DATED APRIL 25, 1988 BY FLORIDA ENVIRONMENTAL INC.)

GOALS, OBJECTIVES & POLICIES

Goal 1:

ENSURE THAT THE CHARACTER AND LOCATION OF LAND USES MAXIMIZE THE POTENTIAL FOR ECONOMIC BENEFIT AND THE ENJOYMENT OF NATURAL AND MAN-MADE RESOURCES BY CITIZENS WHILE MINIMIZING THE THREAT TO HEALTH, SAFETY AND WELFARE POSED BY HAZARDS, NUISANCES, INCOMPATIBLE LAND USES, AND ENVIRONMENTAL DEGRADATION.

OBJECTIVE 1:

Future growth and development will be managed through the preparation, adoption, implementation and enforcement of land development regulations.

Policy 1.1

Adopt land development regulations, consistent with F.S. 163.3202 (1), as amended, that shall contain specific and detailed provisions required to implement the adopted Comprehensive Plan, and which as a minimum:

- a) *Regulate the subdivision of land;*
- b) *Regulate the use of land and water consistent with this Element and ensure the compatibility of adjacent land uses and provide for open space;*
- c) *Protect the Conservation-Restricted lands designated on the Future Land Use Map and in the Conservation Element;*
- d) *Regulate areas subject to seasonal and periodic flooding and provide for drainage and stormwater management;*
- e) *Protect potable water supplies and aquifer recharge areas;*
- f) *Regulate signage;*
- g) *Ensure safe and convenient onsite traffic flow and vehicle parking needs; and*
- h) *Provide that development orders and permits shall not be issued which result in a reduction of the level of services for the affected public facilities below the level of service standards adopted in this Comprehensive Plan.*

Policy 1.2:

Land development regulations adopted to implement this Comprehensive Plan shall be consistent with F.S. 163.3202 (1), as amended, and based on and be consistent with the following standards for residential densities as indicated below:

- a) *Low density residential - maximum of 4 residential units per gross acre;*
- b) *Medium density residential - 4.1 to 10.0 residential units per gross acre;*
- c) *High density residential - 10.1 to 15 residential units per gross acre.*

Policy 1.3:

By 1991, land development regulations shall be adopted, consistent with F.S. 163.3202 (1), as amended, which establish standards for types, sizes, densities and intensities of non-residential land uses based upon sound planning principles, soils, topography and other natural limitations, and consistent with the cumulative goals, objectives, and policies contained within this Comprehensive Plan.

Policy 1.4:

Land development regulations, consistent with F.S. 163.3202 (1), as amended, shall contain performance standards which:

- a) *Address buffering and open space requirements; and*
- b) *Address historically significant properties meriting protection.*

Policy 1.5:

Land development regulations, consistent with F.S. 163.3202 (1), as amended, shall include provisions for the transfer of development rights which:

- a) *provide for the transfer of development rights from designated Conservation-Restricted areas, historic resources deserving protection; and from environmentally sensitive areas.*
- b) *provide for the transfer of development rights to receiving zones where infill is indicated within the designated Urban Infill Area and within Planned Community Development District areas identified on the Future Land Use Map which are able to accommodate increased density without lowering the adopted Level of Service (LOS).*

Policy 1.6:

By 1991, a Planned Community Development (PCD) Zoning District shall be adopted which applies to the future growth areas identified on the Future Land Use Map, and which establishes standards for types, sizes, densities and intensities of mixed land uses, based upon sound planning principles, soils, topography and other natural limitations, and consistent with the cumulative goals, objectives, and policies contained within this Comprehensive Plan, and as appropriate, the Development of Regional Impact process.

OBJECTIVE 2:

To the extent possible in light of the numerous outstanding sales agreements outside the Urban Infill Area, future development will be encouraged to locate in the Urban Infill Area and Planned Community Development Districts shown on the Future Land Use Map, to discourage urban sprawl.

Policy 2.1:

Maintain the Urban Infill Area established and designated on the Future Land Use Map.

Policy 2.2:

Central sewage and water facilities and related urban services requiring capital investment shall be extended and provided within the designated Urban Infill Area and Planned Community Development Districts to facilitate compact development in accordance with the Capital Improvement Element.

Policy 2.3:

The City will periodically amend the Future Land Use Map to expand the Urban Infill Area as a prerequisite to the extension of infrastructure and community services.

Policy 2.4:

The City will discourage premature "leapfrog" development outside the Urban Infill Area by requiring that individual property owners, and not the City, will bear the proportionate fair share costs of extending infrastructure to improved properties.

Policy 2.5:

By 1995, infrastructure and urban services will be extended to serve at least 80% of the anticipated functional population of the Urban Infill Area.

Policy 2.6:

Land use regulations, consistent with F.S. 163.3202 (1), as amended, whether adopted or revised pursuant to this plan, shall provide incentives to encourage infill of residential, commercial, and other appropriate uses within the Urban Infill Area, and Planned Community Development Districts.

Policy 2.7:

The City will set aside a portion of the Planned Community Development Districts as a receiving area for Transfers of Development Rights (TDRs). The TDR receiving area will be equal in size to the sites illustrated on the Future Land Use Map as conservation-restricted areas.

Policy 2.8:

Exemption from the provisions of this objective will be made only in extraordinary cases where the physical size, potentially disruptive nature, or geographic needs of the project would make strict adherence unreasonable, consistent with F.S. 163.3187 (1) (c).

OBJECTIVE 3:

By 1994, future development activities shall be directed in appropriate areas as depicted on the Future Land Use Map, and shall encourage the use of innovative land development regulations, consistent with sound planning principles, minimal natural limitations, the goals, objectives and policies contained within this plan, and the community character.

Policy 3.1:

Innovative land use development patterns, including Planned Community Developments (PCDs) and Cluster Zoning shall be permitted and encouraged through the adoption of revised zoning and land development regulations, consistent with F.S. 163.3202 (1), as amended, and consistent with land use density standards provided in Policy 1.3 and Policy 1.6.

Policy 3.2:

Community neighborhood character shall be preserved and promoted through zoning and land development regulation updates, including encouragement of deed restricted communities and property owner associations.

Policy 3.3:

Residential neighborhoods shall be designed to include an efficient system of internal pedestrian and vehicle circulation.

Policy 3.4:

Subdivisions shall be designed so that all individual lots have access to the internal street system, and lots along the periphery buffered from major roads and incompatible land uses.

Policy 3.5:

All commercial and medium/high density residential developments shall include adequate off-street parking, loading facilities and pedestrian circulation.

Policy 3.6:

By 1991, adopt land development regulations, where appropriate, to ensure that commercial/service establishments along U.S. 41 are adequately accessed by frontage roads and serviced by adequate utility services.

Policy 3.7:

Development of the Panacea Planned Commerce Development (PCD) District shall be pursued in accordance with the approved 30 year phasing schedule contained in the Development Order (Resolution 86-R-96) as adopted June 6, 1986.

Policy 3.8:

Unplatted agricultural acreage as identified on the existing land use map shall be encouraged to accommodate agricultural related services as an interim land use until such time that urban development is demanded.

Policy 3.9:

Additional subdivision of unplatted agricultural lands shall be granted only within Developments of Regional Impacts (DRI's) or Planned Community Development (PCD) Districts.

Policy 3.10:

Zoning and Land Development Regulations, consistent with F.S. 163.3202 (1), as amended, shall be revised to maintain the Open Use Agricultural (OUA) character of Agricultural lands within the Estates area of the City.

Policy 3.11:

Close coordination shall be established between the City and General Development Corporation for the development of properties identified on the Future Land Use Map as public lands when demand dictates.

Policy 3.12:

General Development Corporation's Master Land Use Map as annually reported to the Florida Department of Community Affairs and Division of Land Sales shall be reviewed on an annual basis for consistency with the City's Future Land Use Map.

Policy 3.13:

A site and space facilities feasibility study shall be considered to assist in the design and future locations for expansion of City Administrative offices.

OBJECTIVE 4:

By 1991, revised land development regulations, consistent with F.S. 163.3202 (1), as amended, shall be adopted to ensure that development activities provide for the protection of natural, historic, and archeological resources.

Policy 4.1:

Areas designated on the Future Land Use Map as Conservation-Restricted use shall limit development as follows:

- a) All development shall be subject to environmental performance standards which would prevent adverse environmental impacts and are adopted in the land development regulations.*
- b) Recreational development must be compatible with the surrounding environment and shall be subject to performance standards adopted in the land development regulations.*
- c) The City shall adopt a tree ordinance to regulate the clearing of trees.*
- d) All applications for development approval shall continue to be subject to site plan review.*
- e) Septic tanks and water wells shall be strictly regulated.*
- f) FEMA/FIRM elevation regulations shall be strictly enforced.*
- g) Maximum limits shall be established for impervious surfaces.*
- h) Natural vegetative communities shall be maintained.*
- i) Densities and intensities of land use shall be limited.*

Policy 4.2:

Within areas designated on the Future Land Use Map as Conservation-Restricted such as Little Salt Spring, the archaic Indian burial ground and the Atwater Archeological site, development shall be strictly regulated.

Policy 4.3:

Development rights for areas designated on the Future Land Use Map as Conservation-Restricted shall be transferable to a receiving zone as designated in this Future Land Use Element.

Policy 4.4:

Species of flora and fauna listed in the Conservation Element of the plan as endangered, threatened or species of special concern shall be protected through inclusion of their habitats in the Conservation land use category.

Policy 4.5:

The City shall provide for increased public access to the Myakka River, the Myakkahatchee Creek, and Little Salt Spring.

Policy 4.6:

Proposals for development within the designated riverine floodplains shall be approved by the City only if significant alteration of the functions of the floodplain will not occur and if the proposed development is consistent with performance standards regulating development within designated Conservation land use areas.

Policy 4.7:

The developer/owner of any site shall be responsible for the on-site management of runoff in a manner so that post-development runoff rates, volumes and pollutant loads do not exceed pre-development conditions.

Policy 4.8:

The City land development regulations, consistent with F.S. Chapter 163.3202(1), as amended, shall address and regulate activities which have the potential to degrade water, soil or crop resources.

Policy 4.9:

Extraction of natural resources shall be permitted only where compatible with existing and proposed land uses.

Policy 4.10:

By 1990, the City shall adopt and implement a Culvert Ordinance and Dredge and Fill Ordinance which provide for mitigation of identified environmental impacts.

Policy 4.11:

Historic resources shall be protected through application requests by the City for designation as historic sites by the state or the county, consistent with State law and criteria as established by the Florida Division of Archeological and Historic Resources.

Policy 4.12:

A list of designated historic resources shall be submitted to U.S. Department of Interior for inclusions on the National Register of Historic Places.

Policy 4.13:

North Port shall continue, with the assistance of archaeologists, to identify significant historic resources including unmarked human burials which are in need of protection.

Policy 4.14:

Where conservation through land development regulation is not sufficient, land acquisition alternatives shall be pursued through City applications to available State and Federal grant programs and utilization of any other appropriate innovative financing mechanisms.

OBJECTIVE 5:

By 1994, the economic base shall be increased and diversified relative to the City's 1988 economic tax base through planning and development activities which attract new business and industries, and expand existing businesses and industries.

Policy 5.1:

Industrial park areas shall be encouraged to attract compatible, light industries within Planned Community Development Districts.

Policy 5.2:

A farmers market, provided and coordinated by the private sector, to attract buyers for farm products produced within the region, shall be allowed and located through the adoption of revised zoning regulations, and consistent with the Future Land Use Plan Map.

Policy 5.3:

Development of agribusiness related uses shall be encouraged in conjunction with the farmers market, and existing agricultural lands.

Policy 5.4:

Prime, unplatted agricultural lands shall be maintained within future growth areas during the interim until market demand dictates conversion to urban use.

OBJECTIVE 6:

All development orders and permits for future development activities shall be issued only if infrastructure facilities necessary to meet level of service standards (which are adopted as part of the Capital Improvements Element of this plan) are available concurrent with the impacts of the development. Where appropriate, due consideration shall be given to the suitability of land, topography and soils prior to the issuance of any development order or permit.

Policy 6.1:

Higher densities and intensities of development shall be located within the PCD areas, where infrastructure facilities will be made available.

Policy 6.2:

The platting of additional residential, commercial and industrial land shall be timed and staged in conjunction with provision of supporting community facilities, such as streets, utilities, police and fire protection service, emergency medical service, and public schools.

Policy 6.3:

Community facilities and utilities shall be located to:

- a) *maximize the efficiency of services provided;*
- b) *minimize their cost; and*
- c) *minimize their impacts on the natural environment.*

Policy 6.4:

All development in areas not provided central water and sewer services shall be governed by the provisions of s. 381.272, F.S., regulating on-site water and sewage disposal systems; and, Chapter 10D-6, F.A.C., which regulates the installation of individual sewage disposal facilities.

Policy 6.5:

All subdivisions, at 66 2/3% build-out shall be serviced by central sewer and central water service.

OBJECTIVE 7:

All future land uses shall be compatible and consistent with the Future Land Use Map.

Policy 7.1:

Expansion, reclassification or replacement of land uses shall be compatible and consistent with the Future Land Use Map.

Policy 7.2:

Regulations for buffering of Incompatible land uses shall be set forth in the City's land development regulations, consistent with F.S. 163.3202 (1), as amended.

OBJECTIVE 8:

Through increased frequency of meetings and exchange of information, the City shall, by 1991, improve coordination with affected and appropriate governments and agencies to maximize their input into the development process and mitigate potential adverse impacts of future development activities, in accordance with Ordinance No. 87-252 "Public Participation Procedures in the Comprehensive Planning Process".

Policy 8.1:

Recommendations and corrective actions described in the Myakka River Management Plan as applicable to North Port shall be considered for adoption by the City Commission, upon completion of the Management Plan currently underway by the Myakka River Management Coordinating Council.

Policy 8.2:

Recommendations and corrective actions described by the Big Slough Watershed Advisory Committee as applicable to North Port shall be considered for adoption by the City Commission, upon completion of the advisory committee's report currently underway.

Policy 8.3:

Requests for development orders and building permits shall be coordinated, as appropriate, through existing procedures as defined by F.S. Chapter 380.06, F.S. Chapter 163, and City Ordinance 87-252, with Sarasota County, Charlotte County, the Southwest Florida Regional Planning Council, the Southwest Florida Water Management District, and other State and Federal agencies to ensure consistency with the provisions of the Charlotte Harbor Management Plan, and other regional issues.

Policy 8.4:

Where appropriate the City will concentrate the location and development of infrastructure to take advantage of high elevations and opportunities for rapid evacuation as identified in the Southwest Florida Comprehensive Hurricane Evacuation Plan.

Policy 8.5:

Close coordination shall be maintained with the Sarasota County School Board to ensure optimum school facilities and services are provided within the City of North Port.

Policy 8.6:

Close coordination shall be maintained with the Department of Community Affairs to ensure:

- 1) consistency between the Master Land Use Plan of GDC and the Future Land Use Plan of the City, and
- 2) consistency between the City's growth management strategies and the 1978 agreement between GDC and DCA.

OBJECTIVE 9:

By 1994, solutions to problems inherent to platted lands as identified by a DCA-financed feasibility study, shall be considered for adoption by the City Commission to ensure compliance with the State and Regional Comprehensive Plans.

Policy 9.1:

The City will provide incentives to individual property owners, builders, and developers to consolidate and assemble parcels of land for future private uses, and will encourage the use of zero lot line (ZLL) and cluster housing to improve lot layout, drainage, and stormwater retention.

Policy 9.2:

By 1990, the City shall adopt regulations which create a Transfer of Development Rights (TDR) mechanism which may be used to conserve environmentally sensitive lands and eliminate non-conforming subdivisions through density bonuses within Planned Community Development Districts.

Policy 9.3:

Vested property rights shall be protected, and in the event that any governmental action of the City of North Port is determined to be an unreasonable exercise of the City's police power so as to constitute a taking, the City shall provide compensation, or other appropriate relief as provided by law.

Policy 9.4:

Existing platted areas in the Charlotte Harbor region shall be developed in accord with the goals and objectives of the Charlotte Harbor Management Plan.

Policy 9.5:

Opportunities shall be provided for environmental protection and enhancement or restoration when and if replatting or replanning of existing platted lands occurs.

Policy 9.6:

Consumer protection information shall be made available from the City to consumers of platted lands purchased under land sales contract agreements.

ENDNOTES

1. Pages 7 and 29:

Promised Lands: Subdivisions in Florida's Wetlands, Volume 2, Inform, Inc., 1984.

2. Pages 29-30:

Florida State University, Volume II, No. 3, Fall 1983: "Planning For Platted Lands: Land Use Remedies for Lot Sale Subdivisions", Schnidman and Baker.

3. Pages 9-13:

Existing Land Use Inventory, City of North Port.

4. Pages 18-22:

Population Projections for the City of North Port, Florida Environmental Inc., April 1988.

5. Pages 11-12:

Long Range Facilities Plan, School Board of Sarasota County, Florida, 1988.

6. Page 33:

Myakka Estates Settlement Agreement, February 1982.

7. Page 33-34:

Panacea ADA Development Order, June 1986.

8. Pages 31 and 35:

Master Land Use Plan for the City of North Port, General Development Corporation, 1978.

9. Page 31:

DRI Agreement of 1978 between the Florida Department of Community Affairs and the General Development Corporation.

10. Page 32-33:

Three-Party Agreement of 1984 between the City of North Port, the North Port Water Control District and General Development Corporation.

11. Page 36:

Florida Department of Community Affairs, Major Issues Errata Sheet Response on Platted Lands, 1987.

TRAFFIC CIRCULATION

Table of Contents

Motorized Traffic Circulation Analysis .....	.56
Description of Existing Roadway System	56
Required Improvements to Existing Roadway System (LOS Analysis)	61
LOS Analysis of Projected Needs	62
New Road Construction and Regular Maintenance	69
Right-of-Way Acquisition	70
Accident Frequency Data and Intersection Improvements	70
Mass Transit	72
Bridge Construction and Maintenance	72
Parking	72
Landscaping	72
Future Traffic Circulation Map	73
Bicycle and Pedestrian Circulation .....	.75
Total Projected Transportation Related Expenditures over 5 year CIP period 1989/90-1993/94 .....	.77
Goals, Objectives and Policies .....	.78
Appendix .....	.84
Endnotes .....	.96

List of Tables

Table I	FDOT Functional Classification of Roadways within Corporate Boundaries of City of North Port	57
Table II	LOS Analysis of Existing Roadway System (1988)	63
Table III	LOS Analysis of Roadway System 1993	65
Table IV	LOS Analysis of Roadway System 1998	67
Table V	Right-of-Way for Major Urban and Rural Minor Collectors, North Port	71
Table VI	Bike Paths in City of North Port	76
Table VII	Transportation Expenditures 1989/90-1993/94	77
Table A1	Panacea and Murdock DRI Generated Traffic	87

List of Maps

Map 1	Existing Traffic Circulation Map	60
Map 2	Future Traffic Circulation Map	74

Motorized Traffic Circulation Analysis

Description of Existing Roadway System

North Port's Improved roadway system, depicted on the Existing Traffic Circulation Map in Map 1 below, is one of the largest of any City in the State consisting of over 800 miles of roads. Two State roads account for 17.8 miles of this existing road network. Both SR 93 (I-75) and SR 45 (U.S. 41), classified as principal arterials according to definitions established by the Florida Department of Transportation (FDOT), traverse the City in basically a southeast-northwest direction.

I-75 is the more heavily travelled of the two carrying mainly thru traffic between Sarasota and Charlotte Counties. U.S. 41, in addition to carrying a lot of Inter-county thru traffic, carries a significant amount of local traffic as well and remains the primary link between the urbanized area of North Port and the surrounding region. Operation and maintenance of these two roads is the responsibility of the State.

Sarasota County has recently assumed jurisdiction over one road in the City, SR 39, or Toledo Blade Boulevard as it is more commonly known. Toledo Blade Boulevard, classified as a rural major collector by the FDOT, runs for 4.6 miles through a largely uninhabited rural area in a north-south direction from I-75 to the Charlotte County line. As the Panacea DRI and the Port Charlotte Town Center (Murdock Center DRI) develop, Toledo Blade Boulevard is projected to become one of the most heavily travelled roads within the City's corporate limits.

Sarasota County is presently responsible for all operation and maintenance along Toledo Blade Boulevard. However, the City and the County intend to discuss the possibility of entering into an Interlocal agreement whereby the County would agree to pay the City to perform any required maintenance work along Toledo Blade Boulevard.

North Port also contains approximately 18.9 miles of roads classified as urban collectors by the FDOT. These roads primarily serve the presently urbanized southwestern section of the City as depicted on the Existing Traffic Circulation Map. The most heavily travelled of these urban collectors are North Port Boulevard, Pan American Boulevard north of U.S. 41, and South Biscayne Drive all of which run in a north-south direction. North Port Boulevard and Appomattox Drive carry almost exclusively local thru traffic while the other urban collectors carry a combination of local thru and residential traffic.

In addition, there exists 38 miles of rural minor collector roads in North Port. These roads, located in the rural areas of the City, are presently lightly travelled but are projected to function as urban collectors in the future.

The rest of North Port's roadway system consists of over 700 miles of urban and rural local roads. Most of the rural local roads serve areas which are totally uninhabited and thus carry little to no traffic at all. Table I below presents a complete breakdown of the City's major road segments according to FDOT classification, mileage, and number of lanes.

Aside from the State and County roads noted above, all of the existing urban collectors, rural minor collectors, and local roads in the City have been built by General Development Corporation (GDC). Excluding the Panacea DRI, GDC will also be responsible for most of the new road construction (as platted) to take place in the City in the future. Road construction within the Panacea DRI will be the responsibility of the developer.

Under an agreement signed between the City and GDC on February 6, 1984, the City accepted approximately 600 miles of existing roadways constructed by GDC for maintenance and agreed to accept an estimated 230 additional miles for maintenance upon their completion provided they meet design/construction standards¹ set by the City at the time the roads were originally platted. Most of the roads that have already been accepted and that are scheduled to be accepted were platted in the early 1970's and thus their construction

TABLE I
FDOT FUNCTIONAL CLASSIFICATION OF ROADWAYS WITHIN
CORPORATE BOUNDARIES OF CITY OF NORTH PORT

1. Principal Arterials

<u>Roadway</u>	<u>Segment</u>	<u>No. Miles</u>	<u>No. Lanes</u>
SR 93/I-75 (Limited Access)	Fr: W. City Limit To: Charlotte Co. Line	14.3	4 (D)
SR 45/US 41	Fr: W. City Limit To: Charlotte Co. Line	3.5	4 (D)
Total	2 Segments	17.8	

2. Rural Major Collectors

<u>Roadway</u>	<u>Segment</u>	<u>No. Miles</u>	<u>No. Lanes</u>
Toledo Blade (SR 39)	Fr: SR 93/I-75 To: Charlotte Co. Line	4.6	2 (U)
Total	1 Segment	4.6	

3. Urban Collectors

<u>Roadway</u>	<u>Segment</u>	<u>No. Miles</u>	<u>No. Lanes</u>
W. Price Blvd.	Fr: N. Biscayne Blvd. To: Salford Blvd.	3.3	2 (U)
Pan American Blvd.	Fr: SR 45/US 41 To: Spring Haven	1.6	2 (U)
Pan American Blvd.	Fr: SR 45/US 41 To: Freemont	0.4	2 (U)
S. Sumter Blvd.	Fr: SR 45/US 41 To: W. Price Blvd.	2.4	2 (U)
S. Biscayne Blvd.	Fr: SR 45/US 41 To: S. Biscayne Bridge	0.4	4 (D)
	Fr: S. Biscayne Bridge To: Chancellor Blvd.	0.6	2 (U)
	Fr: SR 45/US 41 To: Elyton	1.0	4 (D)
	Fr: Elyton To: W. Price Blvd.	1.3	2 (U)

Traffic Circulation		Page 58	Element 2
N. Biscayne Blvd.	Fr: W. Price Blvd. To: Ponce de Leon	0.3	2 (U)
Appomattox Dr.	Fr: Pan American To: S. Sumter Blvd.	1.6	2 (U)
Elyton Dr.	Fr: S. Biscayne Blvd. To: Pan American	0.4	2 (U)
N. Port Blvd.	Fr: S. Biscayne Dr. To: Appomattox Dr.	1.6	2 (U)
S. Salford Blvd.	Fr: SR 45/US 41 To: W. Price Blvd.	2.4	2 (U)
Ponce De Leon Blvd.	Fr: N. Biscayne Blvd. To: SR 93/I-75	1.6	2 (U)
Total	14 Segments	18.9	
4. <u>Rural Minor Collectors</u>			
<u>Roadway</u>	<u>Segment</u>	<u>No. Miles</u>	<u>No. Lanes</u>
W. Price Blvd.	Fr: Salford Blvd. To: Toledo Blade Blvd.	2.4	2 (U)
E. Price Blvd.	Fr: Toledo Blade Blvd. To: Hillsborough Blvd.	6.9	2 (U)
N. Sumter Blvd.	Fr: W. Price Blvd. To: Tropicare Blvd.	3.0	2 (U)
	Fr: SR 93/I-75 To: Tropicare Blvd.	0.7	2 (U)
Cranberry Blvd.	Fr: SR 45/US 41 To: W. Price Blvd.	3.5	2 (U)
Chamberlain Blvd.	Fr: Hillsborough Blvd. To: W. Price Blvd.	2.8	2 (U)
Tropicare Blvd.	Fr: W. City Limit To: E. City Limit	5.6	2 (U)
San Mateo Dr.	Fr: Hillsborough Blvd. To: E. Price	3.0	2 (U)

Traffic Circulation

Page 59

Element 2

Atwater St.	Fr: Hillsborough Blvd. To: E. Price Blvd.	2.7	2(U)
Hillsborough Blvd.	Fr: Chamberlain Blvd. To: Raintree	5.8	2(U)
Raintree Blvd.	Fr: Hillsborough Blvd. To: SR 93/I-75	1.6	2(U)
Total	11 Segments	38.0	

SOURCE: FDOT for classification of Arterials, Major Rural Collector, and Urban Collectors. North Port P&Z Department for classification of Rural Minor Collectors, 1988.

was completed only in accordance with the engineering design standards that were in effect at the time. Per the terms of the agreement, the City does not accept any roads for maintenance until all the roads in the same plat have been completed to the above mentioned standards.

Under the terms of two separate agreements², the City will also eventually accept for maintenance all roads scheduled to be constructed by GDC in Myakka Estates as well as a share of the internal roadways scheduled to be built in the Panacea DRI. The City shares with Charlotte County the responsibility for maintenance on Hillsborough and Chancellor Boulevards; the rights-of-way of which are centered on the City-County line. The City is presently negotiating with Charlotte County an interlocal agreement to provide these roads with more uniform traffic control and maintenance.

Required Improvements to Existing Roadway System (LOS Analysis)

In transportation planning Level of Service (LOS) is used as a measure of the restrictive effects of increased traffic volumes on a particular roadway. LOS can be defined as the ability of a maximum number of vehicles to pass over a given section of roadway or through an intersection during a specified time period while maintaining a given operating condition. Levels of service are divided into six classifications. A brief description of each is presented below:

LOS A: Highest LOS which describes primarily free-flow traffic operations at average travel speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at intersections is minimal.

LOS B: Represents reasonably unimpeded traffic flow operations at average travel speeds. The ability to move within the traffic stream is only slightly restricted and stopped delays are not bothersome.

LOS C: Represents stable traffic flow operations. However, ability to maneuver and change lanes may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds.

LOS D: Borders on a range in which small increases in traffic flow may cause substantial increase in approach delay and, hence, decreases in speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combinations of these.

LOS E: This represents traffic flow characterized by significant delays and lower operating speeds. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.

LOS F: This represents traffic flow characterized at extremely low speeds. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse signal progression is frequently a contributor to this condition.

SOURCE: DCA Model Traffic Circulation Element, 1988.

LOS C is generally considered to be the minimum acceptable level for roadways in urbanized areas. Roads falling in the LOS D, E, and F categories indicate that some form of improvement is required. The methodology used to estimate the existing LOS for North Port's roadways is presented in the Appendix to this element.

The results are presented in Table II below. They indicate that all of North Port's major roadways fall into the LOS C or better category. Thus using LOS criteria alone, there does not presently appear to exist the need for any major capital improvements to the existing roadway system.

Given the relatively good state of the roadway system and the desire to maintain these standards, the City has decided to adopt a peak hour Level of Service C³ as the minimum acceptable standard for the operating condition of its roadways. For reference, the FDOT has established the following statewide minimum acceptable operating LOS standards for the State Highway System:

Rural/Urban Areas

B (desirable), C (acceptable)

Urbanized Areas

C (desirable), D (acceptable)

LOS Analysis of Projected Needs

The LOS on North Port's roadways was projected for 1993 and 1998 in order to determine the need for new roadway facilities and/or expansions to the existing system to maintain traffic levels at a LOS C standard. A complete description of the methodology used to make these projections is contained in the Appendix. All projections take into account the potential impact of the development of the Panacea and Murdock DRIs. These projections are summarized in Tables III and IV below.

The results indicate that only one improvement will have to be made to North Port's existing roadway system in order to maintain traffic levels at a LOS C or better standards over the period 1988-1993. By 1993, the segment of North Port Boulevard located just south of U.S. 41 is projected to be operating at LOS D. To address this potential problem, the Road and Drainage Department intends to realign and channelize the approaches to this segment of North Port Boulevard by 1994. It is estimated that this capital improvement will cost \$70,000.

By 1998, the LOS on North Port Boulevard south of U.S. 41 is projected to remain at LOS D if the above noted improvement is not made. The segments of Pan American and Sumter Boulevards located north of U.S. 41 and the segment of I-75 from Toledo Blade Boulevard to N. Sumter Boulevard will be operating at LOS D.

With regard to the segment of I-75 projected to exceed LOS C by 1998, the FDOT does plan to expand the capacity the entire segment of the interstate running through North Port by widening it to 6 lanes sometime shortly after the year 2000. Since the City's Capital Improvement Program (CIP) covers the period 1989-1994, only the projected improvement to North Port Boulevard south of U.S. 41 is included in it. Specific improvements needed to upgrade those other road segments projected to fall below LOS C by 1998 will be identified and reflected in the succeeding CIP's.

The Appendix also contains a brief discussion of the projected impact of the Panacea and Murdock DRIs on the level of traffic on North Port's roadways. It is noted here that the Development Order for the Panacea DRI obligates the developer to share with the City the cost of total improvements necessary, including right-of-way acquisition, to maintain level of service C for the following roadway segments and intersections under jurisdiction of the City⁴:

<u>Segment</u>	<u>Intersection</u>
<u>W. Price Boulevard:</u>	Sumter and W. Price
N. Biscayne Drive to Sumter Boulevard	Cranberry and W. Price
Sumter to Cranberry Boulevard	Glenbrooke and E. Price
Cranberry to Toledo Blade Boulevard	Haberland and E. Price
<u>N. Sumter Boulevard:</u>	

**TABLE II
LOS ANALYSIS OF EXISTING ROADWAY SYSTEM (1988)**

<u>Roadway</u>	<u>ADT</u>	<u>AADT</u>	<u>PSWT</u>	<u>Design Hour Volume</u>	<u>LOS</u> ¹
<u>SR 93/I-75 (a)</u>					
1) Charlotte Cnty- Toledo Blade	N/A	14980	17527	1472	C
2) Toledo Blade- Sumter	N/A	32440	37955	3036	C
3) Sumter- River Road	N/A	30680	35896	2872	C
<u>SR 45/US 41 (b)</u>					
1) Charlotte Cnty- River Road	N/A	16860	19726	1637	C
<u>Toledo Blade/SR 39 (c)</u>					
1) I-75 to Hillsborough	1731	1861	2178	220	C
<u>North Port Blvd.</u>					
1) N. of US 41 (d)	9479	8172	8172	695	C
2) S. of US 41 (e)	6137	5291	5291	503	C
<u>Pan American Blvd.</u>					
1) N. of US 41 (f)	3864	3788	4432	430	C
2) S. of US 41 (g)	1392	1365	1597	164	C
<u>S. Sumter Blvd.</u>					
1) N. of US 41 (h)	759	744	871	91	C
2) N. of US 41 (i)	3890	3442	4028	391	C
<u>Appomattox Drive (j)</u>	1358	1151	1151	119	C
<u>W. Price Blvd. (k)</u>	494	489	572	60	C
<u>E. Price Blvd. (*)</u>	-	-	-	-	C
<u>S. Biscayne Blvd.</u>					
1) S. of US 41 (l)	2615	2314	2314	234	C
2) N. of US 41 (m)	4714	4910	5745	546	C
3) S. of G.Allen (n)	1099	1088	1273	131	C
<u>Ponce DeLeon (o)</u>	457	519	607	64	C
<u>Elyton Drive (p)</u>	1243	1243	1454	450	C
<u>S. Salford</u>					
1) N. of US 41 (q)	2055	2210	2585	261	C
2) At Nemo Ave. (r)	636	684	800	84	C

<u>Roadway</u>	<u>ADT</u>	<u>AADT</u>	<u>PSWT</u>	<u>Design Hour Volume</u>	<u>LOS¹</u>
Hillsborough Blvd. (s)	N/A	250	250	26	C
Tropicare (*)	-	-	-	-	C
Cranberry (*)	-	-	-	-	C
Atwater (*)	-	-	-	-	C
Raintree (*)	-	-	-	-	C
San Mateo (*)	-	-	-	-	C

1 - FDOT's methodology for calculating LOS which the City followed only enables roadways to be classified as falling under LOS C, D, or E. The City notes that most of its roadways are operating at substantially better than LOS "C".

SOURCE: North Port Planning and Zoning Department, 1988

- (a) From FDOT "Level-of-Service on State Highways in Sarasota County" Draft as of 4/27/88. Based on extrapolation of traffic counts provided for 1987.
- (b) See (a) above.
- (c) From North Port Road and Drainage (R&D) Department. Based on 5 day average for week ending 6/26/88. Count taken at Snover Waterway.
- (d) From North Port R&D Dept. Based on 5 day average for week ending 3/18/88. Count taken on 4 lane section of N. Port Blvd near intersection with U.S. 41.
- (e) From North Port R&D Dept. Based on 5 day average for week ending 3/18/88. Count taken on 2 lane section of N. Port Blvd near intersection with U.S. 41.
- (f) From North Port R&D Dept. Based on 5 day average for week ending 5/8/88. Count taken north of U.S. 41 near intersection.
- (g) See (f) above. Count taken south of U.S. 41 near intersection.
- (h) From North Port R&D Dept. Based on 5 day average for week ending 12/27/87. Count taken 2 1/4 miles north of US 41.
- (i) From North Port R&D Dept. 1988 estimate based on extrapolation of 5 day average count for week ending 1/19/89. Count taken at north intersection of US 41.
- (j) From North Port R&D Dept. Based on 5 day average for week ending 2/14/88. Count taken west of Appomatox Drive Bridge.
- (k) From North Port R&D Dept. Based on 5 day average for week ending 5/29/88. Count taken west of S. Salford.
- (*) Traffic Count data not available. LOS estimated using lightly travelled urban collector roads as proxy (e.g. S.Sumter and W.Price).
- (l) From North Port R&D Dept. Based on 5 day average for week ending 1/31/88. Count taken at South Biscayne Bridge.
- (m) From North Port R&D Dept. Based on 5 day average for week ending 6/26/88. Count taken north of U.S. 41 near intersection.
- (n) From North Port R&D Dept. Based on 5 day average for week ending 5/29/88. Count taken south of Glenn Allen.
- (o) From North Port R&D Dept. Based on 5 day average for week ending 7/24/88. Count taken off N. Biscayne Drive.
- (p) From North Port R&D Dept. Based on 5 day average for week ending 6/12/88. Count taken at two channel section east of S. Biscayne north of U.S. 41.
- (q) From North Port R&D Dept. Based on 5 day average for week ending 7/10/88. Count taken just north of U.S. 41 at Cocoplum Waterway.
- (r) From North Port R&D Dept. Based on 5 day average for week ending 7/10/88. Count taken at Memo Ave.
- (s) Estimated based on traffic count data provided in Murdock Increment II DRI and from a count taken on 2/2/88 west of Toledo Blade Boulevard by the Charlotte County Public Works Department.

TABLE III
LOS ANALYSIS OF EXISTING ROADWAY SYSTEM (1993)

<u>Roadway</u>	<u>AADT</u>	<u>PSWT</u>	<u>Design Hour Volume</u>	<u>LOS¹</u>
<u>SR 93/I-75 (a)</u>				
1) Charlotte Cnty-Toledo Blade	22380	26185	2147	C
2) Toledo Blade-Sumter	42640	49889	3841	C
3) Sumter-River Road	39580	46309	3612	C
<u>SR 45/US 41 (b)</u>				
1) Charlotte Cnty-River Road	21660	25342	2078	C
<u>Toledo Blade/SR 39 (c)</u>				
1) I-75 to Hillsborough	8602	8602	731	C
<u>North Port Blvd.</u>				
1) N. of US 41 (d)	9725	9725	827	C
2) S. of US 41 (e)	6296	6296	586	D
<u>Pan American Blvd.</u>				
1) N. of US 41 (f)	4507	5274	501	C
2) S. of US 41 (g)	1624	1900	196	C
<u>S. Sumter Blvd.</u>				
1) N. of US 41 (h)	1115	1305	134	C
2) N. of US 41 (i)	4326	5061	481	C
<u>Appomattox Drive (j)</u>				
	1370	1603	165	C
<u>W. Price Blvd. (k)</u>				
	811	949	100	C
<u>E. Price Blvd. (*)</u>				
	-	-	-	C
<u>S. Biscayne Blvd.</u>				
1) S. of US 41 (l)	2754	2754	278	C
2) N. of US 41 (m)	5843	6836	636	C
3) S. of G.Allen (n)	1295	1515	156	C
<u>Ponce DeLeon (o)</u>				
	618	723	76	C
<u>Elyton Drive (p)</u>				
	1479	1731	178	C
<u>S. Salford</u>				
1) N. of US 41 (q)	2630	3077	305	C
2) At Nemo Ave. (r)	814	952	100	C

<u>Roadway</u>	<u>AADT</u>	<u>PSWT</u>	<u>Design Hour Volume</u>	<u>LOS¹</u>
Hillsborough Blvd. (s)	1602	1602	165	C
Tropicare (*)	-	-	-	C
Cranberry (*)	-	-	-	C
Atwater (*)	-	-	-	C
Raintree (*)	-	-	-	C
San Mateo (*)	-	-	-	C

1 - FDOT's methodology for calculating LOS which the City followed only enables roadways to be classified as falling under LOS C, D, or E. The City notes that most of its roadways are operating at substantially better than LOS "C".

SOURCE: North Port Planning and Zoning Department, 1988

- (a) From FDOT "Level-of-Service on State Highways in Sarasota County". Draft as of 4/27/88. Based on extrapolation of traffic counts provided for 1992.
- (b) See (a) above.
- (c) Based on extrapolation of projected amount of non-project traffic for 1992 contained in Panacea DRI. Also includes all of Phase I Murdock DRI generated traffic on this roadway and one-third of Phase I Panacea DRI generated traffic.
- (d) Assumes AADT increase of 3.6% per year in line with projected annual rate of growth in number of households in Planning District 12 over period 1989-1993.
- (e) See (d) above.
- (f) See (d) above.
- (g) See (d) above.
- (h) See (d) above. Also includes one-third of projected increase in traffic generated on this roadway during Phase I of Panacea DRI.
- (i) See (h) above.
- (j) See (d) above.
- (k) See (h) above.
- (*) LOS estimated using projected LOS on lightly travelled urban collector roads as proxy (e.g. S. Sumter and W. Price Blvds.)
- (l) See (d) above.
- (m) See (d) above.
- (n) See (d) above.
- (o) See (d) above.
- (p) See (d) above.
- (q) See (d) above.
- (r) See (d) above.
- (s) Assumes AADT increase of 39.0% per year in line with projected annual rate of growth in number of households in Planning District 13 over period 1989-1993. Also includes all of Phase I Murdock DRI generated traffic on this roadway and one-third of Phase I Panacea DRI generated traffic.

TABLE IV
LOS ANALYSIS OF EXISTING ROADWAY SYSTEM (1998)

<u>Roadway</u>	<u>AADT</u>	<u>PSWT</u>	<u>Design Hour Volume</u>	<u>LOS¹</u>
<u>SR 93/I-75 (a)</u>				
1) Charlotte Cnty- Toledo Blade	29780	34843	2787	C
2) Toledo Blade- Sumter	52840	61823	4637	D
3) Sumter- River Road	48480	56722	4311	C
<u>SR 45/US 41 (b)</u>				
1) Charlotte Cnty- River Road	26460	30958	2508	C
<u>Toledo Blade/SR 39 (c)</u>				
1) I-75 to Hillsborough	13136	13136	1103	C
<u>North Port Blvd.</u>				
1) N. of US 41 (d)	11573	11573	984	C
2) S. of US 41 (e)	7492	7492	644	D
<u>Pan American Blvd.</u>				
1) N. of US 41 (f)	5363	6275	584	D
2) S. of US 41 (g)	1933	2261	228	C
<u>S. Sumter Blvd.</u>				
1) N. of US 41 (h)	1530	1790	184	C
2) N. of US 41 (i)	5351	6261	582	D
<u>Appomattox Drive (j)</u>				
	1630	1907	196	C
<u>W. Price Blvd. (k)</u>				
	1437	1681	173	C
<u>E. Price Blvd. (*)</u>				
	-	-	-	C
<u>S. Biscayne Blvd.</u>				
1) S. of US 41 (l)	3277	3277	324	C
2) N. of US 41 (m)	6953	8135	691	C
3) S. of G.Allen (n)	1541	1803	186	C
<u>Ponce DeLeon (o)</u>				
	735	860	90	C
<u>Elyton Drive (p)</u>				
	1760	2059	208	C
<u>S. Salford</u>				
1) N. of US 41 (q)	3130	3662	363	C
2) At Nemo Ave. (r)	969	1133	117	C

<u>Roadway</u>	<u>AADT</u>	<u>PSWT</u>	<u>Design Hour Volume</u>	<u>LOS¹</u>
Hillsborough Blvd. (s)	2563	2563	259	C
Tropicare (*)	-	-	-	C
Cranberry (*)	-	-	-	C
Atwater (*)	-	-	-	C
Raintree (*)	-	-	-	C
San Mateo (*)	-	-	-	C

1 - FDOT's methodology for calculating LOS which the City followed only enables roadways to be classified as falling under LOS C, D, or E. The City notes that most of its roadways are operating at substantially better than LOS "C".

SOURCE: North Port Planning and Zoning Department, 1988

- (a) From FDOT "Level-of-Service on State Highways in Sarasota County". Draft as of 4/27/88. Based on extrapolation of traffic counts provided for 1997.
- (b) See (a) above.
- (c) Based on projected amount of non-project traffic for 1998 contained in Panacea DRI. Also includes all of Phase 2 Murdock DRI generated traffic on this roadway and two-thirds of Phase I Panacea DRI generated traffic.
- (d) Assumes AADT increase of 3.7% per year in line with projected annual rate of growth in number of households in Planning District 12 over period 1994-1998.
- (e) See (d) above.
- (f) See (d) above.
- (g) See (d) above.
- (h) See (d) above. Also includes two-thirds of projected increase in traffic generated on this roadway during Phase I of Panacea DRI.
- (i) See (h) above.
- (j) See (d) above.
- (k) See (h) above.
- (*) LOS estimated using projected LOS on lightly travelled urban collector roads as proxy (e.g. S. Sumter and W. Price Blvds.)
- (l) See (d) above.
- (m) See (d) above.
- (n) See (d) above.
- (o) See (d) above.
- (p) See (d) above.
- (q) See (d) above.
- (r) See (d) above.
- (s) Assumes AADT increase of 10.0% per year in line with projected annual rate of growth in number of households in Planning District 13 over period 1994-1998. Also includes all of Phase II Murdock DRI generated traffic on this roadway and two-thirds of Phase I Panacea DRI generated traffic.

I-75 to Price Boulevard

S. Sumter Boulevard:

W. Price to U.S. 41

Cranberry Boulevard:

Price to Toledo Blade

While the LOS on any of these roadways/intersections is not projected to exceed LOS C over the course of the 5 year Capital Improvement Planning period, the City intends nonetheless to include \$20,000 in the Capital Improvement Program as a contingency for its share of any improvements to these roadways/intersections that might be necessary within the 5 year CIP timeframe owing to the development of the Panacea DRI.

New Road Construction and Regular Maintenance

As previously noted, GDC is responsible for nearly all new road construction work in the City. Under the terms of the Myakka Estates Agreement signed between GDC and the City in 1982, GDC is committed to construct by February 16, 1989, a four mile two lane extension of Sunnybrook Boulevard from its existing location in Charlotte County northward through the Myakka Estates portion of North Port to connect with State Road 777⁵. To date, however, construction of this road has not yet commenced. The Myakka Estates Agreement also commits GDC to complete the extension of Cranberry Boulevard between Creighton Boulevard and Toledo Blade Boulevard by 1990. In addition, GDC is committed under the Development Order issued for the Murdock Increment II DRI to complete the last segment of Hillsborough Boulevard between Chamberlain and Cranberry Boulevards.

The City of North Port is also strongly encouraging GDC to complete the construction of the following roadways:

- the extension of Toledo Blade Boulevard north of I-75 (Choctaw Boulevard)
- Spring Haven Drive from Pan American to Price Boulevard
- North Port Boulevard to Sumter Boulevard as platted
- Haberland Boulevard to Hillsborough Boulevard including a bridge over the Cocoplum.

All of these roadways are contained on plats that have been submitted by GDC, approved by the City and officially recorded at the Clerk of the Circuit Court for Sarasota County, and/or depicted on the City's existing Zoning and Future Land Use Maps. Their completion is of particular importance due to their location relative to strategic existing and projected future land uses in and adjacent to the City. Completion of the Toledo Blade extension has been delayed so far, however, due to an engineering problem involved in aligning the proposed extension with the existing terminus of Toledo Blade Boulevard. The City intends to work with both GDC and Sarasota County in resolving this issue. The extensions of the other roadways listed should be completed within the 5 year timeframe of the Plan. Other roadway construction that is scheduled to occur over the period 1988-1998 includes the phased construction of local roads in Myakka Estates by GDC and the preliminary construction of the internal roadway system in the Panacea DRI.

The City's 1984 Road Agreement with GDC, under which it agreed to accept over 600 miles of existing roadways for maintenance and another estimated 230 miles upon their completion, has created a large financial responsibility. The situation is compounded by the fact that the City has limited control over when and where new road construction by GDC will take place.

In 1985 the City created a Road and Drainage dependent taxing district in order to help finance its maintenance activities⁶. As noted, the City has already accepted over 600 miles of existing roadways for maintenance. Most of these roads, however, were built in advance of the actual residential development of the areas they are located in and hence have tended to deteriorate slightly due to lack of roadway travel. As residential development begins to occur, the City needs to resurface the roadways. To this end, over the period 1989-1994, the City intends to resurface, and, as necessary, stripe between 15-18 miles of existing roads each year. The estimated annual cost of this resurfacing program is \$500,000.

In 1988, the City implemented a readdressing program for the entire City. As a result of the program, many street names were changed throughout the City, and thus new street signs need to be installed. The City anticipates the need to install approximately \$50,000 worth of street signs each year over the 1989-94 Capital Improvement Planning period.

Several areas of North Port are growing rapidly but do not presently possess any street lights. This situation is inadequate in terms of ensuring the safety of the travelling public and the residents living in these areas. The City therefore intends to contract with Florida Power and Light to install street lights in such areas in accordance with the City's Street Lighting Guidelines and Standards program which is in the process of being finalized. It is estimated that this will entail an expenditure of \$130,000 per year over the period 1989-94.

Right-of-Way Acquisition

As noted above, it is not anticipated that any of the City's roadways, except for perhaps some intersections, will have to be widened over the next 10 years. However, beyond that time frame, it is probable that S. Biscayne Drive and Price, Raintree and Sumter Boulevards may all have to be widened to 4 lanes. According to the City's Roads and Drainage Department, this would require a minimum right-of-way width of 100 feet.

Table V presents data on the available right-of-way for the City's major urban and rural minor collectors. The data indicate that Sumter, Price⁷, and S. Biscayne all have a 100 foot right-of-way and thus there should be no need for any further acquisition except possibly for storm water retention ponds. The right-of-way for Raintree Boulevard is 80 feet. Thus if and when this road needs to be widened (as noted in the Future Land Use Element there exists the possibility that an interchange may be constructed at the intersection of I-75 and Raintree Boulevard sometime in the future), additional right-of-way will likely have to be acquired. The City intends to monitor traffic volumes on all its existing (and future) major urban collectors on an annual basis to determine the need and timing for any future right-of-way acquisition.

Accident Frequency Data and Intersection Improvements

Data collected by the North Port Police Department indicate that the greatest share of accidents in the City occur at the intersections of U.S. 41 and Pan American Boulevard, S. Sumter Boulevard, and North Port Boulevard. For the North Port Boulevard intersection, recent improvements have been made which should help to reduce the accident rate. For the S. Sumter intersection, the City intends to monitor the flow of traffic to determine what, if any, improvements should be made. For the intersection of Pan American Boulevard and U.S. 41, the FDOT has completed a study on what improvements could be made to improve safety and traffic flow. The study recommended that the intersection warrants realignment and signalization. The City along with the FDOT intends to carry out these improvements in FY 1989/90 (the improvement has been incorporated in FDOT's "Push Button Program" under its 5-year Transportation Plan). The estimated \$100,000 total cost of this improvement is intended to be shared on a 50/50 basis between the City and the FDOT.

TABLE V
RIGHTS-OF-WAY FOR MAJOR URBAN AND RURAL MINOR
COLLECTORS, NORTH PORT

<u>Road/Segment</u>	<u>ROW</u>
1. <u>Sumter Boulevard:</u>	
From U.S. 41 to Pocatella Ave.	100'
From Pocatella to Snover Waterway	200'
From Snover to Tropicare Blvd.	100'
2. <u>North Port Boulevard:</u>	
From U.S. 41 to Cocoplum Waterway	80'
From Cocoplum to Appomattox Drive	110'
From Appomattox to Palamino Road	170'
From Palamino Road to Sumter Blvd.	100'
3. <u>N. Biscayne Drive:</u>	
From Price to Tropicare Blvd.	100'
From Tropicare to Estates Drive.	80'
4. <u>Price Boulevard:</u>	
From W. City Limit to Orlando Blvd.	100'
From Orlando to N. Torrington St.	60'
5. <u>Ponce de Leon Boulevard:</u>	
From N. Biscayne Dr. to Tropicare Blvd.	100'
From Tropicare to Estates Drive	80'
6. <u>Hillsborough Boulevard:</u>	
From Chamberlain Blvd. to Raintree Blvd.	40'*
7. San Mateo Drive:	100'
8. Tropicare Boulevard:	100'
9. S. & N. Salford Boulevard:	100'
10. S. Biscayne Drive	100'
11. Cranberry Boulevard:	100'
12. Chamberlain Boulevard:	100'
13. Atwater Street:	100'
14. Pan American Boulevard:	80'
15. Appomattox Drive:	80'
16. Raintree Boulevard:	80'
17. Elyton Drive:	50'

* Additional 40' right-of-way located in Charlotte County.

SOURCE: North Port Road and Drainage Department, 1988.

Mass Transit⁸

North Port does not presently possess a local mass transit system. It is served, however, by the Sarasota County Area Transit (SCAT) system. The SCAT bus runs three times a day between the Holiday Park mobile home community and the City of Sarasota with only one intermediate stop in North Port (City Hall). The number of citizens utilizing this service to date is very small. The City intends to coordinate with SCAT to explore how bus service in North Port might be improved and expanded. In addition, over the course of the next 5 years the City intends to analyze both the demand for, and the feasibility of, creating a mini-van shuttle system which could be operated by the private sector for the citizens of North Port, including in particular the elderly and/or disabled. Such a system could potentially provide service to the new Port Charlotte Town Center.

Bridge Construction and Maintenance

There are 31 bridges presently located within the incorporated area of North Port. These bridges have been built by GDC which is responsible for most of the new bridge construction which occurs in the City. GDC is presently completing construction of 5 new bridges.

Operation, inspection, and maintenance of bridges in the City is the responsibility of the North Port Water Control District (NPWCD). The FDOT recently hired an engineering firm to complete an inspection report on all of the bridges located in the City. According to the report, the condition of the City's system of bridges is average. However, the findings in the report appear to indicate that structural improvements will have to be made to several bridges over the course of the 5 year Capital Improvement Planning period.

The NPWCD is currently in the process of carrying out a test maintenance program on one bridge in order to obtain an estimate of the capital costs that will be involved in repairing all the bridges that are in need of repair. The NPWCD hopes to have determined the exact number of bridges that will have to be repaired/replaced and the estimated total costs involved by the end of FY 87/88. The NPWCD then plans to use this information to establish an annual Bridge Rehabilitation Program which will be included within subsequent updates of their Capital Improvement Program.

Parking

Presently most of the commercial development in the City is located along U.S. 41 and is projected to continue to concentrate there in the near future. Based on today's parking standards, the on-site parking facilities of commercial establishments along U.S. 41 are not large enough to meet their growing business needs. To address this situation, the City has developed a design for the construction of adjacent off-site 'pod' parking facilities on City owned land for these and any other interested establishments. The City intends to lease the land it owns to private commercial establishments willing to construct and maintain (including the provision of liability insurance) off-site parking facilities in accordance with the design developed by the City. In addition the City intends to revise its zoning code to update parking standard requirements and improve regulation of on-site traffic flow. The City's existing requirements no longer conform with the latest professional standards recommended by the Institute of Transportation Engineers, Urban Land Institute and American Planning Association.

Landscaping

The City would like to improve the aesthetic appearance of, and provide noise buffers along, its arterial and collector roadway system. The City thus intends to include landscaping in the construction of the aforementioned off-site parking facilities for commercial establishments located along U.S. 41. In addition, the City plans to adopt landscaping code/criteria for the maintenance of roadway rights-of-way and median strips.

The City also intends to explore the possibility of obtaining Highway Beautification Grants from FDOT to provide for improvements along U.S. 41. Increased use of landscaping would serve as a soil erosion control and protect hurricane evacuation routes. The City also intends to investigate the feasibility of including landscaping within the City Road and Drainage Department's roadway resurfacing program.

Future Traffic Circulation Map

Map 2 below depicts the projected future traffic circulation system of the City. No major improvements to the existing roadway system other than the widening of certain intersections is anticipated over the course of the next ten years. The Map does show, however, that the City's system of rural minor collectors is projected to include the following new segments:

- Yorkshire Boulevard
- Haberland Boulevard
- Cranberry Boulevard from Price to Chamberlain
- Chamberlain Boulevard from Price to I-75
- Choctaw Boulevard (extension of Toledo Blade)
- Chancellor Boulevard
- Sunnybrook Boulevard (Myakka Estates)
- Gisinger Boulevard (Myakka Estates)
- Tropine Boulevard (Myakka Estates)
- Vanderlyn Boulevard (Myakka Estates)

In addition, the segment of Salford Boulevard from Price Boulevard to I-75 is projected to function as part of the City's system of Urban Collectors.

FUTURE TRAFFIC CIRCULATION MAP CITY OF NORTH PORT, FLORIDA



ROADWAY FUNCTIONAL CLASSIFICATION LEGEND

- PRINCIPAL ARTERIAL (4 LANE DIVIDED LIMITED ACCESS 350 FT. R.O.W., F.D.O.T. MAINTAINED)
- PRINCIPAL ARTERIAL (4 LANE DIVIDED 200 FT. R.O.W., F.D.O.T. MAINTAINED)
- RURAL MAJOR COLLECTOR (2 LANE UNDIVIDED)
- URBAN COLLECTOR (4 LANE DIVIDED)
- URBAN COLLECTOR (2 LANE UNDIVIDED)
- RURAL MINOR COLLECTOR (2 LANE UNDIVIDED)
- LOCAL ROADS NOT SHOWN

GENERAL LEGEND

- CITY BOUNDARY
- CANAL/WATERWAY
- INDICATES LOCATION OF SARASOTA COUNTY AREA TRANSIT (SCAT) BUS STOPS

EXISTING CITY RIGHT OF WAY WIDTHS

ALL CITY MAINTAINED RIGHT OF WAYS ARE 100 FT. IN WIDTH EXCEPT AS NOTED BELOW

200 FT. R.O.W.'S - TOLLER BLVD. SOUTH OF UNDER WATERWAY
 SOUTH BLVD. FROM POCATELLA AVE. NORTHERLY TO UNDER WATERWAY

120 FT. R.O.W.'S - NORTH PORT BLVD. FROM APPROXIMATE DR. NORTHEASTERLY TO PLANKING RD.

150 FT. R.O.W.'S - NORTH PORT BLVD. FROM COOPERMAN WATERWAY NORTHERLY TO APPROXIMATE DR.

80 FT. R.O.W.'S - NORTH PORT BLVD. FROM CHARLOTTE COUNTY LINE NORTHERLY TO COOPERMAN WATERWAY
 NORTH BLVD. FROM TROUSERS TO STANLEY DR.
 TROUSERS BLVD. FROM TROUSERS TO STANLEY DR.
 NORTH PORT AVENUE
 SOUTH PORT AVENUE
 APPROXIMATE DR.
 TROUSERS BLVD.

80 FT. R.O.W.'S - PRIDE BLVD. FROM ISLAND TO NORTH TOWNSEND ST. (WITH WHEEL AT CORNER, ETC.)

50 FT. R.O.W.'S - ELLIOTT DR.

40 FT. R.O.W.'S - HILSBOROUGH BLVD. ONLY IN NORTH PORT

PREPARED BY
 A.L. VAN BUSKIRK ENGINEERS AND PLANNERS, INC.
 14224 TAMAMI TRAIL
 NORTH PORT, FLORIDA 34287
 IN COOPERATION WITH THE
 CITY OF NORTH PORT, FLORIDA
 OCTOBER, 1988

(SOURCE: FLORIDA DEPARTMENT OF TRANSPORTATION & NORTH PORT PLANNING & ZONING DEPARTMENT, 1988)

Bicycle and Pedestrian Circulation

North Port presently contains approximately 5.9 miles of bikepaths. Table VI below lists where these paths are located and their respective mileage.

In accordance with the goals of the SWFRPC and FDOT, the City intends to conduct a study to determine how many additional miles of bikepaths need to be constructed over the next 5 years to accommodate existing and future demand, where they should be located, what construction method should be used (e.g. curb lane or separate path), and available funding sources. As a pilot project for FY 1989/90, the City intends to stripe Biscayne Drive along the 2 lane divided segment north of US 41 (approximately 1 mile) to create bikelanes in both directions. In anticipation of the results of the aforementioned study, the City intends to budget up to \$150,000 for the construction of at least 2 more miles of bikepaths over the 5 year planning period beginning FY 1989/90. All future bikepaths shall be constructed to meet FDOT design and maintenance standards.

The City's existing land development regulations do not require that multi-family or commercial developments provide for parking facilities for bicycles. As a result such facilities are lacking throughout the City. The City therefore intends to revise its land development regulations to require that such developments provide for, as reasonable, bicycle parking facilities. Similarly, the City's LDR's do not presently require that developers provide bikepaths in new subdivision developments. This is a principal reason why the City only possesses 5.9 miles of bikepaths to date. The City thus intends to revise its LDRs to require developers to provide, where appropriate, bikepaths in new subdivisions.

In 1984, the City's land development/subdivision regulations were modified to require that developers include the provision of sidewalks in their subdivision plans (paving and drainage plans). Prior to that change, GDC provided sidewalks in only a selected number of their residential developments in the City. However even that practice has been discontinued for several years. As a result, several residential areas of the City that are substantially developed presently lack adequate sidewalk facilities.

In order to develop an integrated pedestrian circulation system in line with the goals of both the SWFRPC and FDOT, the City intends to conduct a study to determine how many additional miles of sidewalks need to be constructed to meet existing and future demand, where they should be located, and how they should be financed. The City also plans to adopt land development regulations which require that all new development provide for the installation of sidewalks consistent with City design and construction standards. As a contingency, the City intends to budget up to \$150,000 for the construction of at least 3 miles of sidewalks over the 5 year CIP period.

TABLE VI
BIKE PATHS IN CITY OF NORTH PORT

<u>Path</u>	<u>Location</u>	<u>Mileage</u>
Pan American	From U.S. 41 to Elementary School	2.281
N. Port Blvd.	From U.S. 41 to Appomattox	1.036
Elyton	From S. Biscayne to Pan American	.330
Appomattox	From N. Port Blvd. to Pan American	.552
U.S. 41 (South Side)	From Holiday Park to Bolander	.899
U.S. 41 (North Side)	From Winn Dixie to Pan American	.422
North Highway Drive	From Pan American to S. Biscayne	.251
Glen Allen	From Narramore to Spring Haven	.162
		<u>5.933</u>

SOURCE: North Port R&D Department, Inventory of Bikepaths, 1988.

Total Projected Transportation Related Expenditures over 5 year CIP period 1989/90-1993/94

Table VII below summarizes the total projected transportation related expenditures and revenue sources for the City over the 5 year CIP period 1989/90-1993/94.

**TABLE VII
TRANSPORTATION EXPENDITURES 1989/90-1993/94**

<u>Expenditure Item</u>	<u>Date</u>	<u>Estimated Cost</u>	<u>Funding Source</u>
1. Signalization and alignment improvement to intersection of Pan American Boulevard and U.S. 41.	1989/91	\$100,000	\$50000 FDOT \$50000 City (R&D Dept.*)
2. Channelization of approaches to segment of N. Port Blvd. located south of U.S. 41.	1993/94	\$ 70,000	R&D Dept.
3. Resurface 12-17 miles of existing roadways.	1989/90- 1993/94	\$2,500,000	R&D Dept.
4. Streetlight maintenance and procurement	1989/90- 1993/94	\$650,000	R&D Dept.
5. Road sign maintenance and procurement	1989/90- 1993/94	\$250,000	R&D Dept.
6. Panacea DRI related intersection improvements on City roads.	1992/93- 1993/94	\$ 20,000	R&D Dept.
7. Construction of 2 miles of bikepaths.	1989/90- 1993/94	\$150,000	R&D Dept.
8. Construction of 3 miles of sidewalks.	1989/90- 1993/94	\$150,000	R&D Dept.
9. Traffic counters and computer software	1989/90	\$ 10,000	R&D Dept.
10. Highway Landscaping	1989/90- 1993/94	\$ 75,000	FDOT
TOTAL EXPENDITURES		\$3,975,000	
TOTAL CITY EXPENDITURES		\$3,850,000	

SOURCE: North Port P&Z and R&D Departments, 1988.

* R&D funds to be generated from existing Dependent Taxing District.

Goals, Objectives, and Policies

GOAL:

Provide and maintain a safe, convenient, efficient, and environmentally sensitive motorized and non-motorized transportation system.

Objective 1:

By 1994, improve safety conditions on the City's existing roadway system through implementation of the policies specified below and completion of the transportation improvements identified in the Capital Improvements Element.

Policy 1.1:

Provide signalization improvements at the intersection of Pan American Boulevard and U.S. 41 by 1991. The cost of these improvements shall be shared on an estimated 50/50 basis between the City and the Florida Department of Transportation (FDOT).

Policy 1.2:

The North Port Water Control District will establish an annual Bridge Rehabilitation Program by 1990 and consider the improvements identified therein as part of their Capital Improvement Program.

Policy 1.3:

Analyze the need for, and feasibility of, improving the quality of existing roadways in order to bring them up to current City design and construction standards.

Policy 1.4:

The City will enforce and revise, if necessary, existing regulations governing the control of connections and access points of driveways and roads to roadways.

Objective 2:

Over the planning period 1989-1994, implement new roadway construction work and maintenance as specified in the policies below and as identified in the Capital Improvements Element.

Policy 2.1:

GDC or the appropriate developer shall complete the construction of the following roadways in accordance with the dates specified in the Development Orders for the Myakka Estates and Murdock Development of Regional Impacts (DRIs):

- Sunnybrook Boulevard
- the extension of Cranberry Boulevard between Creighton and Toledo Blade Boulevard
- the segment of Hillsborough Boulevard between Chamberlain and Cranberry Boulevards

Policy 2.2:

The City shall meet with GDC or the appropriate developer on at least a semi-annual basis to negotiate their completion of the construction of the following major roadway segments by 1994:

- Extension of North Port Boulevard to Sumter Boulevard.
- Extension of Spring Haven Drive from Pan American to Price Boulevard
- Extension of Toledo Blade Boulevard north of I-75 (Choctaw Boulevard), and
- Haberland Boulevard to Hillsborough Boulevard including a bridge over the Cocoplum Waterway.

Policy 2.3:

Monitor on at least a semi-annual basis the completion of other planned roadway segments by General Development Corporation (GDC) and the developer of the Panacea Development of Regional Impact (DRI) to ensure their compliance with approved development phasing schedules.

Policy 2.4:

Resurface and, as deemed necessary, stripe 15-18 miles of roads per year over the period 1989/90-1993/94.

Policy 2.5:

Replace/install road signs for consistency with the City's Uniform Traffic Control and Property Numbering System Resolution 88-R-10.

Policy 2.6:

Contract with Florida Power and Light to provide additional street lights within developed neighborhoods in accordance with the City's "Street Lighting Guidelines and Standards" program which is in the process of being finalized.

Objective 3:

By 1994, the City shall implement all improvements to the traffic circulation system as identified in the Capital Improvements Element which address the impact of future land uses.

Policy 3.1:

The City hereby adopts the following peak hour LOS standards for each facility type based on a 100th design hour criterion within the corporate limits of the City.

- Principal Arterial - LOS Standard "C"
- Rural Major Collector - LOS Standard "C"
- Urban Collector Roadways - LOS Standard "C"
- Rural Minor Collector Roadways - LOS Standard "C".

Policy 3.2:

By 1994, realign and channelize the approaches to the segment of North Port Boulevard located just south of U.S. 41, which is the only roadway in the City projected to exceed peak hour Level of Service (LOS) C over the 5 year Capital Improvement Planning period.

Objective 4:

By 1994, the City shall acquire additional technical expertise, software and hardware as deemed necessary to improve the analytical capacity to project and monitor future Level of Service (LOS) on the City's roadway system.

Policy 4.1:

Institute a regular/annual traffic count collection system on all urban collectors within the City.

Policy 4.2:

Meet, as often as needed, with the Sarasota-Manatee Area Transportation Study (SMATS) Metropolitan Planning Organization (MPO) to develop additional data bases necessary to perform traffic modeling studies.

Policy 4.3:

Update Level of Service (LOS) projections on all existing and projected future urban collector roadways in the City on an annual basis.

Objective 5:

Preserve existing, and assess the need for the acquisition of additional, right-of-way along existing roadways to meet potential future needs for expansion and prevent building encroachment.

Policy 5.1:

Annually monitor traffic volumes along major roadways to determine the need for future right-of-way acquisition.

Policy 5.2:

Review existing right-of-ways as platted and provided relative to current Florida Department of Transportation (FDOT) and City standards to identify potential deficiencies.

Policy 5.3:

The City shall adopt land development regulations consistent with Section 163.3202(1) F.S., as amended, which explicitly provide for the protection of existing and future rights-of-way from building encroachment consistent with transportation planning legislation enacted by the 1988 Florida Legislature, including Advanced Right-of-Way Acquisition and Transportation Corridor Development (SB 392) and Access Management (HB 564, SB 1364).

Objective 6:

By 1994, the City shall increase the length of the existing bikepath system to promote the development of an integrated bikepath system within the City's Urban Infill and Future Growth Areas in accordance with the goals of the Southwest Florida Regional Planning Council (SWFRPC) and the Florida Department of Transportation (FDOT).

Policy 6.1:

Conduct a study to determine how many additional miles of bikepaths are needed to accommodate existing and future demand, where they should be located, the most appropriate construction method consistent with Florida Department of Transportation (FDOT) standards, and available funding sources.

Policy 6.2:

As a pilot project for FY 88/89, stripe Biscayne Drive along the 2 lane divided segment located north of US 41 to create bikelanes in both directions.

Policy 6.3:

Budget up to \$150,000 for the construction of at least 2 miles of bikepaths over the 5 year Capital Improvement Planning (CIP) period beginning FY 1989/90 in accordance with the results of the study proposed under Policy 6.1.

Policy 6.4:

Adopt land development regulations, consistent with Section 163.3202(1) F.S., as amended, which require that multi-family and commercial development provide for parking facilities, as reasonable, for bicycles.

Policy 6.5:

Adopt land development regulations, consistent with Section 163.3202(1) F.S., as amended, which require that developers provide bikepaths where appropriate in new subdivision developments.

Objective 7:

Promote the development of an integrated pedestrian circulation system in accordance with the goals of the Southwest Florida Regional Planning Council (SWFRPC) and the Florida Department of Transportation (FDOT).

Policy 7.1:

Conduct a study to determine how many additional miles of sidewalks need to be constructed to satisfy existing and future demand, where they should be located, the most appropriate construction method, and available funding sources.

Policy 7.2:

Budget up to \$150,000 for the construction of at least 3 miles of sidewalks over the 5 year Capital Improvement Planning (CIP) period in accordance with the results of the study proposed under Policy 7.1.

Policy 7.3:

Adopt land development regulations, consistent with Section 163.3202(1) F.S., as amended, which require that all new development provide for the installation of sidewalks consistent with City design and construction standards.

Objective 8:

By 1994, increase the number of parking facilities in commercial developments located along U.S. 41 to correct present, and prevent future, parking deficiencies.

Policy 8.1:

Lease City owned land to private commercial establishments located along U.S. 41 willing to construct and maintain (including provision of liability insurance) off-site parking facilities according to designs approved by the City.

Policy 8.2:

Amend the City's zoning code to update parking standard requirements and improve regulation of on-site traffic flow in accordance with criteria recommended by the Urban Land Institute, the Institute of Transportation Engineers, and the American Planning Association.

Objective 9:

By 1994, increase the amount of landscaping provided along the City's arterial and collector roadway system in order to improve the aesthetic appearance of these roadways and serve as noise buffers.

Policy 9.1:

Adopt land development regulations, consistent with Section 163.3202(1) F.S., as amended, which incorporate landscaping code/criteria for roadway rights-of-way and median strips.

Policy 9.2:

Include landscaping in construction of off-site parking facilities along U.S. 41 as identified above in Objective 8.

Policy 9.3:

Consider landscaping within the City Road and Drainage Department's roadway resurfacing and construction program as deemed economically feasible.

Policy 9.4:

Apply for Highway Beautification Grants from the Florida Department of Transportation (FDOT) to provide for landscaping along U.S. 41.

Objective 10:

As specified in the policies listed below, coordinate the City's transportation planning activities with the plans and programs of the Sarasota/Manatee Area Transportation Study (SMATS) Metropolitan Planning Organization (MPO), the Southwest Florida Regional Planning Council (SWFRPC), Sarasota County, Charlotte County, and the Florida Department of Transportation's 5-Year Plan.

Policy 10.1:

Meet on at least a semi-annual basis with transportation planners/engineers from the Florida Department of Transportation, the Southwest Florida Regional Planning Council (SWFRPC), the Sarasota-Manatee Area Transportation Study (SMATS), Sarasota County and Charlotte County.

Policy 10.2:

Negotiate interlocal agreements with Charlotte County on providing uniform traffic control and maintenance on Hillsborough and Chancellor Boulevards as well as on other inter-jurisdictional roadways identified by the Southwest Florida Regional Planning Council (SWFRPC) and the Sarasota/Manatee Area Transportation Study (SMATS) Metropolitan Planning Organization (MPO).

Policy 10.3:

Make application to join as a voting participating member the existing Sarasota-Manatee Area Transportation Study (SMATS) Metropolitan Planning Organization (MPO) as well as the proposed MPO for Charlotte County.

Objective 11:

By 1994, increase the number of citizens in North Port, primarily the elderly and handicapped/disabled, who are served by mass transit facilities in the City.

Policy 11.1:

Arrange a preliminary meeting, and hold subsequent meetings as needed, with the Sarasota County Area Transit (SCAT) authority to explore how bus service in North Port might be improved and expanded.

Policy 11.2:

Conduct study analyzing both the demand for, and the feasibility of, creating a privately operated mini-van shuttle system for the citizens of North Port, including in particular the elderly and/or disabled, which could provide service to, among other destinations, the new Port Charlotte Town Center.

APPENDIX

Estimation of Existing LOS for North Port's Roadways

Estimation of Average Annual Daily Traffic (AADT)

Estimates for AADT for those segments of U.S. 41 and I-75 located within the corporate limits of North Port were obtained from a draft FDOT report dated 4/27/88 entitled "Level-of-Service on State Highways in Sarasota County". In this report, 1987 estimates of AADT were presented (see Attachment A). These estimates were then extrapolated one year by the City to obtain estimates of AADT for 1988.

For all of the Urban Collector roadways in the City, 24-hour 5-day average traffic counts were taken. These counts and the location where they were taken are summarized in Table II in the text of the Traffic Circulation Element. To convert these traffic counts or Average Daily Traffic (ADT) volumes to Average Annual Daily Traffic (AADT) volumes, weekly Seasonal Adjustment Factors (presented in Attachment B) calculated by FDOT were utilized. The conversion of ADT volumes to AADT volumes was accomplished by dividing the 24-hour traffic counts or ADT volumes by the appropriate weekly seasonal adjustment factor that corresponded to the week during which the ADT volume count was taken.

For all the roads classified as Rural Minor Collectors except for Hillsborough Boulevard, traffic count data and hence estimates of AADT were not available. All of these roads, however, are known to be very lightly travelled. Thus it was assumed that the AADT for these roads did not exceed the estimates of AADT for the most lightly travelled Urban Collectors, e.g. W. Price and S. Sumter Boulevards. Hence Rural Minor Collectors were assigned a LOS similar to the LOS estimated below for lightly travelled Urban Collectors. The estimate of AADT for Hillsborough Boulevard was extrapolated from data obtained from the Charlotte County Public Works Department and from the Murdock Increment II DRI.

Estimation of Peak Season Weekday Traffic (PSWT)

In order to reflect the heavier volume of traffic on the City's roads during the winter peak season months (December-April), the estimates obtained for AADT were then converted to represent Average Peak Season Weekday Traffic Volumes (PSWT). According to the FDOT the conversion factor from AADT to PSWT for Sarasota County is 1.17 (see Attachment C). If AADT estimates were based on traffic counts taken during peak season, then PSWT was assumed to equal AADT.

Estimation of Design Hour Volume

The estimates of PSWT were then converted to obtain Design Hour Traffic Volumes. The design hour is defined as the 100th maximum hour. Attachment D presents the relationship between weekday traffic volumes and design hour traffic based on an analysis of permanent traffic recorders maintained by the Florida Department of Transportation. The conversion of PSWT volumes to design hour volumes was accomplished by multiplying the PSWT volumes by the corresponding design hour adjustment factor presented in Attachment D.

Estimation of Level-of-Service Using Generalized Tables

The Level-of-Service (LOS) for each roadway was then initially estimated by comparing the estimates of design hour traffic volume to the peak hour capacity or maximum service volume for each roadway.

The maximum service volumes for North Port's roadways were obtained from FDOT's "Generalized Hourly Level of Service Maximum Volume" tables (see Attachment E).

For all the City's Urban and Rural Minor Collectors except those segments of South Biscayne and North Port Boulevards located north of U.S. 41, the following range of maximum hourly level of service volumes were used to estimate LOS:

<u>LOS C</u>	<u>LOS D</u>	<u>LOS E</u>
≤ 560	561 – 890	891 – 1000

For those segments of South Biscayne and North Port Boulevards located north of U.S. 41, the following range was used:

<u>LOS C</u>	<u>LOS D</u>	<u>LOS E</u>
≤ 1180	1181 – 1860	1861 – 2050

For Toledo Blade Boulevard, U.S. 41 and I-75 the following ranges were used:

	<u>LOS C</u>	<u>LOS D</u>	<u>LOS E</u>
Toledo Blade	≤ 1330	1331 – 1460	1461 – 1570
U.S. 41	≤ 4280	4281 – 5390	5391 – 6180
I-75	≤ 4520	4521 – 5430	5431 – 5730

Using Appomattox Drive (an Urban Collector roadway) as an example, in 1988 it had an estimated design hour traffic volume of 119. Comparing this figure with the corresponding maximum hourly level of service volume ranges for urban collector roadways presented above indicates that this roadway should be assigned a level of service C.

Estimation of LOS for North Port's Roadways for 1993 and 1998

In order to project LOS, future traffic circulation levels linked to the future land uses as shown on the Future Land Use Map and in the future land use plans of neighboring jurisdictions had to be forecasted. FDOT's 5-Year Transportation Plan and the transportation improvement plans of SMATS through the year 1994 were also considered in projecting future LOS. However, except for the proposed signalization improvement at Pan American Boulevard and U.S. 41, neither of these plans contain scheduled transportation improvements to roadways located within the corporate limits of North Port. For I-75 and U.S. 41, FDOT projections of AADT over the course of the planning period were utilized¹³. For Toledo Blade Boulevard, the projections of non-project traffic contained in the Panacea DRI were used as the forecast base. These figures were then adjusted to account for the projected volume of traffic to be generated by both the Panacea and Murdock DRIs¹⁴. For the City's Urban Collectors, the estimates of AADT calculated for 1988 were adjusted by a annual growth factor of 3.6 percent over the period 1989-1993 and by 3.7 percent over the period 1994-1998. These growth factors represent the projected increase in the number of households in Planning District 12 where all of these Urban Collectors are located. In addition, the projections of AADT for W. Price and S. Sumter Boulevards were adjusted to reflect the projected impact of the Panacea PCD on the volume of traffic on these roads.

For Hillsborough Boulevard, the estimate of AADT calculated for 1988 was adjusted by a annual growth factor of 39.0 percent over the period 1989-1993 and by 10.0 percent over the period 1994-1998. These growth factors represent the projected increase in the number of households in Planning District 13 where the traffic count data for Hillsborough Boulevard was collected. The projection of AADT for Hillsborough Boulevard was also adjusted to reflect the impact of both the Panacea and Murdock DRIs.

AADT for the rest of the City's system of Rural Minor Collectors could not be projected given that no base line data exists. However LOS for these roads was projected using the LOS projected below for lightly travelled Urban Collectors as a proxy. Having obtained projections for AADT for each of the major roadways, the same procedures described above to estimate the existing LOS were used to project the LOS for 1993 and 1998.

Impact of Panacea and Murdock DRIs on Traffic Levels in North Port

Apart from the analysis presented above, the Development Orders issued for both the Panacea and Murdock DRIs contained a list of improvements that would be needed to North Port's roadway system in order to mitigate the impact that these projects would have on local traffic circulation levels. Table A1 below presents a list of those roadways on which the two DRIs are projected to have a major impact on future traffic generation.

As can be seen the main roadway impacted by development of the two DRIs is Toledo Blade Boulevard. During Phase I alone the Panacea DRI is projected to result in a 8,371 increase in AADT. The Port Charlotte Town Center will also impact traffic volumes on Toledo Blade but to a much lesser extent. The Development Orders for both DRIs require that the segment of Toledo Blade Blvd running through North Port be widened to 4 lanes from I-75 all the way to Hillsborough Boulevard at such time that the segment is found to exceed LOS C on an average daily basis. Similarly if the intersections of Toledo Blade Boulevard and either Price or Hillsborough Boulevards are found to exceed LOS C on an average daily basis, then they will also have to be improved.

Originally, it was projected that the segment of Toledo Blade from I-75 to Price Boulevard would have to be widened over the period 1986-1992 concurrent with Phase I of the Panacea DRI. Work on widening the segment of Toledo Blade from Price Boulevard to Hillsborough Boulevard and on to SR 776 in Charlotte County was projected to begin sometime shortly after completion of construction of the first phase of the Port Charlotte Town Center in 1990. However the LOS analysis presented above indicates that, in part owing to the delay in the development of the Panacea PCD, the LOS on Toledo Blade Boulevard is not projected to exceed level C over the course of the period 1988-1998. Thus it is not clear as to when the proposed improvements to Toledo Blade Boulevard will occur.

The developers are, however, required to submit annual traffic condition monitoring reports to the appropriate local, regional and state authorities in order to help determine when the improvements will be needed. When it is finally determined that the improvements are needed, their costs will be shared by the developers of the two DRIs and the County. The developers share of the costs will be based on a forecast of the proportion of traffic generated by each DRI on the road segment/intersection at the end of each DRI's buildout to total traffic on the road segment/intersection by buildout.

The Murdock DRI also contains the requirement that the segment of U.S. 41 running from North Port Boulevard to Murdock Circle be widened to six lanes with a median and that the segment of Hillsborough Boulevard from Theresa to Atwater Streets be widened to four lanes with a median when conditions on these segments are found to exceed LOS C. Again the LOS analysis above does not indicate the need for any such improvements over the 1988-1998 planning period. Charlotte County, however, has indicated that the segment of Hillsborough Boulevard from Loveland (Orlando) to the intersection of Raintree Boulevard is scheduled to be widened to 4 lanes over the period 1994-1999. The cost of this improvement will be borne by Charlotte County. In the case of U.S. 41, the cost of any eventual improvements will be shared by the developer and State in the same fashion as described in the case of Toledo Blade Boulevard.

In order to accurately monitor and update its LOS projections, the City intends to institute an annual traffic count collection system on all urban collector roadways and obtain a copy of the FSUTMS traffic projection model. The City intends to utilize the technical expertise available from SMATS to help develop the data bases necessary to run the model. In order to accurately monitor the impact of developments in adjacent jurisdic-

tions on the City's roadway system, the City intends to meet on an as-needed basis with transportation planners/engineers from FDOT, the SWFRPC, SMATS, Sarasota County and Charlotte County.

TABLE A1
PANACEA AND MURDOCK DRI GENERATED TRAFFIC

<u>Road</u>	<u>1993</u>		<u>1998*</u>	
	<u>Panacea</u>	<u>Murdock</u>	<u>Panacea</u>	<u>Murdock</u>
<u>Toledo Blade</u>				
- I75 to Price	2762	313	5609	203
- Price to Hills.		938	N/A	679
<u>Price Blvd.</u>				
- N.Biscayne to Salford	229		464	
- Salford to Charl.Cnty	615		1250	
<u>Sumter Blvd.</u>	230		468	
<u>Hillsborough Blvd.</u>	242	60	492	100
<u>Atwater</u>	82		165	
<u>Haberland</u>		118		180
<u>Raintree</u>		135		241

* Does not include 1993 figures.

SOURCE: Estimated by North Port P&Z Department based on projections contained in Murdock Commercial Center Increment II DRI and Panacea DRI. Assumes Phase I of Panacea PCD will not begin until 1991 at the earliest.

ATTACHMENT A

Average Annual Daily Traffic (AADT)
for U.S. 41 and I-75 1987

<u>Roadway</u>	<u>Segment</u>	<u>AADT</u>
US41	FR: Charlotte County TO: CR777	15,900
I-75	FR: Charlotte County TO: Toledo Blade	20,900
I-75	FR: Toledo Blade TO: Sumter Blvd.	40,600
I-75	FR: Sumter Blvd. TO: River Road	37,800

SOURCE: Draft "Level-of-Service on State Highways in Sarasota County", FDOT, 4/27/88.

ATTACHMENT B

WEEKDAY FACTORS FOR TRAFFIC COUNT STATIONS IN DISTRICT ONE FOR TRAFFIC COUNT YEAR 1989

WEEK	1988/9 DATES	001	003	004	005	006	007	009	012	013	016	017	091
01	7- 4 TO 7- 8	090	083	089	088	090	088	090	087	094	096	093	091
02	7-11 TO 7-15	088	082	085	088	086	088	089	086	089	094	089	089
03	7-18 TO 7-22	087	083	084	088	084	088	089	086	088	093	086	088
04	7-25 TO 7-29	085	085	082	089	082	089	088	087	086	093	086	088
05	8- 1 TO 8- 5	084	086	080	090	080	090	088	087	084	092	084	087
06	8- 8 TO 8-12	084	086	080	090	080	090	088	087	084	092	084	087
07	8-15 TO 8-19	084	086	080	090	080	090	088	087	084	092	084	087
08	8-22 TO 8-26	084	085	081	089	081	089	088	086	085	091	085	087
09	8-29 TO 9- 2	084	085	081	089	081	089	088	086	085	091	085	087
10	9- 5 TO 9- 9	084	085	081	089	081	089	088	086	085	091	085	087
11	9-12 TO 9-16	088	087	082	090	082	090	089	087	086	092	086	088
12	9-19 TO 9-23	087	088	083	090	083	090	089	088	087	093	087	089
13	9-26 TO 9-30	089	090	085	091	085	091	090	090	089	094	089	091
14	10- 3 TO 10- 7	090	092	086	092	086	092	091	091	090	095	090	092
15	10-10 TO 10-14	093	095	090	094	090	094	094	093	093	096	093	094
16	10-17 TO 10-21	095	097	093	096	093	096	096	095	095	096	095	096
17	10-24 TO 10-28	095	100	097	098	097	098	099	098	098	097	098	098
18	10-31 TO 11- 4	100	103	100	100	100	100	101	100	100	098	100	100
19	11- 7 TO 11-11	101	105	101	102	101	102	103	101	100	099	100	101
20	11-14 TO 11-18	102	107	101	105	101	105	105	103	100	100	100	103
21	11-21 TO 11-25	103	108	102	107	102	107	107	104	101	102	101	104
22	11-28 TO 12- 2	104	110	102	110	102	110	109	106	101	103	101	106
23	12- 5 TO 12- 9	105	112	103	112	103	112	111	107	101	104	101	107
24	12-12 TO 12-16	106	112	104	111	104	111	110	108	102	105	102	108
25	12-19 TO 12-23	107	112	104	111	104	111	110	109	103	106	103	108
26	12-26 TO 12-30	108	112	105	110	105	110	109	111	105	107	105	109
27	1- 2 TO 1- 6	109	112	105	109	105	109	108	112	108	108	108	109
28	1- 9 TO 1-13	112	113	108	111	108	111	110	114	108	110	108	111
29	1-16 TO 1-20	114	114	110	113	110	113	112	116	110	112	110	113
30	1-23 TO 1-27	117	116	113	114	113	114	114	117	113	113	113	114
31	1-30 TO 2- 3	119	117	115	116	115	116	116	119	115	115	115	116
32	2- 6 TO 2-10	122	118	118	118	118	118	118	121	117	117	117	118
33	2-13 TO 2-17	122	118	118	118	118	118	119	121	118	117	118	119
34	2-20 TO 2-24	121	118	118	118	118	118	119	121	118	117	118	119
35	2-27 TO 2- 3	121	119	118	119	118	119	120	120	119	118	119	120
36	3- 6 TO 3-10	120	119	118	119	118	119	120	120	119	118	119	121
37	3-13 TO 3-17	117	119	115	118	115	118	117	118	116	116	116	118
38	3-20 TO 3-24	114	119	112	116	112	116	114	117	114	113	114	115
39	3-27 TO 3-31	111	119	108	115	108	115	111	115	111	111	111	112
40	4- 3 TO 4- 7	105	118	105	113	105	113	108	113	108	108	108	109
41	4-10 TO 4-14	107	117	105	112	105	112	107	112	107	107	107	107
42	4-17 TO 4-21	109	116	105	111	105	111	105	111	106	105	104	105
43	4-24 TO 4-28	104	114	104	109	104	109	104	109	104	104	104	107
44	5- 1 TO 5- 5	103	113	104	108	104	108	102	108	103	102	103	101
45	5- 8 TO 5-12	102	110	103	108	103	106	101	106	102	101	102	100
46	5-15 TO 5-19	100	106	102	103	102	103	100	103	102	101	102	100
47	5-22 TO 5-26	099	103	100	101	100	101	098	101	101	100	101	099
48	5-29 TO 6- 2	097	099	099	098	099	098	097	098	101	100	101	099
49	6- 5 TO 6- 9	096	096	096	096	096	096	096	096	100	099	100	098
50	6-12 TO 6-16	094	092	096	094	096	094	094	093	098	098	096	096
51	6-19 TO 6-23	093	089	093	092	093	092	093	091	096	097	096	094
52	6-26 TO 6-30	091	085	091	089	091	089	091	088	093	095	093	091

COUNTY CODES

- 01 CHARLOTTE
- 03 COLLIER
- 04 DESOTO
- 05 GLADES
- 06 HARDEE
- 07 HENDRY
- 08 HIGHLANDS
- 12 LEE
- 13 MANATEE
- 16 POLK
- 17 SARASOTA
- 91 GREEKHOBBE

SOURCE: FDOT

ATTACHMENT C**RECOMMENDED FACTORS TO CONVERT FROM AVERAGE ANNUAL DAILY TRAFFIC (AADT) TO PEAK SEASON WEEKDAY TRAFFIC (PSWT)**

The Procedures for using Generalized Level of Service Tables require factors for converting average annual daily traffic (AADT) to average peak season weekday traffic (PSWT). County-by-county factors have been calculated based on the average of the 13 highest consecutive FDOT weekly factors for each county. Recently, the FDOT factors for 1987/88 have been made available. Therefore, updated factor for all 12 counties in District One have been calculated based on these data. The factors are as follows:

<u>COUNTY</u>	<u>FACTOR</u>
Charlotte	1.18
Collier	1.23
DeSoto	1.16
Glades	1.21
Hardee	1.14
Hendry	1.21
Highlands	1.15
Lee	1.18
Manatee	1.14
Okeechobee	1.16
Polk	1.18
Sarasota	1.17

SOURCE: "Recommended Procedures for Estimating Level-of-Service on State Highway Segments in District 1", FDOT, Draft 3/14/88.

ATTACHMENT D

GENERAL FACTORS FOR CONVERTING PEAK-SEASON WEEKDAY TRAFFIC (PSWT) TO DESIGN HOUR TRAFFIC VOLUMES

<u>Peak-Season Weekday Traffic</u>	<u>Factor</u>
0 - 999	0.105
1,000 - 1,999	0.103
2,000 - 2,999	0.101
3,000 - 3,999	0.097
4,000 - 4,999	0.095
5,000 - 5,999	0.093
6,000 - 6,999	0.086
7,000 - 7,999	0.085
8,000 - 12,999	0.084
18,000 - 23,999	0.083
24,000 - 28,999	0.082
29,000 - 33,999	0.081
34,000 - 38,999	0.080
39,000 - 43,999	0.079
44,000 - 48,999	0.078
49,000 - 53,000	0.077
54,000 - 59,999	0.076
60,000 and over	0.075

SOURCE: "Recommended Procedures for Estimating Level-of-Service on State Highway Segments in District 1",
FDOT, Draft 3/14/88.

ATTACHMENT E**GENERALIZED HOURLY LEVEL OF SERVICE
MAXIMUM VOLUMES***

(Issue Date: November 19, 1987; Valid for Use Through December 1988)

FREEWAYS**RURAL AREAS**

LANES	<u>LEVEL OF SERVICE</u>			<u>ASSUMPTIONS</u>
	C	D	E	
4	4520	5430	5730	Directional Factor = .61 PHF = .92 Service Flow Rate (LOS-E) = 1900 veh/ln/hr Level Terrain
6	6790	8140	8600	
8	9050	10860	11460	

SUBURBAN AREAS

LANES	<u>LEVEL OF SERVICE</u>			<u>ASSUMPTIONS</u>
	C	D	E	
4	4680	5610	5920	Directional Factor = .59 PHF = .92 Service Flow Rate (LOS-E) = 1900 veh/ln/hr Level Terrain
6	7010	8420	8890	
8	9350	11220	11850	
10	11690	14030	14810	

CENTRALIZED BUSINESS DISTRICTS

LANES	<u>LEVEL OF SERVICE</u>			<u>ASSUMPTIONS</u>
	C	D	E	
4	4770	5590	6080	Directional Factor = .56 PHF = .92 Service Flow Rate (LOS-E) = 1850 veh/ln/hr Level Terrain
6	7140	4690	5110	
8	9530	11170	12150	
10	11910	13960	15200	

Freeways LOS Criteria

LOS C \leq 30 pc/mi/ln
 LOS D \leq 42 pc/mi/ln
 LOS E \leq 67 pc/mi/ln

* Values shown are average daily traffic volumes (based on peak hour volumes) for level of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. The table does not constitute a standard but can be used for general planning applications.

Source: Bureau of Multi-Modal Systems Planning, Florida Department of Transportation, 1987.

GENERALIZED HOURLY LEVEL OF SERVICE MAXIMUM VOLUMES*

(Issue Date: November 19, 1987; Valid for Use Through December)

MULTI-LANE HIGHWAYS

(other restricted flow facilities with less than
1 signalized intersection every 2 miles)

RURAL AREAS

Lanes	LEVEL OF SERVICE			ASSUMPTIONS
	C	D	E	
4	4280	5390	6180	Directional Factor = .58 PHF = .92 Service Flow Rate (LOS-E) = 1950 veh/ln/hr Level Terrain Design Speed = 60 mph
6	6420	8090	9280	

SUBURBAN AREAS

Lanes	LEVEL OF SERVICE			ASSUMPTIONS
	C	D	E	
4	3780	4800	5370	Directional Factor = .57 PHF = .92 Service Flow Rate (LOS-E) = 1850 veh/ln/hr Level Terrain Design Speed = 50 mph Suburban Development Factor = .9
6	5660	7190	8060	

Multi-Lane LOS Criteria

LOS C \leq 30 pc/mi/ln
 LOS D \leq 42 pc/mi/ln
 LOS E \leq 67 pc/mi/ln

* Values shown are average daily volumes (based on peak hour volumes) for level of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. The table does not constitute a standard but can be used for general planning applications.

Source: Bureau of Multi-Modal Systems Planning, Florida Department of Transportation, 1987.

**GENERALIZED HOURLY LEVEL OF SERVICE
MAXIMUM VOLUMES***

(Issue Date: November 19, 1987; Valid for Use Through December 1988)

TWO-WAY MINOR ARTERIALS

Class I (5 or less signalized intersections per mile)

Signalized Intersections per Mile	Lanes	C	D	E
5	2	**	770	1070
	4	**	1540	2270
	6	**	2310	3490
4	2	**	960	1180
	4	**	2050	2470
	6	**	3080	3770
3	2	770	1130	1280
	4	1540	2380	2630
	6	2310	3650	3990
2	2	1120	1290	1390
	4	2350	2640	2820
	6	3620	4000	4260
1	2	1330	1460	1570
	4	2730	2940	3160
	6	4120	4440	4750

ASSUMPTIONS

Directional Factor = .58
 PHF = .92
 Lefts = .09
 Arterial Class I
 Lane Capacity = 1650 veh/in./hr
 Left Turn Bays = yes
 Free Flow Speed = 40 mph
 Arrival Type = 4
 Cycle Length = 120 sec
 g/C = .45
 Pretimed Signals

Class I LOS CRITERIA

LOS C ≥ 22 mph
 LOS D ≥ 17 mph
 LOS E ≥ 13 mph

- * Values shown are average daily traffic volumes (based on peak hour volumes) for level of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. The value does not constitute a standard but can be used for general planning applications.
- ** Cannot be achieved.

Source: Bureau of Multi-Modal Systems Planning, Florida Department of Transportation.

**GENERALIZED HOURLY LEVEL OF SERVICE
MAXIMUM VOLUMES***

(Issue Date: November 19, 1987; Valid for Use Through December 1988)

COLLECTORS AND LOCAL STREETS
(Intersection Analysis)

Lanes	C	D	E
2	560	890	1000
4	1180	1860	2050
6	1820	2880	3110

ASSUMPTIONS

Directional Factor = .58
 PHF = .92
 Lefts = .12
 Lane Capacity = 1600 veh/ln/hr
 Left Turn Bays = yes
 Arrival Type = 3
 Cycle Length = 120 sec
 g/C = .35
 Pretimed Signals

Signalized Intersection LOS Criteria

LOS C ≤ 25 seconds stopped delay
 LOS D ≤ 40 seconds stopped delay
 LOS E ≤ 60 seconds stopped delay

- * Values shown are average daily traffic volumes (based on peak hour volumes) for level of service and are based on the 1985 Highway Capacity Manual and Florida traffic data. The 1985 Highway Capacity Manual does not provide analysis techniques for collectors and local streets. Because of the generally short length of trips on these facilities an intersection capacity approach is deemed most appropriate. The table does not constitute a standard but can be used for general planning applications.

Source: Bureau of Multi-Modal Systems Planning, Florida Department of Transportation.

ENDNOTES

- 1 - Approximately 200 of the additional 230 miles have been built. The following major existing roads constructed by GDC, however, have not been accepted by the City for maintenance owing to deficiencies in either their construction or the construction of other roads located in the same plat: Hillsborough Boulevard, Chancellor Boulevard, Raintree Boulevard, and the segment of E. Price Boulevard running through the 45th, 48th, and 49th Additions of the City.
- 2 - Myakka Estates Agreement of February 16, 1984 and Panacea Development Order issued April 21, 1986.
- 3 - Assuming the 100th Maximum Hour as the Design Hour.
- 4 - From Panacea DRI Development Order.
- 5 - Sunnybrook and/or Gisenger Boulevard, once completed and linked with River Road (SR 777) will serve as the hurricane evacuation route for the Region.
- 6 - The District does not cover Myakka Estates nor the Panacea DRI. Thus the City may consider the establishment of dependent taxing districts in these areas when it accepts their roadways for maintenance.
- 7 - A small segment of E. Price from Orlando Boulevard to N. Torrington Street has only a 60 foot right-of-way. However it is not likely that this segment would be included in the widening of the rest of the roadway.
- 8 - Given that the City has no mass transit system of its own, a separate Mass Transit Element was not prepared.
- 9 - It should be pointed out that the results of the LOS analysis are sensitive to the location of where the original traffic count data was collected. For example, the traffic count data for North Port Boulevard was collected at the most heavily travelled segment of that road (intersection of U.S. 41). Thus the LOS calculated for North Port Boulevard will represent a worst case scenario in terms of traffic conditions along the entire stretch of the road.
- 10 - The 100th maximum Hour was used as the Design Hour in accordance with the latest recommended FDOT procedures for estimating LOS.
- 11 - See FDOT's "Recommended Procedures for Estimating Level of Service on State Highway Segments in District 1", Draft 3/14/88.
- 12 - See FDOT's "Recommended Procedures for Estimating Level of Service on State Highway Segments in District 1", Draft 3/14/88.
- 13 - See FDOT's "Level-of-Service on State Highways in Sarasota County", Draft 4/27/88.
- 14 - The projections of traffic to be generated on Toledo Blade Boulevard by the development of the Port Charlotte Town Center presented in the Murdock DRI appear to be low. Conversely, the projected level of traffic to be generated on Toledo Blade by development of the Panacea PCD presented in the Panacea DRI appear to be high. As the City institutes its own annual traffic count collection process, the accuracy of these projections will be validated and revised as necessary.

HOUSING



Table of Contents

Inventory	100
Characteristics of the Existing Housing Stock	100
Occupancy Status	100
The Age of the Housing Stock	100
Type of Dwelling Units	101
Owner-occupied and Renter-occupied Dwelling Units	102
The Cost of Housing: Rent, Value and Monthly	
Cost of Owner-occupied Units	103
Monthly Gross Rent	103
The Value of Owner-occupied Housing	104
Monthly Cost of Owner-occupied Housing	104
Rent-to-Income Ratio for Renter-Occupied Housing Units	105
Condition of the Housing Stock	105
Subsidized Housing Developments	107
Group Homes	107
Mobile Home Parks	108
Historically Significant Housing	108
New Housing Construction Activity	108
Analysis	109
Projected Housing Needs	109
Household Size and New Household Formation	109
Replacement of Substandard Units	109
Allowance for Vacancies	109
Housing Type and Tenure Distribution	109
Household Income Distribution	111

..... Projected Housing Needs	113
..... Special Housing Needs	113
..... Low-Income Households	113
..... Elderly	113
..... Minorities	115
..... Rural and Farmworker Housing	115
Land Requirements for the Estimated Housing Needs	115
The Private Sector and the Housing Supply	116
..... Single-Family Housing	116
..... Multi-Family Housing	116
..... Middle, Upper and High Income Housing	116
..... Moderate Income Housing	118
..... Low-Income Housing	118
..... Very Low-Income Housing	118
The Housing Delivery System:	
Removing Impediments to Achieving Full Production	119
..... Land Availability	119
..... Utilities, Water, and Sewer	119
..... Housing Finance	119
..... Land Development Regulations	120
Goals, Objectives, and Policies	121
Endnotes	124

List of Tables

Table I	Number of Year-Round Dwelling Units by Occupancy Status, 1970, 1980, and 1988	100
Table II	Number of Dwelling Units by Age,: 1988	101
Table III	Type of Dwelling Units for 1970, 1980, and 1988	102
Table IV	Tenure of Occupied Year-Round Units: 1970 and 1980	102
Table V	Monthly Gross Rent of Renter-Occupied Units, City of North Port and Sarasota County: 1980	103
Table VI	Monthly Owner Costs of Specified Owner-Occupied Housing Units, City of North Port and Sarasota County: 1980	104
Table VII	Rent-to-Income Ratio for Renter-Occupied Housing Units: 1980	106
Table VIII	Housing Stock Condition/Census Bureau Criteria: 1980	107
Table IX	Household Formation: 1980-1988	110
Table X	Tenure Distribution of Households by Income Group: 1980	111
Table XI	Classification of Various Income Groups: 1988	112
Table XII	Projections of Families by Income Group	112
Table XIII	Annual Housing Construction Needs: 1989-1993 and 1994-1998	113
Table XIV	Housing Needs for Projected Population by Type, Tenure and Income for 1989-1993 and 1994-1998	114
Table XV	Population Trends by Age Groups, 1980-1998	115
Table XVI	Housing Construction Activity Between 1980 and 1987	117
Table XVII	Housing Finance Trends, Sarasota County: 1980-1987	120

INVENTORY

CHARACTERISTICS OF THE EXISTING HOUSING STOCK

Occupancy Status

Table I below presents data on the growth in the number of total and occupied housing units in North Port over the period 1970-1987. The data indicate that the City's housing stock increased at an average annual rate of over 20 percent, growing threefold, over the period 1970-1980. The average number of units built per year was 263. The vacancy rate for North Port in 1980 was a relatively high 29 percent.

By 1988 the number of housing units in the City had grown to some 5,868 which represents an average annual growth since 1980 of approximately 6 percent. Although this represents a significant decline in the housing unit growth rate per se, the actual number of units built per year has remained relatively constant averaging around 245 per year since 1980 - only a slight decline from the figures posted for the 1970-1980 period. The vacancy rate by 1988 had declined to 23 percent. This still relatively high figure is mainly explained by the large number of seasonal residents in North Port whose houses are classified as vacant according to Census Bureau definition (note that according to the 1980 Census nearly 50 percent of all vacant units were classified as being held for occasional use). The vacancy rate for North Port during the peak season is estimated to be 5 percent.

**TABLE I:
NUMBER OF YEAR-ROUND DWELLING UNITS BY OCCUPANCY
STATUS, CITY OF NORTH PORT, FOR 1970, 1980 and 1988**

<u>Occupancy Status</u>	<u>1970</u>		<u>1980</u>		<u>1988</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Occupied	1,078	85.3	2,777	71.3	4,518	77.0
Vacant	186	14.7	1,118	28.7	1,350	23.0
TOTAL	1,264	100.0	3,895	100.0	5,868	100.0

SOURCE: U.S. Bureau of the Census for 1970 and 1980 figures. Florida Environmental for 1988 figures.

The Age of the Housing Stock

Given that the present area now known as North Port was not established until 1959, it is not surprising that the City's housing stock is extremely new. The data in Table II below show that over 79 percent of all housing units in North Port have been built since 1970. Nearly 50 percent have been built since the preparation of the City's first Comprehensive Development Plan in 1978. Only 1.7 percent of the housing stock was built prior to 1960.

**TABLE II
NUMBER OF DWELLING UNITS* BY AGE,
CITY OF NORTH PORT: 1988**

<u>Year Structure Built</u>	<u>No. Unit</u>	<u>Percent</u>
Total number of housing units	5,868	100.0
April 1980 to 1988	1,973	33.6
1975 to March 1980	1,575	26.9
1970 to 1974	1,160	19.8
1960 to 1969	1,065	18.1
1950 to 1959	95	1.6
1940 to 1949	0	0.0
1939 or earlier	0	0.0

SOURCE: 1980 U.S. Census and North Port Planning & Zoning Department.

* Data prior to April 1980 based on number of year-round housing units. Figures from April 1980 to 1988 include seasonal and migratory housing units (As of 1980 such units represented 6.6 percent of the total housing stock).

Type of Dwelling Units

The distribution of housing units in North Port by type reflects the City's origins as a basically low density residential single-family detached community designed for retirees. The data in Table III below indicate that as of 1988, single-family units accounted for approximately 80 percent of the total housing stock with multi-family units and mobile homes representing 5.0 and 15.0 percent of the total stock respectively. The data show, however, that single-family units as a percentage of all units have declined steadily since 1970 whereas multi-family units and mobile homes as a percentage of all units have increased. Given that the average age of North Port's population is declining and as prices of single-family homes increase, it is anticipated that there will be an increasing demand for multi-family dwelling units in the future.

TABLE III
TYPE OF UNITS, CITY OF NORTH PORT,
FOR 1970, 1980 and 1988

<u>Type of Unit</u>	<u>1970</u>		<u>1980</u>		<u>1988</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Single-Family	1,235	97.7	3,263	83.8	4,710	80.0
Multi-Family (2+ families)	0	0.0	103	2.6	273	5.0
Mobile Home (or trailer)	29	2.3	529	13.6	865	15.0
TOTAL	1,264	100.0	3,895	100.0	5,868	100.0

SOURCE: U.S. Bureau of the Census for 1970 and 1980 figures, Florida Environmental for 1988 figures.

Owner-occupied and Renter-occupied Dwelling Units.

The tenure status of housing units in North Port is likewise closely related to the predominately low-density residential character of the City. As of 1980, approximately 81.5 percent of the City's dwelling units were owner-occupied with renter-occupied units accounting for the remaining 18.5 percent. This represents a significant decrease in the tenure mix from 1970 where well over 90 percent of all units were owner-occupied.

A number of factors explain this increase in the number of renter-occupied units including: a) the growing number of out of state residents who own second homes in North Port and rent them out part of the year; b) the average age of North Port's population is getting younger; and c) the average price of a new house, while still relatively low compared to elsewhere in the county, is increasing.

As of 1980, 91.4 percent of all renters occupied single-family housing units with 6.2 and 2.4 percent occupying multi-family units and mobile homes respectively. As for owners, 82.9 percent occupied single-family dwelling units with 1.2 percent occupying multi-family units and mobile homes respectively.

TABLE IV
TENURE OF OCCUPIED YEAR-ROUND UNITS,
CITY OF NORTH PORT: 1970 and 1980

<u>Year</u>	<u>Tenure Status</u>					
	<u>Owner</u>		<u>Renter</u>		<u>Total</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
1970	1,003	93.0	75	7.0	1,078	100.0
1980	2,264	81.5	513	18.5	2,777	100.0

SOURCE: 1970 and 1980 U.S. Bureau of Census.

The Cost of Housing: Rent, Value and Monthly Cost of Owner-Occupied Units

Monthly Gross Rent

The median monthly gross rent for renter-occupied housing units in North Port was \$350 in 1980. By comparison, median gross rent for the county as a whole was only \$286. In North Port only 7.5 percent of the rental stock had rents below \$250 a month compared to 33.2 percent for the county. Similarly North Port's share of rental housing commanding rents in excess of \$400 was greater than that of the county.

All these figures would seem to indicate that on average the cost of rental housing in North Port is higher than

TABLE V
MONTHLY GROSS RENT OF RENTER-OCCUPIED UNITS,
CITY OF NORTH PORT AND SARASOTA COUNTY: 1980

<u>Gross Rent</u>	<u>North Port</u>		<u>Sarasota County</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
less than \$99	0	0.0	572	2.9
\$100 - \$149	0	0.0	1,044	5.3
\$150 - \$199	17	3.5	1,992	10.2
\$200 - \$249	10	2.0	2,888	14.8
\$250 - \$299	64	13.2	3,752	19.2
\$300 - \$349	138	28.4	2,643	13.5
\$350 - \$399	123	25.3	2,240	11.5
\$400 and more	105	21.6	3,128	16.0
No Cash Rent	29	6.0	1,277	6.5
TOTAL	486	100.0	19,536	100.0
Median Monthly Rent	\$350		Median \$286	

Source: U.S. Bureau of the Census, 1980

for the rest of the county as a whole. This could be explained in large part by the fact that, as presented above, single-family dwelling units account for over 90 percent of the rental stock in North Port -vs- only 39 percent for the county. Owners of these units who possess mortgages generally face higher per unit amortization costs than do owners of multi-family unit structures and hence charge higher rents.

More recent data for Sarasota County, however, indicates that the average cost of rental housing has increased significantly from the figure contained in the 1980 census. According to a study prepared in July, 1988 by the Fantus Company for Sarasota County, the majority of two-bedroom apartments in the County are presently priced in excess of \$400 per month. Rents in North Port, meanwhile, have also increased but not as dramatically. The current average cost of rental housing in the City is estimated by local Realtors to be around \$400 a month. Thus this new data would appear to indicate that, if anything, rental housing in the County has become more expensive than in North Port.

The Value of Owner-Occupied Housing

According to the U.S. Census the mean value of owner-occupied dwelling units in North Port as of 1980 was \$40,883 (data on the median value and the distribution around the median was not available). For the county the median value, which is inherently lower than the mean, was \$53,000. Presently the average resale price of a typical modest 3 bedroom/2 bath single-family detached house in the City is approximately \$45,000. For a similar typical unit elsewhere in urbanized areas of the county the price would run anywhere between \$60,000 and \$70,000.

The relatively lower cost of land in North Port is one of the major reasons for the observed housing price differentials between the City and the county. These low land costs can be attributed to the large supply of available platted lots and the relatively low demand for them owing to the City's limited economic base.

Monthly Cost of Owner-Occupied Housing

According to the 1980 U.S. Census, the median monthly costs of owner-occupied housing in North Port was

TABLE VI
MONTHLY OWNER COSTS OF SPECIFIED OWNER-OCCUPIED
HOUSING UNITS, CITY OF NORTH PORT AND SARASOTA COUNTY: 1980

<u>Mortgage Status and Selected</u> <u>Monthly Owner Costs</u>	<u>North Port</u>		<u>Sarasota County</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Owner Occupied				
ousing units	1,772		46,313	
With a mortgage	1,026	100.0	26,477	100.0
less than \$200	368	35.9	4,368	16.5
\$200 to \$249	104	10.1	3,284	12.4
\$250 to \$299	142	13.8	3,422	12.9
\$300 to \$349	147	14.3	3,538	13.4
\$350 to \$399	102	9.9	2,784	10.5
\$400 to \$499	96	9.4	3,931	14.8
\$500 to \$599	21	2.0	2,181	8.2
\$600 to \$749	39	3.8	1,665	6.3
\$750 or more	7	0.7	1,304	4.9
Median	\$264		\$331	
Not Mortgaged	746	100.0	19,836	100.0
Less than \$50	25	3.4	807	4.1
\$50 to \$74	176	23.6	3,439	17.3
\$75 to \$99	315	42.2	5,226	26.3
\$100 to \$124	135	18.1	4,114	20.7
\$125 to \$149	82	11.0	2,542	12.8
\$150 to \$199	13	1.7	2,172	10.9
\$200 or more	0	0.0	1,536	7.7
Median	\$89		\$103	

SOURCE: U.S. Bureau of the Census, 1980.

\$269 when the home still has a mortgage, and \$89 if the unit is not mortgaged. Given that the average value of owner-occupied housing in the City is lower than for the county as noted above, it is not surprising that the median monthly costs for the county are higher (\$350 and \$103 for units with and without a mortgage respectively). In North Port, as of 1980, 35.9 percent of owners possessing a mortgage incurred monthly costs of less than \$200 compared to 16.5 percent for the county. Conversely only 15.9 percent of the City's owners with mortgages pay more than \$400 a month compared to 34.2 percent for the county.

Of North Port's 1,772 owner-occupied units, some 42 percent are not presently mortgaged. This same percentage holds county-wide. This relatively high figure reflects in part the large percentage of homebuyers in the City who pay cash for their retirement homes. Of these homeowners without mortgages, 69.2 percent have monthly housing costs of less than \$100 (compared to 47.7 percent for the county) while none have monthly costs in excess of \$200 (compared to 7.7 percent for the county). Table VI above depicts the monthly costs of owner-occupied units.

Rent-to-Income Ratio for Renter-Occupied Housing Units

Table VII below presents data on the percentage of monthly income that occupants of rental housing pay for rent. According to the U.S. Department of Housing and Urban Development, a family is considered to be paying too high a percentage of their income for housing if the rent-to-income ratio exceeds 35 percent. The data indicate that 34.5 percent of the families in North Port occupying rental housing spend greater than 35 percent of their income for rent. This percentage is virtually the same (34.4%) for the county as a whole.

Of the 168 families in North Port spending more than 35 percent of their income for rent, 33.3 percent had incomes of less than \$5,000 a year. Conversely 22.0 percent of families occupying rental housing in North Port pay less than 20 percent of their income for rent. The above data would appear to indicate that North Port, like the county, is experiencing difficulty in providing affordable rental housing for low and moderate income citizens.

CONDITION OF THE HOUSING STOCK

As noted previously, North Port possesses a relatively new stock of housing. As such, it is not surprising that this stock is in very good condition. According to the 1980 U.S. Census, of the 2,777 occupied housing units in North Port, none lacked complete plumbing systems; only 20 or .7 percent lacked complete kitchen facilities; 244 or 8.8 percent lacked central heating; and only 53 or 1.9 percent could be classified as overcrowded (see Table VIII below). No detailed survey of the structural condition of the City's housing stock has been conducted since the preparation of the 1978 original Comprehensive Plan. In that document the following categories were used to define the structural condition of the housing stock:

Sound - Most housing units in this category are in good condition and have no visible defects. However, some structures with slight defects are also included.

Deteriorating - A housing unit in this category needs more repair than would be provided in the course of regular maintenance, such as repainting. A housing unit is classified as deteriorating when its deficiencies indicate a lack of proper upkeep.

Dilapidated (Substandard) - A housing unit in this category indicates that the unit can no longer provide safe and adequate shelter or is of inadequate original construction.

According to the results of the most recent survey conducted in 1978, 98 percent of the City's housing stock was classified as Sound; only 2 percent as Deteriorating; and no houses were classified as Dilapidated/Substandard. The survey conducted was a "windshield" survey which covered the entire developed area of North Port (the survey is periodically updated through the City's normal building inspection and code enforcement

TABLE VII
 RENT-TO-INCOME RATIO FOR RENTER-OCCUPIED HOUSING
 UNITS, CITY OF NORTH PORT: 1980

Rent-to- Income Ratio	Income Range									
	Less than \$5,000		\$5,000- \$9,999		\$10,000- \$14,999		\$15,000- \$19,999		\$20,000 or more	
	No.	%	No.	%	No.	%	No.	%	No.	%
less than 20%	0	0.0	0	0.0	0	0.0	0	0.0	107	22.0
20% - 24%	0	0.0	0	0.0	15	3.1	34	7.0	0	0.0
25% - 34%	0	0.0	0	0.0	70	14.4	10	2.1	36	7.4
35% or more	56	11.5	80	16.5	32	6.6	0	0.0	0	0.0
Not Computed	21	4.3	17	3.5	4	0.8	0	0.0	4	0.8
TOTAL	77	15.8	97	20.0	121	24.9	44	9.1	147	30.2

SOURCE: 1980 U.S. Bureau of the Census

activity). Based on the criteria of whether or not a housing unit is in violation of the City's building code, it appears that there are still no substandard housing units in the City.

**TABLE VIII
HOUSING STOCK CONDITION/CENSUS BUREAU CRITERIA
NORTH PORT, 1980**

<u>Occupied Housing Units</u> (2,777)	<u>No.</u>	<u>%</u>
- lacking complete plumbing	0	0.0
- lacking complete kitchen facilities	20	0.7
- lacking central heating	244	8.8
- Overcrowded (more than 1.01 persons per room)	53	1.9

SOURCE: U.S. Bureau of the Census, 1980

SUBSIDIZED HOUSING DEVELOPMENTS

North Port contains only one subsidized housing development. The Villas of North Port consists of 38 units 30 of which are subsidized under the Farmers Home Administration (FmHA) Section 515 Housing Program. Only low and moderate income elderly (over 62 years) and/or handicapped individuals are eligible to participate under this program. The City does not contain any Section 8, Section 221 (d) 3 or Section 202 housing.

North Port's Department of Social Services provides one-time assistance to citizens who for extenuating circumstances (e.g. job layoff or sickness) are unable to make their monthly rental and/or utility payments. From January thru July 1988¹ the Department provided approximately \$7,800 to 26 individuals to help them make their rent payments and \$2,500 to 22 individuals to help them make their monthly utility payments. This assistance is presently being financed by voluntary contributions and a grant from the National Food and Shelter Emergency Board.

GROUP HOMES

For the purposes of this analysis, the category "group homes" has been expanded to include nursing homes. North Port contains only one formally registered group home at present - a nursing home called the Quality Health Care Center. The Center is licensed by the Florida Department of Health and Rehabilitative Services and has a capacity of 120. It is located in the presently developed southwestern section of the City just north of U.S. Highway 41. In addition to the Center, a number of private households are apparently functioning as quasi-Adult Congregate Living Facilities² (ACLFs) for third party elderly individuals. This may indicate that there exists a need for more group home facilities for the elderly in North Port. In order to ensure that adequate sites are available for the potential future expansion of such facilities, the currently unplatted land zoned for agricultural use adjacent to the Quality Health Care Center will be designated on the Future Land Use Map as Health-Related Facilities/ACLF. In addition, the City's existing zoning code allows for the location of both group homes and foster care facilities in any residential area of the City zoned for multi-family use.

MOBILE HOME PARKS

At present there is only 1 mobile home park, called Holiday Park, located in the City of North Port. Holiday park is licensed by the Florida Department of Health and Rehabilitative Services and has a capacity for 865 mobile homes. It is currently operating at this full capacity level. The park is located in the southwestern section of the City just south of U.S. Highway 41 and is contiguous to the urbanized single-family residential area of town.

No other area of the City is zoned to allow mobile home sites except for a 2,200 lot site in the recently approved Panacea DRI located in the northeastern section of the City. Since development of this area is not expected to get underway for at least 3 more years, there exists an immediate shortage of land upon which mobile homes can be located within the City limits. The City, however, does not view this shortage as an area of major concern since there exists several mobile home parks located less than 3 miles outside of the City limits that have an adequate existing supply of available lots to meet current and projected demands.

HISTORICALLY SIGNIFICANT HOUSING

North Port contains no historically significant housing listed on the Florida Master Site File, National Register of Historic Places or designated as historically significant by or in accordance with local ordinances.

NEW HOUSING CONSTRUCTION ACTIVITY

Table XVI on page 117 presents data on the amount of housing construction that has occurred in North Port since the 1980 U.S. Census was taken. The data indicate that since 1980 an annual average of 173 new single-family houses have been built. After 1980/81 no multi-family housing was constructed until 1987. The number of mobile homes, not shown in the table below, increased by over 300 since 1980 as indicated in Table III above. According to the City Building Department no housing conversions or removals have taken place in North Port since 1980.

ANALYSIS

PROJECTED HOUSING NEEDS

Household Size and New Household Formations

The projected population of North Port for 1993 and 1998 was presented previously in the Future Land Use Element. This information when combined with data on average household size yields projections for the total number of future households in the city. Presently the average size of a household in North Port is estimated to be 2.2 persons. This represents only a marginal decline from the 1980 U.S. Census figure of 2.23. Hence for 1993 and 1998, the average household size is projected to remain constant at 2.2 persons. Using these figures yields household projections of 5,728 and 7,476 for 1993 and 1998 respectively. This information is summarized in Table IX below.

Replacement of Substandard Units

As noted above North Port's Housing Stock is extremely new and in very good condition. Only 1.7% of all existing units were built prior to 1960 and none prior to 1950. Similarly, according to the 1978 housing condition survey, only 2 percent of the City's housing stock could be classified as deteriorating. In fact since the preparation of the City's comprehensive plan in 1978 there have been no demolitions or any other form of replacement of the City's existing housing stock. For the planning period 1988-1998 the City's Building Department does not project the need for any replacement units to the current housing stock.

Allowance for Vacancies

The permanent vacancy rate for North Port is currently estimated to be 23 percent (Florida Environmental Inc. 1988). As noted previously, the major factor contributing to this high figure is the number of dwelling units held for seasonal purposes. According to the latest Census figures, the vacancy rates for rental units and for sale units are 28 and 4.2 percent respectively, either above or consistent with most accepted standards for such rates. Given the demand for seasonal housing in North Port, in projecting the number of housing units over the course of the planning period, it was assumed that the existing vacancy rate of 23 percent would continue to hold.

Housing Type and Tenure Distribution

In 1980 approximately 16.2 percent of the total housing stock for North Port consisted of either multi-family units or mobile homes. By 1988 this figure has grown to 19.8 percent. In all over the period 1980-1988 an annual average of 66 multi-family/mobile home units were built. For the planning period it has been assumed that the split between single-family and multi-family/mobile home units will remain at the current figure of 19.8 percent. In projecting the number of renter and owner-occupied housing units needed, it was assumed that the 1980 distribution of owner and renter occupied units by dwelling type would remain the same in 1993 and 1998³.

TABLE IX
HOUSEHOLD FORMATION CITY OF NORTH PORT: 1980-1998

	Year							
	1980 (actual)		1988 (est)		1993 (proj)		1998 (proj)	
Population	6,205		9,940		12,601		16,448	
Total Households	2,766*		4,518		5,728		7,476	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
1 person	576	20.7	890	19.7	1111	19.4	1428	19.1
2 persons	1535	55.5	2489	55.1	3151	55.0	4104	54.9
3 persons	288	10.4	501	11.1	653	11.4	867	11.6
4 persons	218	7.9	380	8.5	498	8.7	665	8.9
5+ persons	149	5.5	248	5.5	315	5.5	411	5.5
Average HH Size	2.23		2.2		2.2		2.2	

SOURCE: U.S. Census, 1980; Florida Environmental Inc. and North Port P&Z Department 1988.

Household Income Distribution

In 1988 median family income for the City of North Port was estimated to be \$23,666 as compared to \$29,200 for Sarasota County (U.S. Department of Housing and Urban Development, 1988). On the basis of this estimate and the standard HUD income group definitions, Table XI on the following page presents the income limits of the City's different income groups. Using these income limits and past trends in the City's income distribution, data on the existing and projected distribution of income by income groups for the City of North Port is presented in Table XII also on the following page.

In 1988 an estimated 11.7 percent of all families in the City could be classified as very low-income and another 21.0 percent as low-income. 14.3 percent of all families in North Port were classified as middle-income and 24.2 percent as upper middle/high income. By 1997 the percent of very low and low-income families is projected to remain relatively constant at 11.3 and 20.6 respectively.

Table X below presents data from the 1980 U.S. Census on the tenure distribution of households in North Port by income group. The data indicates that the percentage of renter households classified as very low-income and low-income was virtually the same as for owner households (although there was a slightly higher percentage of renter households classified as very low-income than for owner households). Of particular interest is the large percentage of renter households (37.2 percent) classified as either middle or upper-middle to high income.

**TABLE X
TENURE DISTRIBUTION OF HOUSEHOLDS BY
INCOME GROUP, NORTH PORT 1980**

	<u>Renter</u>		<u>Owner</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Very Low-Income	90	20.8	319	18.2
Low-Income	78	18.0	355	20.3
Moderate Income	103	23.8	446	25.5
Middle/Upper Middle and high income	161	37.2	628	35.9
Total	432	100.0	1748	100.0

SOURCE: 1980 U.S. Census

TABLE XI
CLASSIFICATION OF VARIOUS INCOME GROUPS,
CITY OF NORTH PORT: 1988

<u>Income Group</u>	<u>Percent of Median Income</u>	<u>Income Range</u>
Very Low Income	less than 50% of median	less than \$11,682
Low Income	between 50% - 80% of median	\$11,683 - \$18,693
Moderate Income	between 80% - 120% of median	\$18,694 - \$28,039
Middle Income	between 120% - 150% of median	\$28,040 - \$35,048
Upper Middle- High Income	150% of median and higher	\$35,049 +

Median Income for North Port in 1988 = \$23,666

SOURCE: U.S. Department of Housing and Urban Development and North Port P&Z Department.

TABLE XII
PROJECTIONS OF FAMILIES BY INCOME GROUP
NORTH PORT 1980 - 1998

<u>Income Category</u>	<u>Year</u>			
	<u>1980 (%)</u>	<u>1988 (%)</u>	<u>1993 (%)</u>	<u>1998 (%)</u>
Very Low-Income	12.3	11.7	11.5	11.3
Low-Income	21.4	21.0	20.8	20.6
Moderate Income	30.8	31.8	32.3	32.6
Middle Income	14.1	14.3	14.3	14.4
Upper Middle/ High Income	21.4	21.2	21.1	21.1

SOURCE: North Port P&Z Department.

* Median income for 1988, 1993 and 1998 is \$23,666 assuming constant 1988 dollars.

Projected Housing Needs

Based on the analyses presented above, Table XIV on the following page contains projections of North Port's housing needs by household type, tenure and income. These projections assume that the distribution of household income by housing tenure as well as by housing type is identical. In the case of tenure status, as the data in Table XII above indicate, this assumption appears to be valid for North Port. For housing type, this assumption might appear questionable given that one would expect that a relatively greater percentage of families living in multi-family -vs- single-family housing would fall into the low and very low-income categories. However in North Port it appears that the bulk of multi-family housing (including mobile homes) built to date has been for moderate income (and up) households. Since multi-family units are defined below to include mobile homes, the projections presented may actually slightly overestimate the number of multi-family housing units needed to meet the housing demands of lower income households.

Table XIII below summarizes North Port's housing construction needs in terms of the annual number of units needed to satisfy the rate of new household formation, replace deteriorated units in the existing housing stock, and allow for an adequate vacancy rate.

**TABLE XIII
ANNUAL HOUSING CONSTRUCTION NEEDS:
1989 - 1993 and 1994 - 1998**

<u>Factor</u>	<u>1989-1993</u>	<u>1994-1998</u>
	<u>Annual Total</u>	<u>Annual Total</u>
Units for new household formations	242	360
Replacement or rehabilitation of Substandard units	0	0
Allowance for vacancies	72	104
Annual Construction Needs	314	454

SOURCE: North Port P&Z Department

Special Housing Needs

Low-Income Households

The projected housing needs of North Port's Very Low-Income and Low-Income households over the course of the planning period are contained in Table XIV below. It is projected that by 1993 an additional 419 single-family and 90 multi-family housing units will be required to meet the needs of these groups. By 1998 an additional 557 single-family and 167 multi-family units will be needed. The number of Very Low and Low-Income households as a percentage of all households is projected to decline slightly over the next ten years.

Elderly

Table XV below projects the distribution of North Port's population by age over the ten year planning period. An estimated 43.2 percent of the City's present population is elderly (defined as 62 years and over). The number of elderly residents is projected to decrease in percentage terms over the course of the planning period. Based on the projection of housing needs for the City presented in Table XIIV below, it is roughly estimated that the City's elderly population will require 663 additional housing units by 1993 and another 947 units by 1998. As noted previously there also appears to exist a need for more group home facilities for North Port's

**TABLE XIV
HOUSING NEED FOR PROJECTED POPULATION BY TYPE,
TENURE AND INCOME FOR 1989-1993 AND 1994-1998**

Income Group	1989-1993				1994-1998			
	<u>Owner</u>		<u>Renter</u>		<u>Owner</u>		<u>Renter</u>	
	SF	MF	SF	MF	SF	MF	SF	MF
Very Low-Income	119	19	30	13	158	53	39	6
Low-Income	216	34	54	24	288	97	72	11
Moderate Income	335	52	84	36	455	154	114	17
Middle Income	148	23	37	16	201	68	50	8
Upper-Middle High Income	219	34	54	24	295	99	74	11
TOTALS	1,037	162	259	113	1,397	472	349	53
	1,199		372		1,869		402	
	1,571				2,271			

SOURCE: North Port P&Z Department, 1988.

elderly population. To help meet the housing needs of the elderly, the City intends to promote the growth and regularization of ACLF-like housing arrangements and identify appropriate subsidized housing programs and encourage their development in North Port.

**TABLE XV
POPULATION TRENDS BY AGE GROUPS
CITY OF NORTH PORT 1980 - 1998**

Age	Year			
	1980 (actual)	1988 (est)	1993 (proj.)	1998 (proj.)
under 19	1008 (16.2)	1670 (16.8)	2142 (17.0)	2813 (17.1)
19 - 44	1166 (18.8)	2058 (20.7)	2684 (21.3)	3569 (21.7)
45 - 61	1204 (19.4)	1938 (19.5)	2457 (19.5)	3207 (19.5)
62 and over	2827 (45.5)	4274 (43.0)	5318 (42.2)	6859 (41.7)
Total	6205 (100.0)	9940 (100.0)	12601 (100.0)	16448 (100.0)

Source: 1980 U.S. Census and North Port P&Z Department.

Minorities

According to the 1980 U.S. Census the City of North Port contained 67 minority households. 37 of these were Black households and 25 were of Spanish origin. All but 5 of these minority households were homeowners. According to the Department of Social Services, to date there have been no reports of minorities in North Port having any special difficulties in satisfying their housing needs.

Rural and Farmworker Housing

According to the 1980 U.S. Census the City of North Port does not contain any rural or farmworker households nor is there projected to be any future demand for such households.

LAND REQUIREMENTS FOR THE ESTIMATED HOUSING NEEDS

Presently in North Port 83,535 lots have been platted for single-family housing construction. Of these lots, only 4,506 have been developed to date leaving over 79,000 platted lots available to accommodate the projected 3,042 increase in single-family units needed over the planning period.

In terms of multi-family housing, North Port has 252 platted lots of which 164 have been developed to date. An average of 1.24 dwelling units have been built on each developed lot indicating that the remaining undeveloped platted lots could accommodate approximately 108 more multi-family units. This is clearly insufficient given the projected need for 800 units over the planning period. However in addition to these platted lots, there exists over 230 acres of unimproved/non-platted land zoned for multi-family housing. While this amount should satisfy the needs of the immediate future, additional land will need to be made available in the long-run (i.e. beyond the 10 year planning period) for multi-family housing development.

THE PRIVATE SECTOR AND THE HOUSING SUPPLY

The private sector has been the sole source of housing construction in North Port since the City was founded in 1959. This trend is envisioned to continue throughout the planning period. Up until recently the General Development Corporation was responsible for most of the residential construction taking place in North Port. However, the number of builders in the City has begun to diversify in recent years. Table XVI below presents data on the number and type of dwelling units constructed by the private sector in North Port since 1980.

Single-Family Housing

The data in Table XVI indicate that the number of single-family housing units constructed declined dramatically after 1980/81 reaching a low of only 87 units built during 1984/85. Since then, however, construction levels have increased gradually every year. One of the reasons for the decline in construction experienced was due to the large number of home foreclosures that occurred each year in North Port until recently. As a result of these foreclosures the market was saturated with a large number of already built units at depressed prices which served to discourage new production.

The data below show that for a three year period the average value of new single-family housing units constructed in the City did not appreciate in value at all. The recent increase in construction is, in part, directly related to the dwindling number of foreclosed homes for sale. There is speculation that this increase in residential building activity in North Port will pickup even further when construction of the Murdock Commercial Center located just across the border in nearby Charlotte County is completed.

Currently the average price of a typical two-bedroom/one and a half bath detached single-family house in North Port is approximately \$40,000 (from interviews with local Realtors/bankers). For a typical three-bedroom/two bath freestanding single-family house the average price is around \$45,000.

Multi-Family Housing

Since 1980/81 there has been very little construction of multi-family housing in North Port. This is not entirely surprising given that the City was developed as a single-family residential community. There are signs, however, that there exists a growing demand for multi-family housing in North Port.

In 1987 a 45 unit condominium structure was built by a religious organization for the benefit of its members. The average price of one of these units is \$55,000. This same organization wants to build another similar structure in the near future (note the 45 units in the existing structure were sold out long before construction was completed). In addition, another religious group as well as GDC also would like to construct some multi-family housing. It appears that most of the units recently constructed as well as those planned are targeted for elderly individuals.

The relative affordability and availability of single-family housing in North Port may have weakened the demand by the City's younger working class population for multi-family housing in the past. However as the demographic composition of the City continues to change and if housing prices increase, this situation could change.

Middle, Upper and High Income Households

As indicated above households in the Middle-Income and in the Upper Middle-High Income ranges all have annual incomes of \$28,040 or more. Using the latest HUD definition of affordable housing, i.e. that a family should spend no more than 35 percent of its income for housing, a maximum of \$817 (PITI)/\$721 (PI only) per month would be available for housing for a family with an annual income of \$28,040. Assuming a 20 percent downpayment and a fixed rate loan at 10 percent for 30 years, such a family could afford a house in the neigh-

TABLE XVI
HOUSING CONSTRUCTION ACTIVITY BETWEEN 1980 and 1987

Year (Fiscal)	Total		Single Family		Multi-*	
	No.	\$Unit	No.	\$Unit	No.	\$Unit
1980/81	370	N/A	332	N/A	38	N/A
1981/82	189	\$22,635	189	\$22,635	0	0
1982/83	198	\$25,374	198	\$25,374	0	0
1983/84	127	\$36,332	127	\$36,332	0	0
1984/85	87	\$37,691	87	\$37,691	0	0
1985/86	139	\$37,786	139	\$37,786	0	0
1986/87	152	\$46,914	152	\$46,914	0	0
1987/3-88	126	N/A	81	N/A	45	\$55,000
Total	1,388		1,305		83	

SOURCE: North Port P&Z Department

* Excludes Mobile Homes

borhood of \$98,000, which is well above the present average sales price of \$45,000 for a three-bedroom/two bath home observed in the private housing market.

The yearly housing requirement for households in these two income ranges as presented in Table XIII above is approximately 136 units of which 108 are estimated to be for single-family housing and 28 for multi-family housing. It is clear that the private sector can more than adequately meet the housing needs of these two income groups.

Moderate Income Households

These households have incomes falling between \$18,694 and \$28,039. A family at the lower end of this range could afford to spend a maximum of \$545(PITI)/\$481(PI only) for housing. Using the same set of loan term assumptions as above except reducing the required downpayment to only 10 percent, such a family could afford a house in the \$60,000 range. Again this is comfortably above the present average housing sales price. However it is likely that some moderate income households would experience difficulty in meeting the down payment requirement.

The annual housing requirement for this income group is 125 units split 99/26 for single and multi-family housing respectively. The private sector appears capable of meeting these projected housing requirements.

Low Income Households

With incomes between \$11,683 and \$18,693 a family with an "average" annual income of \$15,188 could afford to spend \$443(PITI)/\$390(PI only) a month for housing. Assuming the same loan terms as for moderate income households, such a family could afford to purchase a house for just under \$50,000. A family earning the minimum of \$11,683 could only afford a house priced at \$37,500 which is slightly below the average sales price of roughly \$40,000 for a two-bedroom/one-and-a-half-bath unit. However there are a large number of older (relatively) units on the market that are priced in the \$37,000 range. Viewed in these terms, the private sector would still appear capable of meeting the housing needs of this income group as well. However the reality is that a large number of these households are precluded from buying a house because they can not meet the minimum downpayment requirement. In annual terms, this group's housing requirements are estimated at 80 units; 63 for single-family units and 17 for multi-family units.

Very Low Income Households

These households presently constitute 11.7 percent of the total City population earning a maximum annual income of \$11,682. As can be inferred from above, families earning at this maximum could theoretically afford a house priced around \$37,000. Families earning significantly below this amount clearly would have difficulty in purchasing adequate housing. For families earning below \$11,000 per year even finding affordable and adequate rental housing would appear somewhat problematic. As indicated in Table VII above 100 percent of all renters in the City earning less than \$10,000 spend more than 35 percent of their monthly income for rent. Rents have also increased recently up from between \$300 - \$350 to over \$400 for a typical 2 bedroom/2 bath home.

One of the major problems low-income families face in obtaining rental housing at whatever price is the large amount of deposit money - ranging between \$800 and \$1,000 - they are required to put down. However it is impossible to estimate how many of these very low-income households are in need of some special form of housing assistance. The City's Department of Social Services has referred a small number of households to Sarasota County to see if they could qualify for any Section 8 Public Housing programs. Unfortunately the County already has a long waiting list for its programs and has asked North Port not to make any more referrals (the City, however, will continue to make such referrals in order to respond to the needs of its citizens).

The fact remains that only 30 households in the City are presently receiving some form of regular housing subsidy (the City's Social Services Department does provide limited one-time assistance to families experiencing difficulties in making their rental and/or utility payments). This may indicate that, at least for the present, the private housing market is more or less able to meet the needs of even the City's very low-income group. While it is true that household income in North Port is generally lower than for the rest of the county, the City's relative abundance of affordable land appears to be the determining factor in its ability to provide adequate and affordable housing for all income groups.

More research should be undertaken, however, to determine and quantify to the extent possible the special housing problems and needs of lower income groups in North Port. The City does plan to conduct an inventory of available state and federal subsidized renter and owner-occupied housing programs for delivery by the private sector and determine the appropriateness of establishing such programs in North Port. The City also plans to work cooperatively with Sarasota County to address low-income housing needs within the City.

THE HOUSING DELIVERY SYSTEM: REMOVING IMPEDIMENTS TO ACHIEVING FULL PRODUCTION

Land Availability

As discussed on page 115 above, there presently exists a sufficient amount of land zoned for single-family and multi-family housing to accommodate the projected needs for the planning period. However due to the delay in construction of the Panacea DRI, 2,200 mobile home lots will not be available for occupation for at least 3-5 more years. As such there can be said to exist an immediate shortage of land available for mobile home units in the City. The City, however, does not view this shortage as a area of major concern since there exists several mobile home parks with available lots that are located less than 3 miles outside of the City limits.

Beyond the 10 year planning period there doesn't presently appear to exist enough land zoned to satisfy the City's long-term multi-family housing needs. To accommodate this future demand, the City has identified several new growth areas on its Future Land Use Map where land will be reserved for medium and high density residential development (See Future Land Use Element).

Utilities, Water and Sewer

Water and sewer services in North Port are currently supplied by General Development Utilities under a franchise agreement with the City that is due to expire in 1991. Presently approximately only 7 percent of the City's total land area of 75 square miles is serviced by central water and sewer. Service provision is concentrated within the existing urbanized core of the City where over 90 percent of all households in the City live. Those households who have decided to locate in areas not serviced by central water and sewer rely on wells and septic tanks for their water and wastewater disposal needs.

According to the population projections for the City presented in the Future Land Use Element, most of the future residential growth in the City is anticipated to occur within, and relatively adjacent to, those areas that are already serviced by central sewer and water. Based on a 1983 consent order issued to GDU by DER, GDU is required to extend central sewer service to any platted area of the City once it has reached a build-out density of 66 and 2/3 percent (See Water and Sewer Sub-elements).

Housing Finance

Housing finance terms, especially interest rates, are a prime determinant of how much housing a household can afford to purchase. Table XVII below presents data on financing trends for Sarasota County over the period 1980-1987. The data indicate that mortgage interest rates have declined steadily since their peak in

1982. As of June 1987 the effective interest rate for a 30 year loan in the County was 8.57 percent as compared to over 16 percent in 1982. The present Loan-to-Value ratio for the County ranges between 75 to 80 percent. Mortgage rates are forecasted to rise gradually over the course of the next year. Clearly housing in North Port will become less affordable to the extent that these rates continue to rise.

TABLE XVII
HOUSING FINANCE TRENDS: 1980-1987

<u>Year</u>	<u>Effective Mortgage Interest Rate</u>	<u>Loan/Value Ratio</u>
1980	13.91	59.9
1981	15.59	75.9
1982	16.43	58.4
1983	12.50	77.5
1984	11.65	74.6
1985	11.27	72.4
1986	9.63	74.5
1987	8.57	75.0

SOURCE: U.S. Federal Home Loan Bank Board, 1988

Land Development Regulations

As indicated above practically all of the land zoned for residential use in the City is already platted and under contract for sale to prospective individual homebuilders. The only major exception to this is the Panacea DRI. For this area explicit subdivision guidelines and regulations have been established by City ordinance. These regulations should help facilitate the orderly and smooth residential development of the area at minimum cost to the City.

The standards for minimum lot area, lot width, living area and front setbacks for single and multi-family housing contained in the City's existing zoning code are not excessive and thus help to keep down the cost of housing. No major problems in obtaining building permits for residential construction have been identified.

GOALS, OBJECTIVES AND POLICIES

In formulating goals, objectives and policies for housing in North Port it should be emphasized, as noted above, that the delivery of dwelling units in the City has been and will continue to be primarily the responsibility of the private sector. As such the role and resources for public intervention are necessarily limited in comparison to other elements presented in this comprehensive plan update. This is particularly the case given that practically all the land in the City designated for residential development has previously been platted. Furthermore it should be stressed that for the most part, the private sector has done an adequate job in providing decent housing for the residents of North Port at affordable prices.

GOAL:

To provide and assure that all present and future residents of the City of North Port have access to housing that is safe, decent, standard and that matches type, tenure characteristics, unit size needs and preferences within the ability to pay.

Objective 1:

Increase the number of available sites relative to 1988 on which the private sector could, depending upon market conditions, potentially build housing for low and moderate income families.

Policy 1.1:

No administrative or regulatory constraints shall be adopted which systematically and unduly inhibit the location of housing for low and moderate income households. Housing for such households shall be provided by the private sector in any appropriately zoned district (i.e., single family or multi-family residential or mobile homes) where market demand exists.

Policy 1.2:

On the City's Future Land Use Map, designate future growth areas (Planned Community Districts) and corridors along I-75, Sumter Boulevard, and Toledo Blade Boulevard where the construction of medium and high density/multi-family housing will be encouraged.

Policy 1.3:

Provide incentives through information exchange on grant assistance programs where appropriate to encourage private sector efforts to increase the supply of low-income housing.

Policy 1.4:

Through the adoption of Transfer of Development Rights (TDRs), provide residential density bonuses within future growth areas identified on the Future Land Use Map to encourage medium/high density residential development.

Policy 1.5:

Potential future mobile home developments in the City shall be located in those areas designated as Planned Community Development Districts on the City's Future Land Use Map.

Policy 1.6:

Potential future group homes and foster care facilities shall be located either in the currently unplatted tract of land located adjacent to the existing Health Care Center, in those areas designated as Planned Community Development Districts on the City's Future Land Use Map, or in multi-family residential districts as allowed by the City's zoning code.

Objective 2:

By 1994, increase City efforts, primarily through information exchange and referral services, to address the needs of low-income households unable to afford decent housing.

Policy 2.1:

Seek additional grant funds and encourage an increase in voluntary contributions to supplement the rental assistance activities for low-income households carried out by the North Port Department of Social Services.

Policy 2.2:

Through the City's Department of Social Services, continue to refer low-income households in need of housing assistance to appropriate County, State, and Federal housing assistance agencies.

Policy 2.3:

Meet on an as-needed basis with Sarasota County, state and federal officials to address low-income housing needs within the City of North Port.

Policy 2.4:

Conduct an inventory of available state and federal subsidized renter and owner-occupied housing programs and, where appropriate, encourage the private sector to implement such programs in North Port.

Objective 3:

By 1994, increase indirectly via the private sector the number of group home facilities (including Adult Congregate Living Facilities (ACLFs) and Foster Care homes) operating in the City.

Policy 3.1:

Designate on the City's Future Land Use Map unplatted land currently zoned for agricultural use located adjacent to the Quality Health Care Center as Health-Related Facilities/ACLF.

Policy 3.2:

Identify appropriate subsidized housing programs for the elderly and encourage their development by the private sector in the City of North Port.

Objective 4:

Preserve the City's existing housing stock such that at any given time no more than 5 percent of the total stock is classified as substandard.

Policy 4.1:

Undertake periodic windshield surveys of the housing stock in different neighborhoods to identify actual or potential areas of substandard housing in the City.

Policy 4.2:

Enforce building code regulations and City ordinances governing the structural condition of the housing stock.

Policy 4.3:

Community desired neighborhood character shall be encouraged through subsequent zoning and land development regulation updates, including encouragement of deed restricted communities and property owner associations.

Policy 4.4:

The City has adopted the following standards with regard to evaluating the structural condition of the housing stock:

Sound:

Most housing units in this category are in good condition and have no visible defects. However, some structures with slight defects are also included.

Deteriorating:

A housing unit in this category needs more repair than would be provided in the course of regular maintenance, such as repainting. A housing unit is classified as deteriorating when its deficiencies indicate a lack of proper upkeep.

Dilapidated (Substandard):

A housing unit in this category indicates that the unit can no longer provide safe and adequate shelter or is of inadequate original construction.

Policy 4.5:

The City shall inventory available state and federal housing repair and rehabilitation grant programs and, as appropriate, encourage the private sector to implement such programs in North Port.

ENDNOTES

1 - Records of this type of assistance were only started to be kept as of the beginning of 1988.

2 - An Adult Congregate Living Facility means any building(s), section of a building, or distinct part of a building, residence, private home, boarding home, home for the aged, or other place, whether operated for profit or not, which undertakes through its ownership or management to provide, for a period exceeding 24 hours, housing, food service, and one or more personal services for four or more adults, not related to the owner or administrator, who require such services.

3 - In 1980, 80 percent of single-family units were occupied by owners while renters occupied the remaining 20 percent. The split for multi-family (including mobile homes) units was 90 percent owner and 10 percent renter. However when mobile homes are excluded the split becomes 59 percent owner and 41 percent renter. For just mobile homes the split is 96.9 owner and 3.1 percent renter. Since no mobile homes are anticipated to be built during the period 1989-1993, the projections for this period were based on the 59/41 owner/renter split. For the period 1994-1998 it was assumed that mobile home construction will have started again in conjunction with the start up of the Panacea DRI and thus the 90/10 owner/renter split was used for the projections.

SANITARY SEWER



Table of Contents

Background Information .....	.127
Introduction	127
Centralized Facilities	127
Collection	127
Treatment	127
Disposal	128
Septic Tanks	128
Regulatory Framework	130
.....Federal	130
.....State	130
.....Local	130
Existing Conditions .....	.131
Collection	131
Treatment	133
Disposal	135
Needs Assessment .....	.138
Effluent Disposal	138
Septic Systems	138
Level of Service	139
Infiltration	139
Future Options	139
Goals, Objectives, & Policies .....	.143

List of Tables

Table 1 - Total Flow, Average Daily Flow, and Average Daily Per Capita Flow for North Port Sewer, 1985-1987	135
Table 2 - Population Projections, Adjusted Population Projections, Average Daily Flow, and Maximum Daily Flows for North Port Sewer, 1988-1999	140

List of Figures

Figure 1 - Sewer System Schematic	129
Figure 2 - Site Plan for the North Port Wastewater Treatment Plant	136
Figure 3 - Flow Schematic for the North Port Wastewater Treatment Plant	137

List of Maps

Map 1 - Urban Infill Area Served by North Port Wastewater Treatment Plant	132
Map 2 - Proposed Service Areas by Wastewater Treatment for the City of North Port	141

BACKGROUND INFORMATION

INTRODUCTION

The City of North Port is served by a private wastewater utility, General Development Utilities, Inc., under an exclusive franchise agreement and, in remote sections, by individual septic systems. Approximately 90% of the existing dwelling units in the City are served by central sewer, and 10% rely on individual septic systems. As growth continues, there is a tendency for the population to spread to less dense areas of the City where central collection lines are not yet economically feasible. The ratio of dwelling units served by central sewer to those served by individual septic tanks has fallen during the past 10 years. Curbing this tendency toward an increased reliance on individual septic systems is one of the highest objectives. The City will encourage the extension of sewage collection lines in a manner which promotes compact, urban growth and maintains an 80% level of central sewer service within the Urban Infill Area, while recognizing that the franchised obligation of the utility is to provide central service to 100% of all properties within the City.

CENTRALIZED FACILITIES

Large scale sanitary sewer systems which generally provide service to densely populated areas are regional facilities. These facilities are comprised of three components which perform the basic functions of collection, treatment and disposal of sewage.

Collection

The collection system is composed of a network of sewer pipes which collect sewage (also called wastewater) from individual establishments and convey it to a central location for treatment. The collection network is generally laid out in a pattern roughly analogous to the branching pattern of a tree. Figure 1 illustrates this pattern and the terminology applied to components within the system. This classification scheme identifies sewers according to their location within the network. Since sewage flow within the network is from the periphery toward the treatment plant, this scheme allows for easy identification of components.

The major components of the North Port collection network are the trunk mains and interceptors. Interceptors are defined as sewers which connect directly to and convey sewage to the treatment plant. Trunk mains are defined as sewers which connect directly to and convey sewage to an interceptor.

Wastewater collection systems utilize the force of gravity to the extent possible to convey sewage. Gravity systems work best in hilly terrain. In level terrain, a pumping system is often used in conjunction with gravity. Pumping conveys sewage under pressure against the force of gravity for long distances with minimal natural slopes. The term "force main" is often applied to pressurized sewers without regard to their location within the network. The North Port system utilizes a combination of force mains and gravity lines in its collection system.

Treatment

The treatment plant component of the central sanitary sewer facility functions to remove solid and organic materials from the sewage. Depending on the proportion of materials removed, processes which accomplish treatment are generally grouped into one of the following four categories.

Primary Treatment: This term refers to the removal of between 30 and 35 percent of the organic materials and up to 50 percent of the solids from the sewage, and is the least expensive treatment. This is also com-

monly referred to as physical treatment because screens and settling tanks are the most common methods used to remove the solids.

Secondary Treatment: Secondary treatment processes remove between 80 and 90 percent of total organic materials and suspended solids from sewage. This level of treatment generally requires multiple steps involving one biological process and one or more processes for removal of suspended solids, and is more expensive than primary treatment. The North Port Wastewater Treatment Plant provides secondary treatment which is currently the most common level of treatment provided by centralized facilities.

Tertiary Treatment: Sewage may also contain large quantities of synthetic organic compounds or inorganic chemicals which may create pollution problems if not removed. Tertiary (or advanced) treatment adds steps to primary and secondary processes to remove these pollutants. The most common tertiary processes remove compounds of phosphorus and nitrogen. One of the most common methods of tertiary treatment is spray irrigation, such as the irrigation of the golf course at the North Port Country Club. Because of the extra processes required and high land costs, tertiary treatment remains the most expensive treatment level.

Advanced Wastewater Treatment: This term refers to tertiary treatment within the wastewater treatment plant itself to levels of water purity generally acceptable for discharge directly into surface waters. Advanced wastewater treatment (AWT) standards are set by law (s. 403.086 F.S.) in Florida. While AWT standards are very stringent, achieving this level of treatment gives a utility certain legal rights to discharge directly into surface waters. As effluent disposal options become more costly, AWT will become a more attractive option. Currently, less than 0.5% of the wastewater treatment facilities in the state of Florida meet the AWT treatment standards.

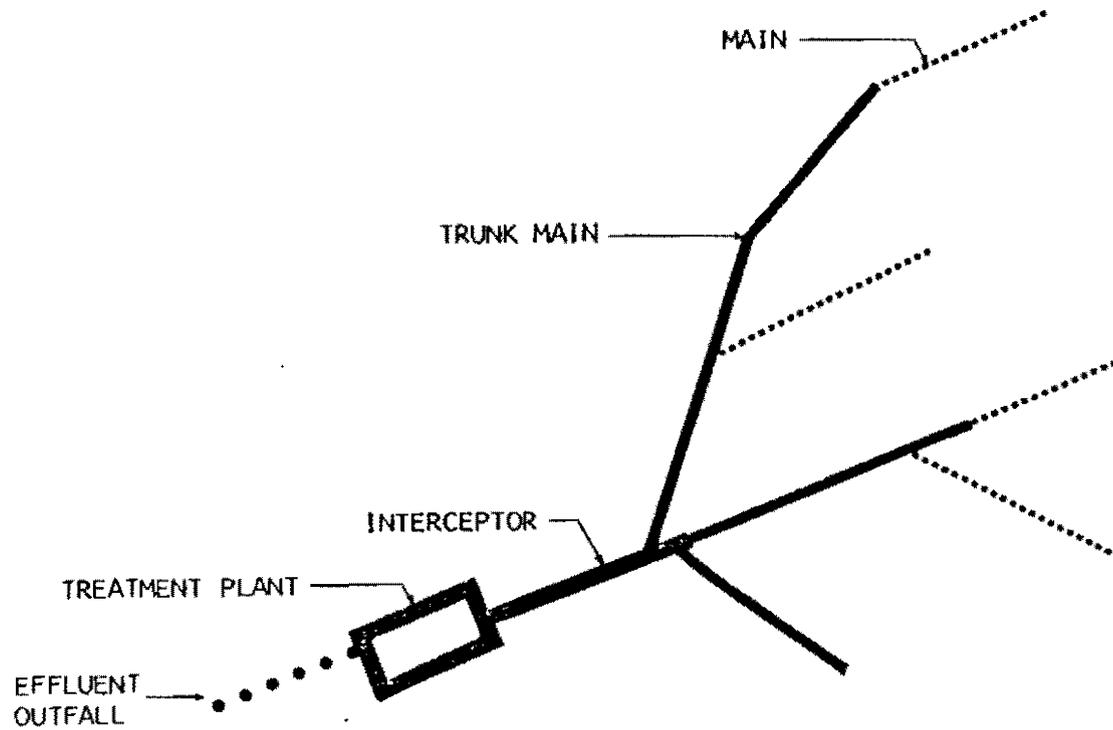
Disposal

Effluent and sludge are the waste products of the treatment process. Effluent is the treated wastewater which flows out of the treatment plant and disposal alternatives include discharge to a water body (for AWT effluent), discharge to the surficial aquifer through percolation ponds, irrigation reuse or injection into deep aquifers. Proper effluent disposal is essential to protect surface and ground waters from environmental degradation. Advanced wastewater treatment is expensive because of the additional plant and operations cost. Reuse and irrigation are expensive because of the costs of lines and land. The least expensive option, and one currently being used in the city in conjunction with golf course irrigation, is injection into deep, saline aquifers. From a resource management perspective, deep well injection is a waste of the freshwater resource. From an environmental health perspective, there are still public fears about this disposal method.

Sludge refers to the accumulated solid residues of the treatment process. Prior to final disposal, sludge is usually subjected to an additional biological treatment process to remove pathogens and to physical dewatering processes to facilitate transportation and disposal. Common disposal methods include burial in solid waste landfills and land application as a soil conditioner for agricultural purposes.

Septic Tanks

Septic tanks or on-site treatment systems, are usually used to serve single housing units, although relatively large-scale systems have proven to operate well under good soil conditions. An on-site treatment system consists of two components, the septic tank and the drainage field. The tank receives wastewater and provides a period of settling, during which time a significant portion of the suspended solids settle out. The settled solids are gradually decomposed by bacteria in the tank. The remaining liquids are discharged through underground drainage pipes into the drainfield and percolate into the soil where microorganisms and filtration processes purify the liquids. Septic tanks generally require cleaning every three to five years to remove accumulated solids. These solids, called septage, are generally transported to regional sanitary sewer facilities for treatment prior to disposal.



SOURCE: ADAPTED FROM LAND USE AND THE PIPE,
TABORS, ET AL, 1976.

Figure 1 : Sewer System Schematic

Regulatory Framework

Federal

The Federal Water Pollution Control Act (PL 92-500) is the controlling national legislation relating to the provision of sanitary sewer service. The goal of this act is the restoration and/or maintenance of the chemical, physical and biological integrity of the nation's waters. The Act established the national policy aimed at implementing areawide waste treatment and management programs to ensure adequate control of pollutant sources. Under Section 201 of PL 92-500, grants are made available to local governments to construct facilities to treat "point sources" of pollution, which include effluent from sewage treatment processes. The U.S. Environmental Protection Agency is responsible for implementing the Act. During the 1970's federal grant monies were generally available to local governments showing a need for expanded sewage treatment capacity, but today such funds are scarce.

State

The Florida Department of Environmental Regulation (DER) is responsible for ensuring that the State carries out responsibilities assigned to it under PL 92-500. DER has adopted rules for the regulation of wastewater facilities in Chapter 17-6, F.A.C. These rules apply to facilities which treat flows exceeding 5,000 gallons per day for domestic establishments, 3,000 gallons per day for food service establishments, and where the sewage contains industrial, toxic or hazardous chemical wastes.

Under terms of a Consent Order between DER and General Development Corporation (GDC) related to alleged violations of DER's dredge and fill rules, GDC has agreed that through its wholly-owned subsidiary, General Development Utilities, Inc. (GDU) it will begin planning, design, permitting and capacity certification for a central sewage collection and treatment system for the City of North Port on a plat-by-plat basis when the development density in the recorded plat unit reaches 50%. By the time a recorded plat unit reaches the development density of 66 2/3%, General Development Utilities will provide sewer collection lines and furnish a sewage treatment system to the plant. However, based upon the exclusive franchise of GDC with the City, the utility is responsible for the provision of central sewer to 100% of all properties in North Port.

The Florida Department of Health and Rehabilitation Services (DHRS) regulates septic tank and drainfield installation within the state. These requirements have been adopted by rule in Chapter 10D-6, F.A.C. Sarasota County, however, applies more stringent capacity limits (2,000 gal/day) and drainfield design criteria than DHRS and these limits & criteria apply within the City of North Port.

According to Section 10D-6.41(8)(b) and (c), any wastewater which contains industrial or toxic waste is prohibited from septic tanks. In addition, areas zoned for industrial or manufacturing, or its equivalent, are prohibited from using septic tanks unless the use is for domestic waste disposal. Food establishments generating more than 3,000 gallons a day are also prohibited from using septic tanks. In Sarasota County the Department of Environmental Engineering reviews building permits for commercial use to determine if the original use is a generator of hazardous or toxic waste. An example of uses which would not be permitted to use a septic tank are, dry cleaners, printers, and photo labs. Secondary users are controlled through the building permit review for internal improvements to a building. In the City of North Port, Sarasota County reviews building permits but does not review permits for internal improvements.

Local

General Development Utilities (GDU) operates under an exclusive franchise to provide and maintain public water and a public sewer systems in North Port. The 30 year franchise is authorized under Ordinance 61-1, and expires April 20, 1991. The Ordinance requires GDU to provide reasonable, sufficient, adequate, and ef-

fluent service and to comply with reasonable rules and regulations imposed by the city commission. The City Commission, as elected representatives of the citizens, have the responsibility to oversee, direct, and regulate GDU to protect and enhance the interest of the citizenry. The City Commission adopted Ordinance No. 88-10 on May 23, 1988 establishing an advisory and hearing board to be known as the "City of North Port, Florida Public Utility Committee". The Public Utility Committee has the following powers and duties:

- To make written recommendations to the City Commission regarding the regulation of public utilities within the City of North Port, Florida.
- To conduct public hearings pursuant to the provisions of this Ordinance to recommend the establishment or modification of the rates, fees, charges, rules, or regulations of public utilities.
- To conduct public hearings pursuant to the provisions of this Ordinance relating to the quality of service provided by public utilities.
- To adopt recommended orders pursuant to the provisions of this Ordinance, and submit the same to the City regarding rates, fees, charges, rules, regulations, and quality of service of public utilities.
- To perform such other duties relating to public utilities as the City Commission may from time to time direct.

During the past 27 years, the City has not played an active role in utility planning. While the City has assisted GDU in securing low interest money through the issuance of Industrial Development Bonds, it has not regulated the expenditures of these monies. The current Comprehensive Plan identified the need for expansion of treatment and disposal capacity by 1983. These expansions were not addressed, however, until 1987, 2 years after GDU was issued a temporary operating permit prohibiting new sewer connections discharging more than 2,000 gal/day into the system. The resolution of the effluent disposal capacity problem was expensive both for GDU and the citizenry.

The Growth Management Act of 1985 requires the City to shoulder more responsibility for utility planning and to play a more active role than it has in the past. Under the impetus from this act, the City will, through this sub-element and its policies, identify system needs and deficiencies through 1999 and adopt ordinances which will assure that those needs and deficiencies identified are timely addressed.

EXISTING CONDITIONS

General Development Utilities, Inc. has an exclusive franchise to provide sanitary sewer for 100% of properties in the City of North Port. GDU is legally obligated to provide sewer service to the entire City. In addition, under the terms of DER Consent Order 82-0128, the utility must install lines and furnish sewage treatment when the development density in a recorded plat reaches 66 2/3%, and planning for such installation must begin when the density reaches 50%.

Collection

Currently, sewer service is only provided to the population center of the City, which comprises about 90% of the population, but only about 7% of the City's 75 square mile area. Central sewer service is generally provided in the Urban Infill Area as shown on Map 1.

There are currently 5,323 sewer connections in the City of North Port (April 1988). The percentage of these which are active varies seasonally from approximately 75% in August to 95% in February.

WATER & SEWER AVAILABILITY MAP CITY OF NORTH PORT, FLORIDA



- GENERAL LEGEND**
- INTERSTATE HIGHWAY
 - STATE ROAD
 - CITY ROAD
 - WATERWAY/CANAL
 - HISTORIC SITE
 - CITY BOUNDARY
 - ★ DEEP INJECTION WELL

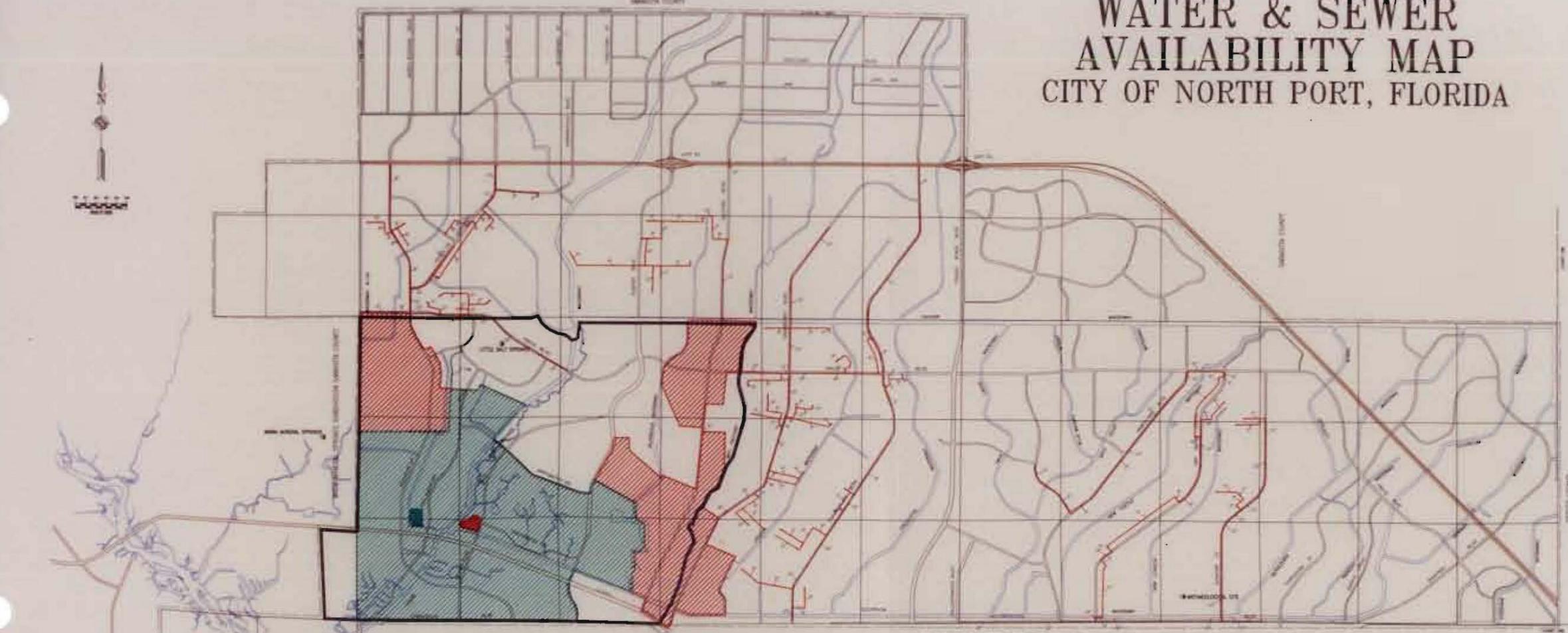
SYMBOL LEGEND

- WATER & SEWER MAINS (INDIVIDUAL UTILITY LINES NOT SHOWN)
- WATER MAINS (INDIVIDUAL UTILITY LINES NOT SHOWN)
- LOCATION OF SEWER PLANT
- LOCATION OF WATER PLANT
- INDICATES SEWER LINE LOCATION AND SIZE
- INDICATES WATER LINE LOCATION AND SIZE
- BOUNDARY OF GROWTH AREA (LOCATION OF JOB OF PREDICTED GROWTH 1980-1990)

ALL WORK BY
W. W. BUSKORF ENGINEERS AND PLANNERS INC.
 14224 TAMMAMI TRAIL
 NORTH PORT, FLORIDA 34287
 IN CONJUNCTION WITH THE
 CITY OF NORTH PORT, FLORIDA
1980

SCALE: GENERAL DEVELOPMENT UTILITIES, 1980

WATER & SEWER AVAILABILITY MAP CITY OF NORTH PORT, FLORIDA



WATER & SEWER LEGEND

-  WATER & SEWER AVAILABLE (INDIVIDUAL UTILITY LINES NOT SHOWN)
-  WATER ONLY AVAILABLE (INDIVIDUAL UTILITY LINES NOT SHOWN)
-  LOCATION OF SEWAGE PLANT
-  LOCATION OF WATER PLANT
-  INDICATES SEWER LINE LOCATION AND SIZE
-  INDICATES WATER LINE LOCATION AND SIZE
-  BOUNDARY OF URBAN INFILL AREA (LOCATION OF 80% OF PROJECTED GROWTH 1988 - 1998)

GENERAL LEGEND

-  INTERSTATE HIGHWAY
-  STATE ROAD
-  CITY ROAD
-  WATERWAY/CANAL
-  HISTORIC SITE
-  CITY BOUNDARY
-  DEEP INJECTION WELL

PREPARED BY
 A.L. VAN BUSKIRK ENGINEERS AND PLANNERS, INC.
 14224 TAMiami TRAIL
 NORTH PORT, FLORIDA 34287
 IN COOPERATION WITH THE
 CITY OF NORTH PORT, FLORIDA
 OCTOBER, 1988

SOURCE: GENERAL DEVELOPMENT UTILITIES, 1988

Since 1985, the percentage of homes in the City of North Port with central sewer service has decreased. Based on GDU monthly figures for water and sewer connections, the ratio of sewer connections to water connections has fallen from approximately 97% in April of 1985 to approximately 90% in April of 1988. This indicates that a larger number of new housing starts are being made in areas without existing sewer lines.

All of the soils found within the City of North Port are rated by the USDA Soil Conservation Service as having severe limitations for septic tank absorption fields. The soils are prone to flooding, ponding, slow percolation and poor filter capabilities. Because of the poor soil suitability, substantial amounts of fill are required on lots to provide a satisfactory location for septic tank drain fields. While current regulations pertaining to the type of fill used, design and construction criteria, density and proximity to wells are written to address health concerns associated with the use of septic tanks in residential subdivisions, the fact remains septic tank treatment is minimal relative to a centralized system and low quality water is discharged through the drainfield into the surficial aquifer.

Septic tanks typically treat household effluent for the removal of solids and attenuation of pathogens. There is no disinfection treatment, however, and water discharged in the drainfield can be expected to contain both pathogens and high levels of plant nutrients. These waters follow the natural drainage patterns and are conveyed to the major drainageways. Some of these waters will be returned, albeit circuitously, to the potable water supply. While the potable water supply receives disinfection before use, the high level of nutrients can cause environmental degradation in the canals and the Myakkahatchee Creek. Excessive nutrients encourage the growth of algae which impart a taste to the potable water supply.

According to a study conducted by Sarasota County in 1984, resulting in "an informational report on drainage, flooding, and septic tanks in South Venice," the abundance of septic systems in Sarasota County threatens ground water with pollution. The report states that septic tank systems can only remove about 40% of the pollutants received, and that approximately 60% of household sewage is discharged untreated into the ground surrounding the system. To work properly, the drainfield must be elevated above the water table so that there are several feet of clean sand between the effluent and the groundwater. When there is less distance between the drainfield and the water table, the treatment effect is lessened and groundwater pollution may result. The report identified the problem in South Venice because water tables are persistently high, making drainfields difficult to construct with adequate clearance above the water table.

Treatment

The average daily flows for the North Port Wastewater Plant for the last three full calendar years have increased from .722 million gallons per day (mgd) in 1985 to .801 mgd in 1986 to .830 mgd in 1987. The total flow through the plant was 263.9 million gallons in 1985, 292.5 million gallons in 1986, and 303.1 million gallons in 1987. Peak flows occur during the first and third quarters of each year. First quarter peaks are associated with the seasonal increase in population and third quarter peaks may be explained by line infiltration in the rainy season.

While average annual sewer flows are less than average annual potable water flows, during the rainy season average monthly sewer flows may substantially exceed the corresponding potable water flows. This phenomenon would indicate that a substantial amount of ground water infiltrates into the sewer system creating a demand on the treatment facility which is unrelated to consumer use. Comparison of average monthly sewer flows for February (highest seasonal population) with those for July or August (lowest seasonal population), shows that sewer flow may be 50 percent higher in August than in February, even though the population is about 20 percent lower. These data would corroborate the premise that the existing sewer system has substantial infiltration when the water table is high.

The estimated average daily per capita flow treated by the utility was 72.81 gallons in 1985, 78.78 gallons in 1986, and 79.37 gallons in 1987. Monthly average daily per capita flows remained relatively stable throughout the year with highest monthly average daily per capita flows occurring during the third quarters.

As was noted earlier, not all water customers receive central sewer service. This causes the average daily per capita flow for sewer to reflect the ratio of sewer connections to water connections. Table 1 reports the total annual flow, the average daily flow, and the average daily per capita flow of wastewater for the City of North Port.

Sewer facility capacities must be designed to handle peak flows. The ratio of maximum to average daily flows is expected to be 1.5. This ratio is essential for projecting needed plant expansions.

As of 1988, the ratio of average daily flow (.88 mgd) to the North Port Wastewater Treatment Plant's current rated capacity (.95 mgd) was .93, i.e., the plant was operating at 93 percent of capacity. However the ratio of maximum daily flow (1.32 mgd) to current capacity was 1.39, indicating that the plant needs to be expanded in order to handle peak flows. GDU has already obtained a DER construction permit to expand the facility's capacity to 1.5 mgd, which should be sufficient to handle peak flows through 1991 (see "Future Options" on page 139 below). Construction of the plant's expansion began in June 1988, and is expected to be completed by approximately June 1989. The plant currently operates under a temporary operating permit from the State Department of Environmental Regulation because of recent effluent disposal problems.

The plant consists of two contact stabilization process plants which operate in parallel to obtain the level of secondary treatment. Figure 2 portrays the site plan and Figure 3 shows the flow through the plant. Effluent enters the system to a common surge tank from where it is split between two self-priming effluent pumps. Microorganisms are mixed with the sewage in the contact tanks in each of the two streams. The Plant 1 tank has a capacity of 76,000 gallons and the Plant 2 tank has a volume of 95,000 gallons. Next comes the secondary clarifiers, each with a surface area of approximately 960 square feet. The secondary clarifier is the limiting element in the capacities of both plants. Following the clarifiers in each stream come stabilization tanks and aerobic digesters. Both the stabilization basin and aerobic digesters for the Plant 1 stream have volume capacities of 67,300 gallons. In Plant 2 the stabilization tank has a volume of 159,000 and the aerobic digester has a volume of 116,000 gallons. Because the Plant 2 stabilization tank is oversized, the GDU Master Plan consultant suggested that more efficient treatment may be possible, by reversing this stabilization tank with the present digester.

Table 1: Total Flow, Average Daily Flow, and Average Daily Per Capita Flow for North Port Sewer, 1985-1987.

<u>YEAR</u>	<u>TOTAL ANNUAL FLOW (mgd)</u>	<u>AVERAGE DAILY FLOW (mgd)</u>	<u>AVERAGE DAILY PER CAPITA (gal.)</u>
1985	263.884	0.722	72.81
1986	292.459	0.801	78.78
1987	303.082	0.830	79.37

Source: General Development Utilities, Inc.
Florida Environmental, Inc.

Date: August, 1988

Throughout each of these stages the digestive action of microorganisms continues, aided by aeration and circulation and accompanied by the gradual settling out of sludge. The sewage in treatment is monitored to allow adequate time for the proper decomposition of organics. Sludge is removed at the appropriate time and trucked by private contractors to disposal sites outside the City of North Port. The treated and purified wastewater is collected from the top of the treatment tanks and chlorinated.

Disposal

Liquid sludge is currently hauled by a commercial firm, Charlotte County Sludge Service, to land application sites outside of the City. The sludge is classified as Class I under Florida Department of Environmental Regulation standards. Class I is the least restricted grade, containing low amounts of toxic metals. The sludge produced by the plant is likely to retain this classification as long as inputs continue to be almost entirely from residential and commercial users. Pastures located in DeSoto and Charlotte counties are the land application sites and are permitted and periodically inspected by DER. To date, neither GDU nor DER has reported the existence of any adverse environmental impacts to these application sites.

The combined effluent streams from the dual plants are filtered and pumped to either the North Port Golf Course irrigation system or to the deep injection well. There are three pumps, each with a 1500 gpm capacity, which are easily replaceable via a simple insertion operation. The effluent is pumped at 7 to 15 psi of pressure.

The deep injection well is currently in the final stages of operational testing. If DER approves its use, it will be permitted for the plant capacity of 1.5 mgd, but testing has shown it to be mechanically and hydraulically capable of handling up to three times that much. The required six month operational testing period has been completed. General Development Utilities, Inc. is currently preparing a final report on operational testing and expects to be issued an operational permit in September 1988.

A great deal of concern still remains about the potential public health risk of deep well injection for the disposal of treated wastewater. Some of this concern is voiced by professionals at the Sarasota County Health Department. Dr. Kent Kalsner, Assistant Director of Public Health, believes that viruses injected into deep injection wells remain viable for long periods and may re-enter the freshwater supply through upward movement. Regardless of the technical arguments on either side of the issue, the public remains wary of deep well injection as a disposal method for wastewater, especially in the proximity of deep springs such as Warm Mineral Springs.

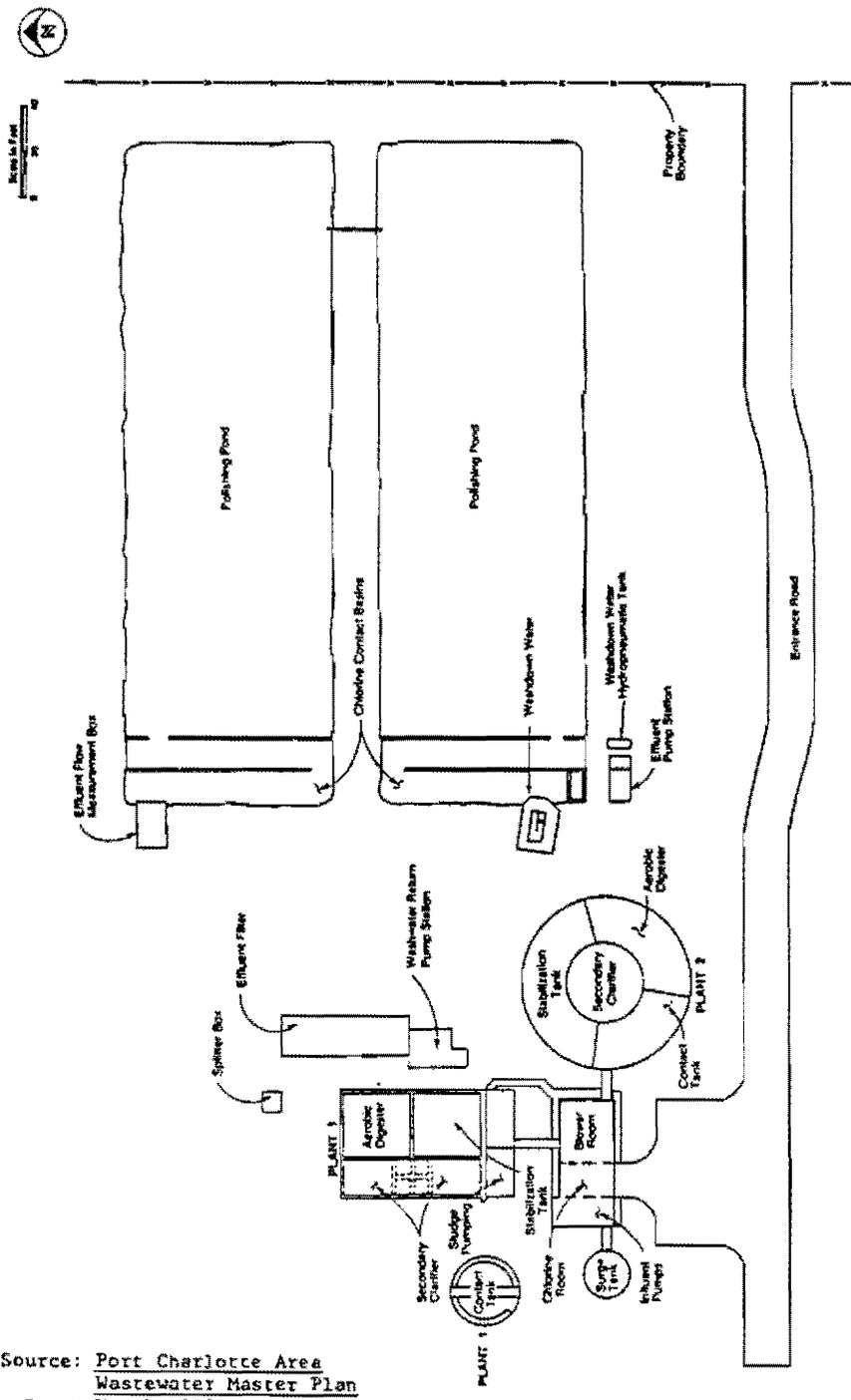


Figure 2 : Site Plan for the North Port Wastewater Treatment Plant.

Source: Port Charlotte Area Wastewater Master Plan Date: March, 1987

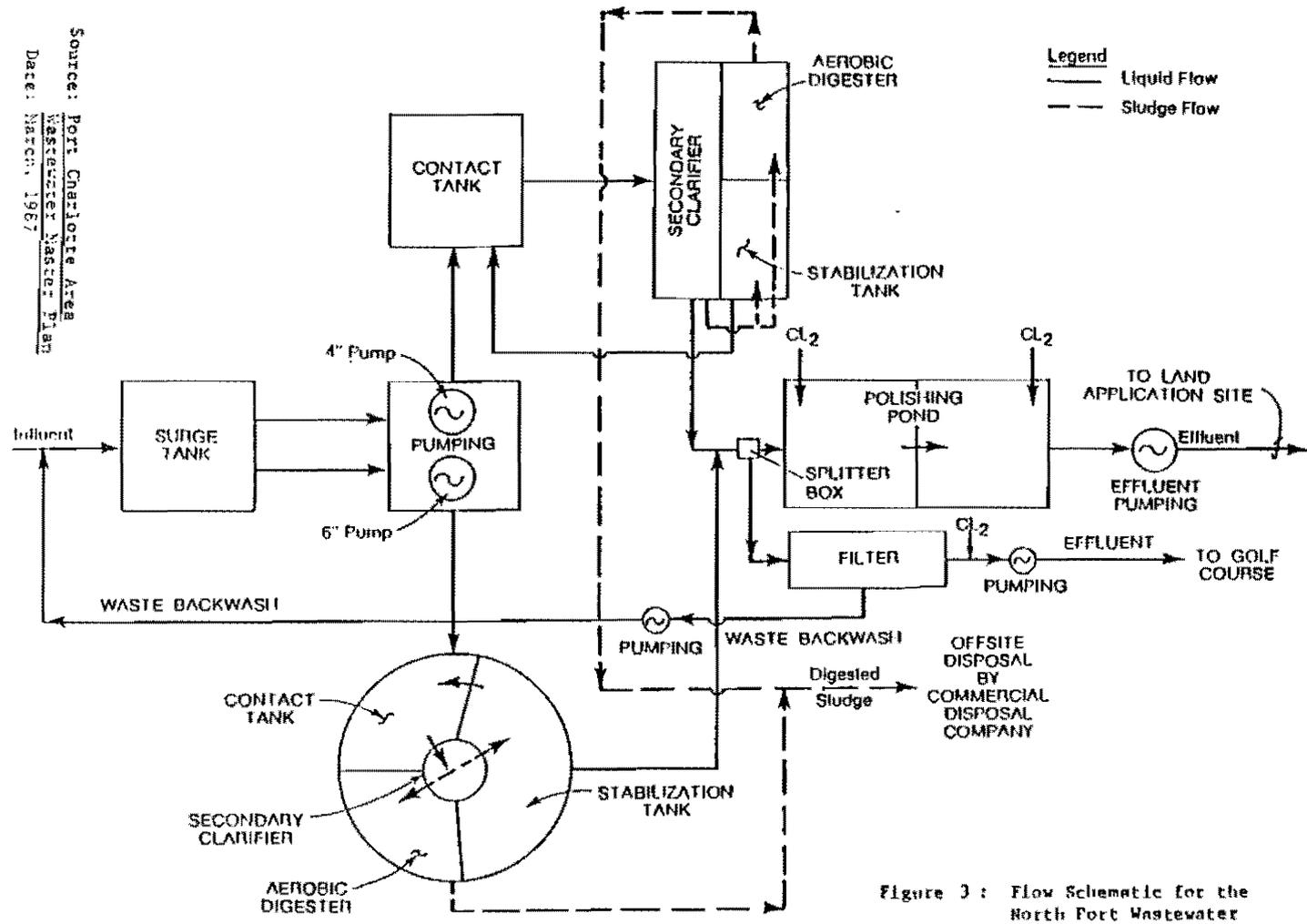


Figure 3 : Flow Schematic for the North Fort Wastewater Treatment Plant.

The Golf Course spray irrigation system has a permitted capacity of 535,000 gallons per day, but the course is seldom able to receive that amount of effluent due to rainfall and actual flow averages substantially less. A 600,000 gallon tank provides storage capacity at the Golf Course. Because the golf course spray irrigation system has a limited capacity, within the 10-year planning period the deep injection well will become the major means of effluent disposal, unless alternatives such as reuse or advanced wastewater treatment are implemented. To date, neither GDU nor DER has reported the existence of any adverse environmental impacts to the areas adjacent to both the deep well injection site and the golf course spray irrigation site.

NEEDS ASSESSMENT

Effluent Disposal

In the recent past, the GDU-North Port Wastewater System has had well publicized regulatory problems involving an inadequate spray disposal site and unauthorized disposals of treated effluent to Myakkahatchee Creek waters. The spray disposal site, known as the Malaluka site, is no longer used for effluent disposal and is being revegetated. Release of effluent to the creek has not occurred since the commencement of injection into the deep well, and the danger of such discharge will cease if the deep well is approved for permanent use. Should the deep well system prove unsafe to Warm Mineral Springs or its use be denied for any other technical or political reason, the North Port wastewater system would immediately be inadequate for effluent disposal, and the danger of undesirable discharge to the creek would become great. No alternative for effluent disposal would be available after fully utilizing the Golf Course, save that of trucking effluent to other locations--an option dependent on a location willing and able to receive the effluent.

The City should develop a strategy to become less dependent upon deep well injection for effluent disposal. While injection is currently the most cost efficient alternative for the utility, there is public concern about the public safety and water conservation aspects of the system. Reuse of wastewater is an alternative method of effluent disposal in the City. In conjunction with the deep injection well as a back-up system during wet weather, reuse could become an attractive first alternative for effluent disposal. As a first step, the City would need to evaluate various reuse options before adopting concrete reuse policies. A demonstration project may be appropriate to show the benefits of reusing wastewater.

Septic Systems

The proliferation of septic systems throughout the City is an apparent trend. The 1978 Comprehensive Plan identified only 29 septic systems in the City in 1977, representing a sewer to water service ratio of 99%. The current ratio of sewer to water connections is 90%, down from 97% in 1985. As discussed in the Ground Water Aquifer Recharge Sub-element, septic systems discharge pollutants to the surficial aquifer and these pollutants may eventually find their way to the potable water supply. While septic systems may be the acceptable method of sewage treatment in areas of low housing density, the City needs to provide a mechanism for the extension of central sewer service to new areas as they build out.

It is the ultimate goal of the City to have all properties serviced by central sewer for collection, treatment, and disposal. To assure implementation of this goal, the Public Utility Committee will evaluate options to extend sewer collection lines. These options include extension by the utility, provision of low interest, Industrial Revenue Bond money for the extension of specific collections lines, the use of tax assessments for the provision of sewer lines and any combination of the above options. It is incumbent upon GDU to provide central sewer service in order to protect the surficial aquifer from pollution resulting from septic systems.

Level of Service

Annual sewer flow projections were made using permanent population projections done by Florida Environmental, Inc. These population projections were adjusted for seasonality. An average daily per capita flow of 80 gallons was used to calculate total annual flows. This level of service assumes that the percentage of sewer to water connections will remain constant at 90%. Increased levels of service could be realized by improving this ratio (increasing the number of central sewer connections relative to central water connections).

Projections of total annual sewer flows for 1988 through 1999 are reported in Table 2. Also reported in this table are the projected average daily and maximum daily flows by year. The ratio used to calculate maximum to average daily flow was 1.5.

Since the "rated" treatment capacity for a wastewater treatment plant needs to be able to handle maximum daily flow, the above figures indicate that wastewater flow will exceed the capacity of the currently underway expansion to 1.5 mgd in 1991.

Infiltration

Infiltration should be addressed as an avoidable demand on treatment and effluent disposal facilities. There appears to be substantial seasonal infiltration which, if it could be diminished, would allow the delay of costly plant expansions. Some amount of infiltration is normal for gravity sewers, depending on the length of the lines, their age and other factors. An analysis of the North Port infiltration phenomenon would be appropriate to determine if infiltration is within the expected levels for the system or whether remedial action should be taken in lieu of, or in conjunction with, plant expansion.

Future Options

Current GDU plans call for further expansion of the North Port Wastewater Plant to 2.3 mgd in 1991 and 2.9 mgd in 1998. There is adequate room at the present site for both expansions. The projected total capital cost for the 1991 expansion is \$1,918,000. The projected total capital cost for the 1998 expansion is \$1,318,000. The estimated total operating and maintenance cost for the plant after the 1991 expansion is \$438,000 per year and after the 1998 expansion is \$572,000 per year.

All of the presently sewered areas of the city are served by GDU's North Port plant. According to GDU's Port Charlotte area Wastewater Master Plan, the North Port plant is expected to eventually serve all areas of the City west of Toledo Blade Boulevard and north of the Myakka River. While sewer line extensions to remote areas are beyond the planning periods for this plan, GDU currently intends to serve that portion of the City east of Toledo Blade Boulevard as part of its East Port Wastewater Plant treatment system, located in Charlotte County. This is due at least in part to the closer proximity of currently existing East Port wastewater mains to the area of that region considered most likely first to require service. The portion of the City south of the Myakka River, known as Myakka Estates, is projected to be served eventually by the GDU Gulf Cove Wastewater Treatment Plant. Map 2 illustrates this proposed division of the City into three service areas.

As North Port and the surrounding region (Port Charlotte, Sarasota County) grow, there will be greater need and opportunity for regional solutions to the problems of meeting the demand for central sanitary sewer service. The City needs to constantly evaluate the opportunities to gain economies of scale by joining in regional solutions for treatment and effluent disposal. Sarasota County has indicated its interest in discussing options with the City concerning consolidation of central sewer services. No specific plans have yet been evaluated for consolidation with Sarasota County, however, the City needs to be prepared to evaluate all options in conjunction with its evaluation of the private utility franchise renewal in 1991.

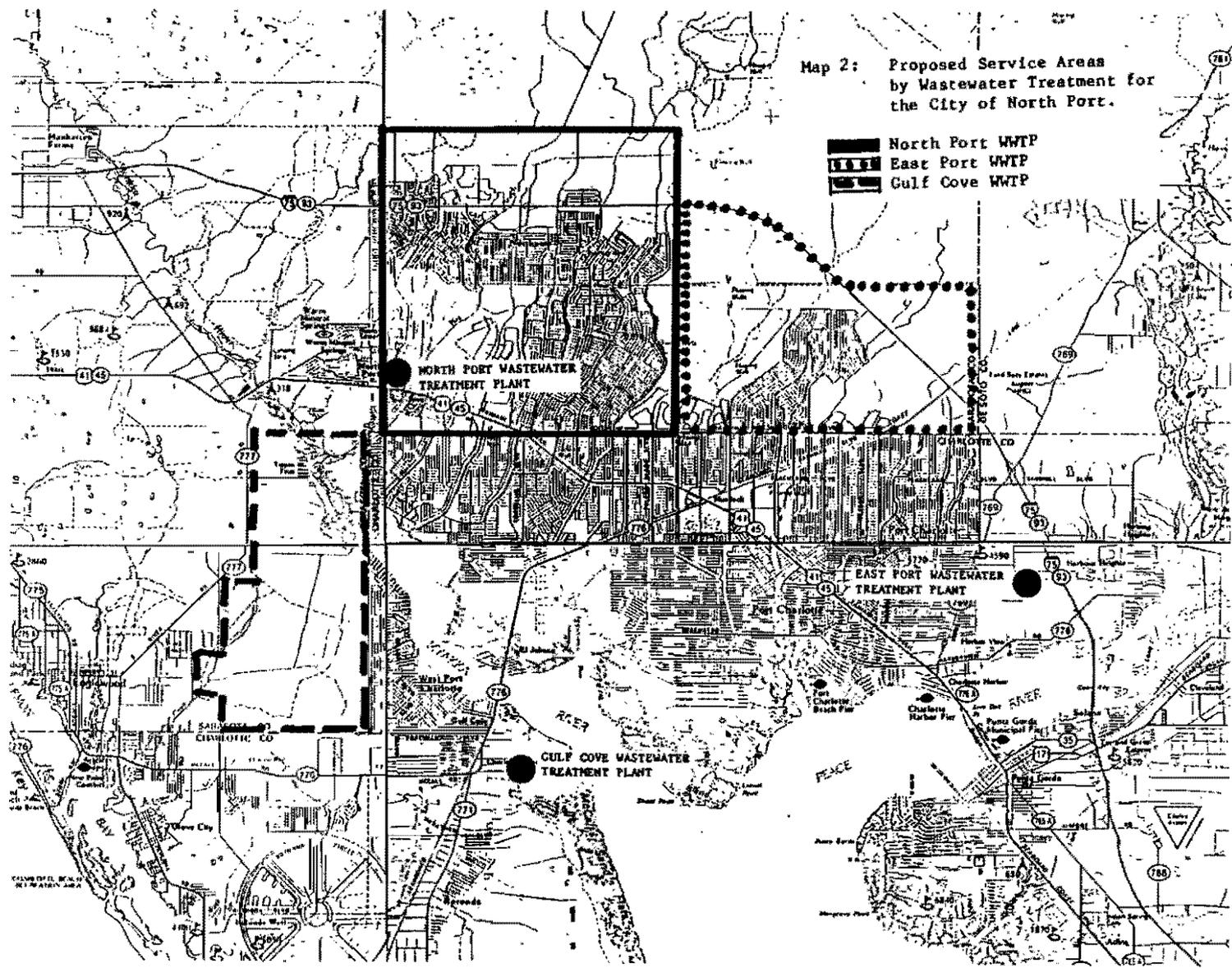
Table 2: Population Projections, Adjusted Population Projections, Average Daily Flow, and Maximum Daily Flows for North Port Sewer, 1988-1999.

YEAR	PERMANENT POPULATION	ADJUSTED POPULATION	AVERAGE (mgd)	MAXIMUM (mgd)
1988	9,940	11,033	0.883	1.324
1989	10,352	11,491	0.919	1.379
1990	10,830	12,021	0.962	1.443
1991	11,367	12,617	1.009	1.514
1992	11,957	13,272	1.062	1.593
1993	12,601	13,987	1.119	1.678
1994	13,313	14,777	1.182	1.773
1995	14,046	15,591	1.247	1.871
1996	14,842	16,475	1.318	1.977
1997	15,668	17,391	1.391	2.087
1998	16,448	18,257	1.461	2.191
1999	17,185	19,075	1.526	2.289

Note: The City's facility capacity analysis incorporates both projected service demand resulting from locally permitted developments and land use distributions as depicted on the Future Land Use Map.

Source: Florida Environmental, Inc.

Date: August, 1988



By the April 20, 1991 expiration date of GDU's franchise authorization with the City, the Public Utility Committee needs to have recommended options to the City Commission for the continuation of central sewer service. In the development of these recommended options, the Public Utility Committee should consider public health and safety, quality of service, cost to utility customers, and long-range utility planning consistent with the policies of the comprehensive plan. The Public Utility Committee will also evaluate the feasibility of regionalizing effluent disposal facilities.

GOALS, OBJECTIVES & POLICIES

GOAL 1:

TO PROVIDE FOR THE ADEQUATE COLLECTION, TREATMENT, AND DISPOSAL OF SEWAGE TO MEET THE NEEDS OF THE RESIDENTS OF NORTH PORT THROUGH THE YEAR 1999.

Objective 1:

The City will continue to implement procedures to ensure that at the time a development permit is issued, adequate sewage collection, treatment and disposal capacity is available or will be available to serve the development within a reasonable time, as will be defined in a Concurrency Management System Ordinance the City intends to adopt as outlined in the Capital Improvements Element.

Policy 1.1:

The following level of service standards are hereby adopted to achieve the objective, and shall be used as the basis for determining of facility capacity and the demand generated by a development:

LEVEL OF SERVICE STANDARDS

Collection

Residential: 80% of improved properties within the Urban Infill Area will be served with central sanitary sewer by 1994. The adoption of this level of service in no way reduces the obligation of the utility to provide central sewer to 100% of properties in accordance with the exclusive franchise of the utility.

Commercial: All new commercial within the City will be served by central sanitary sewer, or an on-site treatment system approved by DHRS and DER if connection to central sewer is not economically feasible.

Industrial: All new industrial within the City will be served by central sanitary sewer, or an on-site treatment system approved by DHRS and DER if connection to central sewer is not economically feasible.

On-site treatment systems will be allowed consistent with regulations promulgated by DHRS and DER.

Treatment

80 gallons per capita per day

Disposal

80 gallons per capita per day

Policy 1.2:

All improvements for replacement, expansion or increase in capacity of facilities shall be compatible with the adopted level of service standards for the facilities.

Policy 1.3:

The City shall develop procedures to update facility demand and capacity information as development orders or permits are issued.

Objective 2:

The City will maintain a five year schedule of capital improvement needs, as identified in the "Needs Assessment" section on page 138 of this Element and in the Capital Improvement Element, for public sewer collection, treatment and disposal facilities, identify responsible parties and agencies, and identify time frames for completion. The schedule will be updated annually in conformance with the review process for the Capital Improvement Element of this plan and the City's annual budget process.

Policy 2.1:

The City of North Port Public Utility Committee, created by Ordinance No. 88-10, will address future needs for sewage collection, treatment and disposal facilities and evaluate options to satisfy these needs. It will evaluate and rank proposed capital improvement projects for sewage facilities for the inclusion of them in the five year schedule of capital improvement needs.

Policy 2.2:

Through the rate setting procedures established by the Public Utility Committee, private utilities may be required to submit a five-year Capital improvement Program.

Policy 2.3:

Proposed capital improvement projects will be evaluated and ranked according to the following priority level guidelines:

Level One - whether the project is needed to protect public health and safety, provide facilities and services, or to preserve or achieve full use of existing facilities.

Level Two - whether the project increases efficiency of use of existing facilities, prevents or reduces future improvement costs, provides service to developed areas lacking full service or promotes in-fill development.

Level Three - whether the project represents a logical extension of facilities and services within a designated service area.

Objective 3:

Existing deficiencies which have been identified in the "Needs Assessment" section on page 138 of this Element will be corrected by undertaking the following projects:

- The City will set policy for one or more mechanisms to extend sewage collection lines within the Urban Infill Area.
- The City will encourage greater reuse of treated effluent.

Policy 3.1:

Projects to correct existing deficiencies detailed in the "Needs Assessment" section on page 138 of this Element shall be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Policy 3.2:

The Public Utility Committee shall review the annual work programs of the utility and the City to ensure that projects to correct deficiencies are scheduled to minimize disruption of services and duplication of labor, and to maintain service levels for all facilities.

Policy 3.3:

Projects needed to correct existing deficiencies, as identified in the "Needs Assessment" section on page 138 of this Element, shall be given priority in the formulation and implementation of the annual work programs of the City and the utility.

Policy 3.4:

The Public Utility Committee will evaluate options to extend sewer collection lines within the Urban Infill Area pursuant to Policy 1.2 of the Natural Groundwater Aquifer Recharge Sub-element. These options shall include voluntary extension by the utility, provision of low interest Industrial Revenue Bond money for the extension of specific collection lines, the use of tax assessments for the provision of sewer lines and any combination of the above or other identified options.

Policy 3.5:

The Public Utility Committee will study reuse options for treated effluent including, but not limited to, residential grey water systems, irrigation of school sites, parks, and other public lands, and export to appropriate sites for spray irrigation. It is the policy of the City that reuse of wastewater is the effluent disposal method of first choice, and the City shall encourage the appropriate utility to research and implement such systems.

Objective 4:

Projected demands for sewage collection, treatment, and disposal facilities through the year 1994, as identified in the "Needs Assessment" section on page 138 of this Element, will be met by encouraging the appropriate utility to undertake the following projects:

- The North Port Wastewater Treatment Plant will be expanded to a rated capacity of 2.3 mgd by 1991, or the capacity necessary to service the population within the franchise area.
- The City will implement mechanisms recommended by the Public Utility Committee and approved by the City Commission for the extension of sewer collection lines.
- The City will implement and encourage all entities to implement reasonable and economically feasible options for the reuse of treated effluent.

Policy 4.1:

Projects for the 1989-1994 planning period, as identified in the "Needs Assessment" section on page 138 of this Element, will be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Policy 4.2:

The City may choose to develop reuse options identified by the Public Utility Committee before they are economically efficient. The purpose of this policy is to provide demonstration projects for the reuse of treated effluent.

Policy 4.3:

The City will coordinate with regional utilities to assess options for the sharing of common facilities. The Public Utility Committee will evaluate the regionalization of effluent disposal facilities, and it will report its findings to the City Commission by 1991.

Policy 4.4:

The utility will be encouraged to evaluate the amount of infiltration and options to reduce infiltration to defer treatment and effluent disposal facility expansions. The Public Utility Committee will address the cost/benefit between reducing infiltration and expanding plant capacity for treatment and effluent disposal so as to minimize costs to sewer customers.

Policy 4.5:

By the April 20, 1991 expiration date of General Development Utilities, Inc. franchise authorization under Ordinance 61-1, the Public Utility Committee will have recommended options to the City Commission for the continuation of central sewer service. In the development of these recommended options, the Public Utility Committee will consider public health and safety, quality of service, cost to utility customers, and long-range utility planning consistent with the policies of the Comprehensive Plan. After public hearings, the committee will issue a report to the City Commission including an evaluation of each recommended option by the criteria identified above and recommendation of legislation needed to implement each option (e.g. Interlocal agreements, franchise ordinances, or budgetary appropriations).

Policy 4.6:

The Public Utility Committee will continually evaluate options to consolidate sewer collection, treatment and disposal systems with regional systems and make recommendations on consolidation opportunities to the City Commission. The Committee will consider public health and safety, quality of service, cost to utility customers, and long range utility planning consistent with the policies of the Comprehensive Plan in making recommendations on consolidation of central sewer services.

Objective 5:

Projected demands for sewer collection treatment and disposal facilities over the period 1995-1999, as identified in the "Needs Assessment" section on page 138 of this Element, will be met by encouraging the appropriate utility to undertake the following projects:

- The City will encourage the owner of the North Port Wastewater Treatment Plant to expand the plant to a rated capacity of 2.9 mgd by 1999, or the capacity necessary to service the population within the franchise area.
- The City will research and implement mechanisms found to be economically feasible for the extension of sewer collection lines to those areas within the Urban Infill Area which have not yet reached a density of 66 2/3% of allowable density.

Policy 5.1:

Projects for the 1995-1999 planning period will be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

SOLID WASTE

Table of Contents

Background Information .....	.149
Introduction	149
Terms & Concepts	149
Regulatory Framework	150
..... Federal	150
..... State	150
..... Local	151
Past Studies	151
Future Studies	152
Existing Conditions .....	.153
Collection	153
Disposal	153
Needs Assessment .....	.158
Collection	158
Transfer (Facility and Transfer Methods)	158
Disposal	160
Legislative Requirements & Grants	160
Recommendations	161
Appendix A - Adjustments to Reflect Seasonal Population .....	.162
Goals, Objectives & Policies .....	.164

List of Figures

Figure 1: Current and Future Landfill and Transfer Station Sites 154

List of Tables

Table 1: North Port Solid Waste Generation and Fees,
Jackson Road Transfer Station, Venice 156

Table 2: Solid Waste Generation Rate Using Seasonally Weighted Population
for North Port 157

Table 3: Projected Population and Solid Waste Generation Using Weighted
Population and 3.5 Lbs./Capita/Day 159

Table A1: 1987 Active and Inactive Water Connections Used to Estimate
Occupancy Rate and Weighted Index for Seasonal/Permanent Population 163

BACKGROUND INFORMATION

Introduction

Solid waste collection and disposal in the City of North Port is provided by a number of public and private organizations. These organizations are the City of North Port, General Development Corporation (GDC), Englewood Disposal, and Sarasota County. Using ad valorem taxation for residents and user fees for businesses, the City provides collection service. Through an agreement with the City, GDC pays for the transportation of solid waste by Englewood Disposal to the Jackson Road transfer station in Venice for ultimate disposal in the Bee Ridge Sanitary Landfill operated by Sarasota County.

General Development Corporation has contracted with Englewood Disposal, a private disposal firm, to transport solid wastes between North Port and the Jackson Road Transfer Station located in Venice. Sarasota County operates the Jackson Road facility and provides transportation of North Port solid wastes to the Bee Ridge Sanitary Landfill. Tipping fees charged by Sarasota County are paid by GDC.

The City of North Port and GDC have been cooperating in solid waste management since 1966. The Myakka Estates Development Order, adopted in 1982, defines GDC's obligation to the City for solid waste disposal. Under the 1982 agreement, GDC consented to "provide and construct a suitable landfill area or other acceptable method of disposal of solid waste to substantially serve the residents of the Myakka Estates area subject to the City securing all necessary permits." GDC also agreed to "provide and construct an additional suitable landfill site [for the rest of the City] and provide necessary fill for the operation and maintenance of such area by the City, subject to the City securing all necessary permits."

As an alternative to meeting their obligation to provide a site and landfill construction, GDC has been paying for the transportation and disposal of solid wastes. The expiration of GDC's commitment is being discussed by the City and GDC. The commitment is expected to expire between 1995-1999. From that point the City of North Port will be financially responsible for the disposal of solid waste.

Terms and Concepts

The following provides applicable definitions for the Solid Waste Sub-element of the City of North Port's Infrastructure Element.

Solid wastes include garbage, refuse, yard trash, clean debris, white goods, special wastes, ashes, sludge, or other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from domestic, industrial, commercial, mining, agricultural, or governmental operations [Sec. 403.703(13), F.S.].

Hazardous wastes are solid wastes, or a combination of solid wastes, which, because of quantity, concentration, or infectious characteristics, may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or may pose a substantial present or potential hazard to human health or the environment when improperly transported, disposed of, stored, treated, or otherwise managed [Sec. 9J-5.003(34), F.A.C.].

Residential solid waste is the garbage, rubbish, trash and other solid waste generated by households. This is the primary kind of solid waste generated by North Port.

Commercial wastes are generated by commercial and institutional sectors. These include wastes from stores, offices, restaurants, warehouses, schools, hospitals, motels, churches and other non-manufacturing and non-processing wastes.

Industrial wastes are those wastes generated by industrial and manufacturing operations engaged in the processing and production of marketable goods.

Special wastes means solid wastes that can require special handling and management, including, but not limited to, white goods, whole tires, used oil, mattresses, furniture, lead-acid batteries, and biological wastes [Sec. 403.703(34), F.S.].

Landfilling is the method used to dispose of solid wastes in a manner which protects the environment by compaction and burial. Landfills are classified according to the type and volume of wastes they are permitted to receive and the frequency of covering. Wastes generated by the City of North Port are presently disposed of in the Class I regional landfill in Sarasota County.

Solid waste transfer station means a facility for temporary collection of solid waste prior to transport to a processing plant or to final disposal [Sec. 9J- 5.003 (91), F.A.C.].

Resource recovery means the process of recovering materials or energy from solid waste.

Recycling means any process by which solid waste, or materials which would otherwise become solid waste, are collected, separated or processed and reused or returned to use in the form of raw materials or products [Sec. 403.703(6), F.S.].

Leachate means liquid that has passed through or emerged from solid waste and contains soluble, suspended or miscible materials [Sec. 17-7.020(3), F.A.C.]. Leachate may contain contaminants.

Regulatory Framework

Federal

Regulation of solid waste at the federal level focuses on the potential for environmental impacts. Air and water quality impacts are reviewed by the U.S. Environmental Protection Agency (EPA) and at the state level by the Florida Department of Environmental Regulation (DER). The U.S. Army Corps of Engineers (COE) regulates filling activities in wetlands. The Federal Resource Conservation and Recovery Act (PL 94-580) was passed in 1976 to encourage states to conserve materials and energy. The focus of this law was to remove constraints that impede resource recovery.

Hazardous wastes are regulated under the direction of the Environmental Protection Agency pursuant to the National Resource Conservation and Recovery Act of 1976. The EPA "Superfund" Program was established by the Comprehensive Emergency Response and Compensation Liability Act of 1980. This Act provided EPA with the funds to respond to sites requiring clean-up and emergency mitigation.

State

The Florida Resource Recovery and Management Act (Sec. 403.701, F.S.) was enacted in 1974 and required each county to prepare a solid waste management plan. Sarasota County was one of 19 counties required to participate in a resource recovery feasibility study. Chapter 17-7, Part II of the Florida Administrative Code (F.A.C.) contains detailed guidelines for counties participating in the study.

The 1988 Florida Legislature amended Section 403.7, F.S. by passing solid waste legislation which requires a 30% reduction in the amount of solid waste being landfilled by 1994 and establishing goals, regulations, and programs for a host of other solid waste activities. The new law requires municipalities to determine the full cost of solid waste management and to provide this cost information to users of solid waste management services. In addition, it encourages the use of enterprise funds to operate such services. It requires counties and municipalities to implement recycling programs and to meet solid waste reduction goals through

recycling. A Solid Waste Management Trust Fund is established to encourage innovative solutions to solid waste management and recycling. The law encourages the cooperation of county and municipal development of recycling programs, but it also states that:

"municipalities may not operate solid waste disposal facilities unless a municipality demonstrates by a preponderance of the evidence that the use of county designated facility, when compared to alternatives proposed by the municipality, places a significantly higher and disproportionate financial burden on the citizens of the municipality when compared to the financial burden placed on persons residing within the county but outside the municipality." [Sec. 403.706(1), F.S.].

This new law will discourage municipalities, such as the City of North Port, from operating a City landfill. Resource recovery, including recycling, may be considered, however, because the legislation allows resource recovery facilities owned and operated by municipalities, provided that the operation of such a facility does not significantly impair the County's financial commitments for solid waste management [Sec. 403.706(1), F.S.].

Of particular importance to the City of North Port, the new legislation mandates recycling by July 1, 1989. Recycling programs must provide for the separation and segregation of construction and demolition debris from the solid waste stream. In addition, a majority of newspaper, aluminum cans, glass and bottles must be separated from the solid waste stream and offered for recycling. Composting of other mechanically treated solid waste and yard trash is also encouraged. By the same date, all operators of solid waste management facilities must weigh all solid waste when it is received. Each year, on October 1, counties and municipalities are required to determine the full cost for solid waste management services. These costs must be reported to the users of these services.

Chapter 17-7 F.A.C. comprises state guidelines for the management of solid wastes. The Florida Department of Environmental Regulation (DER) follows these guidelines when permitting solid waste facilities to ensure environmental protection. DER has established evaluation criteria for the construction, operation, closure, and long term care of landfills. The agency also regulates the handling, classification, and disposal of wastes, as well as resource recovery.

Local

City of North Port Ordinance 86-195 (Refuse Collection, Health, and Sanitation Code) provides for the funding of mandatory refuse collection. Ad valorem taxation is used to fund residential waste collection, and monthly user charges fund mandatory commercial waste collection.

Past Studies

Sarasota County was required by the Florida Resource Recovery and Management Act to prepare a detailed Solid Waste Management Plan. The purpose of this plan was to determine the economic feasibility of resource recovery using guidelines contained in Chapter 17-7, Part II, F.A.C.

This report, completed in 1980 by the Sarasota County Solid Waste Management Division, concluded that landfilling was the most economically feasible method of solid waste disposal at that time and that solid waste management sites are limited by environmental constraints. The report recommended that a new landfill site be established and that all municipalities in Sarasota County without DER approved waste management facilities use the County disposal facilities.

Charlotte, DeSoto and Sarasota Counties and the City of North Port entered into an Interlocal Agreement in 1984 to study the feasibility of a regional resource recovery facility. A report was completed in 1985 by HDR Techserv, Inc. The five technologies discussed in the study were landfilling, mass burning, refuse derived fuels, composting, and recycling. Landfilling and mass burning were analyzed in detail. Conclusions of the report suggest mass burning of refuse is the most reliable and suitable resource recovery technology for the region, but that landfilling will remain a lower cost alternative based on a 20 year life and normal revenue bond financing.

The HDR study projected the 1990 costs associated with the mass burn alternative would exceed those of landfilling by \$18.05 per ton (\$41.93 for mass burn, compared to \$23.88 for landfilling). These cost estimates are sensitive to alternative methods of financing, changing interest rates, and assumptions of facility life. The assumption of a 20 year life may have been unrealistically short, making mass burn estimates high.

Hazen and Sawyer (1985) did a resource recovery study for Sarasota and Manatee Counties which was similar to the HDR Techserv, Inc. study outlined above. This study evaluated resource recovery using individual and combined county scenarios over a 25 year planning period. Landfilling was projected to cost \$27.38 per ton in 1990, compared to \$48.98 per ton for the mass burn alternative.

Resource recovery has not yet been implemented in the region and is the subject of continuing study.

Future Studies

The City of North Port has received a federal grant from the Governors Energy Office to evaluate the feasibility of resource recovery. The purpose of the study is to pursue the feasibility of having resource recovery/recycling and to set criteria to choose the resource recovery/recycling option most suitable for a small community such as North Port. The City is conducting an indepth study of the following solid waste technologies and waste management strategies, including combinations thereof; 1) recycling, 2) composting, 3) mass burn, 4) fluidized bed combustion, 5) hydrolysis of solid waste ethanol. In addition, the study will develop a set of environmental, economic, political, and social criteria and parameters by which any local government could develop a Request for Proposal for resource recovery methods and systems and judge the feasibility and desirability of proposed systems.

Besides describing the solid waste technologies and waste management strategies listed above, along with the history and operational record for each process, the study will address environmental standards, criteria, and parameters. Environmental standards for air, water, groundwater and noise pollution will be addressed for each solid waste technology identified. These standards will be drafted so that commercial manufacturers or producers can address these issues in proposals to the City of North Port. Several commercial systems will be analyzed to test these criteria for completeness and applicability.

The economic and financial data required by firms responding to a request for proposal from the City (or any local government) for the design, construction and operation of a solid waste resource recovery facility will be identified and documented in the study. The report will include specific economic and financial data or criteria for comparison of the economic feasibility of financing methods for the cost of resource recovery systems.

The study will also address the concerns of the community, the amount of net energy recovered, net adverse environmental impacts, and social and political responsibilities. In particular, the determination of energy savings or recovery, forecasts of solid waste generated for phased planning of facility over time, solid waste generation thresholds required for facility capacity and expansion over time, planning and phasing of facility capacity to meet needs and economic feasibility over time, and minimum solid waste generated for initial facilities will be addressed.

In short, the report will be a thorough analysis of the resource recovery/recycling alternatives for the City of North Port. This study is targeted for completion in early 1989.

EXISTING CONDITIONS

The City of North Port operated a landfill on land owned by GDC until late 1984 when the facility reached capacity. A closure permit has not been issued by DER pending the development of an adequate water quality monitoring program. As mandated by DER, water quality monitoring wells are under construction. The cost of well installation is being shared by the City and GDC.

The cover placed on the landfill after the facility reached capacity is expected to be sufficient for reducing leachate generation due to infiltration. The potential does exist, however, for ground water contamination from leachate migration. The discovery of a contamination problem would require remedial action before DER would issue a closure permit.

The North Port landfill site is currently being used as a transfer station. DER has granted the City a general permit which is renewable in October, 1989 for operation of the transfer station.

Collection

The City currently owns and operates a total of five collection vehicles. Three are rear loaders with a capacity of 20 cubic yards each, and two are side loading vehicles, each with a capacity of 20 cubic yards. These trucks collect residential wastes twice weekly and commercial and industrial wastes on a contracted schedule. Special wastes are collected on demand with users paying for the service.

The collection vehicles transport solid wastes to the transfer station located at the North Port landfill site. Solid wastes are unloaded onto a concrete slab and reloaded into 30 cubic yard roll-off containers which are transported by Englewood Disposal to the Jackson Road Transfer Station in Venice. City workers at the North Port transfer station are instructed to identify and remove from the waste stream any containers which appear to contain hazardous wastes, such as cans of paint, solvents, or motor oil. From Venice, wastes are again transferred and hauled to the Bee Ridge Sanitary Landfill by Sarasota County.

Disposal

Since discontinuing the use of the North Port landfill, the City's solid wastes have been disposed of in the Bee Ridge Sanitary Landfill operated by Sarasota County. In 1988, approximately 450,000 tons of solid waste were dumped at the landfill. Of this amount, roughly 7,000 tons or 2 percent originated from North Port. This can be interpreted as the level of service provided by the regional facility for North Port. This facility is expected to reach its design capacity of 12.6 million tons by 1992 - 1995. The future Sarasota County landfill will be located on the Walton Tract south of State Road 72. Figure 1 shows the location of the existing and future solid waste facilities in Sarasota County.

When North Port's solid wastes reach the Jackson Road Transfer Station, their density is about 350 pounds per cubic yard. Wastes are then reloaded into 125 cubic yard top loading trailers for transport to the Bee Ridge Sanitary Landfill. Upon reaching the landfill, wastes are unloaded, compacted to 1200 pounds per cubic yard, and covered with soil. Sarasota County operates the Jackson Road Transfer Station and the transport trailers used to haul wastes between the Jackson Road Facility and the landfill.

The existing level of service provided to the residents of North Port was calculated using historical waste generation data and the seasonally weighted population. Table 1 reports monthly solid waste generation, number of truck loads, and the tipping fee charged to the City of North Port.

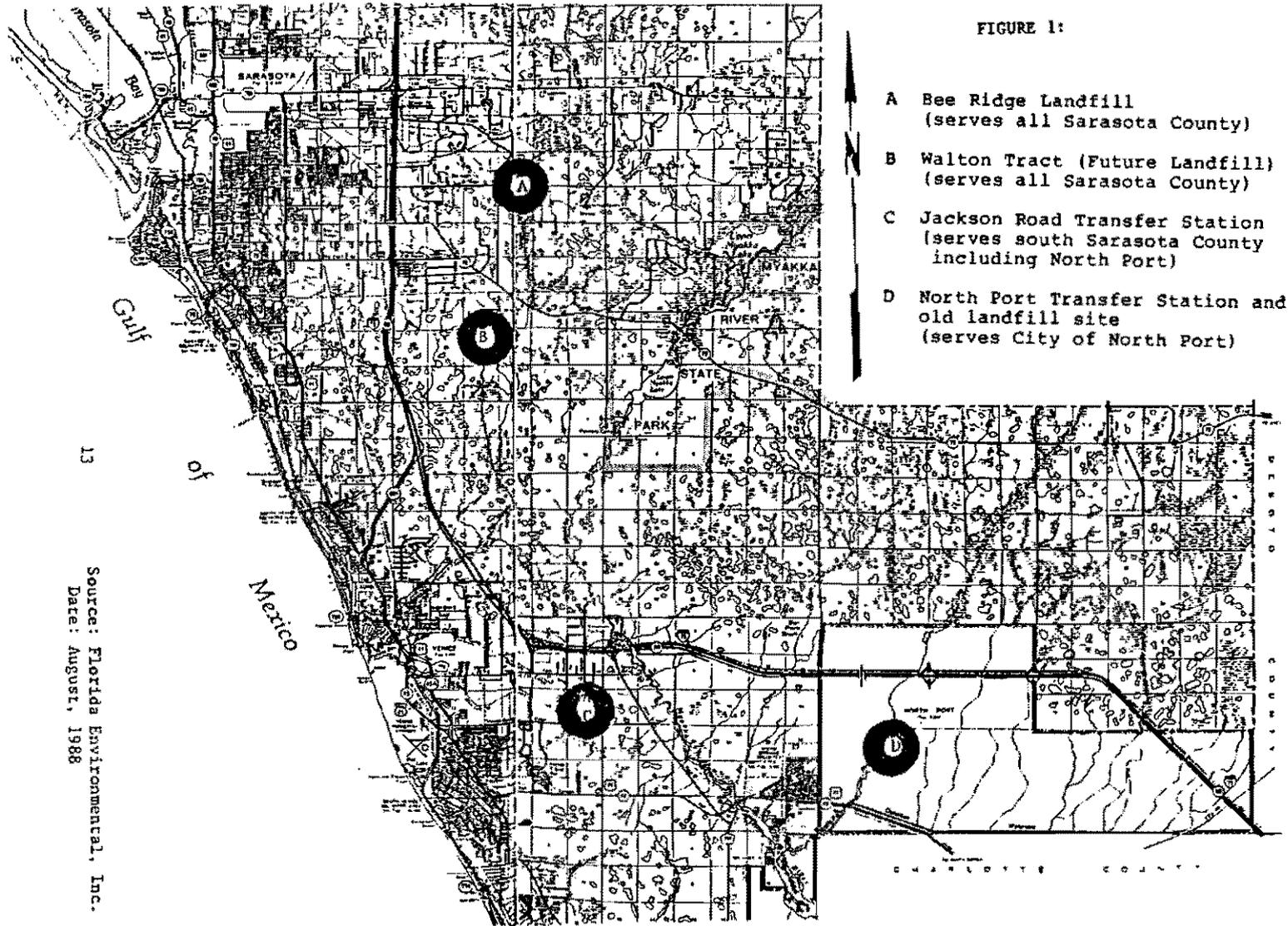


FIGURE 1:

- A Bee Ridge Landfill
(serves all Sarasota County)
- B Walton Tract (Future Landfill)
(serves all Sarasota County)
- C Jackson Road Transfer Station
(serves south Sarasota County
including North Port)
- D North Port Transfer Station and
old landfill site
(serves City of North Port)

13
 Source: Florida Environmental, Inc.
 Date: August, 1988

An Index was used with population estimates to reflect seasonal differences in the number of residents. The methodology used to seasonally adjust population estimates is detailed in Appendix A. Annual solid waste generation and the seasonally adjusted population were used to determine the average daily per capita generation of solid waste. Table 2 reports that the per capita generation rate per day was a little over 3 pounds in 1985, 3.28 pounds in 1986 and 3.27 pounds in 1987.

These figures appear low considering the Southwest Florida Regional Planning Council estimates the regional per capita solid waste generation at 4.5 pounds per day. There are two good explanations for the low per capita generation rates in North Port.

First, the lack of industry and limited commercial development decrease North Port's generation rates relative to larger communities. Commercial and industrial space in mature communities approach 40 square feet per capita for retail, 13 square feet per capita for office, and 5 acres per 1,000 people for industrial. North Port currently has 18 square feet per capita of retail, 9 square feet per capita of office and 1 acre per 1,000 people of industrial development.

Second, the solid waste system in North Port directs construction debris and special wastes hauled by private businesses or citizens to County-operated facilities where no distinction is made regarding point of origin.

Due to the City's size and the accessibility of remote areas, illegal dumping of wastes is also a problem which reduces the volume of solid waste being landfilled. In both North Port and Port Charlotte, there is a strong temptation for haulers to avoid hauling and tipping fee costs by dumping solid wastes on private lots in areas out of the public view.

In 1988, a commercial chipping operation was established at a central location in the City to process vegetative lot clearing debris into mulch. This privately owned facility is located at the corner of Price Boulevard and Toledo Blade Boulevard on land owned by General Development Corporation. The facility only accepts debris that can be chipped and sold as mulch. While it has only been in operation for a few months, it is already receiving lot clearing debris from nearby Charlotte County as well as the City of North Port.

It is assumed that only small quantities of hazardous wastes are generated in North Port due to the lack of industry and manufacturing. Sanitation personnel are instructed not to collect items known to be classified as hazardous wastes, and the City provides information on the proper disposal of hazardous wastes to residents upon request. As with all solid waste disposal systems, however, some of the residentially-generated hazardous waste is most likely included in the normal solid waste stream and disposed of in the Sarasota County landfill.

Table 1: North Port Solid Waste Generation and Fees, Jackson Road Transfer Station, Venice.

YEAR	MONTH	# OF TRUCK LOADS	TONS	TIPPING FEE (\$ PER TON)
1985	1	88	457.26	\$9.00
	2	93	447.65	\$9.00
	3	105	498.67	\$9.00
	4	92	485.47	\$9.00
	5	81	415.18	\$9.00
	6	67	406.79	\$9.00
	7	97	517.87	\$9.00
	8	81	511.37	\$9.00
	9	78	468.83	\$9.00
	10	85	453.54	\$12.00
	11	93	491.91	\$12.00
	12	98	445.01	\$12.00
1986	1	100	469.73	\$12.00
	2	90	462.70	\$12.00
	3	95	507.55	\$12.00
	4	100	502.30	\$12.00
	5	87	418.77	\$12.00
	6	85	547.72	\$12.00
	7	99	631.84	\$12.00
	8	84	549.94	\$12.00
	9	95	544.95	\$12.00
	10	104	484.46	\$12.00
	11	91	463.06	\$12.00
	12	110	540.51	\$12.00
1987	1	100	481.84	\$12.00
	2	98	485.28	\$12.00
	3	116	606.04	\$12.00
	4	110	560.56	\$12.00
	5	88	481.97	\$12.00
	6	94	533.36	\$12.00
	7	97	601.18	\$12.00
	8	92	522.05	\$12.00
	9	97	504.58	\$12.00
	10	97	499.04	\$12.00
	11	94	477.09	\$12.00
	12	119	535.19	\$12.00
1988	1	103	503.63	\$12.00
	2	112	551.86	\$12.00
	3	129	661.31	\$12.00
	4	116	564.99	\$12.00

Source: Sarasota County Landfill Records.

Table 2
Solid Waste Generation Rate Using Seasonally Weighted
Population for North Port.

<u>YEAR</u>	<u>TQNS</u>	<u>LBS./CAPITA/DAY</u>
1985	5599.55	3.06
1986	6123.43	3.28
1987	6288.18	3.27

Source: Sarasota County Landfill Records

NEEDS ASSESSMENT

Solid waste projections were made using 3.5 pounds per person per day through 1999. The projections reported in Table 3 are based on seasonally weighted population projections made by Florida Environmental, Inc. Appendix A provides the methodology used to seasonally adjust population estimates. Table 3 also reports the projected landfill capacity demands based on a final density of 1200 pounds per cubic yard.

Collection

Solid waste service to residents is expected to be maintained at the City's current level of service standard. This standard is twice weekly residential garbage collection and once a week trash pickup with special wastes collected on demand and commercial waste collected on a contractual basis.

In order to assist the County in meeting the 30% reduction goal mandated by the state, the City may choose to implement a curb-side separation and recycling program to separate newspaper, aluminum cans, glass and bottles from the solid waste stream. Grant money is offered by the State to initiate such programs, and incentives are provided for the cooperation of municipalities and county governments in these programs. Local governments are also encouraged to separate compostable yard trash from the solid waste stream, and this option will be evaluated by the City for implementation. A 1984 EPA national study has estimated that the composition of waste consists of approximately 9.6% metals, 9.7% glass/ceramics, 37.1% paper, and 17.9% yard waste. These figures would support the proposition that the 30% reduction goal can be met by curb-side separation and recycling programs.

It is anticipated that the City will need to purchase two additional collection vehicles in the next 5 years. The specifications for these vehicles will be determined after the City has evaluated its resource recovery/recycling options.

Transfer Station (Facility and Transfer Methods)

Privatization vs. the City

The current method of privatized transport system vs. City owned/operated transport system to transport City solid waste to a regional landfill will be evaluated. This will include evaluating the possible purchasing of trucks and upgrading the facility to accommodate the City owned trucks. Consideration will also be given to relocating the transfer station to another site.

Resource Recovery/Recycling

The feasibility of constructing and operating a resource recovery system or an on-site separation system for recycling purposes which would most likely be located at a City owned transfer station is currently being evaluated by HDR engineering. Privatization vs. City operation will be considered in this evaluation as well as possible consolidation with Sarasota and/or Charlotte County in implementing a resource recovery system.

Past studies have evaluated the feasibility of resource recovery with North Port cooperating in a regional project, and resource recovery was found to be too expensive by these studies. Using grant monies received from the Governors Energy Office, however, the forthcoming study will evaluate a wide range of resource recovery technologies for the City of North Port. The study will address five alternative processes for resource recovery. Environmental, economic, political and social criteria will be developed which will allow the City to evaluate proposals from competing firms to provide resource recovery to the City. The environmental criteria will address water, air, and noise pollution. The economic criteria will document the methodology for com-

 Table 3: Projected Population and Solid Waste Generation
 Using Weighted Population and 3.5 Lbs./Capita/Day.

YEAR	POPULATION	WEIGHTED POPULATION	TONS	CUBIC YARDS
1988	9940	11023	7040.81	11734.69
1989	10352	11480	7332.65	12221.08
1990	10830	12010	7671.23	12785.38
1991	11367	12605	8051.60	13419.34
1992	11957	13260	8469.52	14115.86
1993	12601	13974	8925.68	14876.14
1994	13313	14763	9430.01	15716.69
1995	14046	15576	9949.22	16582.04
1996	14842	16459	10513.05	17521.75
1997	15668	17375	11098.13	18496.89
1998	16448	18240	11650.63	19417.72
1999	17185	19057	12172.67	20207.79

 Source: Florida Environmental, Inc., 1988.

NOTE: The City's facility capacity analysis incorporates both projected service demand resulting from locally permitted developments and land use distributions as depicted on the Future Land Use Map.

paring economic feasibility of alternative systems, and outline and describe methods of finance appropriate for each system. The political and social criteria to be addressed will include energy savings for resource recovery systems, planning and phasing of facilities over time, and coordination with the comprehensive plan.

Disposal

The current system of disposal is described in detail under EXISTING CONDITIONS. The existing arrangement for disposing of solid waste in the Bee Ridge Sanitary Landfill operated by Sarasota County is adequate for the current solid waste stream. The City shall continually explore options which better address specific needs, such as with respect to the disposal of lot clearing debris.

The City should evaluate the advantages of the economies of scale provided by consolidation of its collection and disposal system with regional collection and disposal systems. As resource recovery/recycling options are explored, the City may find advantages to integrating resource recovery/recycling plans with those of Sarasota County. Because of the City's proximity to Charlotte and DeSoto Counties, it should continue to consider options for consolidation on a regional scale. Many solid waste disposal problems, such as the disposal of tires and white goods, may lend themselves to regional solutions because of the relatively small volume of these wastes generated by the City.

Legislative Requirements and Grants

DER is required, under the new legislation, to develop a state solid waste management program to include, among other things, the following provisions for assisting local governments:

Planning guidelines and technical assistance to counties and municipalities to aid in meeting the municipal solid waste goals established;

Planning guidelines and technical assistance to counties and municipalities to develop and implement recycling programs;

Technical assistance to counties and municipalities in determining the full cost of solid waste management;

Planning guidelines and technical assistance to counties and municipalities to develop and implement programs for alternative disposal or processing or recycling of solid waste prohibited from disposal in landfills, and for special wastes; and

A public education program, to be developed in cooperation with the Department of Education, local governments, other state agencies, and business and industry organizations to inform the public of the need for and the benefits of recycling of solid waste and reducing the amounts of solid and hazardous waste generated and disposed of in the state.

The City should participate in the development of these aspects of the state solid waste management program. Stringent goals and limitations have been placed upon local government by the legislature, but at the same time DER has been charged with providing planning and technical support to these local governments to meet the legislative requirements.

Each county and municipality must have a recycling program in place by July 1, 1989. This program must provide for significant reduction of the amount of solid waste in order to further the reduction goal of 30% by 1994. Failure to meet these goals or to establish recycling programs would make a local government ineligible for grants from the Solid Waste Management Trust Fund.

The new legislation provides for and encourages joint recycling programs between counties and municipalities within the counties boundaries. Substantial grants are available to fund the capital costs and initial operat-

ing expenses of new facilities and programs to meet the legislative goals. These grant funds, however, do not appear to be available to municipalities with populations under 30,000, unless those municipalities have applied as part of a larger program. It will be important for North Port to coordinate with Sarasota County to be a part of its solid waste management program and to be eligible through Sarasota County for grants. The new law provides that the distribution of grant funds among joint recipients will be governed by interlocal agreements.

In addition to the establishment of a recycling program, the law requires each local government to determine the full cost of solid waste management within its service area for the 1 year period beginning on the effective date of the Act, and every year thereafter. DER will establish by rule the method for local governments to use in calculating full cost. There is also a new requirement that by July 1, 1989, each operator of a solid waste management facility owned or operated or on behalf of a county or municipality, with certain exceptions, shall weigh all solid waste when it is received. Should the definition of a "solid waste management facility" be interpreted to include the North Port Transfer station, a scale would need to be purchased and installed. The City needs to determine, as soon as possible, whether its transfer facility will be legally required to install a scale, and act in accordance with that legal interpretation.

Recommendations

The City should take those actions detailed in the above section to assure compliance with the new solid waste legislation and eligibility for grant funds. In addition, it should consider using an enterprise fund to account for the full cost of solid waste management. An enterprise fund is a special fund to support government facilities which are entirely or predominately self-supporting by user charges. The recent solid waste legislation [Sec. 403.7049(2)(b), F.S.] encourages municipalities to operate their solid waste management systems through the use of an enterprise fund.

The problem of illegal dumping of solid wastes in North Port should be addressed. A stronger enforcement policy should be developed to increase patrolling and prosecution efforts. A reward system may be used as incentive to stop this type of activity.

Another solution to the problem of illegal dumping of solid waste would be the provision of attractive alternatives to haulers. The City could provide a Class III landfill which would accept construction debris and yard clearing debris. This landfill could be operated with or without an incinerator. Class III landfills do not require liners or extensive monitoring systems commonly associated with Class I landfills, but do require careful monitoring, such as constant screening for pesticides, herbicides, and hazardous wastes. As the City continues to grow, a Class III landfill may become an option for the City to explore to resolve the problem of illegal dumping and enforcement.

Because the new solid waste management law apparently discourages municipalities from operating any landfills, evaluation of a City operated Class III landfill will be discussed/evaluated with Sarasota County. Because of the high cost of hauling construction and lot clearing debris due to their weight and volume, it may be relatively easy to demonstrate that utilization of the Sarasota County landfill for these types of waste would place a significantly higher and disproportionate financial burden on the City of North Port relative to the rest of the County. In sum, the operation of a Class III landfill to serve the City of North Port could be allowed under the new law, even if operation of a Class I were not.

The City should continue negotiations with GDC to resolve solid waste questions.

Further examination of all alternatives should continue to determine the best strategies for the City of North Port, its residents, and the environment.

APPENDIX A

ADJUSTMENTS TO REFLECT SEASONAL POPULATION

North Port permanent population figures are adjusted to reflect seasonal fluctuations by calculating the occupancy rate and the seasonal index. Monthly occupancy rates for 1987 were calculated using water connection information reported in Table A1. The month of July reflects North Port's permanent population, having the year's lowest monthly occupancy rate. For indexing purposes, July was set equal to 1 and index conversions for other months were made by multiplying occupancy rates and the conversion factor (1 divided by July's 77% occupancy rate or 1.299). The weighted seasonal index was calculated by taking the average of the monthly indexes.

Per capita daily generation rates were estimated by dividing average daily solid waste generation by the product of the weighted seasonal index and permanent population. The following equation was used:

$$PC_t = (2000T_t/365) (1.11 \times P_t)$$

PC_t = Daily per capita generation rate for year t

T_t = Tons of solid waste generated in year t

P_t = Permanent Population Estimate for year t

 Table A1: 1987 Active and Inactive Water Connections
 Used to Estimate Occupancy Rate and Weighted
 Index for Seasonal/Permanent Population.

MONTH	ACTIVE	INACTIVE	OCC. RATE	INDEX
JAN	5248	462	0.92	1.19
FEB	5419	301	0.95	1.23
MAR	5416	325	0.94	1.23
APR	5091	661	0.89	1.15
MAY	4701	1059	0.82	1.06
JUN	4533	1237	0.79	1.02
JUL	4449	1332	0.77	1.00
AUG	4461	1335	0.77	1.00
SEP	4531	1279	0.78	1.01
OCT	4795	1027	0.82	1.07
NOV	5201	629	0.89	1.16
DEC	5310	528	0.91	1.18
AVERAGE			0.85	1.11

 Source: Water hookup information provided by
 General Development Utilities, Inc., 1988.

GOALS, OBJECTIVE & POLICIES

GOAL 1:

TO PROVIDE FOR THE ADEQUATE COLLECTION AND DISPOSAL OF SOLID WASTES TO MEET THE NEEDS OF THE RESIDENTS OF NORTH PORT THROUGH THE YEAR 1999.

Objective 1:

The City will continue to implement procedures to ensure that at the time a development permit is issued, adequate solid waste collection and disposal capacity is available or will be available within a reasonable time to serve the development.

Policy 1.1:

The following level of service standards are hereby adopted to achieve the objective, and shall be used as the basis for determining the availability of facility capacity and the demand generated by a development:

LEVEL OF SERVICE STANDARD

Collection

Residential: twice weekly

Commercial: by contract

Disposal

3.5 pounds/capita/day for residential and commercial generation.

Policy 1.2:

All improvements for replacement, expansion or increase in capacity of facilities shall be compatible with the adopted level of service standards for the facilities.

Policy 1.3:

The City shall develop procedures to update facility demand and capacity information as development orders or permits are issued.

Objective 2:

The City will maintain a five-year schedule of capital improvement needs for solid waste collection and disposal as identified in the "Needs Assessment" section on page 158 of this Element, identify responsible parties and agencies, and identify time frames for completion. The schedule will be updated annually in conformance with the review process for the Capital Improvement Element of this plan, and in accordance with the City's annual budget process.

Policy 2.1:

Proposed capital improvement projects will be evaluated and ranked according to the following priority level guidelines:

Level One - whether the project is needed to protect public health and safety, to fulfill the City's commitment to provide facilities and services, or to preserve or achieve full use of existing facilities.

Level Two - whether the project increases efficiency of use of existing facilities, prevents or reduces future improvement costs, provides service to developed areas lacking full service or promotes in-fill development.

Level Three - whether the project represents a logical extension of facilities and services within a designated service area.

Objective 3:

Existing deficiencies which have been identified in the "Needs Assessment" section on page 158 of this Element and in the Capital Improvements Element will be corrected.

Policy 3.1:

Projects to correct deficiencies detailed in the "Needs Assessment" section on page 158 of this Element shall be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Policy 3.2:

Projects needed to correct existing deficiencies as identified in the "Needs Assessment" section on page 158 of this Element shall be given priority in the formulation and implementation of the annual work programs of the City.

Policy 3.3:

No permits shall be issued for new development which would result in an increase in demand on deficient facilities prior to completion of improvements needed to bring the facility up to level of service standard to serve the development within a reasonable time, as will be defined in a Concurrency Management System Ordinance the City intends to adopt as outlined in the Capital Improvements Element.

Objective 4:

Projected demands for solid waste through the year 1994 as identified in the "Needs Assessment" section on page 158 of this Element will be met by undertaking the following projects:

- By July 1, 1989, the City will develop a program in cooperation with Sarasota County to reduce by 1994 the amount of residential and commercial solid waste being landfilled as is required by State Law.
- The City will investigate the feasibility of providing for the collection of household-generated hazardous wastes in cooperation with Sarasota County.
- The City will determine the most economically feasible alternative strategy for solid waste management and develop an implementation plan by 1990.
- The City will determine the feasibility of establishing an enterprise fund for the collection, transport, and disposal of solid wastes.
- The following options will be evaluated to provide an economically attractive alternative to haulers of lot clearing and construction debris:
 - a) *Composting of lot clearing debris;*
 - b) *Continuation of chipping enterprises; and*

c) Establishment of a Class III land fill.

- The City will determine the legal necessity and desirability of establishing scales at the North Port transfer station.
- The City will follow DER rules and guidelines to establish a method for reporting the full cost of solid waste management each year.
- The City will cooperate with Sarasota County in developing a joint solid waste management program and applying for grant money.

Policy 4.1:

Projects for the 1989-1994 planning period as identified in the "Needs Assessment" section on page 158 of this Element will be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Policy 4.2:

The City will coordinate with Sarasota County to ensure capacity is provided at the Walton Tract Landfill to meet projected needs.

Policy 4.3:

The resource recovery feasibility study will be completed by early 1989 and considered in developing the City's solid waste management strategy.

Policy 4.4:

A recycling program, such as curb-side recycling, will be initiated to separate paper, glass and metals from the residentially and commercially generated solid waste stream to aid in reducing the amount of solid waste as mandated by State Law.

Policy 4.5:

The City will cooperate with Charlotte and Sarasota Counties to develop disposal alternatives for lot clearing and construction debris, as well as other types of solid waste.

Policy 4.6:

The City will seek to establish an interlocal agreement with Sarasota County for the purpose of developing a joint solid waste management program and receiving grant money for elements of this program from the state.

Objective 5:

Projected demands for the period 1995 through 1999 as identified in the "Needs Assessment" section on page 158 of this Element will be met by undertaking the following solid waste project:

The City will assess, evaluate, and implement, as appropriate, the various recommendations of the current resource recovery study as the population crosses feasibility thresholds identified in the study report.

Policy 5.1:

Projects for the 1995-1999 planning period as identified in the "Needs Assessment" section on page 158 of this Element and in the Capital Improvements Element will be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Objective 6:

By 1994, programs shall be established to ensure that hazardous wastes will be disposed of in a manner consistent with federal and state law so as to safeguard the health, safety and welfare of citizens and protect the natural environment.

Policy 6.1:

North Port will participate in a region-wide hazardous waste program as defined within the SWFRPC Regional Comprehensive Policy Plan.

Policy 6.2:

Reasonable inspection measures will continue to be employed at the North Port transfer station to eliminate household-generated hazardous wastes from the waste stream.

Policy 6.3:

The City will investigate ways to provide a hazardous waste transfer station for the disposal of normal household hazardous wastes (e.g. paint thinners, syringes, used oil) by City residents.

Policy 6.4:

The Future Land Use Element and land development regulations should take into account the location of all hazardous waste "small quantity generators" with respect to adjacent uses.

Policy 6.5:

The North Port Fire Department and Police Department shall continue to identify the location of all hazardous materials in the City and have plans prepared for containment and fire control, consistent with federal, state and county mandates.

DRAINAGE

Table of Contents

Background Information	170
Introduction	170
Terms & Concepts	170
City of North Port Background	171
Rainfall	173
Regulatory Authority	173
..... State	173
..... Local	173
Existing Facilities	178
North Port Road Maintenance and Drainage District	179
North Port Water Control District	179
NPWCD Existing Facilities Under Plan of Reclamation	181
NPWCD New Facilities Modified by GDC/DER Consent Agreement	181
Myakka Estates	183
Panacea	185
Capacity Assessment	186
Needs Assessment	187
Myakkahatchee Creek (Big Slough) Flooding	187
R-36 Flooding	187
Conclusion	191
Goals, Objectives & Policies	192

Table of Figures

FIGURE 1 - 10-Year Return Frequency Storms 174
FIGURE 2 - 25-Year Return Frequency Storms 175
FIGURE 3 - Rainfall at Myakka River State Park Station 176
FIGURE 4 - Big Slough Basin 180
FIGURE 5 - Modifications Through DER Agreement 182
FIGURE 6 - Myakka Estate Project 1974 184
FIGURE 7 - Potential Overbank Areas 189

Table of Maps

MAP 1 - City of North Port Primary Drainage System 172
MAP 2 - FEMA Flood Zone 190

BACKGROUND INFORMATION

Introduction

The City of North Port covers approximately 74 square miles, from the eastern boundary of DeSoto County to the extreme southwest part of Sarasota County. Historically, much of this land was poorly drained by broad sloughs which collected surface runoff and moved water in a southwesterly direction. Early surveyors found the land generally flooded during the wet season, but surprisingly dry during the winter.

Early settlers "improved" drainage by cutting shallow ditches into the sloughs to accelerate runoff. The Myakkahatchee Creek, also known as the Big Slough, was deepened by dragline to improve drainage. These initial drainage works were followed by more extensive construction as the land within the City was prepared for urban development.

The canal system construction began in the early 1960's with Cocoplum Waterway. Later canals extended to the eastern boundary of North Port and included north to south canals which generally followed the historic slough drainageways and connected to Cocoplum Waterway. The effect of these waterways has been to provide the City of North Port with a primary drainage system and to lower wet season water tables. The majority of the City is served by the primary drainage system under the jurisdiction of the North Port Water Control District (NPWCD). Several large tracts, however, are outside of the District and do not yet have primary drainage systems constructed.

Drainage in the City north of the Myakka River flows south and west via the primary drainage system canals to the Myakkahatchee Creek, a tributary of the Myakka River. South of the Myakka River, part of the City drains southwest to Ainger Creek, a tributary to Lemon Bay, and part drains north to the Myakka River.

This sub-element analyzes drainage for the City of North Port and identifies issues to be considered in the development of the City in the next 10 years.

Terms & Concepts

Stormwater Drainage - water flowing overland during and immediately following a storm event. Under the effects of gravity, the drainage flows toward sea level through depressions and channels which comprise the drainage system of an area. The drainage system may consist of natural features, manmade features, or a combination of both.

The occurrence of stormwater runoff is highly variable, dependent on the amount of rain falling during each storm event and on conditions within the drainage basin. Since most storm events are relatively moderate, natural drainage features typically evolve to accommodate moderate quantities of stormwater runoff. Occasionally, severe storm events create runoff volumes in excess of what these features can handle, resulting in temporary flooding of adjacent land. This periodic flooding is part of the natural cycle of events and often has beneficial effects on the basin ecosystem. Flooding is generally not perceived as a problem until development occurs in floodprone areas.

As North Port becomes more developed, the amount of land covered by impervious surfaces will increase. As the impervious area increases, the amount of rainfall which infiltrates decreases proportionately. As a result, a greater percentage of rainfall runs directly through the surface water conveyances such as ditches and canals without percolating into the ground. Over time as the City develops, the increased imperviousness could lead to higher peak flows following storm events and increased pollutant loading from man-made structures, unless surface water management and stormwater treatment is provided to alleviate this potential problem.

Surface Water Management System - The collection of facilities, improvements or natural systems whereby surface waters are collected, controlled, conveyed, impounded or obstructed. Surface water management facilities are designed to insure that the volume, rate, timing and pollutant load of runoff after development is similar to that which occurred prior to development.

Detention Facilities - Impoundments designed to temporarily impound runoff prior to discharge into receiving waters.

Retention Facilities - Impoundments designed to release stormwater by evaporation and by percolation into the ground, with no direct discharge to surface waters.

Design Storm - A storm event of a particular duration and frequency which a surface water management system must be designed to handle. The selection of a standard design storm balances the cost of structures needed to avoid flooding against savings from reduced flood damage. Typically a 24-hour duration, 25-year return frequency storm is used. Runoff from a development project must be limited to amounts which will not cause adverse off-site impacts. In most cases, the peak rate of discharge from a developed site must not exceed the historic rate of the site in the undeveloped condition to avoid downstream adverse impacts.

Primary Drainage System - The network of canals which convey drainage through the City and eventually discharge to the Myakka River (See Map 1). Those canals contain water year-round and are controlled by a system of water control structures.

Secondary Drainage System - A system of shallow ditches, called R-ditches, ranging from those which contain water only following a rainfall event to those with continually wet systems. They discharge runoff into the primary system (See Map 1).

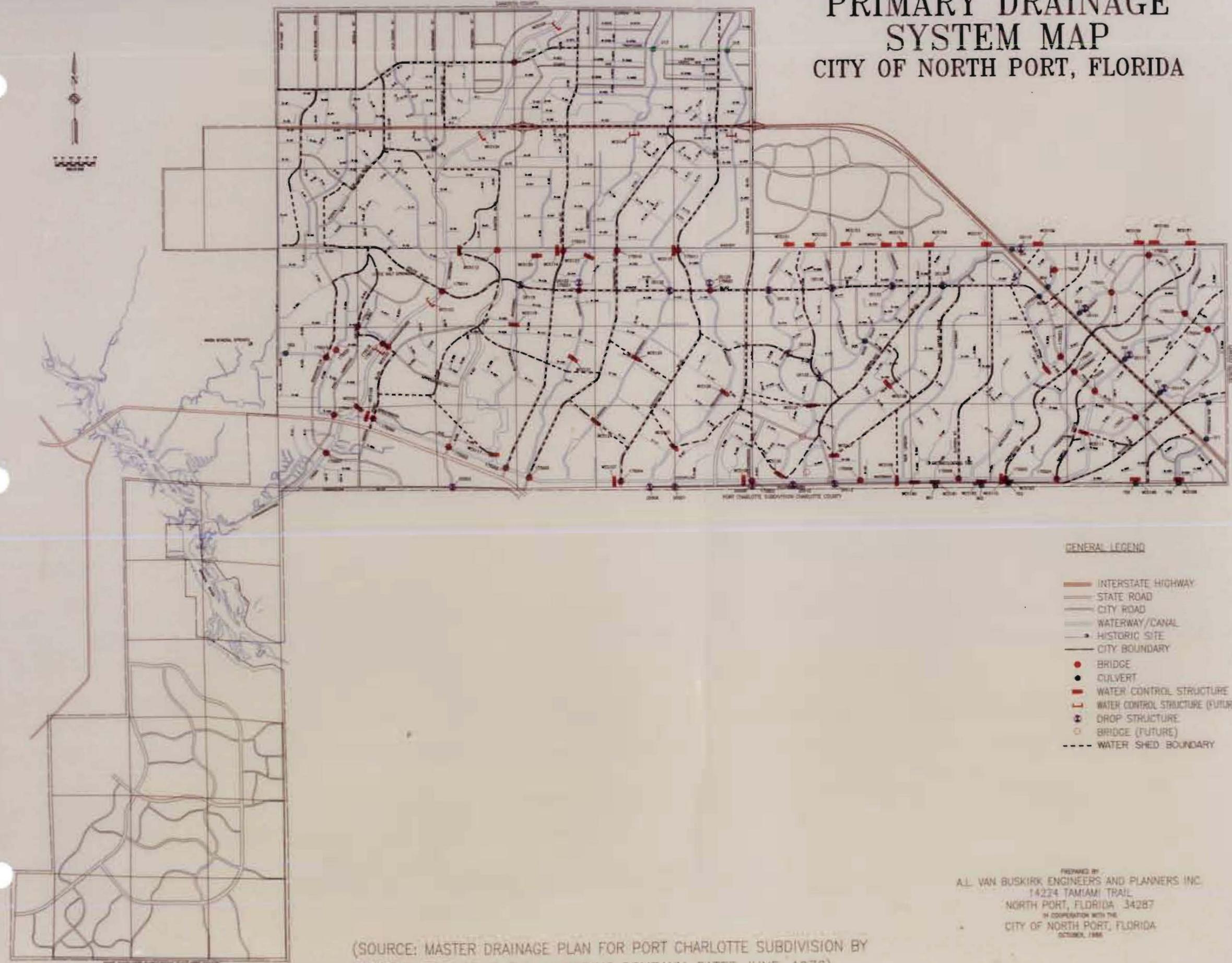
Tertiary Drainage System - The collection of roadside swales and connector ditches which convey runoff from lots and road surfaces and discharge into R-ditches.

City of North Port Background

Rainfall on land produces varying amounts of runoff depending on several factors such as duration and intensity of the storm event, antecedent conditions, soils and topography. Historically, stormwater runoff in the area which is now the City of North Port would sheetflow overland and collect in numerous scattered shallow depressions. Due to the flat topography of the area, few well defined surface drainage features developed. Instead, the depressions in some areas were linked to form broad sloughs with an orientation dictated by the gently sloping topography, generally from northeast to southwest. The Myakkahatchee Creek, which was the most significant natural surface water feature, followed this alignment. Even though it has since been channelized and a by-pass channel has been constructed below Snover Waterway, it still follows the same general course.

Much of the land in the City was poorly drained in its natural condition and had been used for cattle grazing and timber prior to urbanization. Minor drainage improvements were undertaken, including channelization of some of the natural sloughs to increase rates of runoff. This non-integrated collection of drainage improvements did not function properly during periods of intense rainfall because of inadequate and flooded outlets. The City of North Port was established in 1959 and a preliminary drainage plan was prepared which incorporated an integrated canal system allowing for retention of water while distributing excess flow. All existing primary drainage facilities were originally designed to accommodate a 10-year, 5-day storm event. At the time, the City consisted of approximately 35,500 acres of unimproved grazing and timber lands. Since that time, most of the original 35,500 acreage has been platted for urban development and infrastructure consisting of over 800 miles of roads and 85 miles of man-made drainage facilities has been installed. The current developed urban area consists of approximately 3,500 acres of residential and associated commercial use.

PRIMARY DRAINAGE SYSTEM MAP CITY OF NORTH PORT, FLORIDA



GENERAL LEGEND

- INTERSTATE HIGHWAY
- STATE ROAD
- CITY ROAD
- WATERWAY/CANAL
- HISTORIC SITE
- CITY BOUNDARY
- BRIDGE
- CULVERT
- WATER CONTROL STRUCTURE
- ┌ WATER CONTROL STRUCTURE (FUTURE)
- ⊕ DROP STRUCTURE
- BRIDGE (FUTURE)
- - - WATER SHED BOUNDARY

(SOURCE: MASTER DRAINAGE PLAN FOR PORT CHARLOTTE SUBDIVISION BY
GENERAL DEVELOPMENT ENGINEERING COMPANY, DATED JUNE, 1976)

PREPARED BY
A.L. VAN BUSKIRK ENGINEERS AND PLANNERS INC.
14224 TAMiami TRAIL
NORTH PORT, FLORIDA 34287
IN COOPERATION WITH THE
CITY OF NORTH PORT, FLORIDA
OCTOBER, 1986

Additional undeveloped areas have been annexed including Myakka Estates to the southwest (8,135 acres), Panacea to the northeast (2,300 acres), and the Futrell Tract (1,280 acres).

Rainfall

The Southwest Florida Water Management District utilizes rainfall maps for a 24-hour storm duration for various return frequency storm events. These maps are utilized to determine a depth of rainfall in inches which is used for design and analysis of stormwater management systems. Figures 1 and 2 present the maps for the 10 year and 25 year return frequency storms.

Figure 3 shows the historic annual and mean monthly rainfall at the Myakka River State Park Station, centrally located in Sarasota County. The average annual rainfall for 41 years is 56 inches. Rainfall shows a marked seasonal distribution with about 60% occurring in June-September.

Regulatory Authority

State

Stormwater runoff has been recognized as a significant source of pollution of surface waters. As an area is developed, the problems associated with stormwater runoff intensify. The amount and rate of runoff is generally increased due to a reduction in pervious surfaces. There is a corresponding increase in the concentration of certain pollutants entering surface waters as well as introduction of new pollutants associated with urban activities.

In 1982 the Florida Department of Environmental Regulation (DER) created Chapter 17-25 of the Florida Administrative Code. It is designed to reduce stormwater pollution by encouraging the use of best management practices through exemptions for certain small projects and by providing a permit process which requires other projects to meet certain treatment performance standards.

Responsibility for administration of Chapter 17-25 in the City has been delegated almost entirely to the Southwest Florida Water Management District (SWFWMD) (Chapter 17-25 has now been incorporated into Chapter 40D-40). The District closely regulates stormwater pollution through a comprehensive permitting program designed to address flood control and water resource protection. The District, through its regulatory programs, addresses both quantity and quality of stormwater runoff. The City believes that these State regulations constructively address the problem of stormwater runoff and intends to comply with them.

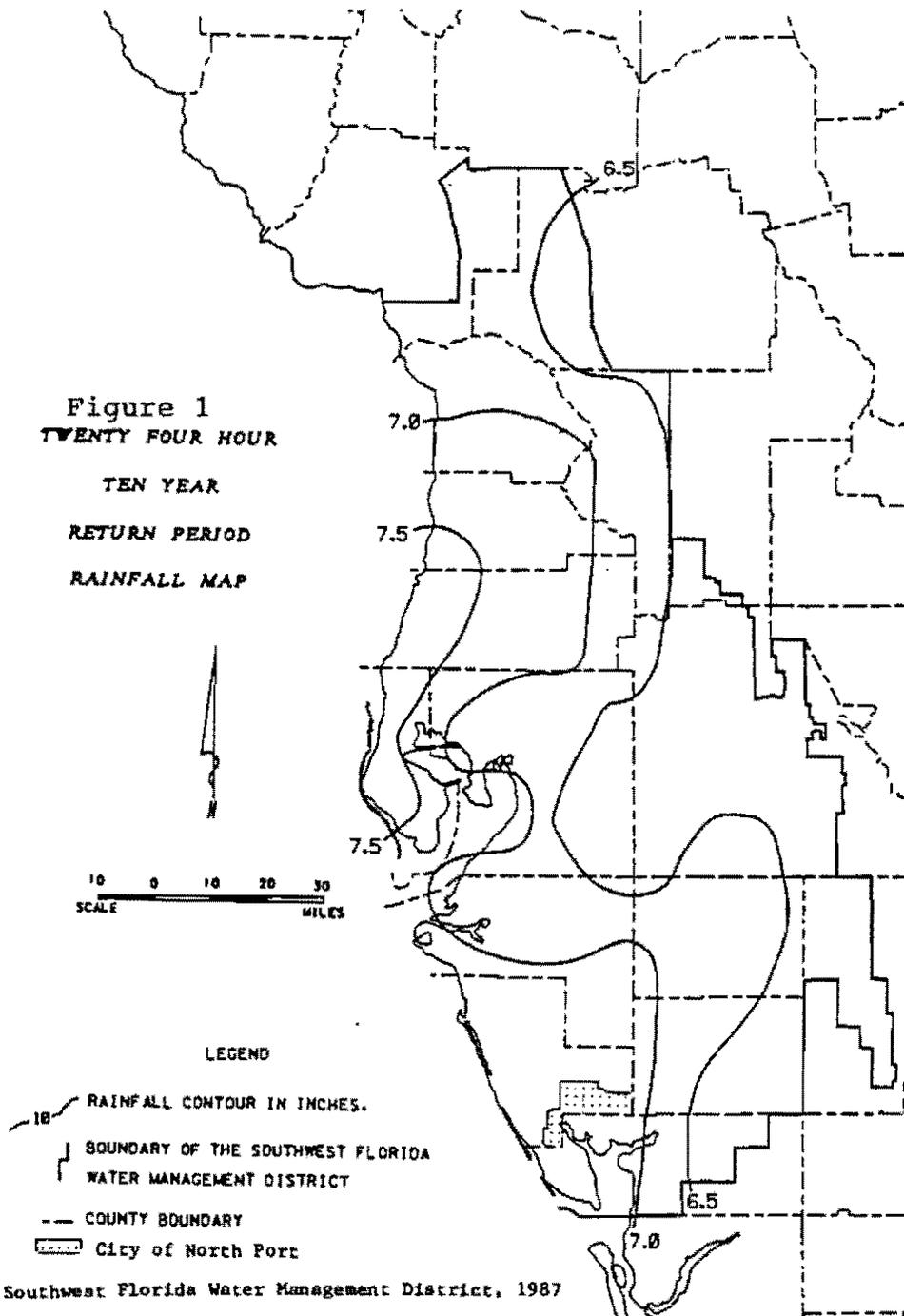
Local

The City of North Port regulates drainage through two existing ordinances. Ordinance No. 82-124 (Stormwater Management and Drainage) outlines several objectives:

- To protect, restore and maintain the chemical, waters, and, in particular its Class I waters.
- To promote the construction of drainage systems which aesthetically and functionally approximate the natural system.
- To ensure the protection of natural systems and the use of same in ways which do not impair their beneficial functioning.
- To ensure the use of drainage systems which minimize the consumption of electrical energy or petroleum fuels to move water, remove pollutants or maintain the system.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Figure 1
TWENTY FOUR HOUR
TEN YEAR
RETURN PERIOD
RAINFALL MAP



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Figure 2
TWENTY FOUR HOUR
TWENTY FIVE YEAR
RETURN PERIOD
RAINFALL MAP

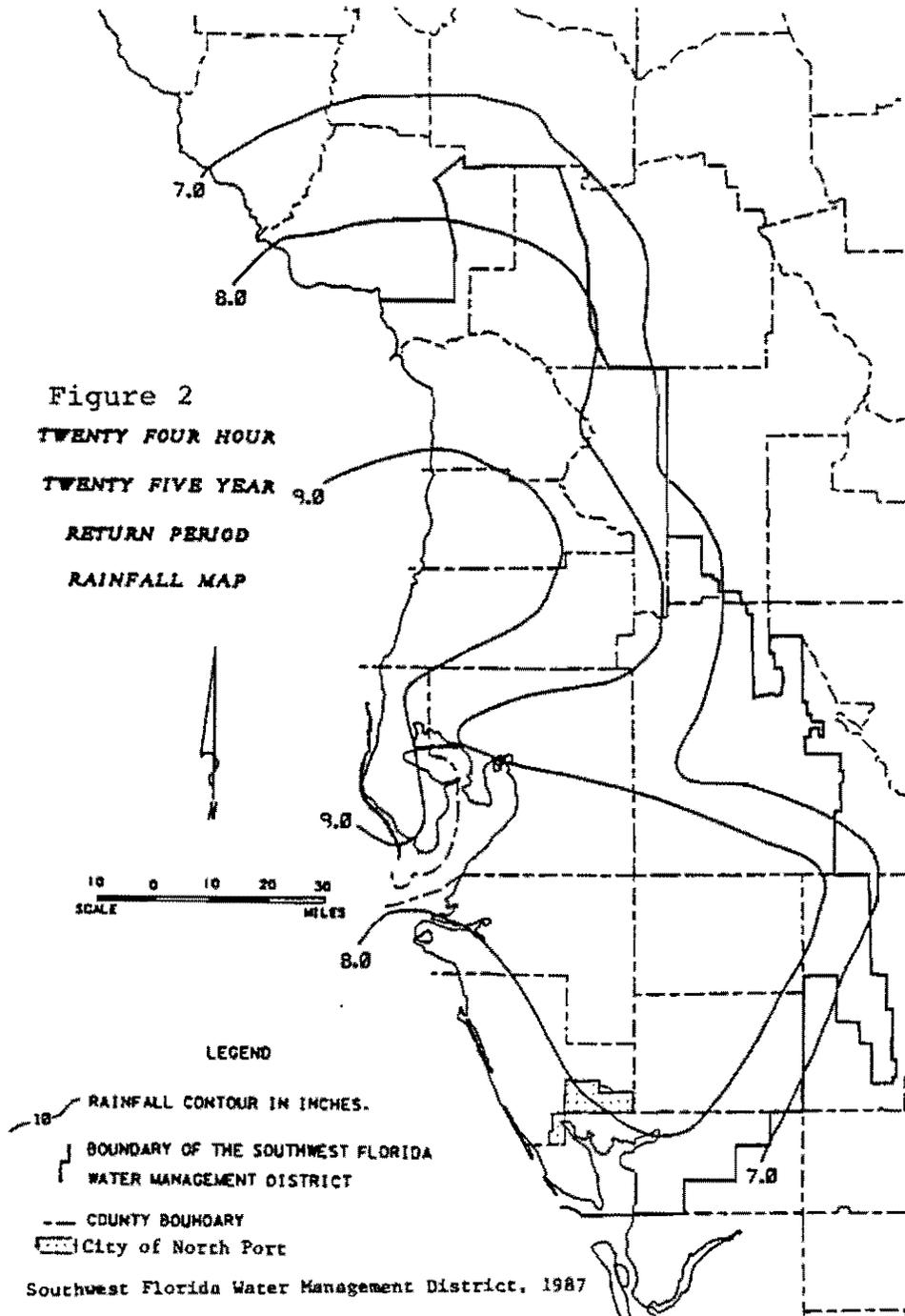
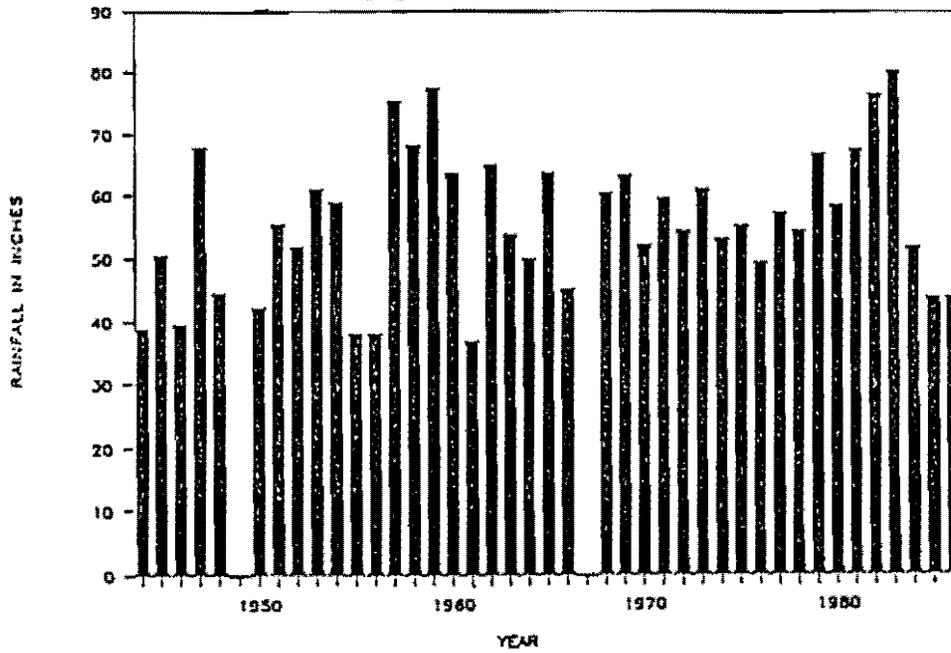


Figure 3

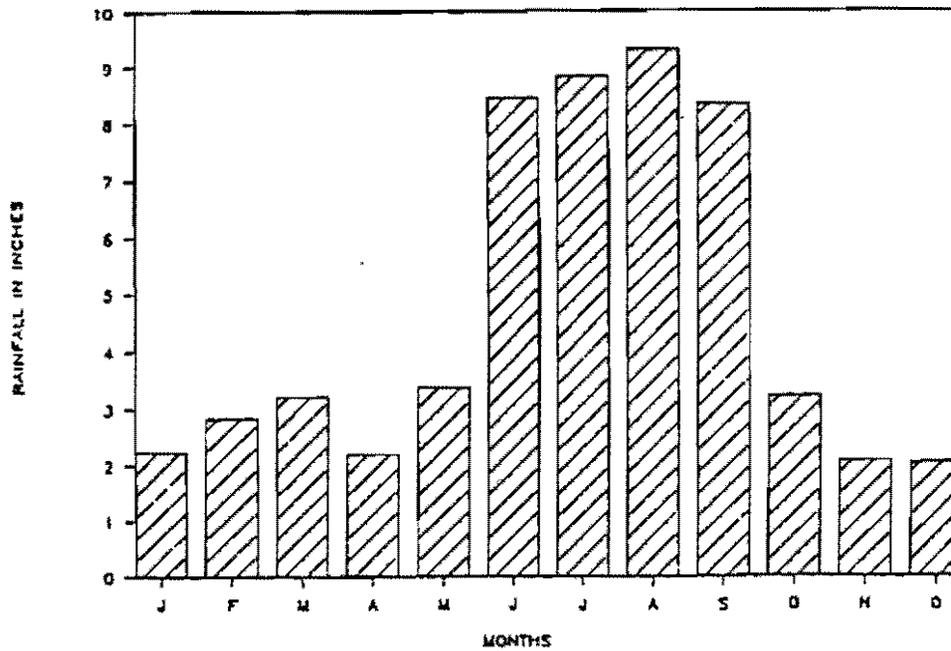
MYAKKA RIVER STATE PARK

TOTAL ANNUAL RAINFALL 1944-1986



MYAKKA RIVER STATE PARK

MEAN MONTHLY RAINFALL 1944-1986



- To minimize the transport of pollutants to community waters.
- To maintain or restore ground water levels.
- To maintain and protect or restore optimum levels of salinity in estuarine areas.
- To minimize erosion and sedimentation.
- To prevent the destruction of wetlands.
- To prevent damage from flooding, while recognizing that natural fluctuations in water levels are beneficial.
- To ensure the attainment of these objectives by requiring the approval and implementation of water management plans for all activities which may have an adverse impact on community waters.

The ordinance also provides performance standards including specification of a 25-year frequency, 24-hour duration design storm. The ordinance, while having played an important role in addressing stormwater management in the City, shall be revised to conform with the latest SWFWMD standards, consistent with F.S. 163.3202(1), as amended.

Ordinance No. 87-232 (Flood Damage Prevention) has an expressed purpose of promoting the public health, safety and general welfare and of minimizing public and private losses due to flood conditions in specific areas by provisions designed to:

- restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;
- control filling, grading, dredging and other development which may increase erosion or flood damage, and;
- prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

In addition to the above referenced ordinances, the City has a Culvert Ordinance and a Dredge and Fill Ordinance in the draft stage. The culvert ordinance will specify materials, sizes and grades for minor drainage works such as residential driveways. This regulation is currently being administered through building permits which require construction according to original paving and drainage plans.

EXISTING FACILITIES

The majority of land within the City was developed by General Development Corporation. One result of this type of development was the construction by the developer of hundreds of miles of roads and drainage conveyances over a period of years long before residential units were constructed. Maintenance and operation responsibilities are generally accepted by a taxing agency before individuals owning buildable lots have elected to move to North Port. During various phases of the development process, responsibility for construction, rehabilitation, and maintenance of the drainage system is shared by three separate entities: General Development Corporation (GDC), the North Port Water Control District (NPWCD), and the City of North Port Road Maintenance and Drainage District.

The developed portion of the City of North Port can be divided into two discrete areas for consideration of important drainage features and maintenance responsibility. By far, the bulk of the developed land area is located within the North Port Water Control District (NPWCD), established under the authority of Chapter 298, Florida Statutes, as the North Port Charlotte Drainage and Water Management District. The District boundaries are illustrated on Map 1. The District is bounded on the north by the City of North Port Corporate limits and agricultural areas of the Big Slough Basin, on the east by the DeSoto county line and the City of North Port Corporate limits, on the south by the Charlotte County and the City of North Port Corporate limits from the intersection of U.S. 41 east to the DeSoto County line, on the southwest by U.S. 41 and on the west by the City of North Port Corporate limits and Deer Prairie Creek Watershed. The area includes all of the incorporated areas of the City of North Port, except for those areas south of U.S. 41, and those areas known as Myakka Estates, Panacea, and the Futrell Tract.

Normally districts operating under Chapter 298, F.S. carry out required capital improvements with funding provided by an assessment on the landowners who will benefit by such improvements. In the case of the NPWCD, GDC agreed to carry out the entire work program called for by the Plan of Reclamation at its own expense. Under this agreement, the drainage infrastructure would be completed and turned over to the District for operation and maintenance. This procedure of construction by GDC and acceptance by NPWCD for operation and maintenance has been followed for plat units and other improvements completed since activation of the District in 1977, and it is anticipated to be followed for construction of subdivisions not yet completed by GDC.

There are many canals, ditches, and structures, however, which were completed by GDC before activation of the District, and which were not adequately maintained during the period between construction and activation of the District. Until recently, neither GDC nor the District had agreed to accept maintenance responsibility for these structures (including the cost of rehabilitation), and they had continued to deteriorate.

In an effort to resolve this problem and to permit the District to assume maintenance responsibilities for the older improvements, GDC and the District entered into an Acceptance Agreement on July 21, 1986 whereby the District assumed responsibility for the necessary rehabilitation work using funds contributed by GDC for contract costs, equipment and increased staffing.

A small portion of the City of North Port located south of U.S. 41 in the southwest corner of the contiguous City lies outside the NPWCD and maintenance is the responsibility of the City Road Maintenance and Drainage District. The Myakkahatchee Creek in this section, however, is maintained by NPWCD, pursuant to a 1984 agreement between the City, NPWCD, and GDC.

Through annexation, the City has included two large undeveloped tracts within its boundaries. They are Myakka Estates located southwest of the Myakka River and the City and Panacea in the northeast. Both of these tracts are approved Developments of Regional Impact and approved conceptual drainage plans are ad-

dressed in the respective Applications for Development Approval. Approval of Paving and Drainage Plans by the City will be required before development can proceed in either case.

North Port Road Maintenance and Drainage District

The North Port Road Maintenance and Drainage District was created by the City Commission (Ordinance #85-193) in November 1985 to provide a municipal service assessment and benefit district within the corporate limits of North Port (excluding Myakka Estates and the Futrell Tract). The District is a dependent Special District pursuant to Section 165.041(2), F.S., and is governed by the City Commission. Assessments are levied against real property to fund the activities of the District. In general, those activities include the responsibility for providing roads, alleys, sidewalks, road lighting, road signs, road markings, drainage culverts, and drainage structures attendant thereto, and the maintenance thereof, except those amenities under the jurisdiction of the North Port Water Control District. The division of maintenance responsibility for drainage works between the North Port Road Maintenance and Drainage District and the North Port Water Control District is defined in a 1984 agreement between the City of North Port, NPWCD, and GDC.

As of August 1988, the City has accepted for maintenance all subdivisions except CS44, CS45, CS47, CS48, CS49, CS52, CS53, CS54, CS56, Estates I, Estates II, all of Myakka Estates and Holiday Park. With the exception of Myakka Estates and Holiday Park, the City has agreed to accept all plats after completion of construction.

North Port Water Control District

The North Port Water Control District has within its boundaries approximately 35,500 acres, the majority of the platted land within the City. Its objective is to construct, operate, and maintain an integrated system of water control which will provide adequate drainage for developed areas, protect against flooding and conserve water for domestic supply and wildlife enhancement. The District's management plan is detailed in the 1977 Plan of Reclamation.

The District is entirely located within one major drainage basin, the Big Slough Basin (Figure 4). The Big Slough Basin, however, extends north of the City into agricultural lands which contribute much of the basin runoff. Because the City is at the downstream extremity of the watershed and receives all waters enroute to the Myakka River, it must be concerned with managing and controlling flood levels in the Myakkahatchee Creek.

The North Port Water Control District is authorized under Chapter 298, F.S. This law provides for the creation of water control districts to provide drainage to lands owned by multiple owners. The NPWCD is managed by a Board of three supervisors, each serving a three year term. One member of the Board of Supervisors is elected each year at an annual meeting. Votes are cast on the basis of land holdings, regardless of residency. Likewise, funds to operate the NPWCD are obtained from an annual assessment levied based on land area served by the District.

The District operates under a management program adopted each year by the Board of Supervisors. The management program addresses inspections, operation, routine maintenance, rehabilitation and acceptance of new structures for the following categories of water management facilities: water control structures, bridges, canals, R-ditches, the Myakkahatchee Creek and retention ponds. It also states the District's policy for administration, emergency procedures and the purchase of capital items. The management program is an outline of the District's procedures, annual objectives, capital needs and special programs. As such, it forms the basis for the District's annual budget and could be the basis for developing longer term capital implementation schedules.

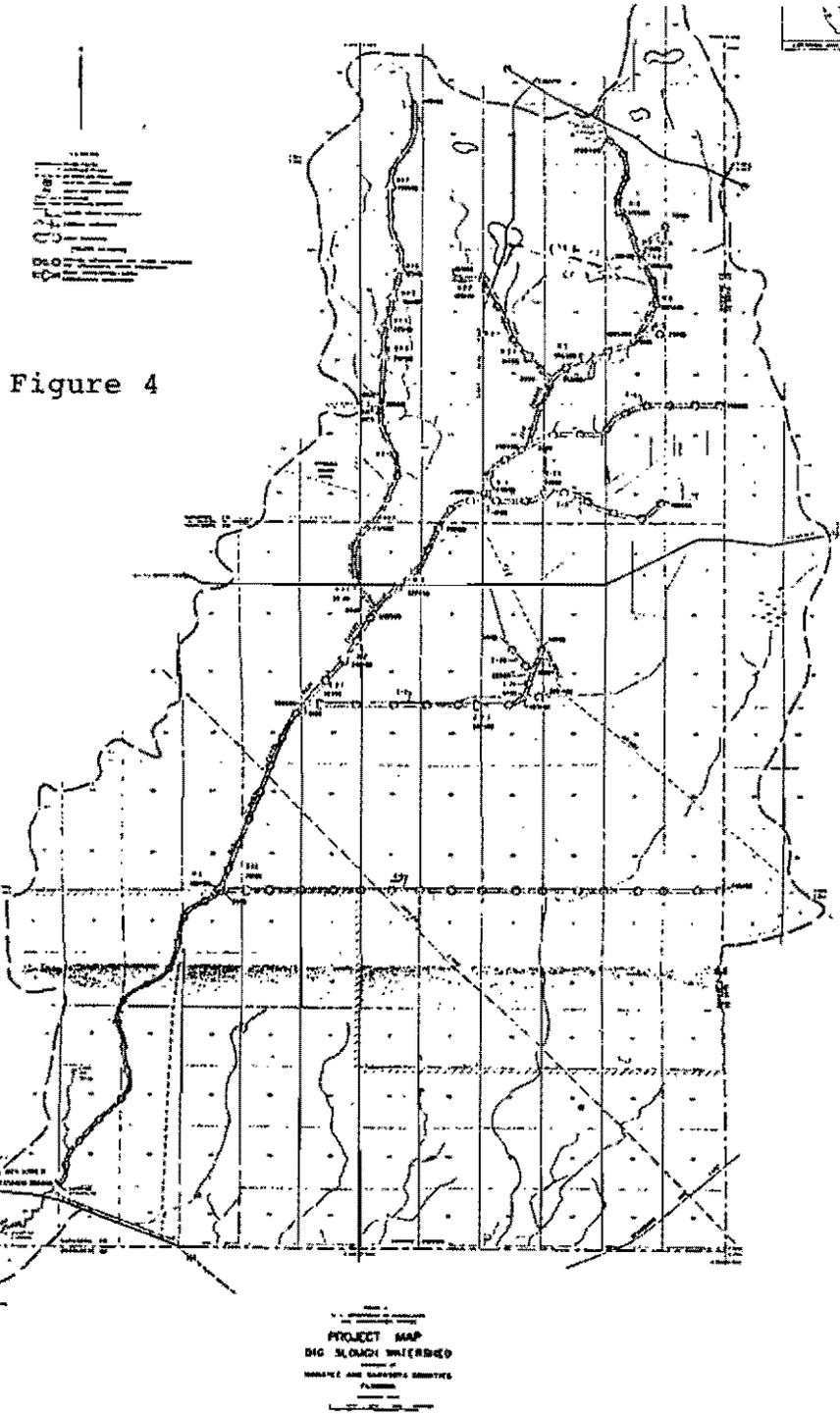


Figure 4

The NPWCD provides functional maintenance of its facilities. Drainage rights-of-way are maintained throughout the District to provide for the adequate conveyance of flood waters. This maintenance includes a rather basic level of vegetation control. In the urbanized portions of the District, however, this basic level of vegetative maintenance is sometimes inadequate to serve the desires of local residents. The control of tall grasses and herbaceous plants in open ditches and swales for the control of vermin is beyond the scope of the District's maintenance program. A conflict exists between the maintenance level that the District provides for the entire NPWCD area and the level of maintenance desired by residents in urbanized portions within the NPWCD area. This conflict could be resolved by increasing the frequency of mowing and bush hogging operations within the urbanized area, but it would involve an increase in the District's annual lot assessment to the entire NPWCD area. A new mechanism is needed, therefore, to allow more frequent maintenance of drainage rights-of-way within urbanized sections without overtaxing the entire district for this service.

NPWCD Existing Facilities Under Plan of Reclamation

Map 1 provides a schematic of existing facilities within the City of North Port. Two primary drainageways, Snover and Cocoplum Waterways, were constructed in the early stages of development to convey runoff from adjacent agricultural lands and to later convey internal drainage. These are aligned on a general east-west axis, and they discharge primarily to the Myakkahatchee Creek, which then conveys water under U.S. Highway 41 south to the Myakka River. Lesser discharges occur along the Sarasota-Charlotte County line through a series of drop structures, weirs and culverts. These discharges are controlled waterway systems that are routed through Port Charlotte to Charlotte Harbor.

Snover and Cocoplum waterways are collector/distributors of channel inflows and direct runoff from internal sub-basins. They are connected by a north-south system of waterways which transfer water from Snover to Cocoplum under high flow conditions. These primary waterways receive drainage from a series of conveyances called R-ditches which in turn are connected to roadside swales.

Off-site inflows are received by R-36, Myakkahatchee Creek, R-580, Creighton Waterway, Cosmic Waterway, and Snover Waterway (See Map 1).

A variety of water level control methods are used within the NPWCD. These consist of gated water control structures, fixed weirs, and drop structures. Map 1 shows their locations and designations.

The NPWCD has an emergency protocol which addresses all operable structures to lower water levels in anticipation of major storm events. This can prepare the system to handle larger stormwater volumes if sufficient lead time is available.

NPWCD - New Facilities Modified by GDC/DER Consent Agreement

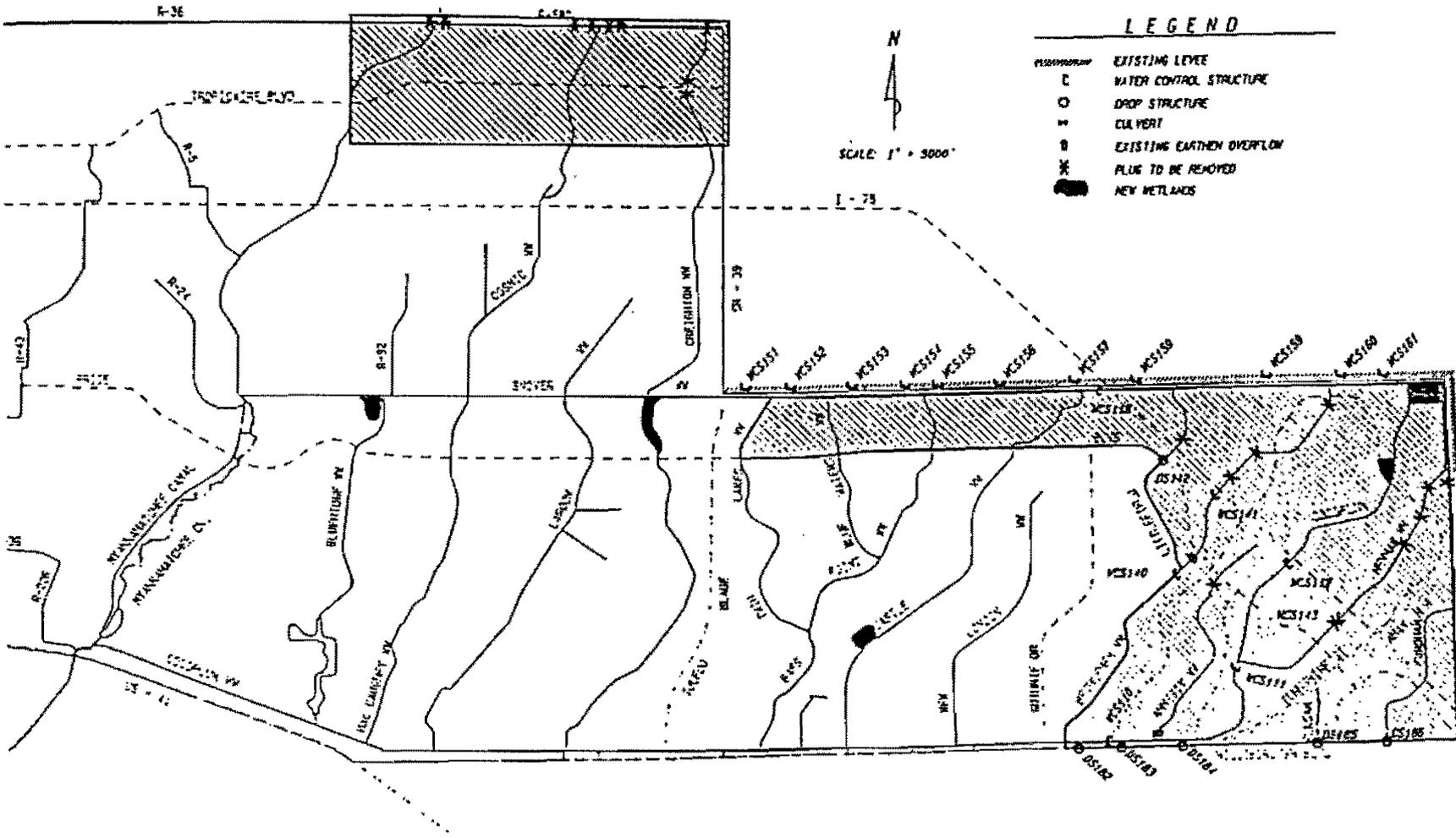
Until recently, the goal of most drainage programs was to convey runoff away from developed areas as rapidly as possible. This drainage strategy can have detrimental effects on water quality and as a result current regulations require retention or detention with filtration of the "first flush" during a storm event. The majority of the drainage system in the City was constructed prior to implementation of current water quality considerations (i.e. retention or detention with filtration).

There has been an opportunity, however, for construction of new stormwater treatment facilities through a Consent Agreement entered into between General Development Corporation and the Department of Environmental Regulation on November 23, 1983 (OGC File No. 82-0128). In the area shaded on Figure 5, 192 secondary stormwater outfalls were modified to provide detention of the first 1/2 inch of runoff with a gradual bleed-down over a minimum period of 120 hours to reduce pollutants. This was accomplished by retrofitting detention ponds to some existing drainage facilities (e.g. plat unit CS-45) and the redesign of drainage outfalls to include detention ponds in platted, but undeveloped areas (e.g. plat unit CS 46-49).

MODIFICATIONS THROUGH DER AGREEMENT

Retrofit or New Construction
Detention Facilities

Figure 5



The Agreement outlined several additional improvements which GDC is required to make to the existing drainage system. These include:

- Restoration of historic flow lines in constructing Snover and Newman Waterways in the northeast corner of North Port.
- Construction of five wetlands along various canals in the City with a combined area of fifty-six acres.
- Participation and cash contribution (\$10,000/year with a \$30,000 cap) to a study of the Myakka-Cahatchee Creek watershed.
- Completion of improvements in the Consent Order area including:
 - a. Installation of water control structures as indicated in the Plan of Reclamation for the North Port Water Control District.
 - b. Installation of culverts and bridges.
 - c. Modification of canals.
 - d. Stabilization of banks.
 - e. Removal of spoil from canal areas.
 - f. Removal of earthen plugs and sandbars.
- Contribution of \$500,000 to a Special Trust Fund created within DER's Pollution Recovery Fund. The special trust fund is to be used for the purpose of restoring the quality of waterbodies in the Peace River Basin, including Charlotte Harbor and waterbodies located within, or impacted by the canals within, the City of North Port and for other purposes consistent with the intent of Section 403.165, F.S.

Much of the work outlined in the Consent Order has been completed by General Development Corporation. Additional items not yet completed are anticipated to be completed in the near future.

Myakka Estates

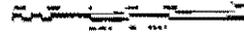
The southwest section of the City, all of which lies west of the Myakka River, is referred to as Myakka Estates. Lots have been sold by GDC, however, and under contractual agreements with the purchasers will be delivered in the near future. While there are some relatively pristine wetlands in the Myakka Estates parcel, agricultural ditching has lowered the water table over parts of the property and adversely affected wetlands. General Development Corporation installed a water control structure in the early 1970's on Ainger Creek to prevent salt water intrusion into the property. This structure allows oneway flow (downstream) through a flap gate, while preventing tidal flow in the opposite direction. GDC operates and maintains this structure.

General Development Corporation received a Development Order for its 8,135 acre Myakka Estates project in September 1974 (See Figure 6). The Development Order was amended by a 1981 agreement which lowered overall densities. The Agreement states that "the DER stormwater system permit obtained by General and submitted by General of its stormwater plans for approval by the City of North Port shall satisfy the Development Order requirements for the Myakka Estates drainage design study."

The Agreement states that "the DER stormwater system permit obtained by General and submittal by General of its stormwater plans for approval by the City of North Port shall satisfy the Development Order requirements for the Myakka Estates drainage design study."

Figure 6

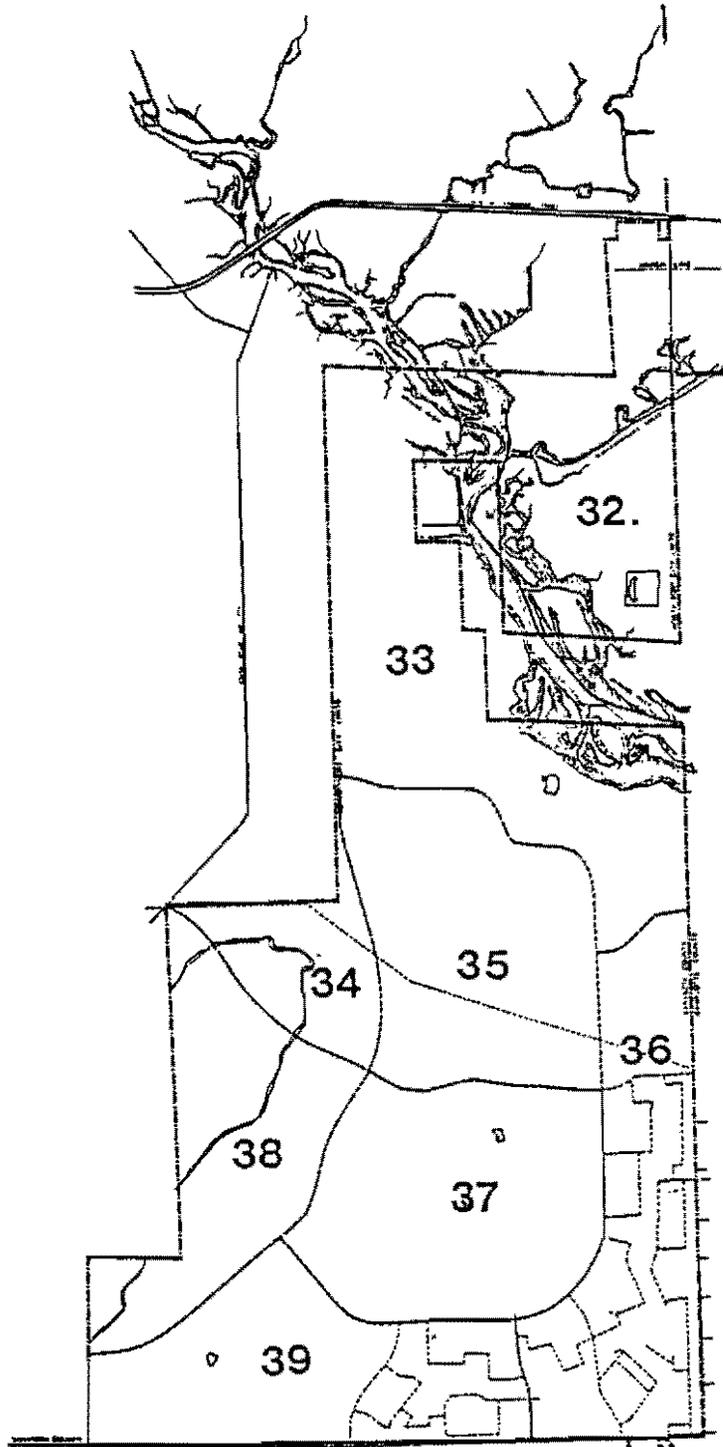
MYAKKA
CITY OF NORTH PORT
 SARASOTA COUNTY FLORIDA



THIS MAP WAS MADE BY THE CITY OF NORTH PORT, FLORIDA, FROM THE DATA PROVIDED BY THE SARASOTA COUNTY ENGINEERING DEPARTMENT. THE CITY OF NORTH PORT, FLORIDA, IS NOT RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED BY THE SARASOTA COUNTY ENGINEERING DEPARTMENT. THE CITY OF NORTH PORT, FLORIDA, IS NOT RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED BY THE SARASOTA COUNTY ENGINEERING DEPARTMENT.

LEGEND

—	City of North Port
---	County Boundary
----	Drainage District Boundary
.....	Drainage District Boundary



Construction has not yet begun in Myakka Estates. A recent redesign of the drainage system for Units 1-4 has been conducted for GDC, but not yet submitted to the City for approval. The updated system utilizes a series of interconnected ponds separated by control structures so that post-development runoff will not exceed pre-development flow for the 25-year, 24-hour storm event. Stormwater will be treated for water quality by biological filtration in both natural and created wetlands.

Panacea

Panacea is a proposed 2,300 acre development located in the northeast corner of the City. A Development Order was issued in 1986.

The Panacea drainage system is designed to be consistent with the NPWCD Plan of Reclamation. Currently flow from the Panacea property is discharged through seven water control structures into Snover Waterway. The proposed post-development discharge rate of runoff will not exceed the existing rate for either the 25-year frequency, 24-hour duration or the 10-year frequency, 5-day duration storms.

An inherent function of the Panacea drainage system will be to convey runoff from offsite areas and the developed property to Snover Waterway in quantities established by the Plan of Reclamation for NPWCD. Structures will be constructed at points of inflow into Panacea to preserve or reestablish inflow rates specified in the Plan of Reclamation.

Water quality standards for stormwater discharge will be met by utilizing Best Management Practices including incorporation of wetlands into the system for biological filtration.

CAPACITY ASSESSMENT

The Plan of Reclamation prepared for the North Port Water Control District states that the object of the design is to provide protection for the City from damages generated by a 10- year frequency, 5-day duration storm event. Following these design standards, a waterway system with control structures was designed to meet the drainage needs of the City at its ultimate build-out.

No documentation about the design of the Plan of Reclamation or its implementation appears to exist. In particular, information about safety factors or the sensitivity of the various system components for meeting the drainage criteria at build-out is unavailable. Likewise, there is neither a definitive schedule for completion of the Plan of Reclamation nor an estimate of the current level of completion.

Under Condition #13 of Consumptive Use Permit #202923 issued by the Southwest Florida Water Management District in 1982, GDU was required to conduct a study to describe the physical and operational characteristics of the Surface Water Management System. The purpose of the study, as clarified by the SWFWMD Executive Director in 1982, was primarily to determine the physical capacity of the system, the current performance of the system, future performance of the system, and the effect of the system on dewatering adjacent lands.

The study was conducted by R. D. Ghioto & Associates, Inc. who produced a report entitled North Port Water Control District, Inventory and System Analysis, in December 1984. In this report, certain "over-bank" areas were identified. These are areas which would experience flooding during the design storm event at build-out if no further improvements were made to the water management system than existed at the time of the study, i.e. the Plan of Reclamation was not completed. The study did not model the system capacity at build-out under the condition that the Plan of Reclamation was entirely completed, or that an acceptable alternative was completed. Neither did the study venture to make recommendations about how to solve existing flooding in the Myakkahatchee Creek floodplain or to solve potential canal "over-bank" problems at build-out. Presumably, at least part, if not all of the predicted flooding from canal "over-bank" situations would be alleviated by completion of the Plan of Reclamation. These issues were not addressed, however, and the study raises more questions than it resolved about the capacity of the North Port Water Control District's drainage system at build-out conditions.

Given that the Plan of Reclamation has been altered under the DER Consent Order with GDC and that some aspects of the system may not be buildable under current environmental regulations, the system needs to be analyzed under various construction scenarios to determine whether the level of service adopted in this plan will be achieved at build-out (no flooding for the 10-year, 5-day storm event). The study should also determine how the system responds to the current design storm: the 25-year frequency, 24-hour duration storm event.

NEEDS ASSESSMENT

Myakkahatchee Creek (Big Slough) Flooding

The most critical deficiency in the City of North Port drainage facilities is the limited capacity of Myakkahatchee Creek in conveying upstream flows, through the City and eventually to the Myakka River (See Figure 4). As land use in the City becomes more urban, this deficiency becomes more critical. Figure 7 represents potential over-bank areas as reported in the 1984 report prepared by Ghioto & Associates. The boundary of the flooded area of the Creek north of Snover Waterway is in general agreement with the 100-year flood zone shown on the FEMA Flood Insurance Rate Map for the City of North Port (Map 2). This boundary is also in close agreement with observations of flooding during a 1982 storm event.

Since the City of North Port was established in 1959, plans have been considered for increasing the capacity of the Myakkahatchee Creek to reduce the threat of flooding. These plans called for channelization of the Creek in the area north of the existing Myakkahatchee Bypass Canal. More recent concerns about water quality and wildlife habitat have caused a reassessment of the plans and the Big Slough Watershed Advisory Committee (BSWAC) has been formed to consider alternatives. The Committee is comprised of representatives of the Florida Department of Environmental Regulation, Southwest Florida Water Management District, North Port Water Control District, the City of North Port, General Development Corporation, General Development Utilities, Inc, the United States Geological Survey, Sarasota County, Charlotte County, DeSoto County and ranchers with land holdings within the watershed. The goal of the BSWAC is to "identify and generate the information necessary for appropriate authorities to design and implement a comprehensive water management plan which would help conserve, protect and enhance the natural resources as well as promote the hydrological balance in the watershed area". Some preliminary solutions that have been proposed are providing detention areas adjacent to the Creek and diversion or attenuation of flows entering from the agricultural areas to the north of the City.

The City of North Port and the NPWCD recently requested financial assistance from the Southwest Florida Water Management District (SWFWMD) for a one year, \$476,000 dollar study to develop the information necessary to design and implement stormwater management plans which would help conserve and protect the natural resources of the Big Slough Watershed, as well as control flooding. The scope of work for the study is ambitious and involves consideration of ecological, social, and engineering information to develop the optimum strategies for managing the Big Slough Watershed. The watershed study is not being funded by SWFWMD in FY-89. However, aerial mapping of the Big Slough Watershed is tentatively budgeted for SWFWMD approval in FY 89. SWFWMD staff has recommended that the request for the Big Slough Watershed study be re-submitted in FY 90 for their consideration again. Aerial mapping is necessary to provide the baseline data for the watershed study.

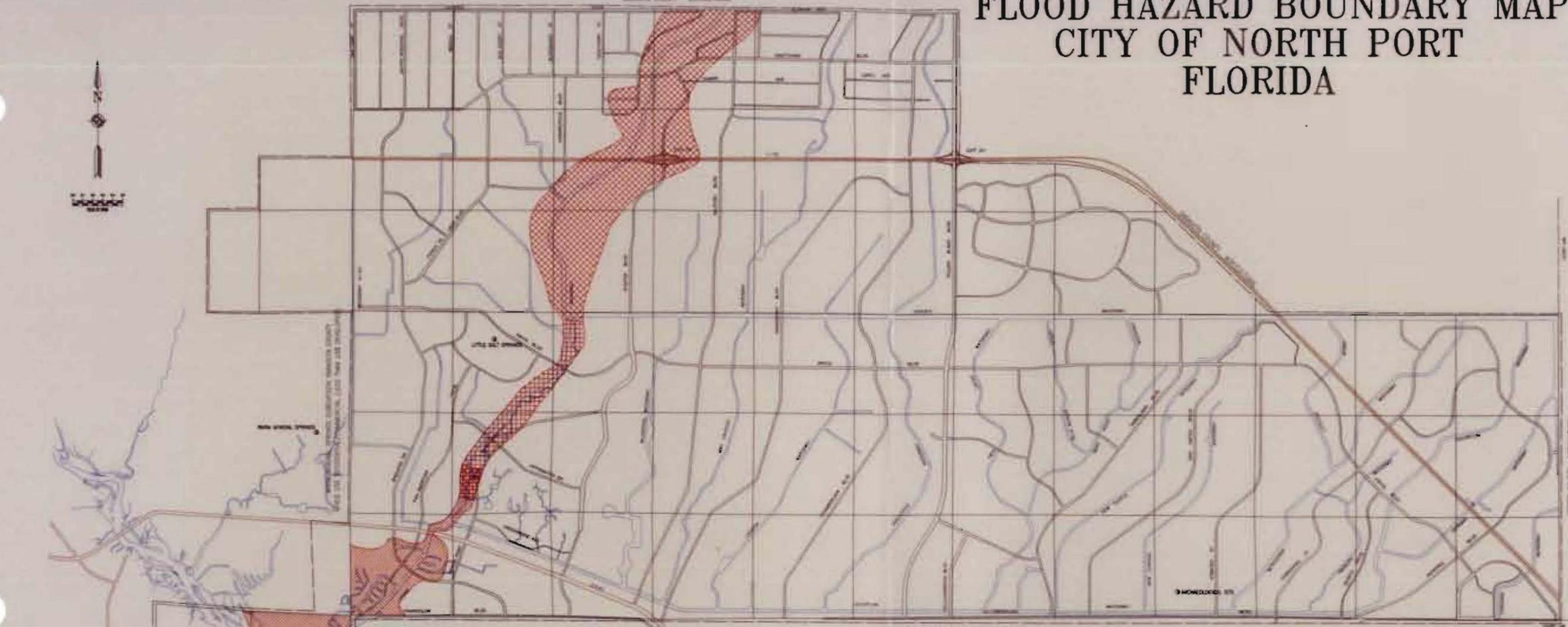
R-36 Flooding

Another area of flooding shown on Figure 8 is the northwest corner of the City associated with R-36. A study of the flooding problem was recently completed for General Development Corporation by Gee and Jensen Engineers under the terms of the aforementioned 1985 Acceptance Agreement with the North Port Water Control District. The study concluded that certain improvements to R-36 would alleviate the problem by lowering the water level generated by the 10-year, 5-day storm by two feet at the upstream confluence with Myakkahatchee Creek. These improvements include excavation of a portion of the existing R-36 channel and eliminating high bottom conditions which are creating problems at I-75. These improvements would increase the capacity of R-36. The report also concluded that inflow into R-36 from agricultural areas to the north may be greater than was anticipated in the NPWCD Plan of Reclamation and recommended that the NPWCD

develop a plan to design, permit and construct a boundary dike and inflow structures to properly limit and manage the amount of off-site inflow.

Another area of short duration flooding is associated with the lower reaches of R-36 along the western boundary of the NPWCD. Insufficient capacity of culverts is responsible for this flooding.

FLOOD HAZARD BOUNDARY MAP CITY OF NORTH PORT FLORIDA

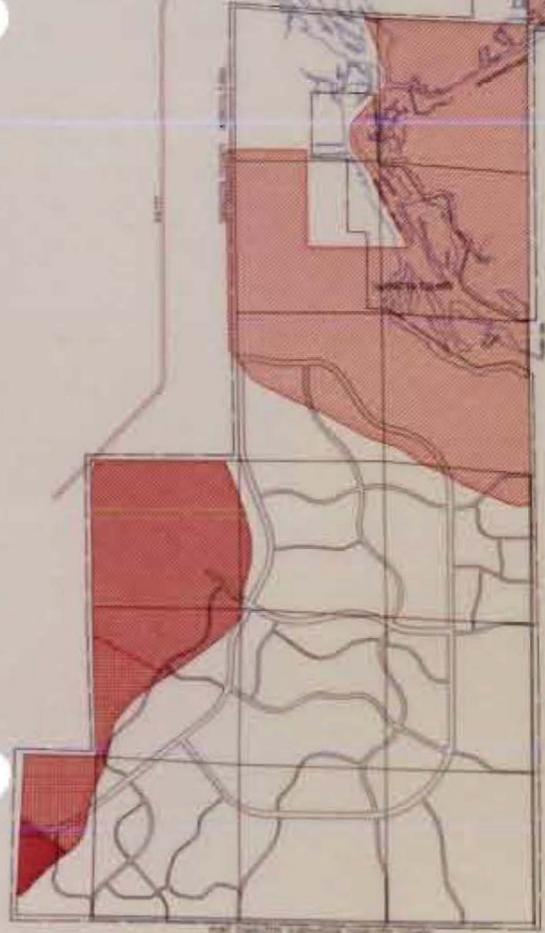


100 YEAR FLOOD ZONE LEGEND

-  ZONE B (FLOOD DEPTHS LESS THAN 1.0 FT.)
-  ZONE A0 (FLOOD DEPTHS 1.0 - 3.0 FT.)
-  ZONE A3 (BASE FLOOD ELEVATION 12.0 - 18.0 N.G.V.D.)
-  ZONE A4 (BASE FLOOD ELEVATION 8.0 - 12.0 N.G.V.D.)
-  ZONE A8 (BASE FLOOD ELEVATION 8.0 N.G.V.D.)
-  ZONE A9 (BASE FLOOD ELEVATION 10.0 N.G.V.D.)
-  ZONE A10 (BASE FLOOD ELEVATION 11.0 N.G.V.D.)
-  ZONE A10 (BASE FLOOD ELEVATION 12.0 N.G.V.D.)

GENERAL LEGEND

-  INTERSTATE HIGHWAY
-  STATE ROAD
-  CITY ROAD
-  WATERWAY/CANAL
-  HISTORIC SITE
-  CITY BOUNDARY



SOURCE FEMA FLOOD INSURANCE RATE MAP FOR THE CITY OF NORTH PORT, 1981

PREPARED BY
A.L. VAN BUSKIRK ENGINEERS AND PLANNERS INC.
14224 TAMiami TRAIL
NORTH PORT, FLORIDA 34287
IN COOPERATION WITH THE
CITY OF NORTH PORT, FLORIDA
OCTOBER, 1988

CONCLUSION

Based on the information available to the City and the foregoing analysis, the following items are identified as necessary to prove the efficacy of the drainage system and, in specific cases, to correct known deficiencies:

- Time tables for completion by GDC of the construction of the Plan of Reclamation as modified and acceptance of these facilities for maintenance and operation by NPWCD and the City need to be identified and agreed upon by the parties involved.
- Maintenance and operation responsibilities, divided between NPWCD and the City, should be clarified. In the interest of governmental efficiency, the possibility of combining these responsibilities under one entity should be studied.
- For maintenance of vegetation in the drainage facilities, there appears to be the need for additional levels of service in populated areas of the City than are currently being administered. Where there is a demand for additional levels of service for maintenance and operation of drainage facilities, special assessments should be considered to accommodate the public demand.
- The City and NPWCD should address the maintenance of future water quality in the canals by the establishment of stormwater treatment facilities.
- Land development regulations and stormwater treatment retrofitting programs, if adopted, should also address recharge of the surficial aquifer and conservation of the potable water supply.
- The entire drainage system under the Plan of Reclamation should be modeled under various completion scenarios to determine what level of completion is required, or what alternative facilities may be required, to assure protection from flooding during the 10-year, 5-day storm event at build-out.
- Flooding along the Myakkahatchee Creek needs to be addressed in light of the following: 1) run-off from agricultural lands north of the City; 2) the undesirability of constructing a ditch along the Myakkahatchee Creek between I-75 and Snover Waterway; and 3) the need to provide levels of service for drainage adopted in this plan. The City should participate with the Big Slough Watershed Advisory Committee to develop the information required to assess alternatives for alleviating flooding. The request for funding assistance from SWFWMD for the Big Slough Watershed Study should be resubmitted for FY 90.
- Improvements to R-36 identified to lower flood conditions by as much as two feet should be implemented.
- The following structures have been identified by the NPWCD as remaining to be built under the July 21, 1986 agreement between NPWCD and GDC:

<u>Ident.</u>	<u>Location</u>
WCS 145	Creighton/I-75
WCS 146	Cosmic/I-75
BR 214	Haberland/Cocoplum
BR 225	Woodhaven/Bass Point
BR 236	Starview/Starview

GOALS, OBJECTIVES AND POLICIES

GOAL 1:

PROVIDE A STORMWATER MANAGEMENT SYSTEM WHICH PROTECTS REAL & PERSONAL PROPERTIES, PROMOTES ORDERLY, COMPACT URBAN GROWTH, AND MAINTAINS RECHARGE TO THE SURFICIAL AQUIFER.

OBJECTIVE 1:

The City will continue to implement procedures to ensure that at the time a development permit is issued, adequate surface water management facilities are available or will be available to serve the development within a reasonable time, as will be defined in a Concurrency Management System Ordinance the City intends to adopt as outlined in the Capital Improvements Element.

Policy 1.1:

The following level of service standards are hereby adopted to adequately achieve management and storage of surface waters, and shall be used as the basis for determining the availability of facility capacity and the demand generated by a development:

LEVEL OF SERVICE STANDARD

Primary Drainage System

Design Storm Within the City of North Port

- 10-year frequency, 5-day duration for existing surface water management systems.
- 25-year frequency, 24-hour duration pursuant to SWFWMD criteria for permitting new surface water management systems.

Policy 1.2:

All improvements for replacement, expansion or increase in capacity of facilities shall be compatible with the adopted level of service standards for the facilities.

Policy 1.3:

The City shall develop procedures to update facility demand and capacity information as development orders or permits are issued.

OBJECTIVE 2:

The City in conjunction with the NPWCD and the Road Maintenance and Drainage District will maintain a five-year schedule of capital improvement needs for public facilities, identify responsible parties and agencies, and identify time frames for completion. The schedule will be updated annually in conformance with the review process for the Capital Improvement Element (CIE) of this plan, and for consideration in the City's annual budget process to ensure economic feasibility.

Policy 2.1:

Proposed capital improvement projects will be evaluated and ranked according to the following priority level guidelines:

Level One - whether the project is needed to protect public health and safety, to fulfill the City's commitment to provide facilities and services, or to preserve or achieve full use of existing facilities.

Level Two - whether the project increases efficiency of use of existing facilities, prevents or reduces future improvement costs, provides service to developed areas lacking full service or promotes in-fill development.

Level Three - whether the project represents a logical extension of facilities and services within a designated service area.

Policy 2.2:

Upon completion and adoption, the five-year Capital Improvement Program of the NPWCD shall be considered within subsequent CIE updates, to maintain adopted levels of service and objectives and policies herein.

OBJECTIVE 3:

Existing deficiencies which have been identified in the "Needs Assessment" section on page 187 of this Element will be corrected by under taking the following policies:

Policy 3.1:

By 1998, the NPWCD, in conjunction with the General Development Corporation (GDC) shall provide for completion of the Plan of Reclamation, or an approved alternative thereto.

Policy 3.2:

The City, in conjunction with the NPWCD, will apply for grant funds to conduct a modeling study, as deemed necessary, to determine any deficiencies to meet adopted levels of service for the primary drainage system, and to identify remedial work required before build-out.

Policy 3.3:

The North Port Road and Drainage District, in conjunction with the North Port Water Control District, will apply for grant funds to conduct an economic feasibility study, as deemed necessary, to determine the cost and benefit of retro-fitting stormwater treatment and surface water management (pollution control) to those areas of the City without it.

Policy 3.4:

Projects needed to correct existing deficiencies shall be given priority in the formulation and implementation of the annual work programs of the City and the NPWCD and shall be considered within subsequent Capital Improvement Element updates.

Policy 3.5:

The City and the NPWCD will petition the Southwest Florida Water Management District to provide aerial, topographic mapping of the Myakkahatchee Creek basin (172 square miles) to be completed by 1990.

OBJECTIVE 4:

Projected demands for drainage through the year 1994 will be met by implementing the following policies:

Policy 4.1:

Surface water management improvements outlined in the development order for the Panacea DRI shall be completed consistent with the development phasing schedule.

Policy 4.2:

Surface water management improvements required for the Myakka Estates DRI shall be completed consistent with the development phasing schedule.

Policy 4.3:

General Development Corporation shall complete all structures and improvements required under DER Consent Order (OGC File No. 82-0128).

Policy 4.4:

The NPWCD in conjunction with General Development Corporation (GDC) shall complete construction of the following new structures pursuant to the Plan of Reclamation:

WCS 145	Creighton/I-75
WCS 146	Cosmic/I-75
BR 214	Haberland/Cocoplum
BR 225	Woodhaven/Bass Point
BR 236	Starview/Starview

Policy 4.5:

Necessary modifications to the Plan of Reclamation as identified, adopted, approved and permitted shall be scheduled to ensure completion of the amended Plan of Reclamation by the NPWCD and GDC within the 1995-1999 C.I.E timeframe.

Policy 4.6:

The NPWCD in conjunction with GDC shall complete additional improvements necessary to R-36 to lower the water level generated by the 10-year, 5-day storm.

Policy 4.7:

The City Road and Drainage District shall complete necessary stormwater drainage maintenance of the saltwater finger canals located south of U.S. 41, and shall adopt an appropriate schedule for continual maintenance.

Policy 4.8:

Alternatives shall be identified by the Big Slough Watershed Advisory Committee to control flooding along the Myakkahatchee Creek and shall be considered for adoption by all appropriate agencies, and all necessary permits shall be secured to ensure scheduling for completion within the 1995- 1999 C.I.E timeframe.

Policy 4.9:

Stormwater treatment and surface water management treatment retro-fitting options as identified for stormwater management shall be considered for adoption and implementation by 1994.

Policy 4.10:

Projects identified by the North Port Water Quality Advisory Board, and as adopted and permitted by DER to improve water quality, shall be implemented through use of the \$525,000 Pollution Recovery Trust Fund monies appropriated in DER Consent Order File No. 82-0128.

OBJECTIVE 5:

Projected demands for the period 1995 through 1999 will be met by undertaking the following drainage policies:

Policy 5.1:

Surface water management system improvements outlined in the development order for the Panacea DRI shall be completed consistent with the development phasing schedule.

Policy 5.2:

Surface water management system improvements required for the Myakka Estates DRI shall be completed consistent with the development phasing schedule.

Policy 5.3:

Those improvements as identified by the Big Slough Watershed Advisory Committee and as approved by the City to control flooding along the Myakkahatchee Creek shall be implemented.

Policy 5.4:

The Plan of Reclamation, as modified, shall be completed by the NPWCD in conjunction with the General Development Corporation (GDC).

Policy 5.5:

Projects needed to correct deficiencies identified and adopted by the NPWCD and the City Road/Drainage District through 1994 shall be implemented by 1999 and incorporated within the 1995-1999 C.I.E.

Policy 5.6:

Projects as identified by the North Port Water Quality Advisory Board, and as adopted and permitted by DER to improve water quality shall be implemented through use of the \$525,000 Pollution Recovery Trust Fund monies appropriated in DER Consent Order OGC File No. 82-0128.

OBJECTIVE 6:

Drainage facilities will be maintained to assure their proper function to maintain adopted levels of service.

Policy 6.1:

The NPWCD will provide documentation of its 1988 standards for maintenance service within one year of plan adoption.

Policy 6.2:

By 1990, the level of maintenance provided by the NPWCD shall be improved relative to 1988 service standards.

Policy 6.3:

The North Port Road and Drainage District will provide documentation of its 1988 standards for maintenance service within one year of plan adoption.

Policy 6.4:

By 1990, the level of maintenance provided by the North Port Road and Drainage District shall be improved relative to 1988 service standards.

Policy 6.5:

The City of North Port and the NPWCD will jointly develop a mechanism to inspect and maintain their respective facilities, providing continuity and coordination of maintenance activities.

Policy 6.6:

When General Development Corporation has met its obligations to complete construction of the Plan of Reclamation or its substantial equivalent to meet adopted level of service standards on behalf of the NPWCD, the feasibility of consolidating the responsibilities of the NPWCD and the City Road and Drainage District as they relate to drainage maintenance shall be considered to provide a more efficient delivery of services.

Policy 6.7:

Where additional levels of service are requested within existing districts, the City and the NPWCD shall consider the establishment of special assessments to meet demands.

The purpose of the special drainage assessments is to provide additional levels of service within the existing districts than is being provided for the City as a whole through district taxation.

OBJECTIVE 7:

By 1990 the City will have revised land development regulations to provide for the control of stormwater, the maintenance of stormwater facilities, and the recharge of the surficial aquifer.

Policy 7.1:

By 1990, the City's storm water drainage regulations will be reviewed and revised to assure they conform with SWFWMD hydraulic analysis requirements and to ensure that future development utilizes stormwater management systems compatible with current water management district regulations, and adopted level of service standards.

Policy 7.2:

Adequate secondary and tertiary drainage facilities will be provided to control street flooding, to maintain hurricane evacuation routes, and to provide water quality treatment.

Policy 7.3:

The detention of stormwater for water quality improvement will be provided in any drainage rework projects by the acquisition or grant of easement of available land for detention and the design of swales for temporary storage of storm water.

Policy 7.4:

All facilities designed and constructed to provide stormwater management in the City will have maintenance easements. The easements will be provided around culverts, storm drains and other enclosed conduit drainage systems provided the City determines it is in its interest to accept and maintain the easements.

Policy 7.5:

The City subdivision regulations will be amended to provide for conservation of open space to enhance recharge to the surficial aquifer.

Policy 7.6:

Ordinance No. 82-124 (Stormwater Drainage Ordinance) will be reviewed and revised as necessary to maintain or restore groundwater levels consistent with flood prevention objectives and SWFWMD criteria.

Policy 7.7:

The City shall revise and adopt a new dredge and fill ordinance consistent with adopted levels of service and applicable goals, objectives and policies.

Policy 7.8:

The City shall revise and adopt a new culvert ordinance for crossing of secondary and tertiary drainage facilities consistent with objectives and policies contained herein.

OBJECTIVE 8:

Intergovernmental Coordination shall be increased to ensure acceptable construction and maintenance of primary, secondary and tertiary drainage systems.

Policy 8.1:

The City will meet and enter into intergovernmental agreements, as appropriate, with local, state, and federal agencies to achieve regional aquifer recharge protection objectives.

Policy 8.2:

The City shall endeavor to enter into interlocal agreements with Charlotte and Sarasota County to effectively monitor and maintain identified interjurisdictional drainage facilities.

Policy 8.3:

The City shall work with the NPWCD at the latter's monthly meetings to draft language to amend Chapter 298 for consistency with state and local standards, and meet with the Association of Special Districts and the legislative delegation to secure adoption of such an amendment.

Policy 8.4:

The City, in updating its drainage policies and ordinances, will meet with SWFWMD to ensure that the local regulatory framework is consistent with the planning objectives and regulations of the region.

Policy 8.5:

The City shall apply either separately or, as appropriate, jointly with other local governments and/or agencies, for grant funds available from state and federal agencies to obtain required financing for drainage projects.

POTABLE WATER

Table of Contents

Background Information	200
Introduction	200
Regulatory Framework	200
..... Federal	200
..... State	200
..... Local	201
Existing Conditions	202
Supply and Treatment	202
Peace River	202
North Port	204
Level of Service	207
Distribution	210
Fire Flow	210
Conservation	212
Needs Assessment	213
Supply and Treatment	213
Franchise Renewal	213
North Port	213
Peace River	214
Distribution	215
Urban Infill Area	215
Emergency Interconnections	215
Fire Flow	216
Conservation	216

Goals, Objectives & Policies217

List of Tables

Table 1 - Total Use, Average Daily Use, and Average
Daily Per Capita Use for North Port Water, 1983-1987 207

Table 2 - Average Monthly WATER Quality for North Port
and Peace River Water Treatment Plants and
Water Quality Standards Required by the State of Florida 210

Table 3 - Population Projections, Adjusted Population
Projections, Average Dially Use, and Maximum
Daily Use for North Port Water, 1988-1999 214

List of Figures

Figure 1 - Site Plan for the Peace River Regional Water Treatment Facility 205

Figure 2 - Flow Schematic for the Peace River Regional Water Treatment Facility 206

Figure 3 - Site Plan for the North Port Water Treatment Plant 208

Figure 4 - Flow Schematic for the North Port Water Treatment Plant 209

List of Maps

Map 1 - Area Served by GDU's North Port and Peace River Water Treatment Facilities 203

Map 2 - Existing and Proposed Water Lines 211

BACKGROUND INFORMATION

Introduction

A potable water supply system normally consists of a water supply source, a treatment plant and a distribution and storage network. Surface water (stored in natural lakes or man-made reservoirs), groundwater, or some combination of the two usually constitute the supply source for a system. The selection of a source for any system must consider the type and quality of sources available and the cost of developing the source for use. Public consumption requires most raw water to be treated for the removal of impurities for public health or aesthetic reasons. The treatment process adds to the cost of supplying water, but it also expands the range of raw water sources that can be utilized.

After treatment, water is supplied to consumers through a network of pipes and storage reservoirs. Large transmission lines, called distribution mains, carry water to major demand areas and interconnect with a network of smaller lines which supply individual establishments. Both the distribution mains and distribution network should be interconnected to form flow loops which allow water to circulate from various portions of the system to areas of highest momentary instantaneous demand. Interconnected flow loops provide assurance that "dead" areas do not develop in the lines where water can become stagnant.

Water is delivered under pressure within the distribution system in order to ensure adequate flow to meet demands. Demand fluctuates hourly, with peaks corresponding to periods of highest residential use in mornings and evenings. Localized demand peaks also occur when the system is utilized for firefighting purposes. In order to provide adequate quantities and pressure to meet peak use and fire flow demands, storage tanks are linked with the distribution system at strategic locations. During low demand periods these tanks are filled with water pumped into the system. During the peak demand periods, water flows from the tanks back into the system to augment flows and maintain pressure. Ground level and elevated storage tanks are both commonly used. Many systems include auxiliary pumps which operate during peak demand periods.

Regulatory Framework

Federal

The federal government has established quality standards, including operating standards and quality controls for the protection of water for public use. These regulations are provided in the Safe Drinking Water Act, Public Law 93-523. This law directed the Environmental Protection Agency (EPA) to establish minimum drinking water standards. The EPA standards are divided into "primary" (those required for public health) and "secondary" (recommended for aesthetic quality) categories.

State

In accordance with federal requirements, the Florida Legislature adopted the Florida Safe Drinking Water Act, Sections 403.850 - 403.864, F.S. The Florida Department of Environmental Regulation (DER) is the state agency responsible for implementing this act. In Chapter 17-22, F.A.C., DER has promulgated rules classifying and regulating public water systems. The primary and secondary standards of the Federal Safe Drinking Water Act are mandatory in Florida.

In addition to the direct regulation of water distributed in public water supply systems, DER establishes standards for various designated uses of natural water, one of those uses being for potable water. Under DER's classification scheme, Class I waters are designated for use as public water supplies. The Myakkahatchee

Creek is currently designated as Class I waters. These waters are regulated under standards specifically designed to protect public health aspects.

The Southwest Florida Water Management District (SWFWMD) is responsible for managing water resources to meet existing and future demands. Through the consumptive use permitting process, SWFWMD allocates water supplies among consumers. Consumptive Use Permits (CUP's) are renewable 6 years after issuance. As a condition of obtaining a permit, the SWFWMD requires CUP applications for an average use of 100,000 gallons per day and greater to submit a water conservation plan. This requirement was enacted in 1988 and it is expected that General Development Utilities will continue to address conservation as a condition to CUP renewal.

Local

Under the Growth Management Act of 1985, the City of North Port has responsibility to plan for the expansion of its potable water system to accommodate its future needs. General Development Utilities, Inc. (GDU) operates under a franchise from the City to operate and maintain a public water system. The 30 year franchise was granted in 1961 and expires on April 20, 1991. Under the franchise, GDU is required to provide reasonable, sufficient, adequate, and efficient service, and to further comply with all reasonable rules and regulations as may be imposed by the City. While the City has not played an active role in utility planning during the past 27 years of the franchise, it will, through this sub-element and the policies adopted herein, establish criteria and policies to guide the development of the potable water supply system to meet the needs of future growth.

The City Commission of North Port is also the governing body which is responsible for the approval of rates charged to customers by the franchise utility. The City Commission recently enacted Ordinance No. 88-10 establishing an advisory and hearing board to be known as the "City of North Port, Florida Public Utility Committee". The powers and duties of the Public Utility Committee are discussed in detail in the Sewer Sub-element.

Sarasota County regulates individual water wells to enforce a 75 foot separation between the well head and the septic tank drainfield. In addition, the well must be deep enough to obtain water of a quality that meets the secondary standards for total dissolved solids and fluorides. It does not have to meet other secondary standards, but it must meet all of the primary standards. Sarasota County's Department of Environmental Engineering must approve the well before a Certificate of Occupancy can be issued for a building in North Port that relies on a well for potable water.

EXISTING CONDITIONS

Supply and Treatment

Central potable water for the City of North Port is supplied by General Development Utilities, Inc. (GDU) which holds a franchise for the entire city. The water GDU supplies to the City is obtained from two plants, one within the City, the other approximately 3 miles beyond the City's northeast corner in DeSoto County (Map 1). The North Port plant obtains water from the Myakkahatchee Creek and the DeSoto County plant obtains water from the Peace River. Currently, central potable water service is available in the areas identified on Map 1.

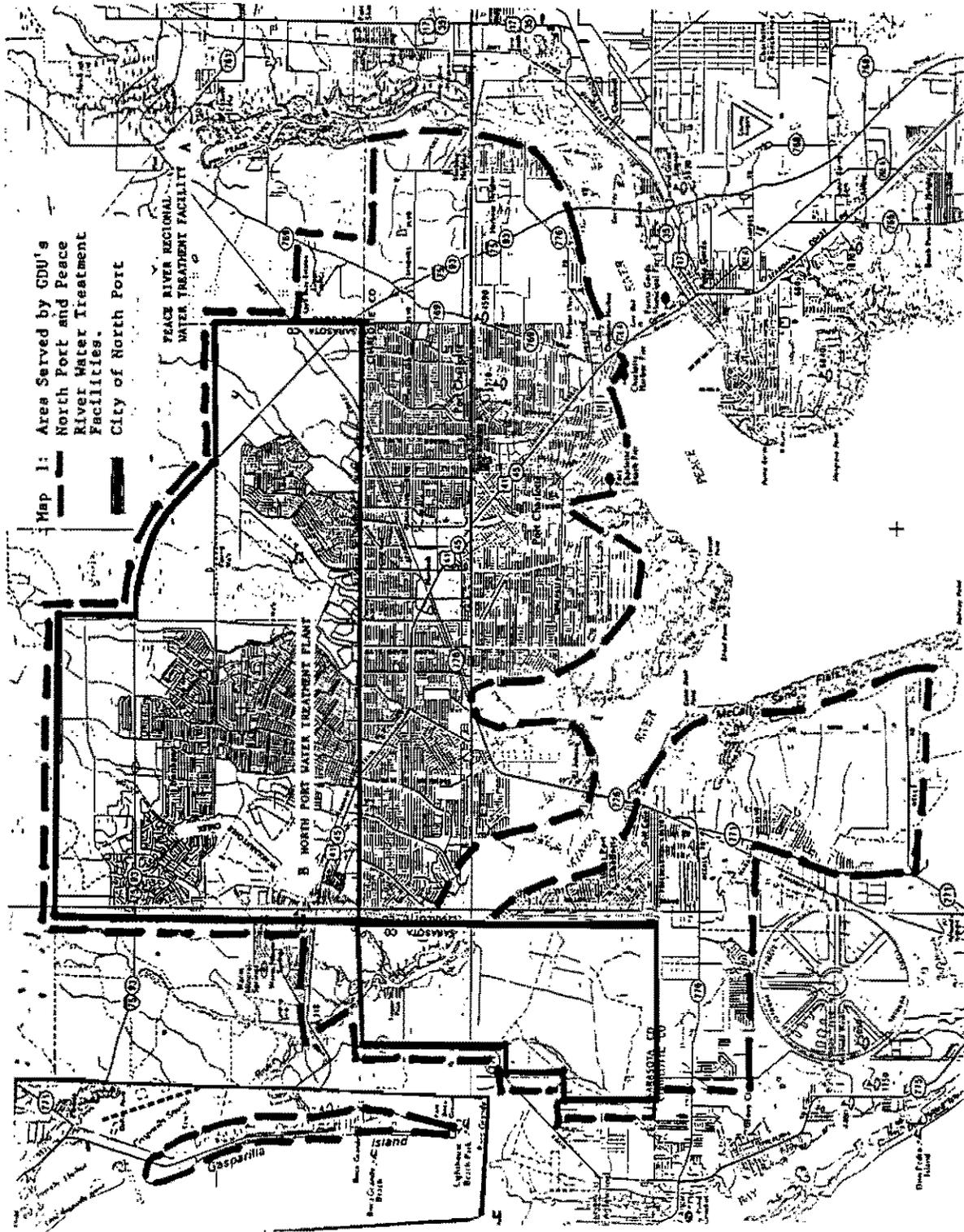
The Myakkahatchee Creek is classified by the State of Florida Department of Environmental Regulation (DER) as Class I, however, the Peace River is classified as Class III (water designated for recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife). Classification is based on a designated use. The designated use does not preclude other uses, and is not an indication of actual water quality, but of the degree of protection of water quality to be enforced by the State. Political factors from agricultural and mining interests desiring less stringent protection influenced the designation of the Peace River as a Class III rather than a Class I water.

A small minority of dwelling units within the City depend upon individual water wells for potable water. Of the 5,612 dwelling units in the City as of July 1987, only 48 are without the central water utility service. Individual water wells typically range from 100 to 400 feet deep, depending upon the quality of water available. Sarasota County requires water wells to be located at least 75 feet from the septic tank drainfield associated with the dwelling unit. In addition, the well must be deep enough to obtain water quality that meets the secondary standards for total dissolved solids and fluorides. While it does not have to meet the other secondary standards, it must meet all of the primary standards.

Peace River

Of the two treatment plants, the DeSoto County plant is the largest. It is currently permitted at a 12 mgd (million gallons per day) capacity, but is designed to expand up to 30 mgd. The Peace River Regional Water Treatment Facility (PRRWTF) is located in southwestern DeSoto County between Kings Highway and the Peace River. This plant is approximately 14 miles from the urbanized portion of North Port. Associated with the plant and located to the west of Kings Highway is an eighty-five acre surface reservoir for the off-stream storage of untreated raw water. It has a water storage capacity of 625 million gallons. In addition, there is an underground aquifer storage recovery system which allows for the storage of treated water. A maximum retrieval of stored water of 3.074 mgd is currently permitted from this underground reserve. The combination of surface and underground reservoirs allow maximum and efficient utilization of the Peace River within guidelines set by SWFWMD to protect the downstream estuary. Surface storage allows GDU to divert water from the river during high flow and treat stored raw water as needed to meet the demands of the service area, including the City of North Port. Underground storage of water already treated augments the capacity of the surface reservoir. Map 1 shows the GDU service area and the North Port City limits.

The Peace River Regional Water Treatment Facility operates as a coagulation/filtration system for the removal of color and turbidity. Elements for operation as a softening system are present, but some essential equipment is not. The plant yields a consistently high quality product that meets or exceeds all major state and federal criteria except for taste and odor. The individual hydraulic and process components meet or exceed its capacity of 12 mgd. The raw water pumping capacity is approximately 13 mgd and the transfer pumping capacity is approximately 12 mgd. The nominal capacity of the combined solids contact units is 12 mgd and the maximum filtration



capacity is 13 mgd. Design capacity of the re-carbonation basins is 15 mgd.

Figure 1 represents the site plan for the PRRWTF and Figure 2 a flow diagram. There are three vertical turbine type water pumps at the intake structure on the Peace River, two have a capacity of 4600 gallons per minute, one a capacity of 8320 gallons per minute. Water is pumped to either the treatment plant or the surface storage reservoir, or both, depending on the current withdrawal limitations and demands. The water to the plant enters a flow distribution chamber (known as the pentagon) from which it flows to the two solids contact units after the addition of alum and powdered activated charcoal (PAC). PAC is added to remove taste and odor caused organic compounds. Alum (Aluminum Sulfate) is a coagulant which destabilizes the particulate matter suspended in the raw water causing the particulate matter to clump together (a phenomenon known as "flocculation") and settle more rapidly. The settling is assisted by a polymeric flocculent aid which increases the speed at which large, heavy particles form. Most of the actual treatment is accomplished in the contact units where flocculation (the clumping together of smaller suspended particles) and clarification (the settling out of those particles) occurs.

From the solids contact units, clarified water flows back to the pentagon and, as chlorine is added, flows towards the filters. The free chlorine, which acts as the primary disinfectant, has a ten minute contact time before the addition of ammonia in the re-carbonation basins directly preceding the filters. The ammonia combines with the chlorine to diminish but not end its disinfectant power. The product of the combination, known as monochloramines provides continuous disinfectant protection and remains in the finished water through distribution and use. Binding chlorine with ammonia inhibits the formation of carcinogenic compounds known as trihalomethanes, which are becoming more tightly controlled by the federal government. Caustic soda (sodium hydroxide) is added after the filters to maintain pH between 8.2 and 8.4.

The water next encounters six declining rate gravity filters which consist of 18 inches of anthracite, 12 inches of sand and 13 inches of gravel. The filters have a combined filter area of 3600 square feet and a combined capacity of nearly 13 mgd. Filtered water flows to a 66,800 gallon clearwell and is pumped to either the 2 million gallon storage reservoir, the Aquifer Storage Recovery (ASR) system, or the high service pumps for distribution. The six high service pumps vary in capacities ranging from 800 to 5500 gallons per minute, which allows for a "mix and match" of use according to demand. These pumps have the potential to provide more than 26 mgd.

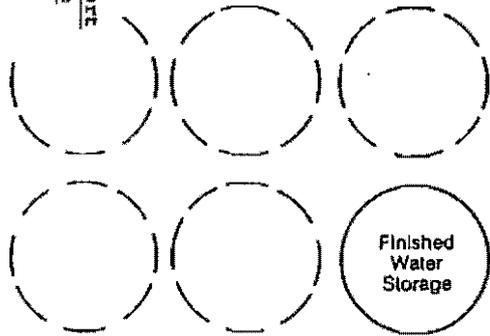
North Port

The North Port Water Treatment Plant (NPWTP) is located on the east side of the Myakkahatchee Creek, west of North Port Boulevard in the City. It was originally constructed in 1962. In 1974 it was expanded to its present capacity of 4.4 mgd. The plant is capable of operating in both color removal and softening modes. The use of these two modes is alternated according to the quality of water available from the creek. During the dry season when water hardness increases, softening is often required for one to three months. Color removal takes precedence over softening, however, and the softening process is only used when water color is low enough to be adequately removed at the same time. The degree of softening achieved by the NPWTP is limited by the amount of sodium hydroxide which can be added before exceeding regulatory limits for the sodium content of drinking water.

Both the raw water and transfer pumping are adequate for the plants rated capacity of 4.4 mgd. Flocculation capacity is at least 5 mgd and clarifier capacity is estimated to be approximately 6 mgd. Filtration capacity is the lowest of the process operations at just under 5 mgd.

Associated with the NPWTP is a 1 million gallon ground level storage reservoir. This allows for meeting a 5.4 mgd maximum day demand capacity. The plant operates from 4 to 16 hours a day, depending on the needs of the overall GDU system.

Source: Needs and Sources Report
for the Port Charlotte
Service Area
Date: October, 1987



LEGEND
 _____ Existing
 - - - - - Future
 Not to Scale

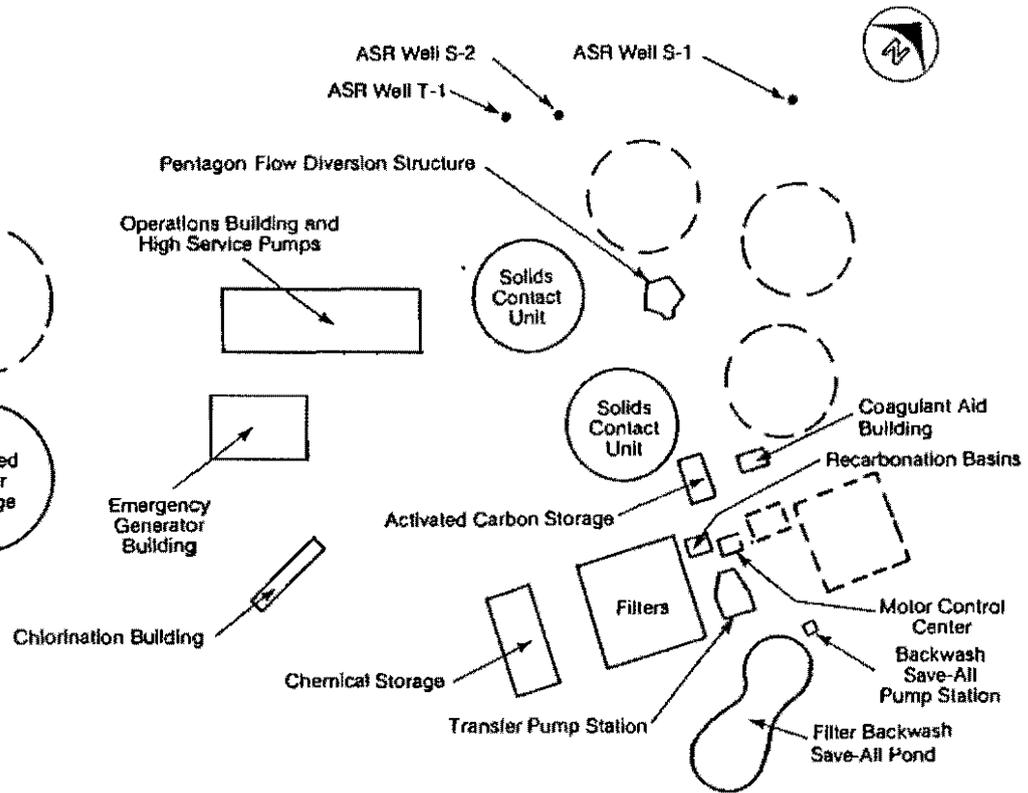


Figure 1 : Site Plan for the Peace River Regional Water Treatment Facility.

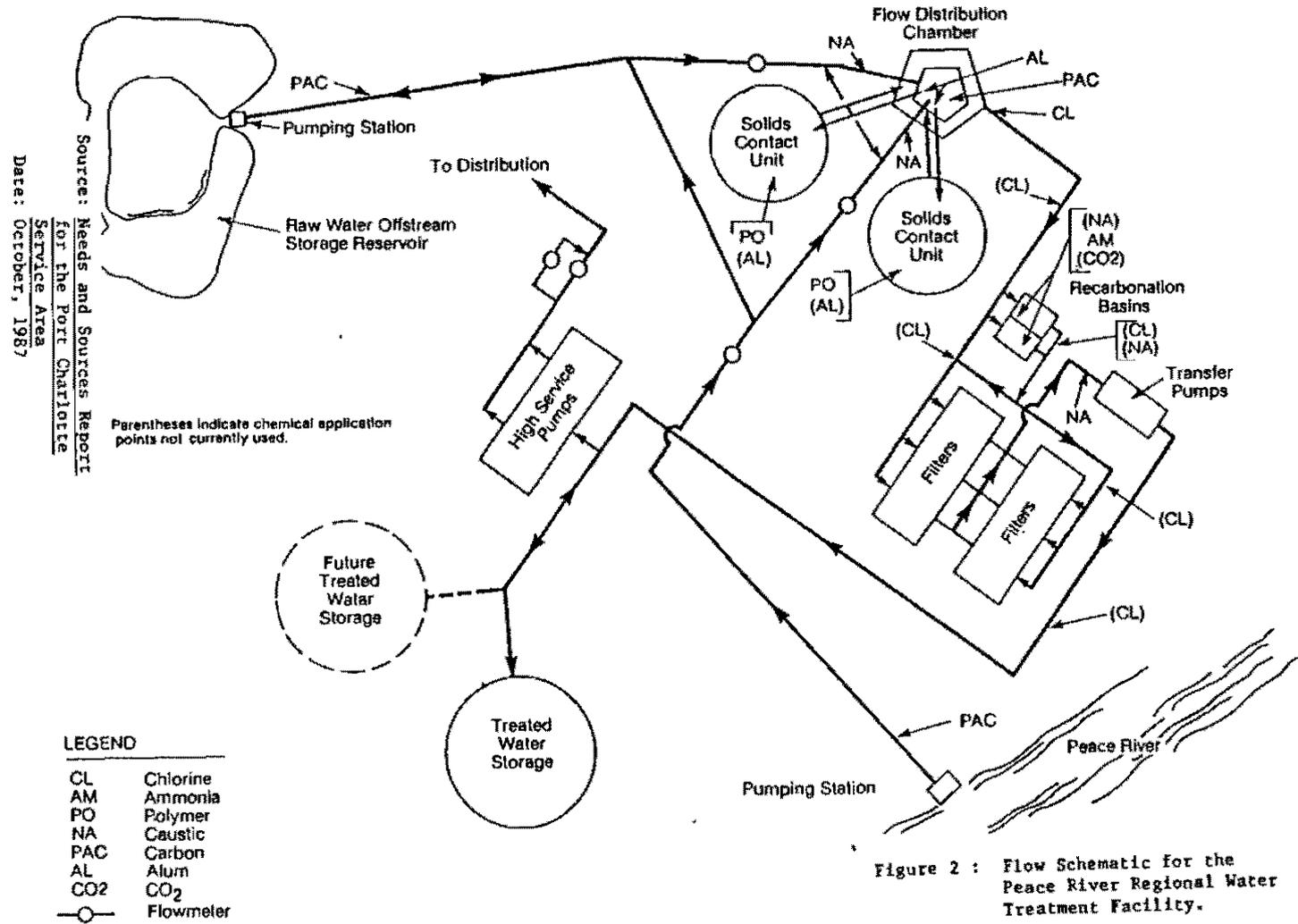


Figure 3 shows the site plan for the NPWTP. Figure 4 is the flow diagram. The plant actually consists of two separate treatment trains, each with a 2.2 mgd capacity. Powdered activated charcoal is added to the raw water to remove taste and odor; alum is added for coagulation; and a polymer is used as a flocculent aid. Water flows through flocculators into clarifiers where suspended matter settles out. Chlorine is added after the clarifiers but before the dual-media gravity filters. Sodium hydroxide is applied after the filters, along with ammonia. After filtering, the water passes to the twin 40,000 gallon clearwells from which the water is pumped to the 1 million gallon pre-stressed concrete reservoir. Six high service pumps with capacities from 200 to 2500 gallons per minute, deliver the water from the reservoir to the customers at a pressure of between 60 and 85 pounds per square inch.

The water supplied by the North Port plant is of good quality, but sometimes exceeds the maximum secondary drinking water standards for total dissolved solids (TDS) and sulfates. This occurs because the naturally high TDS and sulfate levels in Myakkahatchee Creek waters are increased by treatment processes used by the plant.

Both the Peace River and North Port plants appear to be well maintained and currently provide an acceptable level of service. The utility is a progressive one from a technical standpoint, two examples of which are the aquifer storage recovery system and the computerized control system for the high service pumps at the PRAWTF.

Level of Service

Water use in North Port fluctuates monthly. Peak demands occur during the first half of each year due to the seasonality of population and irrigation prior to the rainy season. The estimated average daily per capita use of water by North Port customers is reported by year in Table 1. Water data used to calculate average daily per capita use was obtained from GDU.

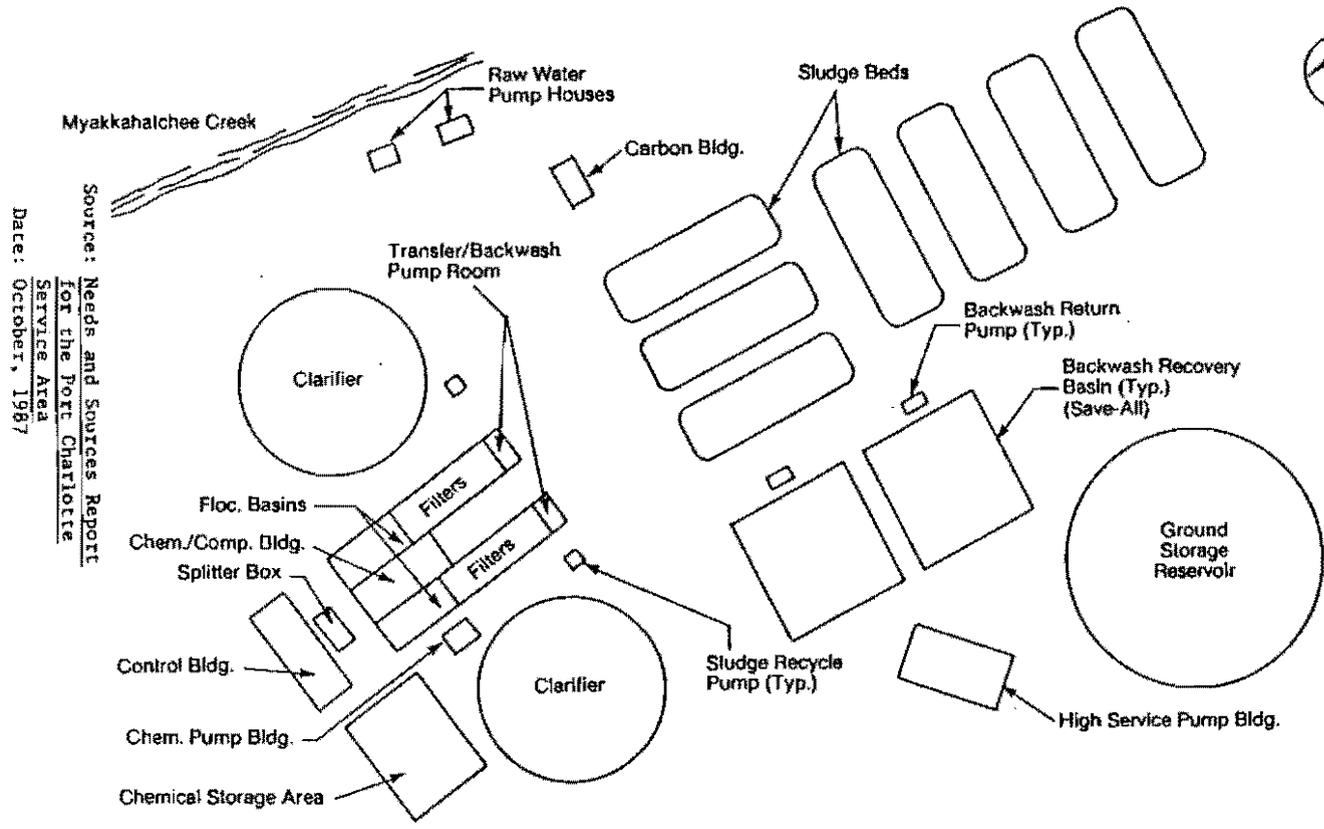
Table 1: Total Use, Average Daily Use, and Average Daily Per Capita Use for North Port Water, 1983-1987.

YEAR	TOTAL ANNUAL USE (mgd)	AVERAGE DAILY USE (mgd)	AVERAGE DAILY PER CAPITA (gal.)
1983	268.383	0.735	78.38
1984	273.707	0.750	76.50
1985	285.241	0.781	78.06
1986	314.875	0.863	84.30
1987	329.802	0.904	85.80

Source: General Development Utilities, Inc.
Florida Environmental, Inc.
August, 1988

The ratio of maximum day to average day water use is assumed to be 1.6. This information is based on GDU data and is important when considering treatment capacity expansions. Water plants which are used without the benefit of interconnects must be designed for maximum day volume.

The quality of water distributed to utility customers in North Port always meets primary drinking water standards, and typically meets the secondary standards as well. Table 2 provides a comparison of raw and finished water quality from both the Peace River and North Port plants with state drinking water standards.



Source: Needs and Sources Report
 for the Port Charlotte
 Service Area
 Date: October, 1987

Not to Scale

Figure 3 : Site Plan for the
 North Port Water
 Treatment Plant

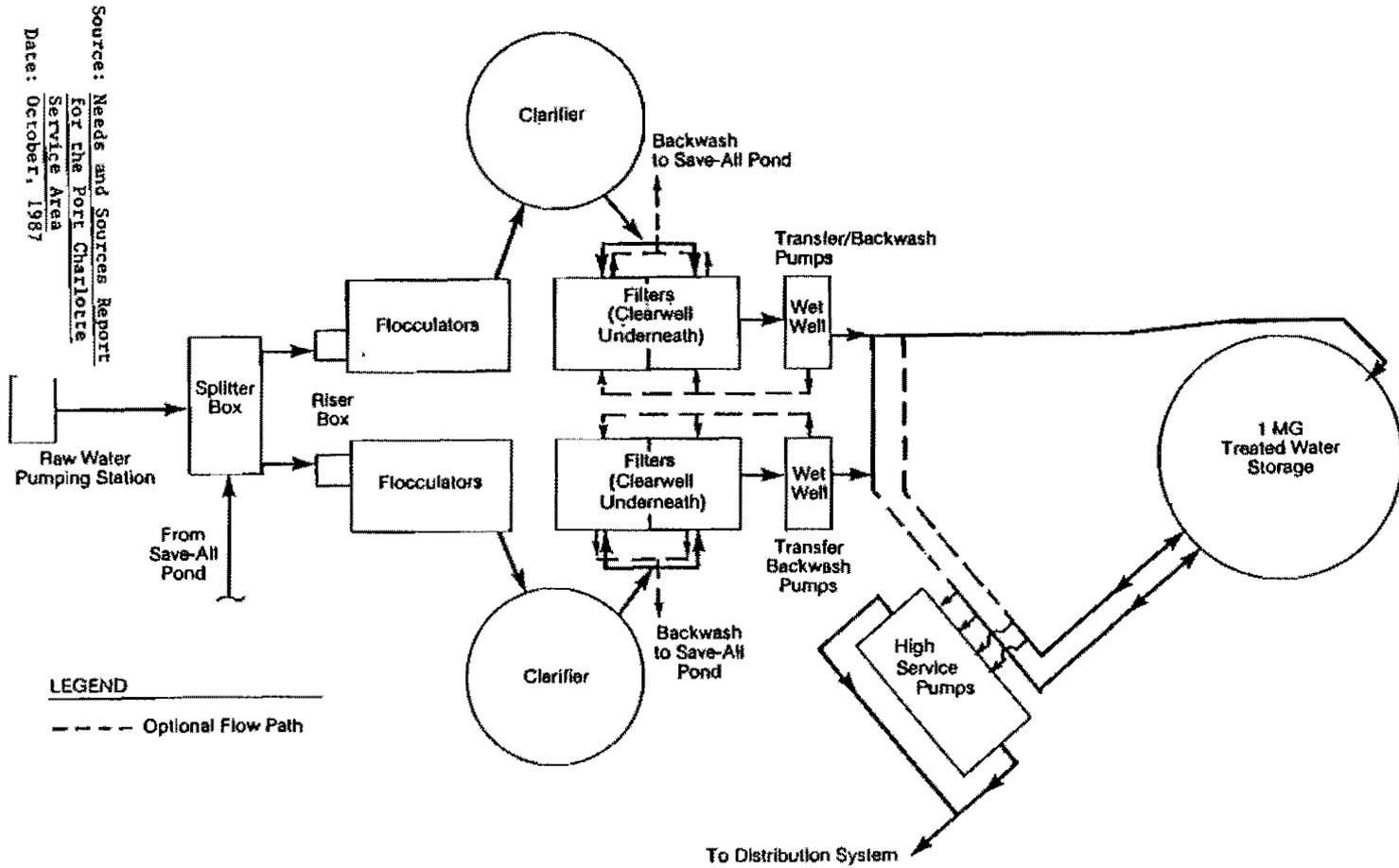


Figure 4 : Flow Schematic for the North Port Water Treatment Plant.

Distribution

The water demands of the City of North Port are met by the North Port Water Treatment Plant and the Peace River Regional Water Treatment Facility. Map 2 was extracted from the Interconnect Study done for the Peace River/Manasota Water Supply Authority by Boyle Engineering and shows existing water lines of at least 6 inches in diameter, future water lines and proposed emergency interconnects.

The Peace River plant maintains pressure to the system at between 72 and 84 pounds per square inch. A 36" water main carries treated water from the plant down Kings Highway and then along an abandoned railroad bed which parallels Raintree Boulevard through the southeast corner of the city. The line then splits, giving rise to an 18" main which runs south into Port Charlotte and a 12" main which runs east all the way to the North Port Water Treatment Plant.

In addition to serving the City itself, the North Port plant also supplies water to the residents of the Gulf Cove and South Gulf Cove subdivisions of Port Charlotte, via a 16" transmission main from the plant to the Myakka River, a 12" main under the river, and a 2 million gallon holding tank on the opposite side. The El Jobean Water Association and the Gasparilla Island Water Association are also supplied by GDU. Approximately 57% of the flow from the North Port plant crosses the river and serves Charlotte County.

General Development has contractual commitments to provide potable water service to its homesite customers in many areas of the City. To the extent that these commitments are exercised, water lines may be constructed in a manner which does not necessarily promote compact urban growth.

Table 2: Average Monthly Water Quality for North Port and Peace River Water Treatment Plants and Water Quality Standards Required by the State of Florida.

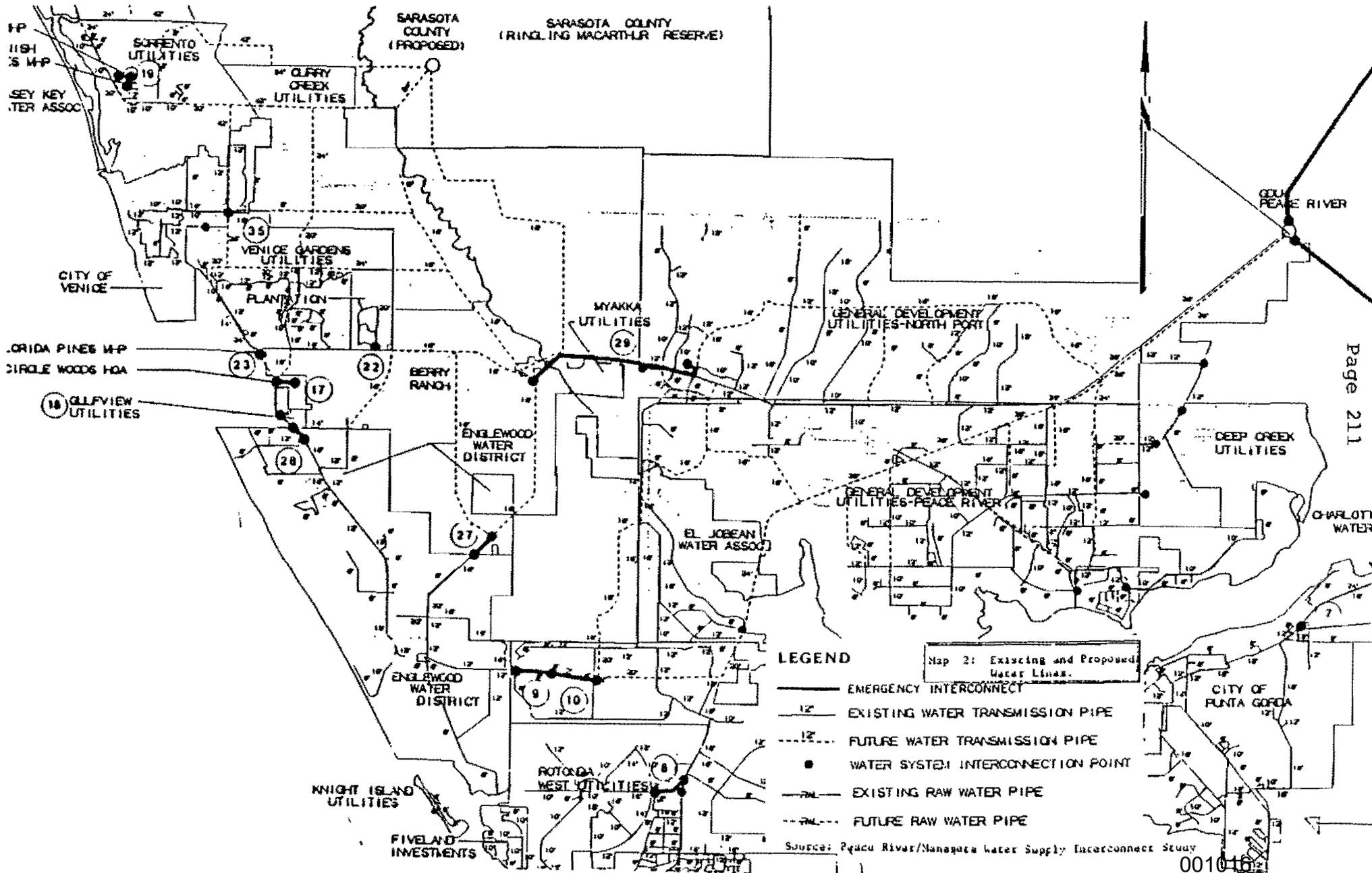
<u>PARAMETER</u>	<u>NORTH PORT</u>		<u>PEACE RIVER</u>		<u>DRINKING WATER STANDARD</u>
	<u>RAW</u>	<u>FINISHED</u>	<u>RAW</u>	<u>FINISHED</u>	
PH	7.2	8.0	7.2	8.3	6.5 (min)
Sodium, mg/l	25	50	37	53	150
Chloride, mg/l	50	57	69	65	250
Sulfate, mg/l	100	169	61	108	250
T.D.S., mg/l	297	396	243	227	500
Color, units	158	0	116	0	15
Turbidity, NTU	NR	0.4	NR	0.17	1.0

Source: Needs and Sources Report for the Port Charlotte Service Area, Prepared for GDU by CH2M Hill, Oct. 1987.

Fire Flow

The City of North Port does not currently exercise regulatory authority over the spacing of fire hydrants and the maintenance of fire flow levels. While hydrants service most of the urban infill area, as well as portions outside of the urban infill area, there is no documentation of the ability of the fire hydrant system to adequately serve the various land uses in the City.

The City of North Port Fire Department is currently in the process of drafting an ordinance requiring fire flow levels of service. This ordinance is setting flow and hydrant standards by zoning classification.



Conservation

The City of North Port currently has a water conservation code which takes effect whenever the SWFWMD imposes mandatory reductions in water use. This water conservation code is enacted as a management tool to curtail consumer demand during times of drought.

General Development Utilities has supported the use of mandatory water-saving devices. GDU is also actively involved in promoting public awareness of water conservation by inserting informational brochures in customer bills. Water conservation techniques supplement mandatory and voluntary measures which aim to reduce water demand. These techniques may involve the promotion of drought tolerant landscaping (xeriscap ing) or the installation of water conservation devices in the home.

Water conservation is addressed in greater detail in the Coastal/Conservation Element.

NEEDS ASSESSMENT

Supply and Treatment

Level of Service

Annual total water demand projections were made using permanent population projections done by Florida Environmental, Inc. These projections were adjusted for the seasonality associated with North Port population.

An average daily per capita consumption rate of 90 gallons was used to project total annual demand. Based on this level of service, the current average daily water demand by the City is .99 million gallons per day (mgd). Table 3 reports total annual demand, average daily demand and maximum daily demand projections for North Port through the year 1999. The ratio of 1.6 was used for maximum to average daily demand.

Franchise Renewal

The 30 year franchise for General Development Utilities, Inc. expires on April 20, 1991. By this date, the City must have evaluated its options for the continuation of central potable water service. The Public Utility Committee is empowered to consider options, hold public hearings, and provide the City Commission with recommendations. In the development of recommended options, the Committee should consider the public health and safety, quality of service, cost to utility customers, and long-range utility planning consistent with the policies of this plan.

North Port

The North Port Water Treatment Plant has a current capacity of 4.4 mgd, which could provide 100% of North Port's treatment needs through 1999, if it were the only treatment facility available, and if adequate raw water supplies were available. Its raw water source, the Myakkahatchee Creek, is however, highly variable in flow and quality and, according to GDU's consultant, cannot continually supply amounts adequate to meet the demand of the area currently serviced by the North Port plant. The Myakkahatchee Creek could, however, provide a supply of raw water adequate to meet the needs of the City of North Port alone through the year 1999.

CH2M Hill, an engineering consulting firm, has studied the supply potential of the creek for GDU. They concluded that approximately 10 months of surface storage volume would be needed in order to efficiently manage the supply variability of the creek to meet all demand without using water from the Peace River. About 2500 acre feet of storage (150 acres of land) would be needed to allow maximum utilization of the NPWTP's 4.4 mgd treatment capacity. Much less surface storage would be needed if surface storage were supplemented with aquifer storage, however, aquifer storage potential is limited by low quality native groundwater in North Port. A third alternative which would provide a self sufficient water supply entirely within the limits of the City would be a desalination plant utilizing water from the upper Floridan aquifer. GDU has no current plans to implement any of the above. Their consultant, CH2M Hill, has recommended that they phase out the NPWTP as a treatment plant since the Peace River Facility could provide water to the entire service area at a lower unit cost than could be provided with improvements to the North Port plant. If GDU were to implement this recommendation, the current plant might be used as a pumping station to aid distribution in the North Port and Gulf Cove areas.

Table 3: Population Projections, Adjusted Population Projections, Average Daily Use, and Maximum Daily Use for North Port Water, 1988-1999.

YEAR	PERMANENT POPULATION	ADJUSTED POPULATION	AVERAGE (mgd)	MAXIMUM (mgd)
1988	9,940	11,033	0.993	1.589
1989	10,352	11,491	1.034	1.655
1990	10,830	12,021	1.082	1.731
1991	11,367	12,617	1.136	1.817
1992	11,957	13,272	1.195	1.911
1993	12,601	13,987	1.259	2.014
1994	13,313	14,777	1.330	2.128
1995	14,046	15,591	1.403	2.245
1996	14,842	16,475	1.483	2.372
1997	15,668	17,391	1.565	2.504
1998	16,448	18,257	1.643	2.629
1999	17,185	19,075	1.717	2.747

Source: Florida Environmental, Inc.

Date: August, 1988

Note: The City's facility capacity analysis incorporates both projected service demand resulting from local-ly permitted developments and land use distributions as depicted on the Future Land Use Map.

Peace River

According to GDU's consultant, CH2M Hill, the Peace River withdrawal, treatment and storage system is, with facility expansion and delivery improvements, by itself capable of supplying all the GDU obligated water needs for the Port Charlotte area, including the entire city of North Port, for the period of the plan. The GDU projected average daily water demand for its entire service area is estimated to reach 10.8 mgd in 1994 and 13.9 mgd in 1999, with maximum daily water demand reaching 17.3 mgd in 1994 and 22.3 mgd in 1999. In its Consumptive Use Permit Renewal Application, GDU has requested from the Southwest Florida Water Management District an average daily withdrawal by 1994 of 10.8 mgd from the Peace River and a maximum daily withdrawal from an expanded aquifer storage and recovery system of 14.9 mgd. The combined water capacities of the river, the storage reservoir for raw water, and the underground storage system will be ample to meet the projected demands for the entire GDU service area, including the City of North Port, through 1999 with planned expansions and improvements.

By the year 2000, plant treatment capacity would have to be expanded from 12 to 18 mgd. Cost estimates by CH2M Hill in 1987, indicate that development of the Peace River source would cost less than half what development of the North Port/Myakkahatchee Creek source would cost for an equal increase in yield. Any desire

to expand the North Port supply within the near future would depend, then, not on an absolute need for the least cost water, but on other factors of possible importance to GDU or the citizens of North Port.

The potential exists, however, for a self-sufficient water system to exist entirely within the City, should such a need and desire arise. This may require supplementing the current surface supply with desalinated water from the upper Floridan aquifer. The usefulness of the surface supply could be maximized by the construction of reservoir capacity, along with a limited aquifer storage recovery capacity.

While the Peace River has adequately supplied high quality raw water to the Peace River plant, it is not protected by water quality standards for potable water supply. The Peace River's current designated use is for the propagation of fish and wildlife, and it is designated a Class III water. Most potable water supplies, including the Myakkahatchee Creek, are designated as Class I waters. Class I waters receive a higher level of protection than Class III waters, and it would be appropriate for the Peace River to be reclassified to provide adequate protection to the raw water supply.

Distribution

Urban Infill Area

Because of the large number of platted lots, and the City's relatively large size, there is a great potential in the City for urban sprawl. This potential needs to be counter-balanced by the provision of utility services to provide orderly, compact urban growth. The provision of water service within the City will, to a large extent, determine where building occurs. The urban infill area, designated in the Future Land Use Element, comprises one of the main areas of the City which this plan targets for growth. The City needs to adopt an implementation strategy to encourage growth by the provision of potable water supplies in the urban infill area. At the same time, there is a private sector commitment to provide potable water distribution lines outside of the urban infill area. These lines will be extended at the utility's expense, but will have an impact on other services provided by the city.

Individual water wells will continue to be a source of water supply for some residents of the City. The City through its annexation and platting activities has a commitment to allow building outside the urban infill area provided that potable water supply can be obtained, either from General Development Utilities, Inc. or through the installation of an individual well.

Emergency Interconnections

Because of the possibility of drought, contamination events, natural disasters or other events which may limit or curtail use of water supplies, it would be beneficial to establish interconnections between utilities within a region to assure the minimal water needs of all would be met. A major study evaluating existing and needed emergency interconnections between the utilities within the Peace River/Manasota Water Supply Authority region is being conducted by Boyle Engineering, Inc.

The GDU distribution system is currently interconnected with Charlotte Harbor Water Association, Deep Creek Utilities, El Jobean Water Association, Gasparilla Island Water Association and Myakka Utilities, but none of these other water utilities could provide emergency water to GDU as most have only small independent supplies. The GDU system is not interconnected with Punta Gorda or the Englewood Water District.

The GDU water system is one of the three largest in the region; the other two being those owned and operated by Sarasota and Manatee counties. While each of these utilities could provide emergency supplies to many of the smaller utilities, those smaller utilities would not be capable of supplying all the needs of the major system. Only the three major utilities previously mentioned are capable of backing up one another to such a degree as to provide adequate levels of service during emergency loss of one supply, but such an emergency

Interconnect system is projected to cost \$40 to \$50 million for the 50 to 60 miles of large diameter piping necessary to connect the three systems. Further, the infrequent use of such a pipeline would likely cause water quality problems in times of needed use. For these reasons, the Boyle Engineering, Inc. has not recommended building a complete and direct interconnect system for strictly emergency use between the three regional utilities. This leaves open the possibility, however, of establishing interconnected, regularly used supply transmission mains between the three regional systems.

Sarasota County is planning transmission mains in relatively close proximity to the GDU North Port plant for development of the Ringling-MacArthur Tract as a potable water supply. These plans are still being evaluated, and the time-frame for development of the tract's water resources is still unknown. As a tentative cost estimate for this interconnection, one could use that developed by the Emergency Interconnect Study engineers for construction of a 20" line for approximately 24,000 feet from the GDU-North Port plant across the Myakka River where it would connect to a County transmission line. The cost of this project was estimated at \$2,227,500. This would be a two-way interconnection which would allow transfer of water in either direction depending on the actual circumstances of the emergency. The estimated cost per person within the benefiting areas, which encompasses all the persons served by both systems, would be a one-time cost of \$8.71. While all interconnections are only in a very tentative planning stage, connecting the North Port system to Sarasota County's system would seem feasible.

Fire Flow

The City needs to continue its development of an ordinance requiring fire flow standards and hydrant location standards by zoning classifications. This ordinance is currently being developed by the North Port Fire and Rescue District staff and when complete will provide adequate standards for the protection of structures anticipated within each zoning classification.

Conservation

GDU submitted a Water Conservation Plan with its recent CUP application and may be required by the SWFWMD to implement certain water conservation measures as a condition to CUP renewal. The CUP renewal application was submitted in May 1988 and is expected to be approved by October 1988. Plans will be evaluated by SWFWMD for appropriateness and anticipated effectiveness for reducing or maintaining already low water use levels in the context of specific local conditions. The Conservation Element of this North Port Comprehensive Plan provides water conservation guidelines to be implemented by the City.

GOALS, OBJECTIVES & POLICIES

GOAL 1:

TO PROVIDE FOR A SAFE, HIGH QUALITY AND ADEQUATE SUPPLY, TREATMENT, DISTRIBUTION, AND CONSERVATION OF POTABLE WATER TO MEET THE NEEDS OF THE RESIDENTS OF NORTH PORT THROUGH THE YEAR 1999.

Objective 1:

The City will continue to implement procedures to ensure that at the time a development permit is issued, adequate potable water supply, treatment, and distribution capacity is available or will be available to serve the development within a reasonable time, as will be defined in a Concurrency Management System Ordinance the City intends to adopt as outlined in the Capital Improvements Element.

Policy 1.1:

The following level of service standards are hereby adopted to achieve the objective, and shall be used as the basis for determining of facility capacity and the demand generated by a development:

LEVEL OF SERVICE STANDARD

Supply and Treatment

90 gallons per day per capita with quality meeting or exceeding EPA and DER Primary and Secondary Drinking Water Standards.

Distribution

Residential: Eighty percent (80%) of all households within the Urban Infill Area and future growth areas will be served with central potable water by 1994. The adoption of this level of service in no way reduces the obligation of the utility to provide central water to 100% of properties in accordance with the exclusive franchise of the utility.

Commercial: All new commercial within the City will be served by central potable water, or individual water wells approved by DHRS and DER if connection to central potable water is not economically feasible.

Industrial: All new industrial within the City will be served by central potable water, or individual water wells approved by DHRS and DER if connection to central potable water is not economically feasible.

Individual water wells will be allowed consistent with regulations promulgated by DHRS and administered by Sarasota County.

Policy 1.2:

All improvements for replacement, expansion or increase in capacity of facilities shall be compatible with the adopted level of service standards for the facilities.

Policy 1.3:

The City shall develop procedures to update facility demand and capacity information as development orders or permits are issued.

Objective 2:

The City will maintain a five year schedule of capital improvement needs, as identified in the "Needs Assessment" section on page 213 of this Element and in the Capital Improvements Element, for potable water supply, treatment and distribution, identify responsible parties and agencies, and identify time frames for completion. The schedule will be updated annually in accordance with the review process for the Capital Improvement Element of this plan, and in accordance with the City's annual budget process.

Policy 2.1:

The City of North Port Public Utility Committee, created by Ordinance No. 88-10, will address future needs for potable water supply, treatment and distribution facilities and evaluate options to satisfy these needs. It will evaluate and rank proposed capital improvement projects for potable water facilities for consideration in the five year schedule of capital improvement needs.

Policy 2.2:

Through the rate setting procedures established by the Public Utility Committee, private utilities may be required to submit a five year Capital Improvement Program.

Policy 2.3:

Proposed capital improvement projects will be evaluated and ranked according to the following priority level guidelines:

Level One - whether the project is needed to protect public health and safety, provide facilities and services, or to preserve or achieve full use of existing facilities.

Level Two - whether the project increases efficiency of use of existing facilities, prevents or reduces future improvement costs, provides service to developed areas lacking full service or promotes in-fill development.

Level Three - whether the project represents a logical extension of facilities and services within a designated service area.

Objective 3:

Existing deficiencies which have been identified in the "Needs Assessment" section on page 213 of this Element will be corrected by the responsible party by undertaking the following projects:

- To improve the quality of the potable water supply, the City will lend staff assistance, as required, to SWFWMD and any affected utility to identify and remedy all free-flowing artesian wells in the Myakka-hatchee Creek and Snover Waterway drainage basins pursuant to Policy 1.1 of the Natural Groundwater Aquifer Recharge Sub-element.
- To ascertain the scope of any leachate contamination threat to the potable water supply, the City will continue to work cooperatively with the owner of the landfill property in an effort to properly monitor the landfill area.
- In order to assure adequate fire protection, the City will develop an ordinance regulating fire flow and hydrant spacing for adoption by 1990.

Policy 3.1:

Projects to correct deficiencies detailed in Objective 3 should be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Policy 3.2:

The Public Utility Committee shall review the annual work programs of the utility and the City to ensure that projects to correct deficiencies are scheduled to minimize disruption of services and duplication of labor, and to maintain service levels for all facilities.

Policy 3.3:

Projects needed to correct existing deficiencies should be given priority in the formulation and implementation of the annual work programs of the City.

Policy 3.4:

No permits shall be issued for new development which would result in an increase in demand on deficient facilities prior to completion of improvements needed to bring the facility up to standard within a reasonable time to serve the development.

Policy 3.5:

To protect the potable water supply, the Public Utility Committee will evaluate options to extend sewer collection lines within the Urban Infill Area and future growth areas pursuant to Policy 3.5 of the Sanitary Sewer Sub-element.

Objective 4:

Projected demands for supply, treatment, and distribution facilities through the year 1994 as identified in the "Needs Assessment" section on page 213 of this Element will be met by undertaking the following projects:

- By 1994, the utility will expand the treatment and storage capacity of the City's potable water system pursuant to SWFWMD and DER regulations to assure the provision of an average and maximum daily use of 1.33 mgd and 2.13 mgd, respectively, for the City of North Port, based on population projections.
- Potable water distribution for 80% of households will be encouraged to be provided throughout the Urban Infill Area by 1994.
- The City will implement conservation programs, as appropriate, to reduce potable water use consistent with the Conservation Plan required by SWFWMD of GDU for its Consumptive Use Permit renewals. The City shall cooperate with GDU in the implementation of plans necessary for Consumptive Use Permit renewals.
- The City will establish management and protection programs and procedures to preserve and enhance the Myakkahatchee Creek as a Class I potable water supply pursuant to Objective 1.2 of the Coastal/Conservation Element.

Policy 4.1:

Projects for the 1989-1994 planning period will be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Policy 4.2:

The Public Utility Committee will evaluate the water quality and supply reliability issues which were the basis for CH2M Hill's recommendation that GDU phase out the North Port Water Treatment Plant as a treatment facility for water taken from the Myakkahatchee Creek.

Policy 4.3:

The City will meet with representatives of regional utilities, including Sarasota County, to evaluate the regionalization of water supply systems, including interconnection opportunities with the Sarasota County distribution system.

Policy 4.4:

The City will, through its participation in the Surface Water Improvement Management Program for Charlotte Harbor, the Myakka River Management Coordinating Council, and the Big Slough Watershed Advisory Council, actively support regulatory activities designed to increase protection of the Myakkahatchee Creek and the Peace River as a potable water supply.

Policy 4.5:

By the April 20, 1991 expiration date of General Development Utilities, Inc. franchise authorization under Ordinance 61-1, the Public Utility Committee will have recommended options to the City Commission for the continuation of central potable water service. In the development of these recommended options, the Public Utility Committee will consider public health and safety, quality of service, cost to utility customers, and long-range utility planning consistent with the policies of the Comprehensive Plan. After public hearings, the Committee will issue a report to the City Commission including an evaluation of each recommended option by the criteria identified above and recommendations of legislation needed to implement each option (e.g. interlocal agreements, franchise ordinances, or budgetary appropriations).

Objective 5:

Projected demands for the period 1995-1999 as identified in the "Needs Assessment" section on page 213 of this Element will be met by undertaking the following projects to provide supply, treatment and distribution facilities:

- By 1999, the utility will be encouraged to expand the treatment and storage capacity of the City's potable water system pursuant to SWFWMD and DER regulations to assure the provision of an average and maximum daily use of 1.72 mgd and 2.75 mgd, respectively, for the City of North Port, based on population projections.
- Potable water distribution for 90% of households will continue to be encouraged throughout the Urban Infill Area and future growth areas.
- The City will implement conservation programs, as appropriate, to encourage the reduction of potable water use consistent with the Conservation Plan required by SWFWMD of GDU for its Consumptive Use Permit renewals.

Policy 5.1:

Projects for the 1995-1999 planning period will be undertaken in accordance with the schedule provided in the Capital Improvement Element of this plan.

Objective 6:

The City shall continue to implement and enforce the provisions of City Ordinance No. 87-253 (Water Conservation Code) whenever called upon to do so by SWFWMD consistent with SWFWMD's own Water Shortage Plan, and shall implement the following policies to further conserve potable water use:

Policy 6.1:

Building codes, utility regulations, landscaping ordinances, and public education programs will be evaluated for implementation of water conservation measures.

Policy 6.2:

The City will continue to support and implement SWFWMD and DER programs which conserve the use of potable water through waste water reuse.

NATURAL GROUNDWATER AQUIFER RECHARGE

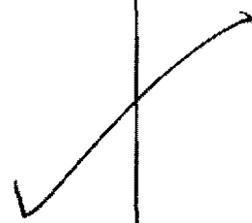


Table of Contents

Background Information223

 Introduction 223

 Terms & Concepts 223

 Regulatory Framework 224

 Federal 224

 State 226

 Local 227

Existing Conditions228

 Surficial Aquifer 228

 Intermediate Aquifer 228

 Floridan Aquifer 228

 Aquifer Recharge 229

Needs Assessment231

 Potable Water Supply 231

 Surface Aquifer Recharge 231

Goals, Objectives & Policies233

List of Figures

Figure 1 - Schematic Representation of Groundwater Aquifers and Formations 225

BACKGROUND INFORMATION

Introduction

The City of North Port has limited potable surface and groundwater resources. Surface water from the Myakkahatchee Creek and Snover Waterway provide raw water to the North Port Water Treatment Plant. The quality of North Port's raw water supply is susceptible to surficial groundwater contamination in the watershed supplying Snover Waterway and the Myakkahatchee Creek. The greatest potential contamination to the raw water supply is that from highly mineralized waters from free flowing artesian wells and springs. As the City of North Port becomes more urban and the watershed of the Myakkahatchee Creek becomes more intensely used, there is the potential for the introduction of other contaminants as well from urban runoff and septic systems.

While the City of North Port depends upon the surficial aquifer to recharge its surface water supply, it must control water table levels consistent with urban use. Water tables are naturally high in most areas of the City. Drainage canals have lowered water tables consistent with the need to prevent urban flooding. While drainage is obviously necessary, the effect of lowering the water table is to reduce the storage of the surficial aquifer. Hence, a balance must be achieved to provide adequate drainage, without overly depleting the surficial aquifer.

The North Port primary drainage system is staged by a series of water control structures which hold water levels higher in upstream portions than in downstream sections. As the land rises away from the Myakkahatchee Creek, the staged water levels in the primary drainage canals also rise. This design provides a relatively uniform drawdown of the surficial aquifer, without undue depletion in the upper reaches of the drainage system.

Efforts to attenuate surface water runoff for stormwater treatment or management of flows will also serve to recharge the water table. To the extent that stormwater management systems can be used or retrofitted to existing systems in the City of North Port, the surficial aquifer will be recharged and serve as a more dependable source of raw water provided through the canals and the Myakkahatchee Creek.

Conservation of the surficial aquifer requires consideration of the potential for water reuse. The reuse of recovered wastewater for irrigation would not only reduce the demand for potable water, but would recharge the surficial aquifer on which potable water supplies depend.

Terms and Concepts

Figure 1 is taken from the Description of the Region prepared by the Southwest Florida Regional Planning Council (SWFRPC) and is included to provide guidance on the vertical location of the aquifers and formations discussed in this Section.

Aquifer - Water-bearing layers of porous rock, sand or gravel. Several aquifers may be present below one surface location separated by layers which are impermeable or semipermeable to water.

Surficial Aquifer - Also called the water table aquifer or unconfined aquifer. In the City of North Port it is 50-75 feet thick. The depth to the water table of the surficial aquifer is close to the land surface throughout the city and is at the surface in depressional areas.

Intermediate Aquifer - The Intermediate Aquifer includes the Tamiami-upper Hawthorn aquifer. Throughout Sarasota County, including the City of North Port, it consists of a series of mixed permeable and poorly permeable material that functions regionally as a water-yielding hydraulic unit and hydraulically separates the

surficial and Floridan aquifer system. In Sarasota County the intermediate aquifer system is separated into two distinct water bearing units. The upper unit consists of the Tamiami formation and the upper Hawthorn formation, together referred to as the Tamiami-upper Hawthorn aquifer. The lower unit consists of the lower Hawthorn Formation and permeable parts of the upper Tampa Limestone. The combined thickness of these two aquifers is about 375 feet.

Floridan Aquifer - The Floridan Aquifer is composed of a thick stratified sequence of limestone and dolomite. It is the most productive aquifer in the City, but its use is generally restricted because of poor water quality. The top of the Floridan Aquifer is about 500 feet below ground, and it is about 1800 feet thick.

Aquifer Recharge - Recharge is the amount (measured as depth) of water that enters an aquifer per unit area of the aquifer. The source of water in aquifers is rainfall. Permeability is the capacity for transmitting a fluid, measured by the rate at which a fluid of standard viscosity can move a given distance through a given interval of time. Depending on the permeability of soils, rainwater percolates at various rates into the aquifer. Prime groundwater recharge areas are those areas of high permeability where rainwater enters the aquifer rapidly. The term is generally used to describe recharge areas for drinking water aquifers. Aquifer recharge areas are surface features and are subject to alteration by development. Covering a recharge area with impervious surfaces, such as roads or parking lots, or increasing runoff rates can alter the total volume and rate of recharge.

Potentiometric surface - The imaginary pressure surface represented by the level to which water will rise in tightly cased wells that tap a confined aquifer, such as the Floridan aquifer.

Attenuation - The delay of stormwater runoff to suppress the peak rate of discharge. Attenuation measures are used to offset the tendency for developed land with greater areas of impervious surfaces to discharge stormwater at higher rates than before development.

Groundwater Pollution - Pollutants from urban runoff can enter an aquifer and degrade the quality of groundwater. Salt intrusion from canals or from flowing artesian wells or springs may also make groundwater unsuitable for drinking.

Regulatory Framework

The intent of federal and state regulation of groundwater aquifers is the protection of public drinking water supplies from contamination. The protection of water table levels and the regulation of aquifer withdrawals are primarily under the domain of the Southwest Florida Water Management District (SWFWMD). In North Port, raw water for the drinking water supply is derived from the surficial aquifer which is subject to possible contamination from land use activities and depletion from drainage.

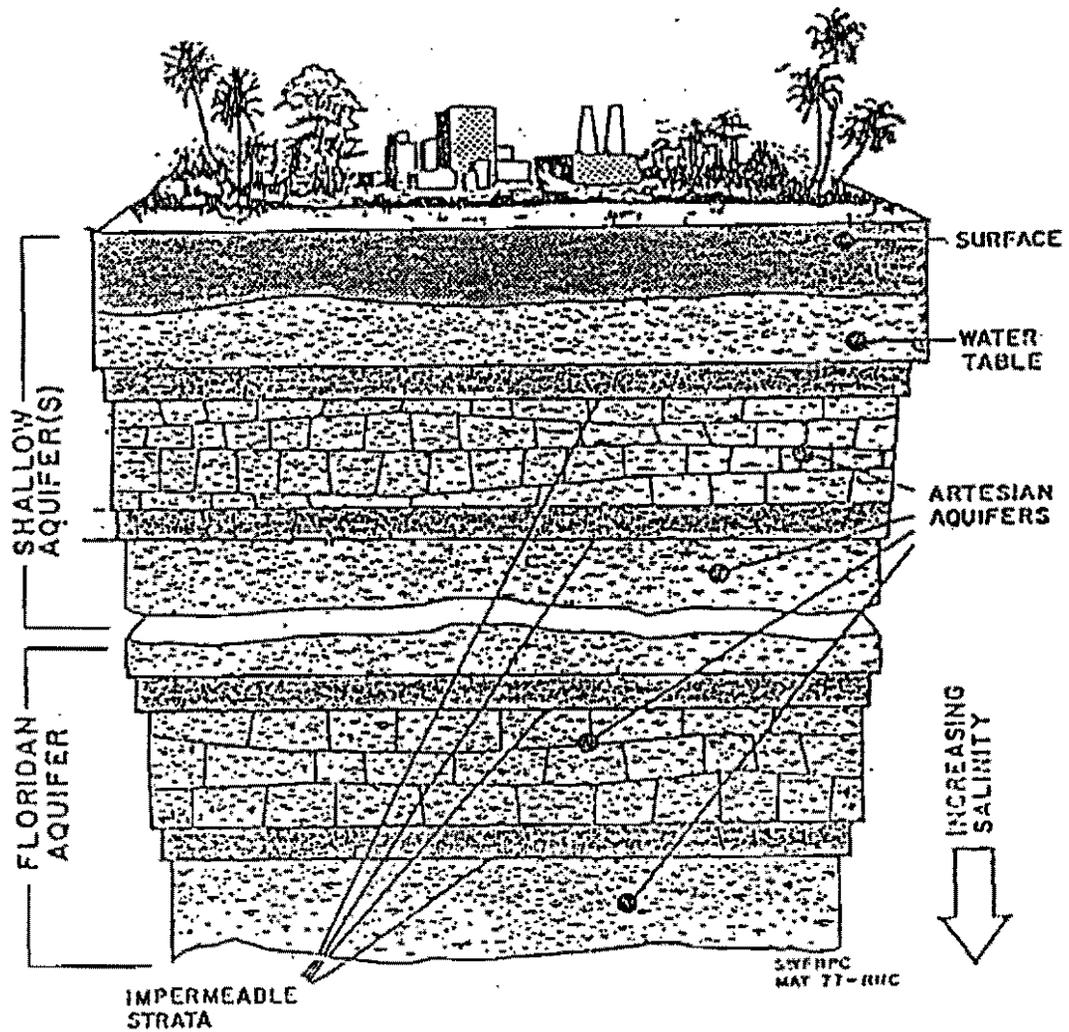
Federal

Two years following the passage of the Clean Water Act (discussed in the Sanitary Sewer Sub-element), the Safe Drinking Water Act (PL 93-523) was enacted on December 16, 1974 for the purpose of implementing a nationwide system of monitoring and controlling the quality of water supplied by public water systems. The Environmental Protection Agency (EPA) was given authority to administer the Act, and was required to establish primary and secondary drinking water standards. Primary standards are those which specify levels of contaminants above which adverse health effects may result from water consumption; secondary standards are intended to specify maximum levels for those contaminants which may adversely affect the odor or appearance of water, or otherwise adversely affect the public welfare. In addition, the Act also required EPA to promulgate rules and enforcement standards to protect underground sources of drinking water by regulating the use of underground injection techniques for the disposal of reclaimed water.

FIGURE 1

Schematic Representation of
Groundwater Aquifers & Formations

Source: SWFRPC, Description of Region, 1987



In 1986, the Safe Drinking Water Act was amended to strengthen protection of public water system wellfields and aquifers that are the sole source of drinking water for a community. The amendments for wellfield protection require states to work with local governments to map wellhead areas and develop land use controls which will provide long-term protection from contamination for these areas. The aquifer protection amendments require EPA to develop criteria for selecting critical aquifer protection areas. The program calls for state and local governments to map these areas and develop protection plans, subject to EPA review and approval. Once a plan is approved, EPA may enter into an agreement with the local government to implement the plan. As of this writing, EPA has not yet completed development of the criteria needed to implement this program.

State

While primary enforcement responsibility for the Safe Drinking Water Act is delegated to EPA, states are encouraged to take such responsibility by provisions in the Act which make the receipt of various types of grants contingent upon the implementation of an approved regulatory program. As a result of the passage of the Florida Safe Drinking Water Act of 1977 (codified in Chapter 403, F.S.), the state of Florida has primary enforcement authority for the regulation of drinking water supplies. The Department of Environmental Regulation (DER) has primary responsibility for the administration and implementation of the Act. The Department of Health and Rehabilitative Services (DHRS) and county health departments play a supportive role having definite duties and responsibilities. DER has developed rules classifying aquifers and regulating their use (Chapter 17-3, F.A.C.). These rules are currently being amended to strengthen protection of sole source aquifers and wellfields tapping them. DER has also established regulatory requirements for facilities which discharge to groundwater (Section 17-4.245, F.A.C.) and which inject materials directly underground (Chapter 17-28, F.A.C.), such as the existing General Development Utilities wastewater effluent injection well.

In administering the Act, DHRS and the County health departments work closely with DER in many respects. DHRS has specific responsibilities which include exercising general supervision and control over private and public water systems not covered by the Act. Public water systems not covered by the Act are those which: 1) consist of distribution and storage facilities and do not have any collection or treatment facilities; 2) obtain all water from, but are not owned or operated by, a public water supply system to which the regulations apply; 3) do not sell water to any person; and 4) do not convey passengers in interstate commerce. No such public water supply systems currently exist in North Port and DHRS is primarily responsible for the regulation of private wells in the City. Primary field responsibility rests with the County health departments. In Sarasota County, private wells are regulated by the County Health Department.

The task of identifying the nature and extent of groundwater resources available within the state has been delegated to the regional water management districts. SWFWMD has prepared and made available to the City a Groundwater Basin Resource Availability Inventory (GWBRAI) for Sarasota County, which is to be used to plan for future development in a manner which reflects the limits of available resources.

The GWBRAI for Sarasota County includes the following:

- A hydrogeologic study to define the ground water basin and its associated recharge areas.
- Site specific areas in the basin deemed prone to contamination or overdraft resulting from current or projected development.
- Generalized ground water recharge areas.
- Criteria to establish minimum seasonal surface and ground water levels.
- Areas suitable for future water resource development within the ground water basin.

- Existing sources of wastewater discharge suitable for reuse, including the feasibility of integrating coastal wellfields.
- Potential quantities of water available for consumptive uses.

The GWBRAI has been submitted to each affected municipality in the county. This inventory must be reviewed by the affected municipalities, counties, and regional planning agencies for consistency with their Comprehensive Plans and shall be considered in future revision of such plans. It is the intent of the Legislature that future growth and development planning reflect the limitations of the available ground water or other available water supplies (Sec. 373.0395, F.S.).

The Florida Legislature has also directed local governments to include topographic maps of areas designated by the water management districts as prime recharge areas for the Floridan or Biscayne aquifers in local comprehensive plans, and to give special consideration to these areas in zoning and land use decisions (Section 163.3177(6)(c), F.S.). No such areas exist in the City of North Port.

Local

At the present time, the City of North Port has no special regulatory programs related to protection of natural groundwater aquifer recharge areas. Upon adoption of these Comprehensive Plan revisions pursuant to the Growth Management Act of 1985, the City of North Port will enforce those policies adopted which serve to protect groundwater resources.

The federal and state regulations discussed above appear to be generally adequate to the task of protecting recharge areas. However, the City intends to expand upon the local regulatory framework in order to provide additional controls specific to local conditions.

The City of North Port has a stormwater management ordinance which requires the detention of stormwater before discharge from developed sites. While this ordinance is specifically designed to address water quality from non-point source pollution (surficial runoff) and is addressed in detail in the Drainage Sub-element, it is also pertinent to the conservation of surficial aquifer levels because it allows stormwater to be detained for recharge to the surficial aquifer. Much of the City was constructed before the Stormwater Management Ordinance was enacted. Certain portions of the City, nevertheless, have been retrofitted with stormwater detention facilities pursuant to a Consent Order between General Development Corporation and DER. (The Consent Order is described more fully in the Drainage Sub-element.) The Consent Order also provided for the establishment of a special trust fund within DER's Pollution Recovery Fund. This fund currently contains \$525,000 which the City believes should be available for retrofitting stormwater management facilities to its older drainage conveyances to improve existing and future water quality.

EXISTING CONDITIONS

The groundwater system underlying the City of North Port is made up of three aquifers: the surficial or water table aquifer, the intermediate aquifer, and the Floridan aquifer.

Surficial Aquifer

The surficial aquifer is generally of acceptable water quality for potable use. Many wells tap the surficial aquifer for domestic supply in areas of the City not served by central water, or even if served, for lawn irrigation. While the surficial aquifer is generally within the DER potable water quality standards, it frequently exceeds the standards for iron and color. It is characteristically low in dissolved minerals and soft to moderate in calcium hardness. Chloride concentrations of the surficial aquifer usually do not exceed 250 milligrams per liter.

Water quality in the surficial aquifer is primarily affected by the chemical nature of rainfall that infiltrates the land surface, the composition and solubility of the surficial material coming in contact with the water, and certain properties and characteristics that the soluble earth materials impart to the water. In addition, the water quality of the surficial aquifer is influenced by surface water that directly recharges the aquifer.

The surficial aquifer discharges to the Myakkahatchee Creek and Snover Waterway, which, along with the Peace River, comprise the existing raw water supply for North Port. During dry periods, the total dissolved solids and sulfate content of these waters increase to levels approaching allowable levels of the secondary drinking water standard. During high flow periods, dilution with surface runoff causes total dissolved solids and sulfates to decrease.

The leaching of organic matter and the dissolution of tannic acids during high flow periods, causes the color of surface water to naturally darken. Combining organics naturally found in the water with chlorine during treatment can produce high levels of trihalomethanes (THMs) which are considered a potential health concern. Special treatment is required to minimize the production of THMs.

While a properly designed septic system may discharge acceptable levels of pollutants in low density situations, there is little doubt that contamination of the surficial aquifer occurs and that the cumulative effects of this contamination are exacerbated by the increased density of septic tanks. Septic tanks discharge household sewage wastes into the surficial aquifer. Besides fecal pollutants, septic tanks discharge detergents, greases, and miscellaneous household chemicals. The above notwithstanding, the use of individual septic systems is an economically feasible way to treat and discharge household waste in areas of low population density where the surficial aquifer is not used for drinking.

Intermediate Aquifer

The intermediate aquifer has borderline potability in the City of North Port. The standard for total dissolved solids is typically exceeded while other secondary standards are exceeded or are close to exceedence. It is, nevertheless, believed that some private wells in the City draw from the intermediate aquifer because of its higher yield. There is no use of the intermediate aquifer for a public water supply, and its development as a raw water source would most probably be contingent upon utilization of reverse osmosis technology. The intermediate aquifer, however, is not expected to produce yields attractive to potable water suppliers.

Floridan Aquifer

The upper Floridan Aquifer is by far the most productive aquifer and supplies more than ten times the amount of water yield from either the surficial aquifer or the intermediate aquifer. The quality of water from the upper

Floridan, however, limits its use without demineralization by methods such as reverse osmosis. It typically exceeds drinking standards for total dissolved solids, chloride, and sulfate. The saline water is the probable result of past marine inundations and subsequent mixing and water rock reactions. The lower Floridan Aquifer is too mineralized to economically provide public water supply.

The potential for the development of the upper Floridan for use as a raw water source for desalinization treatment is considered to be good. Specifically, the Tampa, Suwannee, and Ocala limestones are those which provide the best combination of yield and water quality. These zones occur approximately 700 to 1000 feet below the surface.

The potentiometric surface of the upper Floridan Aquifer is approximately 40 feet above sea level, making it an artesian aquifer. Wells piercing this aquifer flow freely unless valved. Because the water is highly mineralized and corrosive, many agricultural wells which were originally valved, may become free flowing after corrosion of the casing or valve, allowing the introduction of mineralized water into the surficial aquifer. Free flowing wells should be either capped and valved, or plugged to prevent contamination of the surficial aquifer with salt from artesian aquifers. Two free flowing wells in the City of North Port were plugged by SWFWMD in 1981, improving the water quality in the Myakkahatchee Creek during periods of low flow. Other wells may exist which contaminate surficial aquifer waters. These have not been identified and may not lie within the City. Because the City's raw water supply is already borderline due to mineralization, it is important to pursue the program of plugging free flowing artesian wells.

In addition to wells tapping the aquifers, highly mineralized water is introduced to the surface waters by natural upwellings at two sites within the City. Both Little Salt Spring and the Atwater Drive Archeological site are springs yielding highly mineralized water. Water from Little Salt Spring follows a ditch to the Myakkahatchee Creek below the potable water intake and has no effect on the public water supply. Water emanating from the Atwater Drive Archeological site, however, enters Cocoplum Waterway and under certain conditions may contribute to the high mineral content of water.

Aquifer Recharge

Recharge of the Floridan and intermediate aquifers from rainfall is virtually non-existent in the City. Recharge typically does not occur in areas where the potentiometric surface of the aquifer is above the surface of the land. In such areas, lower aquifers may actually leak upwards into aquifers closer to the surface. This phenomenon is referred to as discharge.

The surficial aquifer is directly recharged by rainfall and has the greatest potential for contamination from surface sources. Sources of contamination can be divided between point sources and non-point sources. A "point source" is defined as any discernible, confined and discrete facility that discharges pollution. Landfills, impoundments, gasoline stations and septic tank seepage are examples of point sources which can contaminate the groundwater aquifers.

The North Port landfill is a possible point-source of contamination to the surficial aquifer. The landfill contains residential and commercial solid wastes placed on the surface of the land without a leachate containment system. While the landfill has been covered with material designed to reduce percolation, it may still be generating leachates. A set of monitoring wells is currently being installed to determine the nature and extent of the leachate contamination. Because of its proximity to the Myakkahatchee Creek, the landfill is a potential hazard to the public water supply. The status of the landfill and the monitoring wells is discussed in more detail in the Solid Waste Sub-element.

Non-point sources are any discernible sources of pollution not associated with point sources. They are more pervasive and less controllable sources of pollution. Storm runoff from urban areas is an example of non-point pollution which affects both ground and surface water. Typical components of non-point source pol-

lution are those contaminants resulting from the application of substances or the weathering of substances associated with urban development. Oils and greases, trace metals, pesticides, herbicides, and nutrients can be expected to emanate from urbanized areas. Treatment systems for these pollutants typically consist of holding areas to attenuate runoff, and these systems are currently required under the City's stormwater regulations. As such, these areas may contribute pollutant load to the surficial aquifer. It is, nevertheless, believed that the risk to the surficial aquifer is less than the consequences to surface waters from direct discharge.

NEEDS ASSESSMENT

Potable Water Supply

Because the public water supply is from surface waters which are fed by the surficial aquifer, it is important to take prudent measures to identify and eliminate sources of pollution to the surficial aquifer. These sources may include free-flowing artesian wells contaminating the surficial aquifer with dissolved solids, septic tanks discharging bacterial and/or viral contamination and household chemicals, urban runoff, and potential leachate from the landfill.

The City should coordinate with SWFWMD to identify and remedy free-flowing artesian wells both within the City and outside the City in areas contributing drainage. It is known that mineralization of the Myakkahatchee Creek threatens its continued use as a public water supply, and that the problem appears to worsen during periods of low flow. This would suggest that a portion of the Myakkahatchee/Snover Waterway baseflow may be contributed by artesian water from the Floridan aquifer. If sources of highly mineralized water could be identified and plugged, the public water supply would be more reliable.

Septic tanks are not known to be currently contributing to any water quality problem, however, it has been documented in the Sanitary Sewer Sub-element that 90% of the dwelling units in the City served by the public water supply are served by central sewer service. This rate has fallen from 97% during the past four years. Further declines in the central sewer service as a proportion of the total dwelling units could portend an impact to the surficial aquifer and surface waters.

The impact of the landfill on the surficial aquifer is still unknown at this time. Wells are currently being installed to monitor for contamination. Once installed, the wells should be monitored and analyzed using standard methods to ascertain the scope of any contamination. Should unacceptable levels of contamination be identified, it may be necessary to establish additional wells, test the water supply, and develop remedial action.

These conditions and issues make it imperative that the City establish regulations that are custom-designed for local conditions to supplement those provided by existing federal and state laws.

Surface Aquifer Recharge

There is no significant recharge to any intermediate or deep aquifer in the City. Confined aquifers within the City are typically artesian, i.e. the confined water is under pressure to "leak" upwards through confining layers. The unconfined surficial aquifer is recharged by rainfall and is, therefore, addressed in this section.

To conserve storage in the surficial aquifer, the following measures should be taken:

- Water tables should be maintained as high as practical;
- The use of attenuation and treatment ponds should be encouraged, both to treat surface runoff and to facilitate infiltration;
- The Plan of Reclamation for the North Port Water Control District (see Drainage Sub-element) should be completed pursuant to modifications required in the DER Consent Order, as it may be modified, to prevent "over drainage;"
- Reuse of wastewater should be investigated as beneficial to recharge to the surficial aquifer as well as to conserve potable water resources; and

- Structures and improvements required under the DER/GDC Consent Order (OGC File No. 82-0128) should be completed.

GOALS, OBJECTIVES & POLICIES

GOAL 1:

WATER QUALITY AND QUANTITY OF THE SURFICIAL AQUIFER WILL BE PROTECTED TO ENSURE PUBLIC HEALTH AND TO CONSERVE THE PUBLIC WATER SUPPLY.

Objective 1:

By 1994, the City shall implement programs, as specified in the policies below, to maintain and improve water quality in the surficial aquifer.

Policy 1.1:

By 1994, the City, in conjunction with the Southwest Florida Water Management District, will remedy all free-flowing artesian wells contributing mineralized water to the surficial aquifer or surface waters in the Myakahatchee Creek and Snover Waterway drainage basins.

Policy 1.2:

The use of septic tanks will be discouraged by measures identified in the Sanitary Sewer Sub-element, Future Land Use Element, the exclusive franchise of the utility and DER Consent Order 82-0128.

Policy 1.3:

Monitoring wells will be installed at the North Port Landfill to ascertain the scope of any leachate contamination to the surficial aquifer. Should unacceptable levels of contamination be identified, the following actions will be considered, as appropriate:

- additional wells will be installed as necessary to delineate the areal extent of the problem;
- the public water supply will be tested as warranted for the pollutants identified or suspected; and
- remedial action will be developed and implemented, in coordination with DER, to protect the public water supply.

Policy 1.4:

The City will continue to require stormwater treatment for all new development and encourage retrofitting of stormwater treatment facilities to areas already developed.

Policy 1.5:

The City will pursue the use of the \$525,000 in the Special Trust Fund of Pollution Recovery Fund for specific projects within the City which address the control of non-point source pollution and the improvement of water quality.

Policy 1.6:

By mapping and developing protection plans as required of state and local governments by the 1986 amendments to the Safe Drinking Water Act, the City will, in conjunction with EPA and DER, implement aquifer protection measures for the sole source water supply.

Policy 1.7:

By 1991, the City will adopt land development regulations, consistent with F.S. 163.3202(1) as amended, to regulate land use and development to protect natural drainage features and natural groundwater recharge areas.

Objective 2:

The quantity of surficial aquifer waters will be conserved by maintaining the water table as high as practical, recognizing the tradeoffs between the need to control flooding and reduce the amount of fill placed on the natural landscape and the need to maintain storage in the surficial (water table) aquifer.

Policy 2.1:

Consistent with SWFWMD rules for the regulation of water management systems (40D-4 and 40D-40, F.A.C.), the water table in new surface water management systems will be maintained as near as practical to current levels, recognizing the tradeoffs between the need to control flooding and reduce the amount of fill placed on the natural landscape and the need to maintain storage in the surficial (water table) aquifer.

Policy 2.2:

The use of attenuation and treatment ponds will be required pursuant to Policies 7.1, 7.2 and 7.3 in the Drainage Sub-element to provide greater opportunity for the infiltration of runoff into the surficial aquifer.

Policy 2.3:

The Plan of Water Management will be completed as modified by the DER Consent Order 82-0128 (see Drainage Sub-element) with GDC as it may be modified, to prevent excessive drainage of the surficial aquifer beyond that needed for flood control.

Policy 2.4:

The further reuse of treated wastewater for irrigation within the City will be investigated to determine cost, public health concerns, and engineering feasibility. Possible sites for reuse will be identified and evaluated for cost feasibility.

Policy 2.5:

Subject to approval by the City Commission, the recommendations of the stormwater management modeling study outlined in Policy 3.2 of the Drainage Sub-element will be implemented to optimize recharge of the surficial aquifer while providing adequate flood control for the design storm.

Policy 2.6:

General Development Corporation shall complete all structures and improvements required under the DER Consent Order (OGC File No. 82-0128).

CONSERVATION AND COASTAL ZONE MANAGEMENT

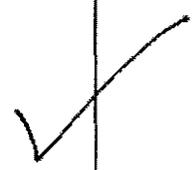


Table of Contents

Natural Resources .....	.238
Inventory and Analysis	238
Commercial Minerals Extraction	241
Soil Erosion Problems	241
Flora and Fauna Habitats	241
Known Pollution Problems .....	.246
Shoreline Use Conflict .....	.247
Natural Shoreline	247
Altered Natural Shorelines	247
Man-made Shorelines	248
Need for Water-Dependent and Water-Related Sites .....	.251
The Economic Base .....	.252
Historic Resources .....	.253
Inventory and Analysis of Estuarine Pollution Conditions .....	.256
Emergency Management .....	.260
Natural Disaster Planning	260
..... Hurricane Vulnerability	260
..... Number of Persons Requiring Evacuation	260
..... Hurricane Shelter Needs	262
..... Shelter Space Available	262
..... Evacuation Routes	263
..... Transportation and Hazard Constraints	263

..... Evacuation Times	267
..... Specialized Population Needs	267
Post-Disaster Redevelopment	268
..... Existing Land Uses	268
..... Structures with a History of Repeated Damage	268
..... Coastal Shore Protection Structures	269
Infrastructure in Coastal High Hazard Areas	270
Public Access Facilities .....	.271
Goals, Objectives and Policies .....	.273
Appendix I .....	.282

List of Tables

Table 1 - Endangered, Threatened & Species of Special Concern 243

Table 2 - Persons Seeking Shelter in the City of North Port, 1988 262

Table 3 - Capacity Restraints 266

Table 4 - Evacuation Times for the City of North Port In-House, on U.S. 41 and I-75 267

List of Maps

Map 1 - Water Classification 240

Map 2 - Endangered Wildlife 245

Map 3 - Water Dependent Uses 249

Map 4 - Water Related Uses 250

Map 5 - Archaeological Resources 254

Map 6 - Myakka River Average Overall Water Quality 257

Map 7 - City of North Port Storm Category Zones 261

Map 8 - Sarasota County Public Shelter locations 264

Map 9 - Charlotte County Red Cross Managed Public Shelter Locations 265

Map 10 - Public Access Facilities 272

NATURAL RESOURCES

Inventory and Analysis

The City of North Port in southern Sarasota County is a growing urban area arising from the post-war era of planted sub-division lot sales. The City of North Port, hereafter referred to as North Port, is a seventy-four (74) square mile area, mostly platted except for parcels along the Myakka River and along its northern boundary.

It is typical of many of the areas platted within Florida, prior to the advent of environmental legislation, but in accord with suburban planning doctrine of the time. However, even though the platting at the time largely ignored environmental conditions, many opportunities still exist to lessen the negative environmental impacts of developing these platted lands.

From 1940 until the mid 1950's, North Port existed primarily as a cattle grazing and "moderate quality" pine timber harvest area. The ecological profile of this area basically consisted of (1) hydric pine/palmetto flatwoods that experienced vast degrees of seasonal inundation, (2) live oak and slash pine highlands, (3) numerous seasonal freshwater marshes, and (4) bands of salt marsh grasses along the estuarine portion of North Port's shoreline.

Surveyors were frequent to note the potential for seasonal changes in the amount of standing water available for drinking as they conducted surveys of the area.

As with many of the large scale platted land developments of the period, entire tracts were denuded of their native vegetation prior to the filling and construction of the needed roadway network. Major drainage works and additional lot filling further impacted the naturally occurring vegetation and wildlife habitats -- many times resulting in disastrous change to a particular ecosystem. These major transportation and surface water management systems have been constructed over the past three decades.

While North Port did experience substantial ecological damage when the initial plat development was occurring, much of the native vegetation was preserved. As the transportation network was laid out and developed, there appeared to have been some beneficial foresight as to the economic, aesthetic and environmental value in preserving as many of the flora and fauna habitats as possible.

The City is fortunate in that its anticipated water needs, including those of the limited industrial and very limited agricultural land use categories, will be more than met throughout the planning period and well beyond by the potable water system privately operated by General Development Utilities, as documented in the Consumptive Use Permit issued to G.D.U. by the Southwest Florida Water Management District. (Water needs and sources are more completely discussed in the "Existing Conditions" and "Needs Assessment" sections of the Potable Water Element.) However, the City will continue to closely monitor the demand on the potable water system through case-by-case review of development orders and building permits based upon Levels of Service (LOS) standards adopted in Policy 1.1 of the Potable Water Element.

Current Habitat Conditions

The Existing Habitat Map contained within the Future Land Use Element shows considerable diversity of vegetative habitat within the confines of the City's boundaries, and much of the native vegetation remains on the actual platted lots.

As noted on the Habitat Map, several ruderal (vegetatively altered) areas exist throughout the City, possibly from historic usages such as timbering and ranching. Many seasonal ponds and marsh areas still exist in North Port, their preservation dependent on stricter regulatory controls. As the population continually in-

creases and the defined urban area expands, creating greater percentages of imperviousness, these isolated and connected wetland zones will experience adverse water quality impacts unless strict development controls are implemented and enforced.

The great diversity of the remaining vegetation communities gives the City a vast potential for providing a lasting and aesthetically pleasing vista for future residents and visitors if strict yet reasonable land use and environmental conservation ordinances are enacted and enforced.

Drainage

Within the 74 square-mile City are a number of drainage basins, and the Myakkahatchee Creek is chief among them. As Map 1 depicts, the Creek enters the north-central portion of North Port as a channelized waterway and continues through the City, eventually becoming a narrow canal. As it proceeds slightly southwesterly, it is paralleled by a channelized stormwater relief waterway starting at Price Boulevard. Both the channelized relief channel and the meandering creek proceed southerly to a dam, just above U.S. 41.

This riverine portion of the Myakkahatchee Creek is designated by law as a Class I potable water source for the City of North Port. Surface water is withdrawn just above the U.S. 41 dam and treated at the City's water treatment plant. (Additional data and analysis of this potable source can be found in the Potable Water Element).

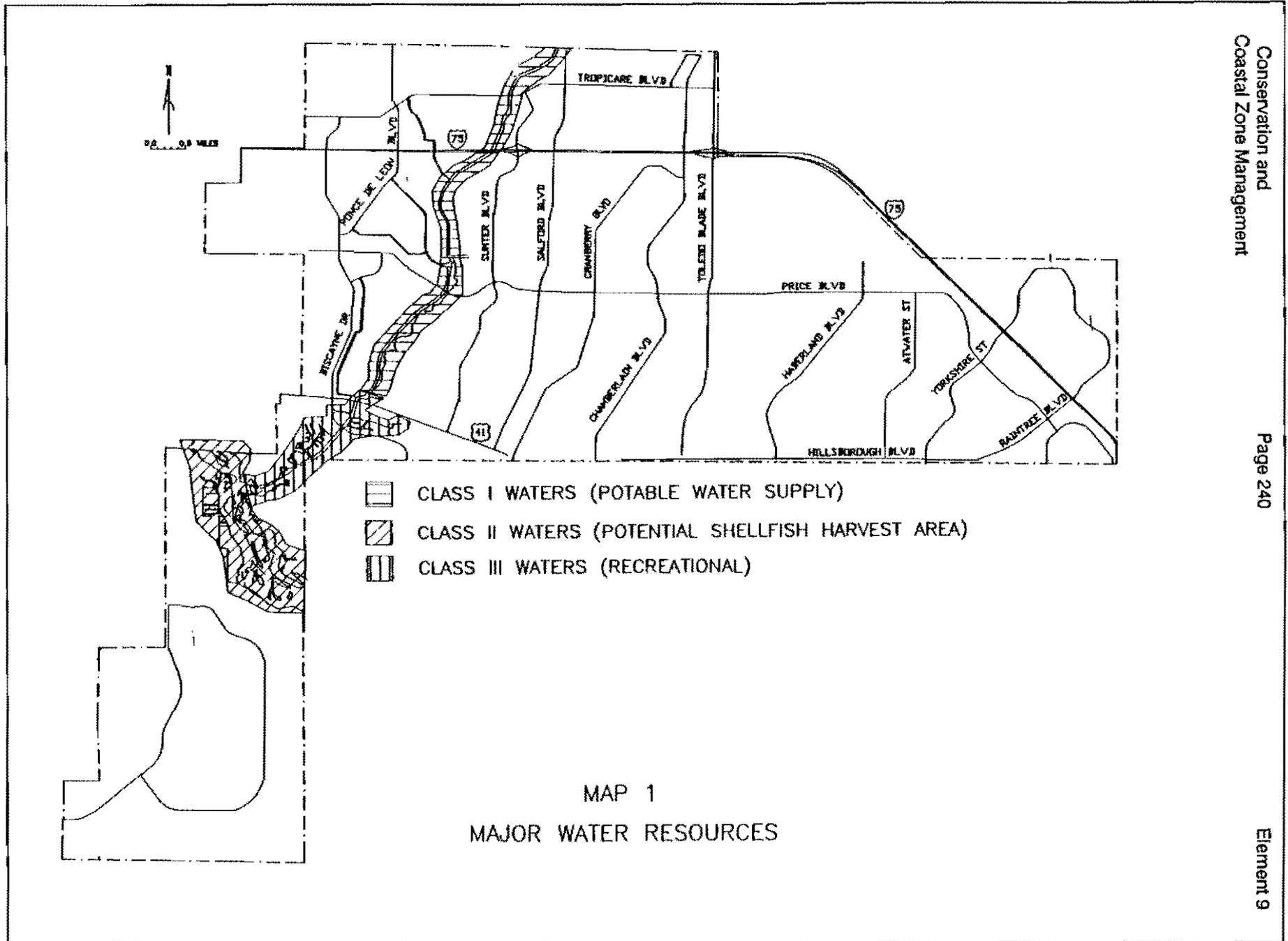
Southward from the U.S. 41 dam, the creek becomes estuarine in nature and experiences various degrees of salinity based on a variety of factors and conditions such as seasonal rainfall, storm surge, water well draw-down, etc. Some additional channelization has been conducted within the southern extent of the creek. It should be noted, however, that from the creek's confluence with the Myakka River to a point approximately 6,000 feet upstream, the creek's shoreline remains undeveloped and possesses naturally meandering oxbows along its mangrove and salt-water marsh-lined shoreline. It can not be determined with any degree of certainty whether or not there has been any dredging of the lower portion of the Myakkahatchee for navigational purposes within recent times.

Past comprehensive planning efforts by the City of North Port have focused on three somewhat distinct aspects in dealing with land use planning and forecasting in a plat saturated area such as this City. The areas for consideration included those designated for preservation and conservation, along with agricultural and development defined zones, and the interrelationships between these areas. Those actual areas, identified nearly ten years ago in the initial comprehensive planning effort, are still appropriate and viable for consideration within the prescribed requirements of the latest growth management legislation.

The following areas of the City of North Port, in no particular prioritized order, have been identified for future conservation:

- those coastal marsh areas along the Myakkahatchee Creek and Myakka River that are within the confines of the City of North Port. Please see the Existing Land Use Map.
- Little Salt Spring, the adjacent Archaic Indian midden and associated burial area, and the Atwater Drive archaeological site. Please see "Historic Resources" in this element.
- Myakkahatchee Creek, a Class I potable water source, and its associated floodplain along with an incorporated upland, protective buffer.
- The Outstanding Florida Water (OFW) and Wild and Scenic- designated portions of the Myakka River that flow through the City of North Port.

These primary areas, designated for continued conservation and enhancement, require consideration due to the following attributes:



- their value as significant local and regional natural resources.
- the natural beauty and aesthetic value that these areas still possess, along with their immeasurable significance as recreational resources for the City's population.
- the habitat they provide for the diverse wildlife and vegetation communities that are indigenous to the City.
- and, in the Myakkahatchee Creek's case, as a primary source of potable water for a majority of the City's residents and visitors.

Commercial Minerals Extraction

There are no known commercial mining activities presently under way within the City of North Port, and none is anticipated in the future. Only localized filling of residential, commercial and industrial lots is expected as the platted lot areas are developed.

Soil Erosion Problems

There are no areas within the City of North Port that experience any notable adverse impacts from soil erosion. According to the Sarasota County Soil Conservation District, there are no areas that could be considered as "hot spots" or chronic erosional areas.

With salt- and freshwater canal systems, there is always a potential for side slope erosion or cut-backs due to extreme flow volumes in times of storm surge or heavy run-off. Many areas have already been vertically bulkheaded with concrete seawalls. Other more environmentally compatible methods of canal bank slope stabilization exist in the form of boulder rip-rap, or other techniques utilizing inter-locking concrete panels between which grass can grow undisturbed by erosion.

Flora and Fauna Habitats

The extent and distribution of listed plant and animal species within the City of North Port has never been adequately assessed or documented. A 1983 report: The Changing Landscape of North Port, Florida as Related to Wildlife Habitat and Burning, by Miller, et al., is probably the best attempt to survey and inventory a number of naturally occurring habitats within North Port.

Based on the lack of data mentioned previously, the listing of species in Table 1 below takes a somewhat conservative approach in the interpretation of habitat suitability for wildlife species. The habitats indexed on the Existing Habitat Map in the Future Land Use Element were utilized in this determination.

While reviewing the flora and fauna habitat lists, it is important to realize that within each of the major flora communities, a definitive spectrum of habitat quality exists as a function of successional stage, frequency of habitat burn, extent of drainage (be it naturally occurring or man-made), and relationships with surrounding land uses and natural communities.

Table 1 lists only those species that are regarded as endangered, threatened or species of special concern; opposite each species listed are suitable flora habitats available to it (the two-letter habitat codes are explained in the legend under "Community Descriptions"):

Two known endangered species habitats are known to exist within the confines of North Port. These are: (1) the Myakka River for the West Indian Manatee, frequently sighted in the Myakka River and the lower portion

of the Myakkahatchee Creek, and (2) one active Southern Bald Eagle nest. Both of these habitats are depicted on Map 2.

The Florida Game and Freshwater Fish Commission (FGFWFC) reports the eagle's nest is located in the southwest quadrant of the City in the annexed portion referred to as the Myakka Estates DRI. The FGFWFC indicated that this nest produced two young during the 1987 breeding season. Currently, no development with the potential for adverse impact to the nest's continued existence is ongoing nearby. No additional protection language has been prepared, except those laws adopted under state and federal statute.

The original North Port Estates agriculturally-zoned area in the northwestern corner of the City north of Interstate 75 has been designated a Bird Sanctuary. No trapping, taking, or killing of birds is permitted within this designated area (Please see the Existing Land Use Map for the location of this designated area.)

As greater coordination and communication is developed between the City and the Florida Game and Freshwater Fish Commission, it is hoped that many questions regarding the composition of North Port's flora and fauna habitats will be answered. A new FGFWFC office was recently opened just south in Punta Gorda. This should allow for the needed interaction required to perform the appropriate surveys within the City's boundaries.

Even though a majority of North Port's lands are platted, it is nonetheless still necessary for all critical and environmentally sensitive lands to be surveyed and inventoried. A variety of options are open to the City for the purpose of preserving and protecting significant natural resource areas. Various zoning, conservation easements, transfer of development rights, lot buy-back or swapping programs and other land use incentives are available under state law and can and should be utilized if deemed appropriate for protecting these valuable resources.

Direct government acquisition is an additional last-resort mechanism. This potential option will be discussed in Section II of this element in regard to lands along the Myakkahatchee Creek.

TABLE 1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Habitat(s)</u>	<u>Status</u>	
			<u>GFC</u>	<u>USFWS</u>
REPTILES AND AMPHIBIANS				
American alligator	Alligator mississippiensis	FW,OW	SSC	T(S/A)
Eastern indigo snake	Drymarchon corais couperi	PF,PP,HA,DM SF,RO,SP,RU	T	T
Gopher tortoise	Gopherus polyphemus	PF,PP,DM, DM-P,DM-O,HA SF,RO,SP,RU	SSC	UR2
Gopher frog	Rana areolata aesopus	PF,PP,DM, DM-P,DM-O,HA SF,RO,SP,RU	SSC	UR2
Short-tailed snake	Stilosoma extenuatum	SF	T	UR2
BIRDS				
Roseate spoonbill	Ajaia ajaja	FW,OW	SSC	-
Burrowing Owl	Authere cunicularia	PP,RO	SSC	-
Little blue heron	Egretta caerulea	FW,OW	SSC	-
Snowy egret	E. thula	FW,OW	SSC	-
Louisiana heron	E. tricolor	FW,OW	SSC	-
Arctic peregrine falcon	Falco peregrinus tundrius	PF,PP,FW DM,HA,RO	E	T
S.E. Kestrel	F. sparverius paulus	PF,PP,DM FW,DM-P, DM-O,HA,RO	T	UR2
Florida sandhill crane	Grus canadensis pratensis	PP,FW,DM,HA	T	-
Bald Eagle	Haliaeetus leucocephalus	PF,PP,FW,DM HA	T	E
Wood stork	Mycteria americana	FW,OW,DM	E	E
Brown Pelican	Pelecanus occidentalis	OW	SSC	-
Red-cockaded woodpecker	Pisicoides borealis	PF,DM-P	T	E
MAMMALS				
Florida Mouse	Peromyscus floridanus	PF,PP,DM,HA SF,SP,RO	SSC	UR2
Sherman's fox squirrel	Sciurus niger shermanii	PF,HA	SSC	UR2
W. Indian Manatee	Trichechus manatuslatirostris	OW	E	E
American Black Bear		All except OW & FW	T	

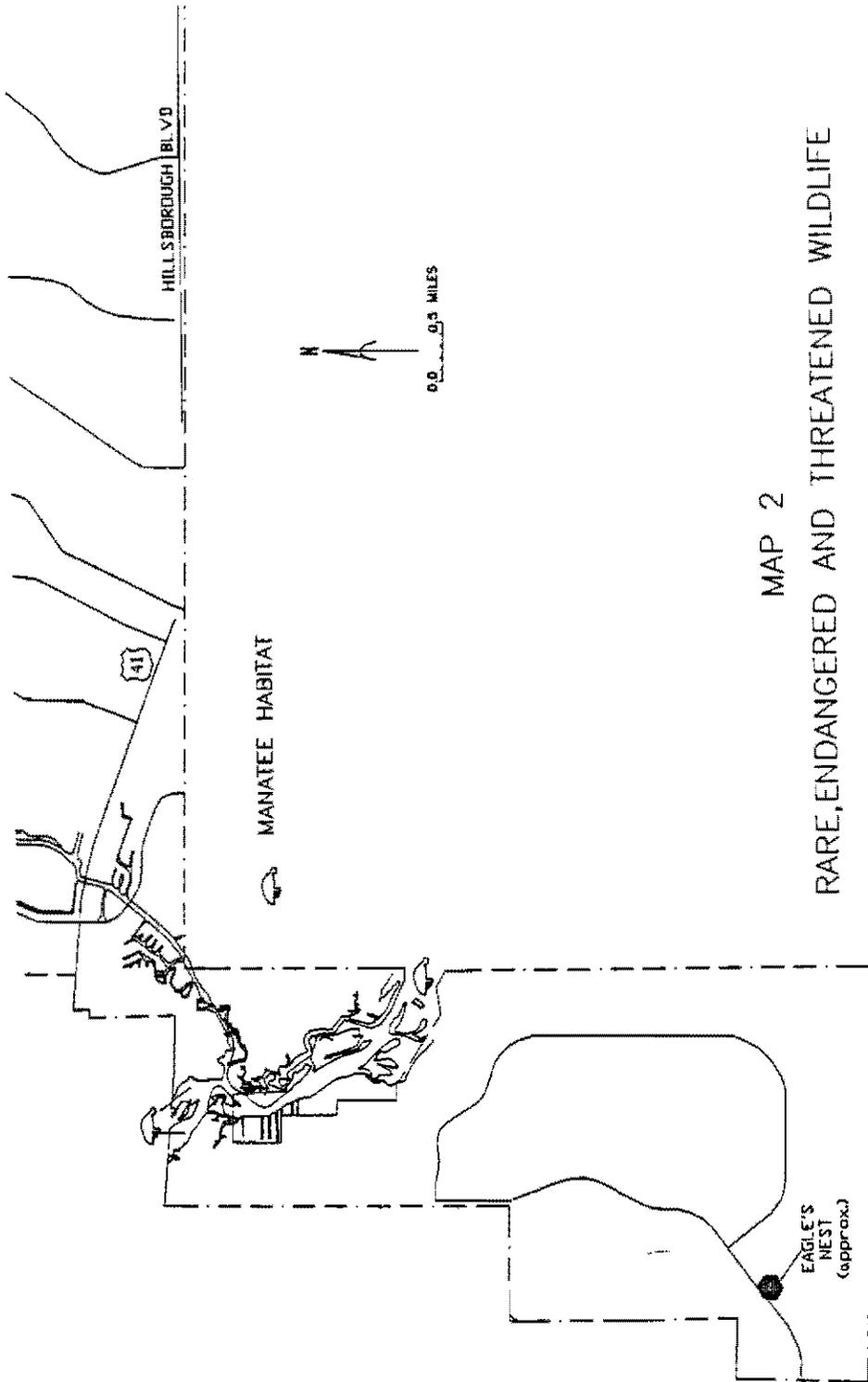
LEGEND:Community descriptions:

- PF - Pine Flatwoods
 PP - Palmetto prairie
 FW - Freshwater Marsh
 DM - Drained Marsh

DM-P - Drained marsh with pines
DM-O - Drained marsh with oaks
HA - Hammocks (Oak and Cabbage palm)
SF - Scrubby Flatwoods
RO - Roadsides
SP - Spoil piles
RU - Ruderal
OW - Open water (lakes, rivers, coastal areas)

Species status

E - Endangered
T - Threatened
T(S/A) - Threatened due to similarity of appearance
SSC - Species of special concern
UR2 - under review for listing, but substantial evidence of
biological vulnerability and/or threat is lacking.



KNOWN POLLUTION PROBLEMS

As of 1988, North Port is at a stage of development roughly approximating 7 percent of anticipated buildout. This, plus the fact that most of that development is concentrated along US 41, means that many of the outlying portions of North Port have not yet become significant sources of man-made pollution.

As discussed previously, the Myakkahatchee Creek, from the point where it enters North Port in the north to the US 41 dam at the water treatment plant, is designated a Class I potable water source. The natural floodplain of the creek has been somewhat reduced due to significant parallel canal construction. This canal tends to radically alter the natural flow velocity of the creek, reducing velocity during high flow periods and increasing storage time. Limited data is available to document the effects of this bypass canal on the water quality of the Myakkahatchee Creek.

To date, there has only been limited development along the delineated floodplain zone of the Creek. Due to the current remoteness of the homesites that abut this creek, no centralized sewer system is available; thus septic tanks and additional lot filling are probable construction techniques that will be utilized. The very likelihood of high fecal coliform counts from septic tanks, along with increased nutrient-laden runoff from fertilizers and pesticides, could jeopardize the Myakkahatchee Creek as a safe potable source for the city.

A review of current aerial and plat maps of the City of North Port reveals that approximately 264 residential lots and two large agriculturally-zoned tracts of land along the Myakkahatchee Creek floodplain should be regulated to mitigate any environmental impacts from development. Since there is minimal development along the Creek (only four of the 264 lots bordering it are developed) and land uses along the river are "agricultural/undeveloped", no known point-source pollution problems currently exist. The City should devise a system to transfer development rights, impose development restrictions or declare eminent domain (with compensation) to implement a safety buffer for the protection of the Creek.

Earlier planning work performed by the City of North Port called for a Year 2002 Framework Plan that institutes a buffer such as was discussed above. Present zoning laws will have to be reviewed to ensure that such a buffer zone along the creek is instituted to protect the water supply from urban encroachment. Along with this, a strict development code should be considered requiring a centralized sewage system and the implementation of a water quality monitoring program. Any development adjacent to or having an influence on the buffer should, in any case, be built using strict stormwater "best management" practices in order to ensure optimal water quality in the downstream receiving waters.

Because only very limited development has occurred along the Creek so far, it should remain a viable potable water source- if proper protection methods are implemented. Strict ordinances and strong city leadership must be brought to bear in order to preserve this potable supply as the development pressures increase and the urban area of North Port expands.

Additional known sources of pollution within the city include the well-publicized point source problem at the North Port sewage treatment ponds. In 1987, this large reservoir broke out on one side, releasing treated effluent to the estuarine portion of the Myakkahatchee Creek downstream of the Class I- designated portion. This site is now permanently closed and is being revegetated. The "Inventory and Analysis of Estuarine Pollution Conditions" section on page 256 of this Element gives a detailed description of this known source of pollution.

Aside from these two areas of the Myakkahatchee Creek, there do not appear to be any other areas of chronic point source pollution. As the City expands its developed areas, it is hoped that the application of up-to-date water quality standards will mitigate any potential problems. Strict local ordinances should be developed in concert with federal and state regulation in an effort to ward off future degradation of the city's water quality.

Due to the limited development of the city, no air pollution problems exist. However, the City continues to cooperate with Sarasota County's air quality monitoring program as delineated in County Ordinance 85-63 as amended (Sarasota County Air Pollution Control Code).

SHORELINE USE CONFLICT

The "shoreline" of the City of North Port may be divided into three primary categories: natural, altered natural and artificial.

The natural shoreline of the City is limited to a small portion of the Myakka River in an unplatted area of North Port.

As shown on the Existing Land Use Map, all of the coastal area near the Myakka River is in the "agricultural (undeveloped)" land use category.

The altered natural shoreline is associated with the Myakkahatchee Creek north of the Myakka River. The creek has been dredged throughout the City, straightened and bypassed between the Myakka River and Snover Waterway (as shown on the Drainage Map within the Drainage Element). Strong visual evidence also suggests the Creek was once dredged north of the Snover Waterway.

As shown on the Existing Land Use Map, coastal land uses along the Myakkahatchee Creek are agricultural (undeveloped), low density residential (undeveloped), low density residential (developed), recreation/open space, public buildings & grounds, commercial (undeveloped), and commercial (developed).

In addition to the above shoreline areas, additional shorelines have been created by the extensive primary drainage system of the City of North Port. These 85 miles of canals, dredged during the 1950's and 60's, are typically 60-100 feet in width and 6-10 feet in depth. The shorelines have naturalized and these canals now support a limited fish population.

There are no beaches and dunes within the city, nor are there any erosion and shoreline protection structures.

Natural Shoreline

The natural shoreline next to the Myakka River is currently within unplatted areas of North Port. As a result, conflicts in land use do not presently occur. The revised Master Plan for the Myakka Estates DRI proposes residential land use and a 77-acre park on the west side of the Myakka River. Since these areas have not been platted, the opportunity exists to insure that future land use conflicts do not occur.

Improved public access is the greatest need the City has in terms of primary water-dependent and water-related uses. As noted above, a public park is proposed for the future development of Myakka Estates.

Altered Natural Shorelines

The shoreline associated with the Myakkahatchee Creek can be further subdivided into three zones: the lower, tidal portion between the Myakka River and U.S. 41, the channelized/bypassed portion between U.S. 41 and the Snover Waterway and the upper, floodplain encroached portion north of Snover Waterway.

Existing land use on the lower portion of the Myakkahatchee Creek consists of unplatted lands, low density residential and one small tract of commercial where the creek intersects with U.S. 41.

The residential tracts are not considered water-dependent but to some extent are water-related. This small residential area contains the only direct access to Myakka River waterfront lots within the City of North Port.

The commercial tract is currently 40% utilized by an existing motel/restaurant. This facility currently does not feature the shoreline as an amenity and does not appear to be water-dependent or water-related. The only water-dependent use in this shoreline area is a marina/yacht club located on Kenwood Drive and shown on Map 3. Water-related uses are shown on Map 4.

The Myakkahatchee Creek north of U.S. 41 does not have direct access to the Myakka River due to a water control structure. Navigational use of the Creek in this vicinity will be limited without additional access. North of I-75, along the upper reaches of the Creek, the dominant land use is agriculture/low-density residential. Although zoned for agriculture, the land is largely undeveloped and no active agricultural operations currently exist.

In the downstream area near U.S. 41, a mixture of uses may be found, including water treatment facilities (the Creek is the raw-water source) and park lands with water-related amenities. A few small tracts of non-water oriented uses occur as commercial and government use.

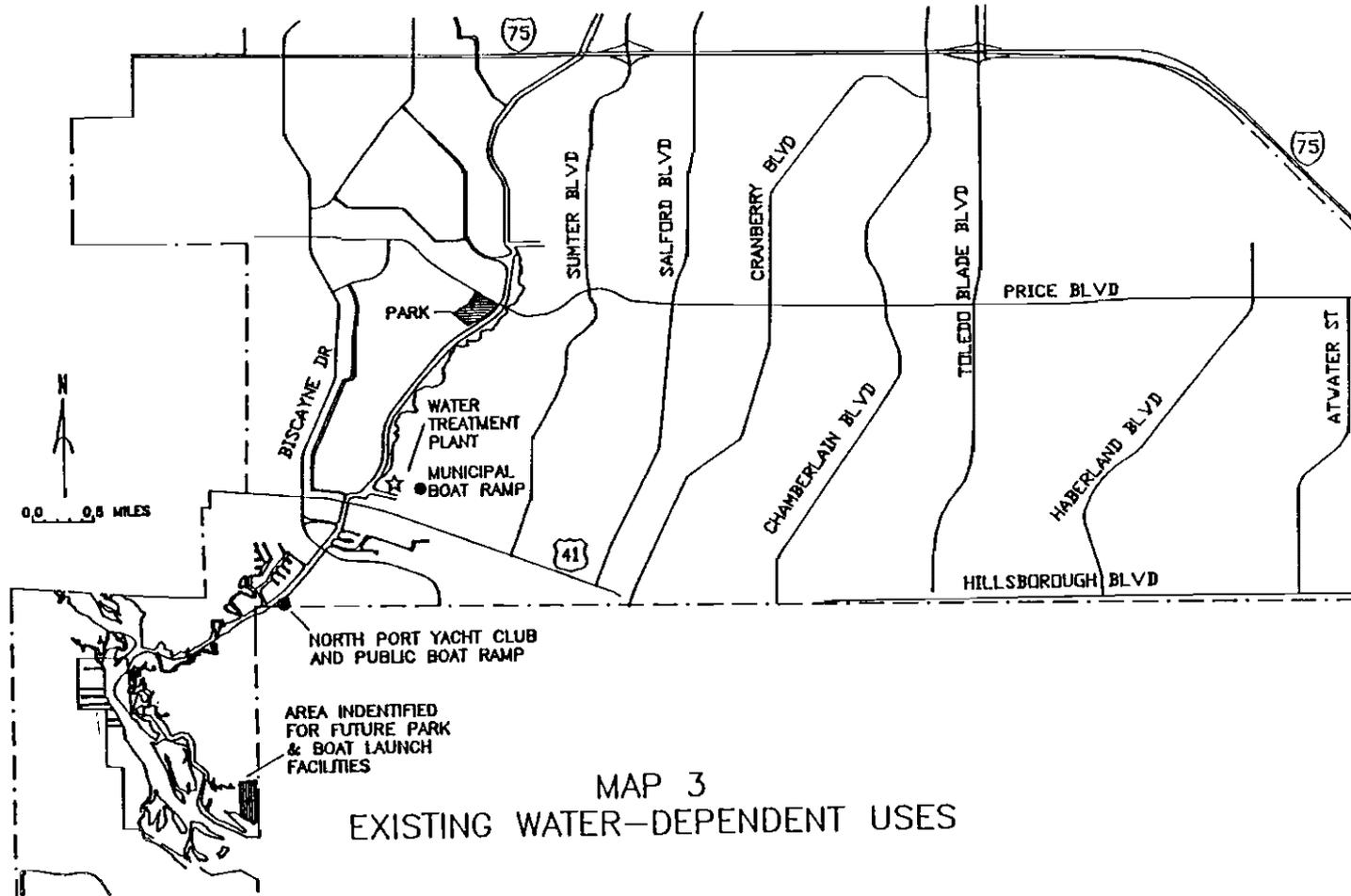
Spoil piles exist along much of the Creek north of Snover Waterway, indicating past channelization. Residential lots and roadways lie within and adjacent to the floodplain of the Creek. The floodplain is zoned for low density residential, single-family lots. The Creek in this portion is not navigable except by small boats and canoes and provides only limited fishing opportunities. The land is low-lying and any construction would require a significant amount of fill.

The upper Creek area is not currently populated and there are opportunities for acquisition of those lots directly adjacent to the Creek. Acquisition of these lots would serve two purposes: flood protection and water resource protection. Without acquisition or protection of the Creek area by other means, stormwater runoff from developed lots and septic tank leachate from development could threaten the quality of this potable fresh water source.

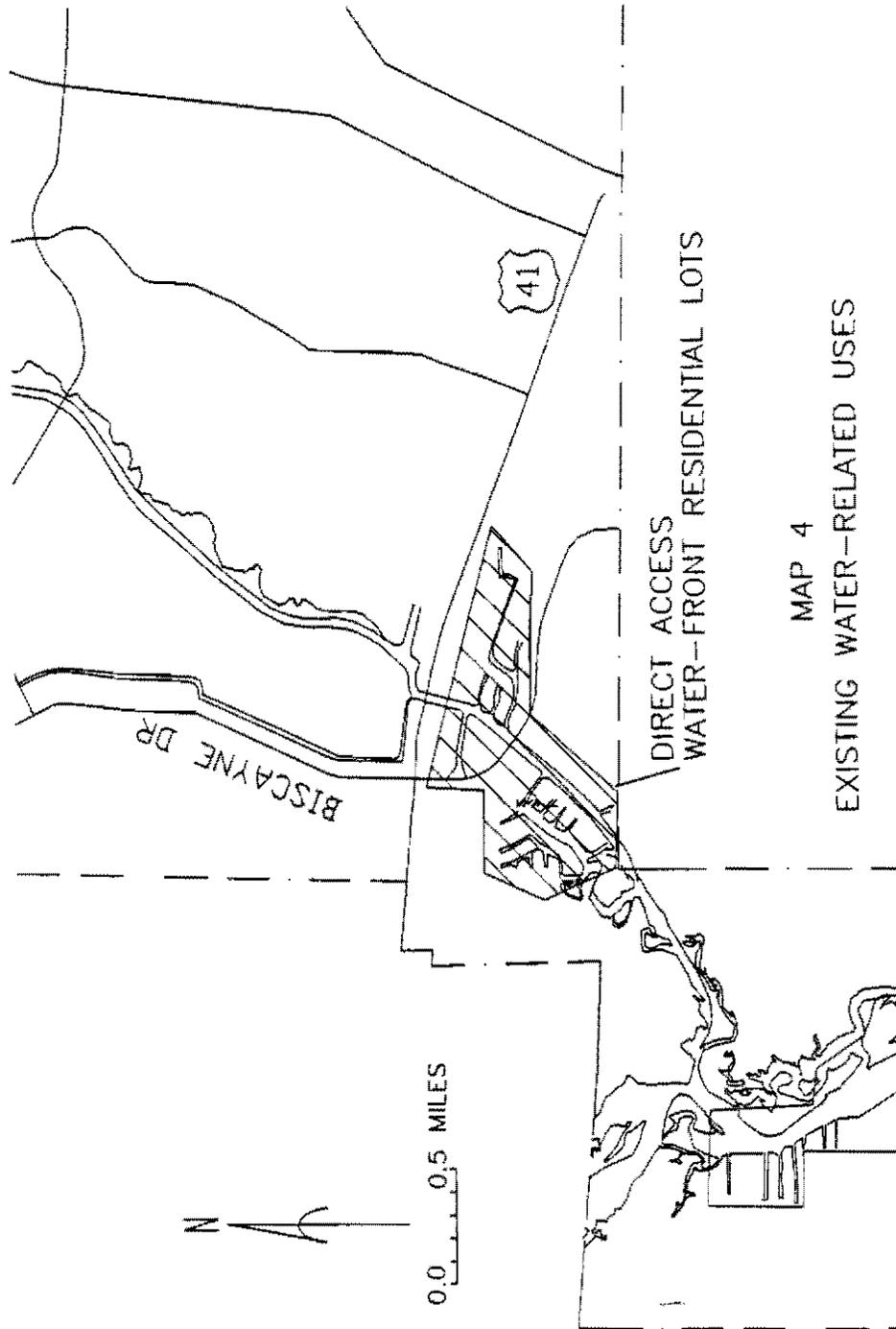
Man-made Shorelines

Approximately 85 miles of drainage canals have been constructed within the City of North Port. The principle reason for construction of these canals was for drainage. However, due to naturalization of the shorelines and littoral zones, some recreation values do exist. Land uses along these canals are mixed as shown on the Land Use Map, but are mostly low density residential. The recreation value of these canals may decline in the future as development occurs and pollutants are discharged through stormwater runoff into the canal system.

Public access to these canals is currently restricted to those areas shown on the Land Use Map. However, since the majority of North Port is undeveloped, numerous unmarked private access points exist throughout the City.



MAP 3
EXISTING WATER-DEPENDENT USES



NEED FOR WATER-DEPENDENT AND WATER-RELATED SITES

In general, the City of North Port is not a water-oriented community, with the exception of that portion south of U.S. 41 containing navigable canals. Due to the relatively undeveloped nature of the City, the short-term need for water-dependent and water-related uses has been satisfied. As the City develops, the need for additional public access and water-dependent uses will occur.

Using an approximate ratio of 1 boat for every 12 residents (Sarasota-Manatee area) it is estimated that there are 735 boats within the City. Although the North Port Yacht Club currently does not contain any wet slips, access is provided by a boat ramp at the club facility. Additionally, the direct access canal lots could potentially support 347 boats.

Using the same 1:12 ratio, it is estimated that 1691 boats will be within the City of North Port by 1998. Although it is assumed that most of these will be small trailerable boats, additional launching facilities will be needed within the City. It is also assumed that residents will continue to utilize unmarked private access points where development has not yet occurred. At this time, there are no additional public boating access points. There is the potential for such a facility in Myakka Estates. This area is also discussed in the next section of this element.

THE ECONOMIC BASE

The City of North Port is currently a retirement oriented residential community, and industrial and commercial activities are limited to the support of the existing population. The City is in the early stages of growth and these activities can be expected to increase.

The City's general operating revenues are largely derived from property taxes with the balance comprised of franchise fees, utility service taxes, licenses and permits, intergovernmental revenues, charges for services, fines, forfeits and miscellaneous revenues.

Because the community is retirement oriented and coastal resources are limited, it is not expected that the future economy will be dependent on coastal resources.

The water-related utilization of North Port's water bodies appears to be somewhat lower than in other waterfront communities. Only the one aforementioned yacht club and boat ramp exist within the City limits. No other tourist-oriented facilities (i.e. hotels, boat tours) take full advantage of the Myakkahatchee Creek or the Myakka River's proximity to the City.

Future recreational and boating facility planning should take into account the potential of the aforementioned parcel of land in Myakka Estates (please see Map 3) for meeting the City's needs for public park land and boat launching facilities. This 400- acre parcel was deeded to the State under the terms of the November 1983 FDER/General Development Corporation consent agreement. Lying just south of the Myakkahatchee Creek and Myakka River confluence, the parcel possesses great natural beauty. Other scenic vistas within the City include the U.S. 41 bridge over the Myakkahatchee Creek and Butler Park along the creek at Price Boulevard.

HISTORIC RESOURCES

The City of North Port is fortunate to have within its boundaries one of the most valuable and unique archaeological sites in the State of Florida, if not in all of the United States: Little Salt Spring.

Located in west-central North Port on the south side of Price Boulevard (see Map 5), the spring consists of a shallow water-filled basin approximately 250 feet in diameter. At the floor of this basin at a measured depth of 12 meters, a vertical shaft opens to a total depth of 60 meters. The bottom of the shaft slopes downward to form an inverted funnel of unknown diameter.

The original owners of the spring property, General Development Corporation, a major landowner in North Port, donated Little Salt Spring to the University of Miami for archaeological research. Since 1970, many scientific investigations have been conducted in and around the spring, producing extraordinary discoveries.

Two periods of human inhabitation are believed to have occurred. Evidence has been collected of Paleo-Indian and Archaic Indian civilizations with origins dating from 12,000 to 9,000 and from 6,800 to 5,200 years ago, respectively. A Paleo-Indian boomerang has been excavated from the spring basin; this artifact, along with several other rare finds, has been radiocarbon-dated to nearly 9,500 years ago.

It has been hypothesized that southwestern Florida was a semi-arid region during this era due to glacial activity and the fall of water table levels. Water levels in springs like Little Salt Spring were considerably lower in overall elevation and provided some of the few sources of available freshwater for these very early Floridians. It therefore becomes understandable how and why these early cultures utilized these spring areas.

An erosional drainage way, some 425 meters long and 30 to 90 meters wide, leads into the spring basin from the northeast. Adjacent to this freshwater slough is a documented Archaic Indian midden. The midden area is partially platted and awaits future development.

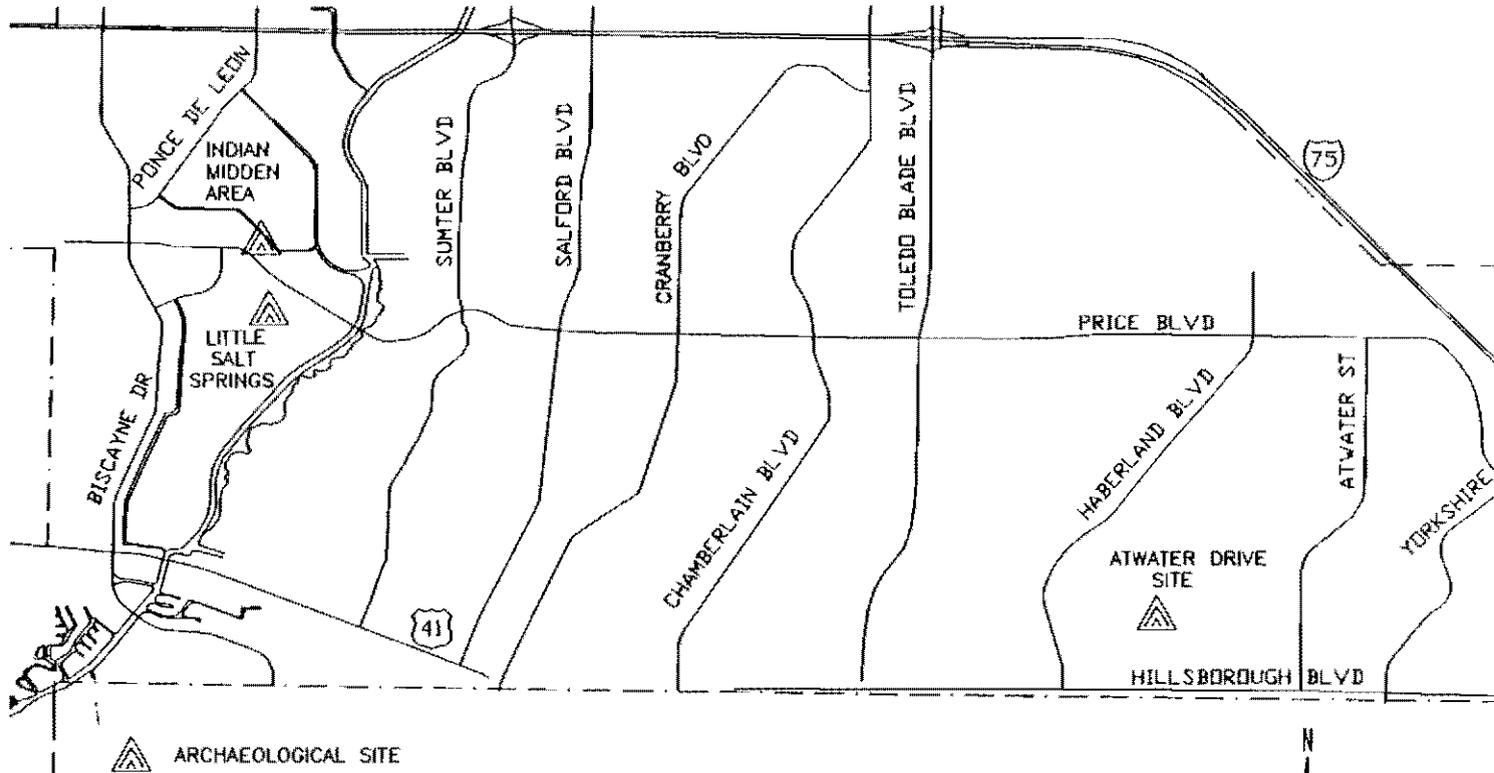
Archaeologists have test-excavated the mucky soils of the slough and have discovered an Archaic Period cemetery that, by some estimates, contains as many as 1,000 burials and dates from 6,000 years ago. Burial sites have also been discovered in the drowned portion of the spring basin.

Little Salt Spring has provided the earliest evidence of human activity in Florida, if not in the southeastern United States. Further investigation, as time and economics permits, may lead to even more fascinating discoveries and help to unlock the mysteries of very early human occupation of Florida.

A 1979 Science magazine article about Little Salt Spring made the following conclusions about the area:

"The great wealth of human remains artifacts, vertebrate and invertebrate fossils, and plant fossils affords a unique opportunity to reconstruct the natural and cultural environment of southwest Florida during two critical periods of recent geological history, the Pleistocene-Holocene transition and the climatic optimum. In addition, the paleontological, paleobotanical, sedimentological, mineralogical, and geochemical studies of the sediments of both the spring and slough will provide insight into the evolution of climate during these two critical periods."

Although Little Salt Spring and the surrounding property is under the ownership of the University of Miami and remains relatively protected from development, the adjacent Archaic Indian cemetery area and slough are not, and may someday be developed as residential homesites. Strong support should be garnered from the residents of North Port for the acquisition, if deemed necessary, and protection of this area as an extremely valuable and irreplaceable historical resource. The State of Florida should also be encouraged to take a greater role in the protection of this resource and lend assistance at any available opportunity.



MAP 5
ARCHAEOLOGICAL/HISTORICAL RESOURCES

Two scientific articles that discuss Little Salt Spring in great detail are attached for further information (See Appendix I.)

In addition to the Little Salt Spring site, another site of archaeological importance is the Atwater Drive site. This site has experienced adjacent development activity and has received intermittent attention from the scientific community for the past decade. The relative importance of the Atwater Drive site is difficult to weigh, especially in comparison to the obviously valuable Little Salt Spring area. Please refer to Map 5 for site locations of both Little Salt Spring and the Atwater Drive site.

These two areas are the most historically important known to exist within the City of North Port. Yet, with only approximately 7 percent of the City developed to date, it seems likely that other areas of varying degrees of historical significance may be discovered as the defined urban area naturally expands in the future. City ordinances should therefore be developed that will reflect a desire to investigate and preserve any potential area that may be of some historical importance. For example, if during the course of site clearing valuable artifacts are discovered, all site work should be temporarily halted until trained professionals can arrive at the scene to make a preliminary investigation of the discovery. The course of action to follow thereafter, depends entirely on the significance of the find.

*Information for this section was derived from Science Magazine, February 1979: "Little Salt Spring, FL: A Unique Underwater Site," by C.J. Clausen, et al.

INVENTORY AND ANALYSIS OF ESTUARINE POLLUTION CONDITIONS

Estuarine areas of the City of North Port are limited to the Myakka River and the Myakkahatchee Creek south of U.S. 41. According to data prepared by Mote Marine Laboratory for the Myakka River Management Coordinating Council, little is currently known about the water quality of the Myakka River within and adjacent to the City of North Port. As shown on Map 6 following, average overall water quality is considered "Good" upstream of North Port and "Fair" downstream. However, general water quality in the creek is unknown in the vicinity of North Port.

It is estimated that the quality of the Myakka River within the City is "Good." However, quality of the estuarine portion of the Myakkahatchee Creek is estimated to be only "Fair." In the short term, quality of the Myakkahatchee Creek may improve due to the elimination of discharges into this Creek by the North Port Sewage Treatment Facility.

The North Port wastewater system, owned by General Development Utilities, has had well publicized regulatory problems involving an inadequate spray disposal site and unauthorized discharge of treated effluent to Myakkahatchee Creek waters. The spray disposal site, known as the Malaluka site, is no longer used for effluent disposal and is being revegetated.

Release of effluent to the creek has not occurred since the commencement of injection of wastewater into the deep well. If the deep well is approved for permanent use, the danger of such discharge will cease. Should the deep well system prove unsafe to Warm Mineral Springs or its use be denied for any other technical or political reasons, the North Port wastewater system would immediately be in the position of substantial inadequacy for effluent disposal and the danger of undesirable discharge to the creek would become large.

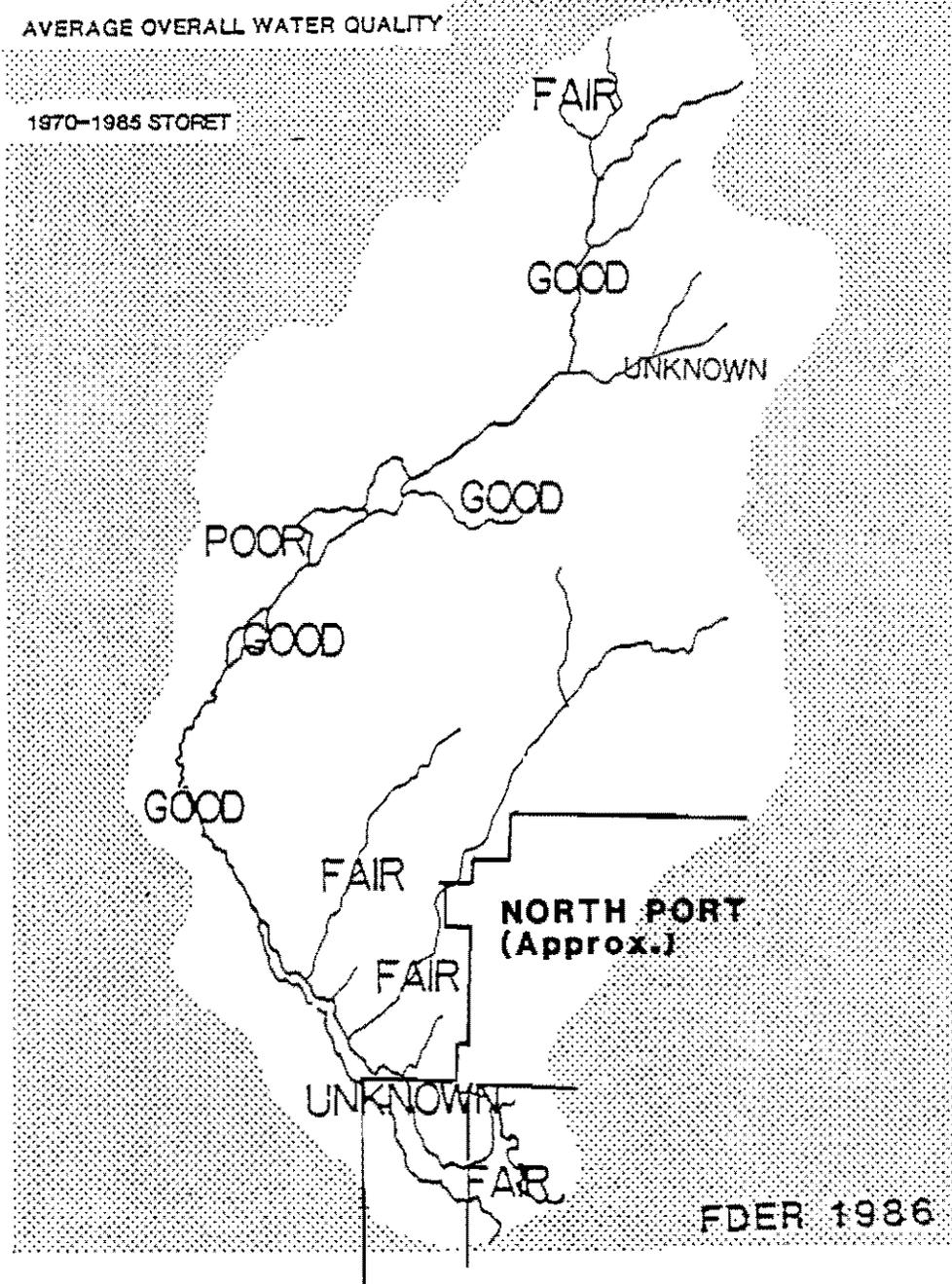
The long term future for water quality of the Myakkahatchee Creek is in doubt. As the area upstream develops, stormwater runoff and septic tank leachate will eventually be directed to this major outfall for drainage.

According to the Drainage Element, the most critical drainage problem is the limited ability of the Myakkahatchee Creek to convey runoff from the agricultural lands in the north, through the City and eventually to the Myakka River. Since the City of North Port was incorporated in 1959, plans have been considered for increasing the drainage capacity of the Myakkahatchee Creek to reduce the threat of flooding. These plans called for channelization of the Creek in the area north of the existing Myakkahatchee Relief Canal. Recent concerns about water quality and wildlife habitat have caused a reassessment of the plans and the Big Slough Watershed Advisory Committee (BSWAC) has been formed by the Board of North Port Water Control District to consider alternatives.

The BSWAC is comprised of representatives of the Florida Department of Environmental Regulation, Southwest Florida Water Management District, North Port Water Control District, Sarasota County, the City of North Port, General Development Corporation, General Development Utilities, Inc., and ranchers with land holdings within the watershed.

The goal of the BSWAC is to "identify and generate the information necessary for appropriate authorities to design and implement a comprehensive water management plan which would help conserve, protect and enhance the natural resources as well as promote the hydrological balance in the watershed area." Some preliminary solutions that have been proposed are providing detention areas adjacent to the Creek and diversion or attenuation of flows entering from the agricultural areas north of the City.

The future for water quality in the Myakka River near North Port is also in question for similar reasons. Drainage from large portions of the City, adjacent developments in Sarasota County and Charlotte County and farmland



MAP 6
MYAKKA RIVER
AVERAGE OVERALL WATER QUALITY

in Manatee County, are all directed into the river. Only a small share of platted lands are actively being developed at this time, but certainly the entire area has potential for reaching buildout. Drainage systems serving these areas were created prior to modern technology which now incorporates water quality management techniques as well as drainage. Unfortunately, the existing systems were not designed with water quality management as a main goal.

The impact of future development and the associated provision of infrastructure upon those factors associated with water quality is difficult to assess in a platted-lands community such as the City of North Port.

As is noted in the Future Land use Element, mitigation of any ill effects of such development will have to be applied on a lot-by-lot basis since traditional means of mitigation (i.e., those employed at the plat approval stage) cannot be applied to the approximately 80 percent of the City which has already been platted.

Within these limitations, the City will attempt to protect the quality of water resources through such means as:

- establishing a "Conservation-Restricted" land use category for lands along the Myakkahatchee Creek and the Myakka River;
- compiling a database on the Creek in order to develop the optimum stormwater management system for this vital watershed;
- establishing a Wetland Protection Ordinance;
- requiring upland buffers adjacent to wetlands;
- discouraging the use of septic tanks while simultaneously encouraging the extension of the central sanitary sewer system; and
- revising zoning and land development regulations, consistent with F.S. 163.3202(1) as amended.

The City can reasonably expect to have much greater influence over mitigation efforts in Myakka Estates. In accordance with the Development Order, the developer must provide central sewer and water for the entire area.

The Panacea DRI is subject to even stricter mitigation constraints, including the City's Planned Commerce Development (PCD) District Ordinance of 1986 and the Plan of Reclamation governing completion of the drainage system. The developer will be required to provide centralized water and sewer and other infrastructure.

Expected impacts upon water quality of facilities proposed in other elements of this plan are summarized below.

Traffic Circulation: Since North Port is a platted lands community, the majority of roads have been constructed. Additional road improvements--including Sunnybrook Boulevard, which is to be the hurricane evacuation route for the Myakka Estates and north Charlotte County area--as specified in the Capital Improvements Element are not expected to have a major impact on water quality. The Department of Environmental Regulation's permitting process is expected to mitigate any potential adverse impacts from construction of these improvements.

Sanitary Sewer: A two-phased expansion of the North Port Wastewater Treatment Plant and expansion of the sewer collection system in the Urban Infill Area are anticipated within the planning period. Both facility improvements should reduce the chances of the City's estuarine system's becoming polluted.

Solid Waste: Monitoring wells will be installed at the GDC landfill, which is currently being operated as a transfer station. The wells will be used to detect any leachate contamination which may emanate from the site.

Drainage: Completion of construction specified by the Plan of Reclamation, reconstruction of the R-36 Channel and completion of the Big Slough Watershed study are scheduled within the planning period. The City regards these projects as significant steps toward increasing the efficiency of the drainage system and reducing the potential for stormwater pollution.

Groundwater Aquifer Recharge: Several measures to maintain, improve and conserve water in the surficial aquifer are identified in the Element, although none are in the category of "facilities." The one exception may be the Special Trust Fund of the Pollution Recovery Fund (Policy 1.5), containing \$525,000 for specific projects to address non-point source pollution problems and improvement of water quality.

EMERGENCY MANAGEMENT

Natural Disaster Planning

The City of North Port is located in the southeastern portion of Sarasota County, and abuts Charlotte County to the south. The western portion of the City is within the Myakka River floodplain, while portions of the rest of the community could receive flooding from Charlotte Harbor or the Peace River in extreme cases.

The City has limited experience with hurricane evacuations. During Hurricane Elena in 1985, the City provided shelter at the North Port Elementary School for its own mobile home residents, and those from the unincorporated community of Warm Mineral Springs. During this storm, the area experienced minor flooding from both the Myakka River and the Myakkahatchee Creek.

This Element assumes that it would not be necessary to evacuate the entire City for most hurricanes. However, persons living in the western portions of the community, as well as all mobile homes and recreational vehicles, would be required to evacuate in all cases. In addition to in-city evacuees, the City may be required to shelter residents of Warm Mineral Springs and Englewood.

Hurricane Vulnerability

The Southwest Florida Hurricane Study, begun in 1981, demonstrated that portions of the City of North Port lie in all five Storm Category zones (Saffir-Simpson Scale). Map 7 illustrates these zones for the City of North Port. The map, when compared with the Existing and Future Land Use Maps, shows that the Category Three Hurricane Vulnerability Zone includes virtually the entire Urban Infill Area of the City. According to the Future Land Use Element's "Growth Model" discussion, 97 percent of the City's total peak season population was located in this area as of 1988. In addition, 80 percent of the projected population growth in the 10-year planning period is expected to occur in this area. Flooding would likely come from the lower reaches of the Myakka River, presenting a particular danger to those portions of the City north and west of the Charlotte County line. The remainder of the City is unlikely to flood (other than rainfall flooding) in less than Category 3 hurricanes.

Primary responsibility for the evacuation and sheltering of threatened citizens is assumed by the Sarasota County Department of Emergency Management, in partnership with the City Fire and Police Departments.

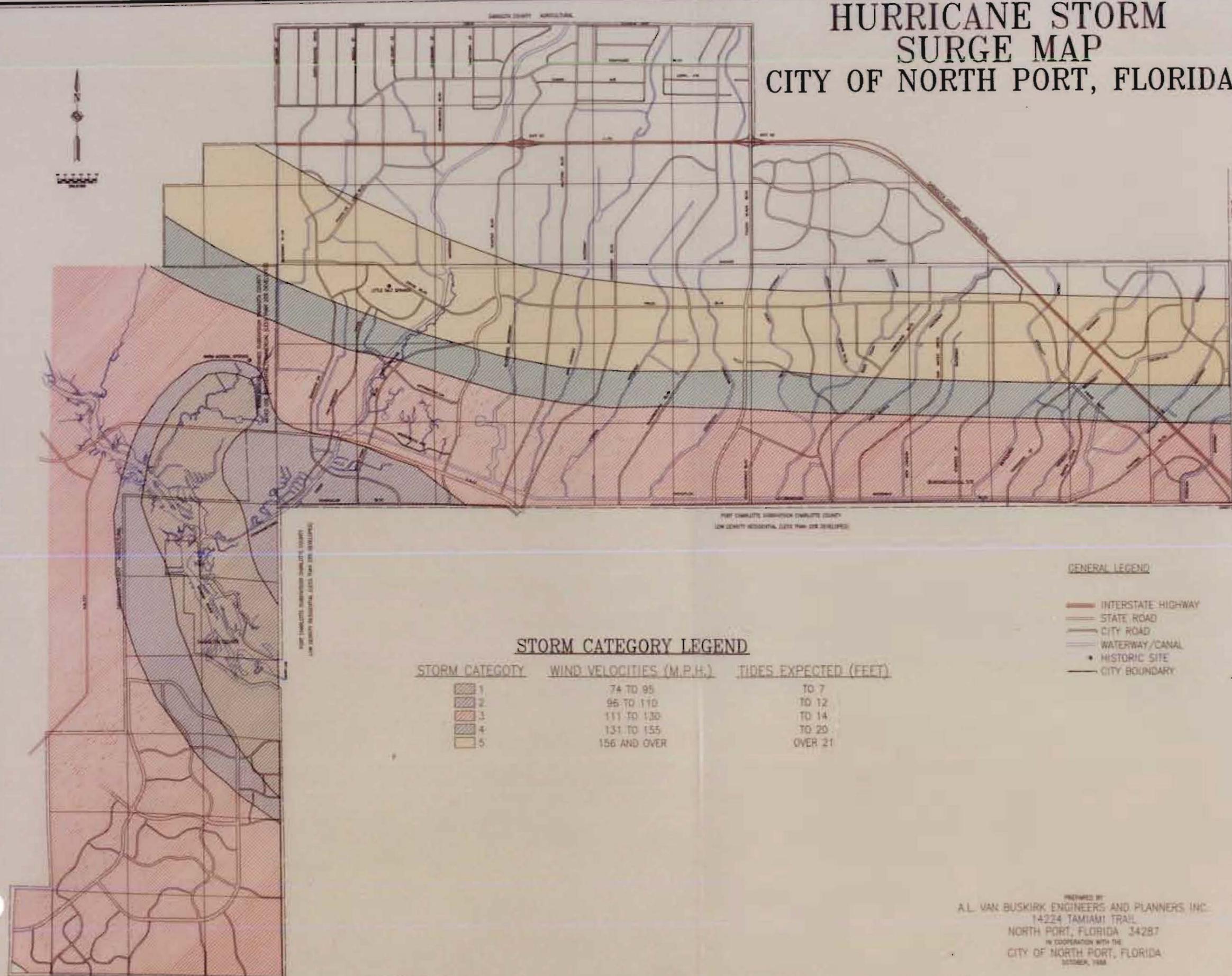
Number of Persons Requiring Evacuation

According to information supplied by the City for the Southwest Florida Regional Hurricane Evacuation Study, 5,625 dwelling units were occupied during the peak season in 1987. The community has a potential build-out of approximately 84,622 dwelling units.

The hurricane season extends for approximately half the year, from June 1 through November 30. This timespan does not represent the City's period of peak population, which tends to begin in February. A recent survey by SWFRPC for its region indicated variable occupancy rates for the hurricane season. The Council selected two time periods, July and November, to sample variable vacancies.

For all of North Port, the Council estimated the resident population at 11,264 in July and 11,566 in November. The Bureau of Economic and Business Research estimates the permanent population at 8,828 and the peak season population at 11,756. Both estimates are based on an occupancy rate of 2.2 persons per household. However, the occupancy rates used for the two estimates differ. The Council's July estimate is 21.6% higher than the City's permanent estimate, while Council November estimates are 1.6% lower than the

HURRICANE STORM SURGE MAP CITY OF NORTH PORT, FLORIDA



PORT CHARLOTTE SUBDIVISION CHARLOTTE COUNTY
 LOW DENSITY RESIDENTIAL, LESS THAN 200 DWELLINGS

PORT CHARLOTTE SUBDIVISION CHARLOTTE COUNTY
 LOW DENSITY RESIDENTIAL, LESS THAN 200 DWELLINGS

STORM CATEGORY LEGEND

STORM CATEGORY	WIND VELOCITIES (M.P.H.)	TIDES EXPECTED (FEET)
1	74 TO 95	TO 7
2	96 TO 110	TO 12
3	111 TO 130	TO 14
4	131 TO 155	TO 20
5	156 AND OVER	OVER 21

GENERAL LEGEND

- INTERSTATE HIGHWAY
- STATE ROAD
- CITY ROAD
- WATERWAY/CANAL
- HISTORIC SITE
- CITY BOUNDARY

PREPARED BY
 A.L. VAN BUSKIRK ENGINEERS AND PLANNERS, INC.
 14224 TAMiami TRAIL
 NORTH PORT, FLORIDA 34287
 IN COOPERATION WITH THE
 CITY OF NORTH PORT, FLORIDA
 OCTOBER, 1988

(SOURCE: SARASOTA COUNTY HURRICANE ADVISORY MAP S.W.F.R.P.C. DATED JAN., 1986)

City's peak season estimate. If the above ratios continue into 1998, the City projects a permanent population of 16,448, while the Council estimates are 20,001 in July and 20,537 in November.

Hurricane Shelter Needs

Any persons evacuating from an endangered area will require shelter. Fortunately, most hurricanes will not necessitate a city-wide evacuation, and thus some shelter space will be available in higher portions of the City. However, as most of the available hotels and resorts are located in the Warm Mineral Springs area within the Myakka River floodplain, it is unlikely that they will be usable in the event of a hurricane. This severely limits the shelter space the City can provide, although some hotel rooms may be available in Sarasota County or other parts of the state.

The Southwest Florida Regional Planning Council conducted a survey of shelter demand in 1981 which yielded the following results:

- 24% of those surveyed would seek public shelter in Sarasota County or Charlotte County;
- 34% of the population would leave Sarasota County;
- 21% had no shelter plans or did not know what they would do in the event of a hurricane;
- and the remainder would shelter in a hotel or with friends in safe areas.

Table 2 shows the City's shelter distribution based on the above percentages. For planning purposes, the "don't know" category is assumed to seek public shelter. The table reflects both City and Council estimates.

TABLE 2
PERSONS SEEKING SHELTER IN THE CITY OF NORTH PORT, 1988

Distribution

Shelter Type	City		Council	
	June	November*	June	November
Public Shelter	2,119	2,821	2,703	2,776
Out of Area	3,002	3,997	3,830	3,932
Friends, Hotels, etc.	1,853	2,469	2,366	2,429
Don't Know	1,854	2,469	2,365	2,429

Sources: - City of North Port/Bureau of Economic & Business Research
- Southwest Florida Regional Planning Council

* City of North Port November estimates reflect peak season population, which actually occurs in February.

Shelter Space Available

The City's residents have access to shelters in both Charlotte and Sarasota Counties. However, so do the remainder of the residents of the two counties. Consequently, the availability of shelter must be considered in light of comparable evacuations simultaneously in both counties.

Only one public shelter, the North Port Elementary School on Glenallen Boulevard, is located in the City itself. The school is located in a Category 3 storm zone, so it would be available in most hurricane emergencies. However, this shelter can only house 1,580 persons if regional space recommendations are followed.

The remainder of Sarasota County has 18,515 shelter spaces in 28 locations (SWFRPC Hurricane Evacuation Study Update 1987, February 1988). Charlotte County has 12,503 shelter spaces in 18 locations (SWFRPC Hurricane Evacuation Study Update 1987, February 1988). Map 8 illustrates public shelter locations in Sarasota County. Map 9 shows shelter locations for Charlotte County.

Sarasota County probably has enough available shelter capacity to handle public shelter-bound evacuees (24% of all evacuees) up to and including a Category 2 storm event. Charlotte County has a serious shelter space deficit, and many of its shelters might not be usable in a Category 2 storm. This suggests that North Port residents should attempt to use Sarasota County public shelters rather than those in Charlotte County.

However, even in Sarasota County, evacuees would have to share space with other county residents. This could lead to a shortage of shelter space for some evacuees. Finally, if significant numbers of "don't know" evacuees decide to go to public shelters, they could all be provided space only in a Category 1 storm.

As the State's, Region's and City's hurricane evacuation policies have matured over the last several years, the concept of limited vertical evacuation to reliable structures in the event of a hurricane has evolved. The City of North Port might possibly increase available shelter space by encouraging the designation of some multi-story structures as vertical evacuation sites. However, this should only be attempted in Category 3, or higher, storm areas. Further, there are very few multi-story (two or more) structures in the City, nor are more envisioned in significant numbers during the planning period.

Evacuation Routes

The City of North Port is adjacent to both U.S. 41 (the Tamiami Trail) and I-75. Interstate 75, a four-lane divided highway with limited access, passes north of most of the City. U.S. 41, lying largely to the south of the City, is a four-lane divided highway with nearly unlimited access.

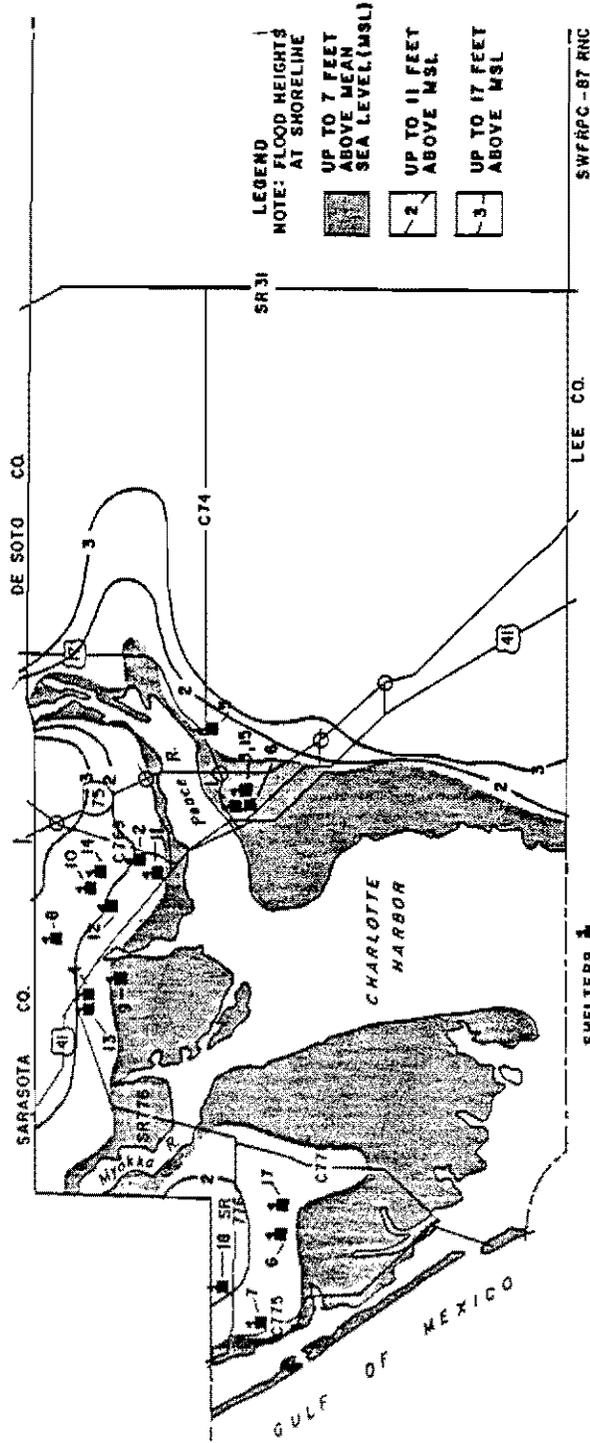
Several factors suggest that I-75 is the preferable evacuation route for North Port residents. There is no signalization on I-75 to slow evacuation, and the road has a slightly greater capacity than U.S. 41. In addition, the City has its own route (Sumter Boulevard) to I-75, which is unlikely to be used by the residents of other communities. U.S. 41 passes through several floodprone areas and is likely to be the major evacuation route for Englewood, Venice and Sarasota residents, as well as residents of the barrier islands. Several minor routes connect the U.S. 41 and I-75, providing access for residents. Map 7 also depicts these routes.

Transportation and Hazard Constraints

Capacity of I-75 and U.S. 41 is nearly the same (2,432 to 2,317 vehicles per hour, respectively, at LOS D), and therefore the primary constraints by which the relative merits of these evacuation routes may be judged are flooding, high winds and traffic volume.

Calculating from SWFRPC population estimates and road capacities given in the 1985 Highway Manual, it would take from 1.9 to 2.4 hours to evacuate the entire City in a July storm event, and from 2.5 to 2.6 hours to evacuate the City in a November storm, using only U.S. 41. Using only I-75; a July storm evacuation of the City would require from 1.8 to 2.3 hours, while a November evacuation would require 2.4 to 2.5 hours.

Table 3 shows the evacuation levels and times for U.S. 41 and I-75, based on City and Regional estimates.



- SHELTERS**
- | | |
|----------------------------------|---------------------------------------|
| 1. BENJAMIN J. EAKER ELEMENTARY | 10. NEAL ARMSTRONG ELEMENTARY SCHOOL |
| 2. CHARLOTTE HARBOR SCHOOL | 11. PEACH RIVER ELEMENTARY SCHOOL |
| 3. CHARLOTTE SENIOR HIGH SCHOOL | 12. PORT CHARLOTTE CULTURAL CENTER |
| 4. CHARLOTTE VO-TECH CENTER | 13. PORT CHARLOTTE HIGH SCHOOL |
| 5. EAST ELEMENTARY SCHOOL | 14. PORT CHARLOTTE JUNIOR HIGH SCHOOL |
| 6. L.A. JINGEE SCHOOL | 15. PUNTA GORDA JUNIOR HIGH SCHOOL |
| 7. LEMON HAT HIGH SCHOOL | 16. SALLIS JONES ELEMENTARY SCHOOL |
| 8. LISBETH ELEMENTARY SCHOOL | 17. VINLAND ELEMENTARY |
| 9. MEADOW PARK ELEMENTARY SCHOOL | 18. WEST CHARLOTTE COMMUNITY CENTER |

**MAP 9
CHARLOTTE COUNTY
RED CROSS MANAGED PUBLIC SHELTER LOCATIONS**

0 1 2 3 4 5 MILES



**TABLE 3
CAPACITY RESTRAINTS**

<u>Source/Month</u>	<u>Number of Vehicles</u>	<u>Hours to Evacuate Based on Road Capacity Level "D"</u>	
		<u>U.S. 41</u>	<u>I-75</u>
CITY			
July	4,414	1.9	1.8
November*	5,878	2.5	2.4
REGION			
July	5,632	2.4	2.3
November	6,009	2.6	2.5

* City November estimates reflect estimated peak season (February) population.

Two other constraints which could affect the evacuation of floodprone areas of the City are: the volume of traffic from outside the City using U.S. 41 and I-75; and the passage of U.S. 41 through several flood prone areas. If a hurricane approaches the region from the southwest, evacuation should be sufficiently advanced in Lee and Collier Counties that their traffic on I-75 does not interfere with North Port evacuees. The same is true for U.S. 41.

However, Charlotte County traffic, particularly that from Port Charlotte and Englewood, could seriously hamper the movement of North Port evacuees on U.S. 41. Since this road passes through the Myakka River basin and several Category 1 areas in northern Sarasota County, it would perhaps be wise for North Port evacuees to avoid U.S. 41 if possible.

Another natural constraint during a hurricane emergency would be high winds. Winds with a sustained force of 40 mph or more constitute unsafe driving conditions. Poor visibility, flooding and road debris may be expected to make travel even more difficult.

Light-weight structures such as mobile homes, manufactured homes and recreational vehicles will have to be evacuated in anticipation of wind damage, and RV's may not be allowed on the road for the same reason. SLOSH (short for Sea, Lake and Overland Surges from Hurricanes) models for both the Southwest Florida and Tampa Bay regions indicate that damaging winds could occur up to 7 hours before the landfall of a hurricane in Sarasota County (for a Category 3 storm). Evacuation could be extremely dangerous once these winds have begun to affect the area, and evacuation should ideally be complete before their arrival.

Depending on the track of the approaching hurricane, U.S. 41 in the Myakka Basin could be inundated by storm tides as early as 8 hours prior to landfall. This would effectively halt further evacuation along the roadway. I-75 is likely to escape tidal flooding in all but the most intense hurricanes.

A less predictable, but more serious constraint to evacuation is rainfall flooding. Any low-lying site along a roadway is potentially subject to rainfall flooding. The large number of creeks and canals (as well as the Myakka River) in the North Port area, make this a serious potential problem, particularly on portions of Sumter Boulevard.

There have been recent developments in the ability of the National Hurricane Center to provide county emergency management directors with up-to-date storm information. This information enables directors to organize more training exercises incorporating realistic estimates of the onset and local effects of high winds and storm surge. The factors discussed above provide general planning guidance.

Evacuation and preparation for storm hazards would be guided by the NHC working in concert with the county emergency manager. The City Police Chief is the Civil Defense Coordinator for North Port, and cooperates with Sarasota County Emergency Management in the event of a natural disaster.

Evacuation Times

Recent discussions with county emergency management directors in SWFRPC bimonthly meetings have revealed that the urgency of an evacuation, and hence the time required to evacuate, is in great part determined by the actions of public officials and the media. As an example, SWFRPC and TBRPC have used behavioral studies that indicate it may take up to seven hours for all of the population affected by an evacuation order to react and leave.

Evacuation time incorporates a number of components, including the amount of time necessary for evacuees to respond to the evacuation order, actual travel time, and the time needed to ensure the safety of every displaced person. Allowance must be made for all of these time constraints so that the population may be safely sheltered before gale force winds, tidal flooding or rainfall flooding make travel hazardous. City evacuation times are shown in Table 4.

TABLE 4
EVACUATION TIMES FOR THE CITY OF NORTH PORT
IN HOUSE, ON U.S. 41 AND I-75

Storm Category	City Estimate		Regional Estimate	
	July	November*	July	November
1	0.7	0.8	0.4	0.7
2	0.8	1.1	0.9	1.0
3	2.0	2.5	2.3	2.4
4	2.0	2.5	2.3	2.4
5	2.1	2.5	2.3	2.5

* Indicates peak-season population (February)

obviously, the City only has ability to respond to and mitigate those conditions which affect evacuation times within its boundaries. Flooding of roadways in other portions of Sarasota County, for example, is likely to reduce the ability of North Port citizens to evacuate.

It should also be noted that Table 4 does not reflect the time needed by residents to prepare for an evacuation, or the time which may be necessary for all evacuees to reach public shelters or other safe locations. More information on these points is contained in the Southwest Florida Regional Hurricane Evacuation Study Update, 1987.

Specialized Population Needs

The Sarasota County Department of Emergency Management's most recent figures indicate that 142 people are likely to require extra help in the event of an evacuation order. Responsibility for evacuating the handicapped and the infirm elderly rests with the North Port Police and Fire Departments. According to the North Port Police Department, identification of these "Special Needs People" is a strictly voluntary procedure which is coordinated by the County Department of Emergency Management. A person requesting placement on the "Special Needs" list first fills out a County form, available from the City or directly from the County. Such requests are then reviewed by the County's Medical Review Board, since not all requests can be honored due to personnel and equipment limitations. When an evacuation order is issued by the County, the Sarasota Department of Emergency Management notifies the two City departments and they begin evacuating the infirm, the handicapped and transportation-disadvantaged residents.

Post Disaster Redevelopment

The City currently has only minimal development in high hazard areas as described below. Thus, post disaster redevelopment for North Port, while a concern in planning for the future of the City, consists primarily of delineating those areas which are most vulnerable to storm damage.

The high hazard area of the City of North Port is located in the Myakka River Basin, and at the confluence of the River and the Myakkahatchee Creek. The City currently has no structures in these areas. However, the City and County act together to coordinate the evacuation of the Warm Mineral Springs area, which is located in the river basin. The County would be the lead agency in carrying out post disaster redevelopment in the Springs area, but presumably the City might be called upon to assist the effort.

Official maps prepared by the Federal Emergency Management Agency (FEMA) should be used in determining how flooding will affect specific properties. A review of these maps shows no "V" (high-velocity) zones. However, the areas of the City adjacent to the river and creek are all considered "A" zones on FEMA maps.

An "A" zone is one in which high flood waters are expected, but not a vertical surge, as would be expected along the Gulf. The remainder of the area is within "B" zones. "B" zone designation means that in a severe storm, such areas may experience up to a foot of floodwater. This depth of water could be enough to potentially halt evacuation or cause damage to structure. Please see the Flood Hazard Boundary Map in the Land Use Section for a graphic depiction of the flood hazard zones.

Existing Land Uses

The typical urban use found in the "A" zone is residential. Other land uses, as noted on the Existing and Future Land Use Maps, are: agricultural (undeveloped), low density residential (undeveloped), low density residential (developed), recreation /open space, public buildings & grounds, commercial (undeveloped), and commercial (developed). There are a number of tourist establishments in the Warm Mineral Springs area. These uses are likely to continue in the foreseeable future. There are boat docks associated with both residential and tourist uses along the banks of the river and creek.

The "B" zone is typically residential, with some commercial use, particularly along U.S. 41. The area contains one solid waste landfill; however, closure of this site is expected in the near future. There are some small-quantity hazardous waste generators in the City, but no large-quantity generators. The City Fire Department is currently preparing a computerized list of these generators.

Structures with a History of Repeated Damage

As stated previously, the City has had little experience with severe storms, and no structures within the City have suffered damage more serious than minor wind damage. Currently, there are no areas in need of redevelopment.

The City of North Port is located in the major drainage area of the Myakka River and its tributaries. The main flooding sources are the Myakka River, the Myakkahatchee Relief Canal and the Myakkahatchee Creek.

The City's drainage system includes a large number of drainage ditches, creeks and canals, all of which ultimately drain into the Myakka River via the Myakkahatchee Creek. With sufficient advance notice of an approaching storm, the North Port Water Control District has an established protocol for lowering the water level in the drainage system via the drainage control structures located at various points throughout the City.

The City was founded in 1959 as the City of North Port Charlotte. Since that time, four major storm events have caused flooding within the City. These were Hurricane Donna, on September 10, 1960; a severe storm

on October 18, 1968; Hurricane Agness on June 18, 1972; the "no-name storm on June 8, 1982; and Hurricane Elena on August 30 to September 4, 1985.

In 1987, the City of North Port adopted its Flood Damage Prevention Ordinance, in which the City's "Special Flood Hazard" areas were declared to be the same as those identified by FEMA in its "Flood Insurance Study", dated March 2, 1981. The following general standards were established for all areas within the special flood hazard zones:

- all new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure;
- manufactured homes shall be anchored to prevent flotation, collapse or lateral movement;
- new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;
- new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
- electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during a flood;
- new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- new and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters;
- on-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding, and;
- any alteration, repair, reconstruction or improvements to a structure in compliance with the provisions of the ordinance shall meet the requirements for "new construction" as defined in the ordinance.

The ordinance also requires that new construction or substantial improvements to existing buildings located in the "A" zones shall have the lowest floor, including basement, elevated at or above the base flood elevation. Residential construction in "AO" zones shall be elevated above the crown of the road or above the FIRM's depth number.

Non-residential construction may either be elevated above the base flood elevation or flood-proofed.

Other provisions of the ordinance further specify requirements for elevated buildings, manufactured homes and construction in areas of shallow flooding (AO zones). Additional and even more stringent provisions address construction in floodways.

Coastal Shore Protection Structures

The City of North Port is not a coastal community and thus faces no direct flooding threat from the Gulf of Mexico. However, a number of water control and anti-erosion structures have been erected in the Myakahatchee Creek and the drainage system of North Port. These are depicted in the Drainage Element.

Infrastructure in Coastal High Hazard Areas

Very little of the City's capital infrastructure is located in the "A" zone, which was previously defined as the high hazard area. Exceptions are domestic water and sewer lines and roads.

At present, only a small number of homes south of U.S. 41 are located in the "A" zone. Also within the "A" zone are an unknown number of homes in the Warm Mineral Springs area; it would be the City's responsibility to coordinate the evacuation of these homes with the County Division of Emergency Management.

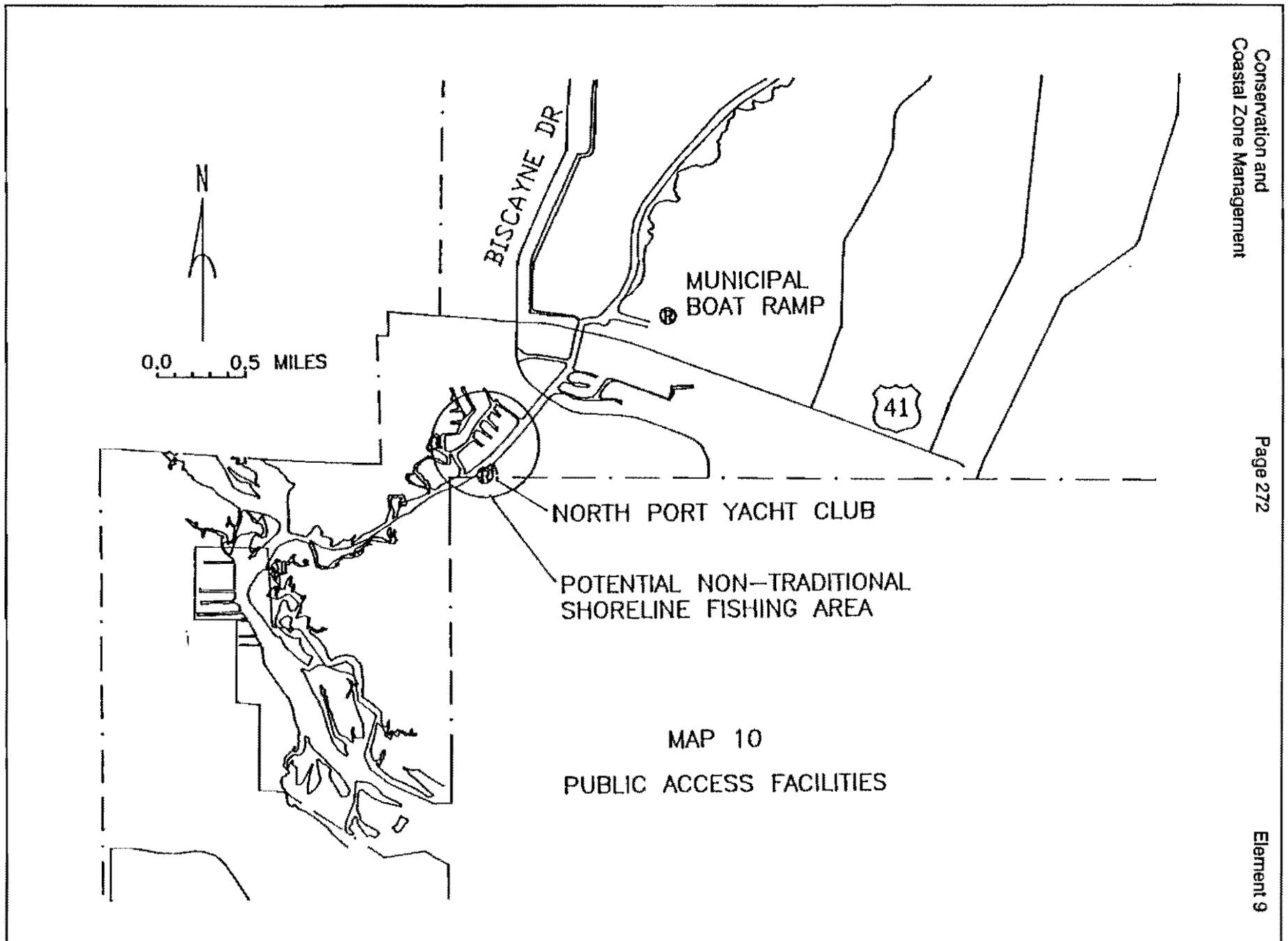
All North Port government infrastructure is located outside the "A" zone.

PUBLIC ACCESS FACILITIES

Public coastal access facilities have been inventoried and are shown on Map 10. Similarly, public lands are identified and shown on the Future Land Use Map.

Public access facilities are limited due to the small amount of coastal area and the generally undeveloped nature of the City (7 percent of potential buildout, according to current estimates). The City has no parking facilities in coastal shoreline areas, nor does it provide public docks or fishing piers. Although the City contains shoreline areas, none are considered traditional shoreline fishing areas. Consideration should perhaps be given to establishing scenic preservation areas along Myakkahatchee Creek and the Myakka River, possibly at transportation crossings.

As the City continues to grow, the need for public access will increase. This demand is discussed within the water-dependent land use need section.



GOALS, OBJECTIVES AND POLICIES

GOAL 1:

The City of North Port shall protect, conserve and appropriately manage its natural and historic resources.

Objective 1.1:

By 1994, the City will enact ordinances and other appropriate procedures that provide for the protection and enhancement of its critical water resources and biologically productive flora and fauna habitats.

Policy 1.1.1

By 1994, the City will have initiated a comprehensive survey and inventory program to determine the extent, range and diversity of its flora and fauna habitats, especially rare, endangered and threatened species and species of special concern.

Policy 1.1.2:

The City shall assist in the application of and compliance with all state and federal regulations which pertain to rare, endangered and threatened species and species of special concern.

Policy 1.1.3:

The city shall consult with the Florida Game and Fresh Water Fish Commission prior to the issuance of a land use approval that would result in an adverse impact to any rare, endangered and threatened species and species of special concern.

Policy 1.1.4:

The City shall establish a program encouraging private landowners to use good management practices to protect the habitats of rare, endangered and threatened species and species of special concern.

Policy 1.1.5

The City shall protect rare, endangered and threatened species and species of special concern by use of conservation easements, transfer of development rights, and fee simple acquisition and zoning.

Policy 1.1.6

By 1994, the City will adopt a comprehensive landscape/tree ordinance that strongly encourages the preservation of native trees and shrubs, while requiring the removal and eradication of all noxious pest exotics such as melaleuca, brazilian pepper, australian pine, etc., as an aid to fire prevention.

Policy 1.1.7:

All protected wetlands shall include incorporated upland buffers adjacent to these wetlands for habitat diversity, edge enhancement, and the promotion of wildlife conservation.

Policy 1.1.8:

The City's Environmental Division shall coordinate and communicate with the FGFWFC and DNR in order to establish criteria for the designation of environmentally sensitive lands, and to increase public knowledge of environmental protection and enhancement programs, including those related to flora and fauna habitats, the

protection and conservation of the natural functions of existing soils, fisheries, rivers, bays, lakes, floodplains, harbors, wetlands including estuarine marshes, freshwater beaches and shores, marine habitats, backyard wildlife habitats and boater awareness of manatees.

Policy 1.1.9:

The City shall coordinate with the FGFWFC in the monitoring of Southern Bald Eagle nests and creation and implementation of nest protection plans for development proposals such as Myakka Estates.

Policy 1.1.10:

The City shall continue to cooperate with DeSoto, Charlotte and Sarasota Counties and the SWFRPC in order to conserve, appropriately use or protect unique vegetative communities located within more than one of these local jurisdictions.

Objective 1.2

By 1994, the City shall establish management and protection programs and procedures to preserve and enhance the Myakkahatchee Creek as a Class I potable water supply and natural resource amenity by pursuing one or all of the following policies.

Policy 1.2.1:

The City will begin a program to protect and provide regulations relating to the development of all residential, commercial and industrial lots that border the Myakkahatchee Creek, in an effort to create a natural buffer area for the protection of this Class I Potable Water Supply. A program of transfer of development rights (TDR's) shall be considered.

Policy 1.2.2:

For those lots along the Myakkahatchee Creek where buy-back purchase or TDR programs may not be feasible, strict local ordinances shall be established regulating stormwater runoff, the handling and storage of hazardous and special wastes, and native vegetation removal. Accordingly, the Future Land Use Map shall designate this area as "Conservation - Restricted", which will provide strict regulations to mitigate the impacts of future development. These ordinances and regulations shall provide for incorporation of upland buffers adjacent to wetlands, identifying and remedying artesian wells, remedying any point-sources of inadequately treated stormwater which may be identified, strict land development regulations, stringent regulations regarding sewage disposal methods appropriate to the area, and other restrictions as deemed appropriate.

Policy 1.2.3:

The City shall seek the assistance and advice of the Southwest Florida Water Management District (SWFWMD), the Big Slough Watershed Advisory Committee and the Myakka River Management Coordinating Council in order to achieve the nomination and eventual purchase of lands bordering the Myakkahatchee Creek under the Save Our Rivers program, SWIM and other appropriate grant programs.

Policy 1.2.4:

In order to more effectively implement Policies 1.2.1, 1.2.2 and 1.2.3 above, the City shall employ the resources and coordination activities provided by the Big Slough Watershed Advisory Committee, the Myakka River Management Coordinating Council and the North Port Water Quality Advisory Board.

Objective 1.3:

By 1994, the City will implement programs and procedures for the protection, preservation and conservation of coastal water resources and fresh water resources.

Policy 1.3.1

By 1994, the City Stormwater Management Ordinance No. 82-124 shall be reevaluated and updated to provide more detailed design and construction standards for on-site stormwater management systems for new development to ensure that post-development runoff rates, volumes and pollutant loads do not exceed pre-development conditions; and to require the use of water quality "best management practices" for new developments. Any revisions to this ordinance shall be consistent with Southwest Florida Water Management District criteria.

Policy 1.3.2:

In coordination with the FDER and the SWFWMD, the City and the North Port Water Control District shall establish an on-going water quality monitoring and maintenance program for the estuaries, fresh water canals and direct access canals.

Policy 1.3.3:

The City shall investigate the potential of utilizing the existing FDER Pollution Recovery Trust Fund (\$525,000) for the support of a water quality monitoring and maintenance program for the estuaries and other waterways as deemed appropriate.

Policy 1.3.4:

The City, which has full representation on the Charlotte Harbor Resource Planning and Management Committee, shall continue to coordinate with this body by participating in its resource planning and management activities, as directed by the Southwest Florida Regional Planning Council. At every available opportunity, the City shall also attempt to take advantage of the resource protection activities and measures provided by the SWIM program legislated by the State of Florida. The various elements of these programs will be considered for incorporation into the City's Comprehensive Plan.

Objective 1.4:

By 1991, the City of North Port shall establish a wetland ordinance that conserves and protects the health, function and biological integrity of all remaining viable wetland systems. This ordinance shall contain regulations designed to protect, conserve, or restore water resource systems and attendant biological functions within the City of North Port, including:

- Preventing degradation of water quality and biological productivity.
- Preventing degradation of freshwater storage capabilities.
- Preventing damage to property and loss of life due to flooding.
- Preventing degradation of the viability and diversity of native plants and animals and their habitats.
- Assuring the conservation of irreplaceable natural resources.

Policy 1.4.1:

No wetland alteration or removal shall be permitted, unless reasonable use of the property is dependent upon said alteration or removal. Appropriate, equitable and compensating mitigation or restoration shall be required for all wetland disturbances.

Policy 1.4.2:

All necessary state and federal permit approvals shall be obtained. A review of local codes shall be implemented in an effort to ensure compatibility with state and federal dredge and fill regulations.

Policy 1.4.3:

The dredging or filling of the Myakkahatchee Creek and its associated floodplain shall be strictly prohibited, except for that required for canal maintenance and public recreation.

Objective 1.5:

By 1994, the City shall establish programs that will help to ensure that hazardous and special wastes are disposed of in an environmentally safe manner.

Policy 1.5.1:

The City, in cooperation with the FDER and Sarasota County, shall establish an annual Amnesty Days Program in an effort to reduce improper disposal of residential and commercial hazardous and special wastes and their containers.

Policy 1.5.2:

All new commercial and industrial developments shall be required to identify an appropriate on-site disposal or temporary transfer area for their hazardous or special wastes. All disposal, storage and transfer of these wastes shall be conducted in accordance with state and federal laws.

Policy 1.5.3:

The City of North Port shall coordinate with and lend assistance to Sarasota County in meeting the requirements of the Small Quantity Hazardous Waste Generator Survey conducted in cooperation with the FDER.

Objective 1.6:

By 1991, the City shall increase protection of the natural functions of the 100-year floodplain through the establishment of revised land development regulations, consistent with F.S. 163.3202(1) as amended, so that the flood-carrying and flood-storage capacity are maintained.

Policy 1.6.1:

The City shall conduct a review and update of Ordinance #87-232 (Flood Damage Prevention) to ensure its compatibility with all current state and federal water management regulatory controls and its consistency with the policies of this Plan.

Policy 1.6.2:

The City shall adopt revised land development regulations, consistent with F.S. 163.3202(1) as amended, which shall establish criteria governing land development activities within the "Conservation - Restricted" area as defined in the Future Land Use Element.

Objective 1.7:

Consistent with the provisions of the Unmarked Human Burial Bill, procedures shall be established by 1994 to preserve and protect all significant historic and archaeological sites located within the City of North Port.

Policy 1.7.1:

The City shall coordinate with General Development Corporation (GDC) and other property owners in the establishment of a transfer of development rights program as a means of preserving those platted lots in the Archaic Indian Midden and the burial area in the associated slough located near Little Salt Spring.

Policy 1.7.2:

The City shall support establishing the extent of the Little Salt Spring Indian settlement by working with the Florida Department of State's Division of Archives, Sarasota County and the University of Miami. Agreements between the City and owners of the platted properties in question shall allow for research in order to further scientific knowledge of the settlement area.

Policy 1.7.3:

An historical resource preservation ordinance shall be enacted to protect significant archaeological sites.

Objective 1.8:

By 1991, the City will implement procedures and criteria to prioritize shoreline uses through the scheduled revision of land development regulations, consistent with F.S. 163.3202(1) as amended.

Policy 1.8.1:

Shoreline utilization shall undergo a prioritization incorporating the following criteria:

- Natural Resource Protection;
- Public Access;
- Water Dependent Public Utilities;
- Other water oriented recreation;
- Fishing;
- Water-related uses.
- Performance Standards;
- Marina Siting;
- Land Use Compatibility;
- Availability of Upland Services;
- Hurricane Contingency Planning;
- Existing Protective Status or Ownership;
- Protection of Water Quality;
- Water Depth;

- Environmental Disruptions and Mitigation Actions;
- Economic Need and Feasibility.

Objective 1.9:

The City of North Port shall meet or exceed the minimum air quality levels established by the FDER.

Policy 1.9.1:

The City shall continue to cooperate with the County's air quality monitoring program as delineated in County Ordinance 85-63 as amended (Sarasota County Air Pollution Control Code).

Policy 1.9.2:

Industrial land uses shall be located where they minimize the impact on current air quality standards.

Policy 1.9.3:

The City shall reduce the potential for automobile emissions pollution by the following means:

- developments such as PUDs and multi-use centers;
- require vegetative buffer strips between arterial roadways and residential development; and
- promote alternative transportation modes such as car-pooling, public transit and bicycle and pedestrian paths.

Objective 1.10:

By 1994, the City will exercise all legal, practical means to increase public access to shoreline areas.

Policy 1.10.1:

For lands along the Myakkahatchee Creek, those programs and procedures to increase protection and public access as identified in Policies 1.2.1 through 1.2.3 of this Element shall be employed.

Policy 1.10.2:

For lands along the Myakka River, those means to increase public access identified in Policy 4.2 of the Recreation and Open Space Element shall be employed.

Objective 1.11:

The City shall invest in infrastructure necessary to meet its future land use demand for coastal infrastructure consistent with public safety and to maintain Levels of Service as described in the various elements of this Plan.

Policy 1.11.1:

The City will continue to regulate development throughout the planning period to ensure that public facilities are provided concurrent with need and to maintain Levels of Service as described in the various elements of this Plan.

Policy 1.11.2:

Man-made structures shall meet all applicable height and set-back requirements when constructed within the FEMA "A" zones or SLOSH Category 1 zones of the City of North Port. This policy shall be reflected in the City's Building Code.

Policy 1.11.3

The City shall minimize the addition of road, water, sewer, or drainage infrastructure in the "A" Zone, or Category 1 SLOSH Zone, and shall limit public building infrastructure to that described in Policy 2.1.1.

GOAL 2:

The City's total growth will not exceed the area's ability to manage the City's evacuation in the event of a Category 3, or greater, hurricane.

Objective 2.1:

By 1991, the City shall adopt land development regulations which establish standards for types, sizes, densities, and intensities of all land use categories, consistent with the County and Regional Hurricane Evacuation Plans.

Policy 2.1.1:

The City shall not have development to such an extent as to hinder the evacuation of an endangered population in the event of a hurricane.

Policy 2.1.2:

The City shall not have development to such an extent that its endangered population cannot be evacuated to a place of shelter within 18 hours of an evacuation order's being issued.

Policy 2.1.3:

The City will provide staff support and assistance to aid the Southwest Florida Regional Planning Council and Sarasota and Charlotte Counties in the identification of public and private shelter, including rental space, for all city residents, consistent with the Southwest Florida Regional Policy Council's Hurricane Evacuation Plan.

Policy 2.1.4:

The City will participate in all transportation planning efforts to ensure service level "D" as a minimum can be maintained during an evacuation on the City's evacuation routes.

Policy 2.1.5:

The City will participate in erosion-prevention and flood-prevention programs for those areas along the City's evacuation routes where erosion and flooding are potential problems.

Policy 2.1.6:

The City shall continue to ensure that safe shelter is available for the City's endangered populace, and that shelter space is available to meet shelter needs created by the City's growth.

Policy 2.1.7:

The City shall formulate a hurricane shelter policy of last resort in hurricane evacuation comprehensive planning efforts.

Policy 2.1.8:

Consistent with the Southwest Florida Regional Planning Council's Hurricane Evacuation Plan, the City shall continue to fulfill its assigned role as specified within the Sarasota County Peacetime Emergency Plan and its policies regarding hurricane evacuation and sheltering.

Policy 2.1.9:

Within one year of the adoption of this plan, the City will meet with Charlotte and Sarasota County Disaster Preparedness and local Red Cross officials for the purpose of identifying and designating additional public and private structures, both inside and outside the City, as hurricane evacuation shelters, consistent with the regional Hurricane Evacuation Plan.

Objective 2.2:

In order to limit public expenditures that may be construed as subsidizing development and post-disaster redevelopment in coastal high-hazard areas, from 1988, the City of North Port will regulate the number and type of structures subject to damage in FEMA "A" Zones, or Category 1 SLOSH Zones.

Policy 2.2.1:

The City will promote the relocation of repeatedly-damaged structures in FEMA "A" zones, or Category 1 SLOSH zones, to safe locations, consistent with road right-of-way needs.

Policy 2.2.2:

The City will enforce FEMA, DNR and local setback and height requirements for the safety of structures, especially those located along the Myakkahatchee Creek.

Objective 2.3:

After 1988, the City of North Port will not allow redevelopment in high hazard areas except under the circumstances described in the policies below and consistent with Policy 1.11.2.

Policy 2.3.1:

In the event a hurricane strikes, the recovery effort will be accelerated by the immediate distribution of free emergency permits by the appropriate authority for repair and clean up of damage to private and public structures and utilities, to the extent such situations are still marginally usable without such repair.

Policy 2.3.2:

Structures in the FEMA "A" zone, the Category 1 SLOSH zone or in areas subject to severe erosion or flooding which are determined to be in excess of 50% damaged, shall not be permitted to be redeveloped to original design specifications.

Policy 2.3.3:

Owners of structures who are denied permits to rebuild according to original design specifications, shall be offered one of the following options:

- Redesigning structure to meet FEMA height and DNR setback requirements.
- Collection of FEMA insurance and not rebuilding, demolishing the remnants.
- Collection of FEMA insurance and sale of remainder of the property to the City of North Port or to any federal or state program available for such purposes.

Policy 2.3.4:

The City shall not allow the increase in density or intensity of structures damaged by a storm.

Policy 2.3.5:

Consistent with SARA Title III, the City Fire Department and the City Police Department, in conjunction with the Sarasota County Division of Emergency Management, shall cooperate in the preparation of an inventory of hazardous materials generators in the City of North Port, or in unincorporated areas where the City Fire and Police Departments have responsibility.

Objective 2.4:

Through adoption of an interlocal agreement by 1991, the City of North Port shall assist the County of Sarasota in the evacuation of endangered residents in unincorporated areas adjacent to City boundaries, particularly including the unincorporated area of Warm Mineral Springs.

Policy 2.4.1:

The City shall cooperate with Sarasota County in the formation of a Warm Mineral Springs Natural Disaster Committee, the purpose of which shall be to aid the City in coordinating evacuation of the Warm Mineral Springs area.

Objective 2.5:

Through adoption of an interlocal agreement by 1991, the City of North Port shall assist the Sarasota County Division of Emergency Management and the City of Venice, in planning and coordinating the evacuation of the Englewood, Plamore and South Venice areas.

Policy 2.5.1:

The City of North Port shall cooperate with Sarasota County in the creation of a Natural Disaster Committee, like that in Policy 2.4.1, for the Englewood, Plamore and South Venice areas, or shall have the option of enlarging the Warm Mineral Springs Natural Disaster Committee to include such areas.

Policy 2.5.2:

Such a committee shall have the functions, and relationship to the City, as those described under Policies 2.5.1 and 2.5.3.

Policy 2.5.3:

The City will cooperate with Sarasota and Charlotte Counties to take those steps necessary to assure the safe evacuation of the Englewood, Plamore and South Venice areas and any endangered populations in those areas.

APPENDIX I

001088

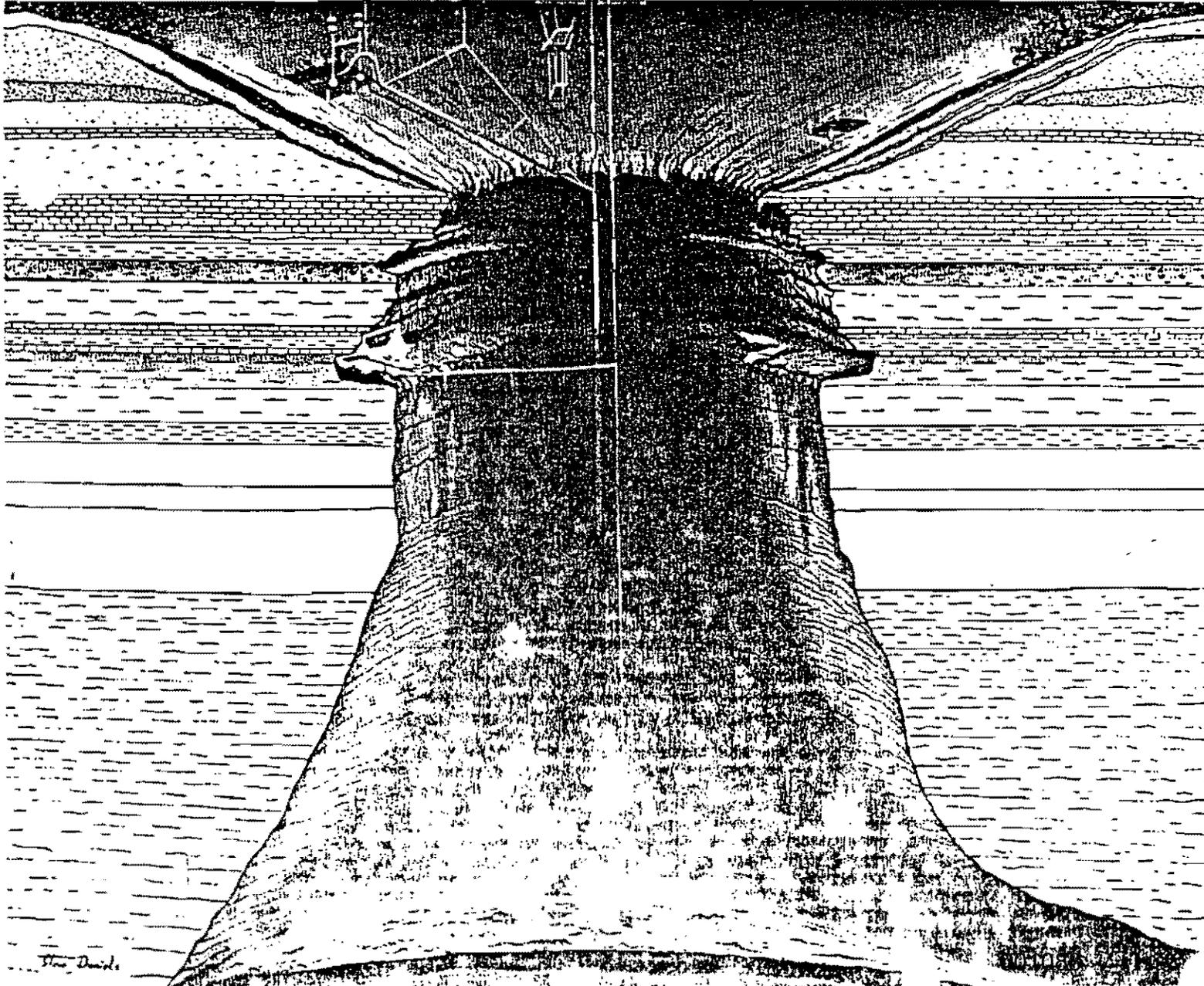
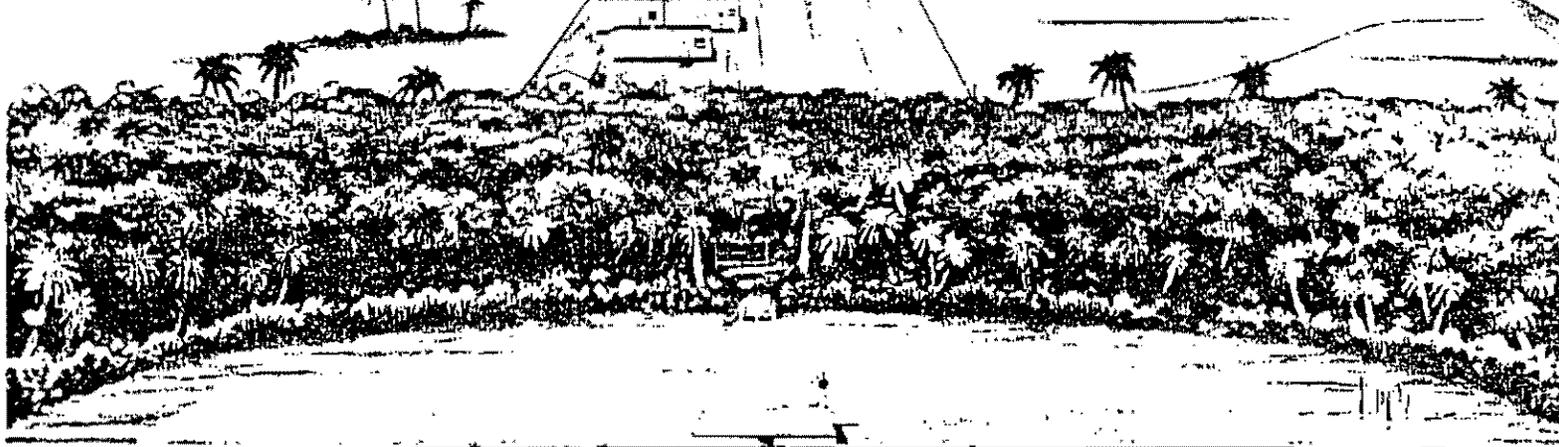
1979, Vol. 203, No. 4381

SI 50

SCIENCE

PLATE NO. REPT.
REC. I 1987
DATE REC'D

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



How David

Little Salt Spring, Florida: A Unique Underwater Site

A vast array of human remains, vertebrate and invertebrate fossils, and artifacts are preserved.

C. J. Clausen, A. D. Cohen, Cesare Emiliani,
J. A. Holman, J. J. Stipp

Until 1959, Little Salt Spring, located near Charlotte Harbor in southwest Florida, was thought to be one of the shallow water ponds typical of the region. Diving explorers found instead a large, flooded sinkhole some 60 meters deep. The spring consists of a basinlike depression 78 m across with its water surface 5 m above mean sea level (Fig. 1A). The floor

at a rate of 42.8 liters per second. This weak flow of mineralized water is apparently a relatively recent phenomenon linked to present sea level. In the past, during periods of lower local groundwater level, the sinkhole was a freshwater cenote. As such, it attracted primitive humans in considerable numbers and for a considerable length of time.

Summary. Little Salt Spring in southwest Florida, consisting of a shallow, water-filled basin above a deep, vertical underwater cavern, was a freshwater cenote in the peninsula's drier past. It collected and preserved perishable organic artifacts and other evidence of Paleo-Indian and Archaic Indian origin ranging in age from 12,000 to 9000 and from 6800 to 5200 years ago. An Archaic Period cemetery containing an estimated 1000 burials occupies an adjoining muck-filled slough and presently drowned portions of the basin of the spring. Artifacts and the nature of interment suggest a cultural link between the Archaic people and the much later Glades Tradition of southern Florida.

of the depression slopes at 25° from the land surface to 12 m in depth. A roughly circular opening 25 to 30 m across occupies the center of the depression. Below this opening, the wall is generally overhanging with two prominent encircling reentrants at depths of 18.0 and 26.0 m below the surface. The diameter of the sinkhole at its base is about 60 m, and the bottom is covered with an unknown thickness of soft detrital and organic sediments. Mineralized water, with a salinity of 3.2 per mil, a temperature of 24.4°C, and virtually no dissolved oxygen (1), flows from the cavity

An erosional drainageway some 425 m long and 30 to 90 m wide, now a slough, leads into the basin from the northeast (Fig. 1). Postglacial, unconsolidated sediments up to a few meters thick cover the bottom of the slough, the bottom of the basin, and, to a lesser extent, the two reentrants encircling the sinkhole. These sediments, which consist of layers of detrital and organic materials including peat, contain a rich array of human remains and artifacts in an unprecedented state of preservation.

Periods of human association with the site are clearly related to lower water

levels in the feature, which in turn reflect periods when surface water was scarce on the porous Florida carbonate platform. During periods of lower sea level associated with a cooler world climate, lower groundwater levels, lower average annual ocean (2) and land surface temperatures, and the extended effects of frontal activity (3) on peninsular weather created drier, even semiarid conditions in much of Florida. Conversely, when the water level in the feature was high, surface water was abundant everywhere and primitive humans apparently had little need for the essentially bottomless well the site represented. With the approach of sea level to its present elevation, heavily mineralized water began to issue from the feature and its usefulness to prehistoric man ended.

This is a report of our preliminary investigation of artifacts, bones, sediments, and pollen at the site. All dates are based on the carbon-14 analyses summarized in Table 1.

Paleo-Indian Period

The earliest evidence of human activity at Little Salt Spring has been found on the lower reentrant (Fig. 1A). There, the overturned, collapsed shell of an extinct species of giant land tortoise, *Geochelone crassiscutata*, was found with a sharply pointed wooden stake between the carapace and plastron. The orientation of this stake suggests that it entered through the exposed area between the edge of the carapace and the back of the right foreleg, piercing the pericardial or the pleuroperitoneal cavity, or both. Wood from the stake, which evidently killed the tortoise, was dated by carbon-14 at 12,030 years ago. Several of the long bones and portions of the carapace appear carbonized and numerous fragments of fire-hardened clay were found under and around the animal's remains. The tortoise was apparently killed and

C. J. Clausen is director of the Little Salt Spring Research Facility, General Development Foundation, North Port, Florida 33596. A. D. Cohen is professor in the Department of Geology, University of South Carolina, Columbia 29208. Cesare Emiliani and J. J. Stipp are professors in the Department of Geology, University of Miami, Miami, Florida 33124. J. A. Holman is professor in the Museum and Department of Geology, Michigan State University, East Lansing 48824. C. J. Clausen is senior author.

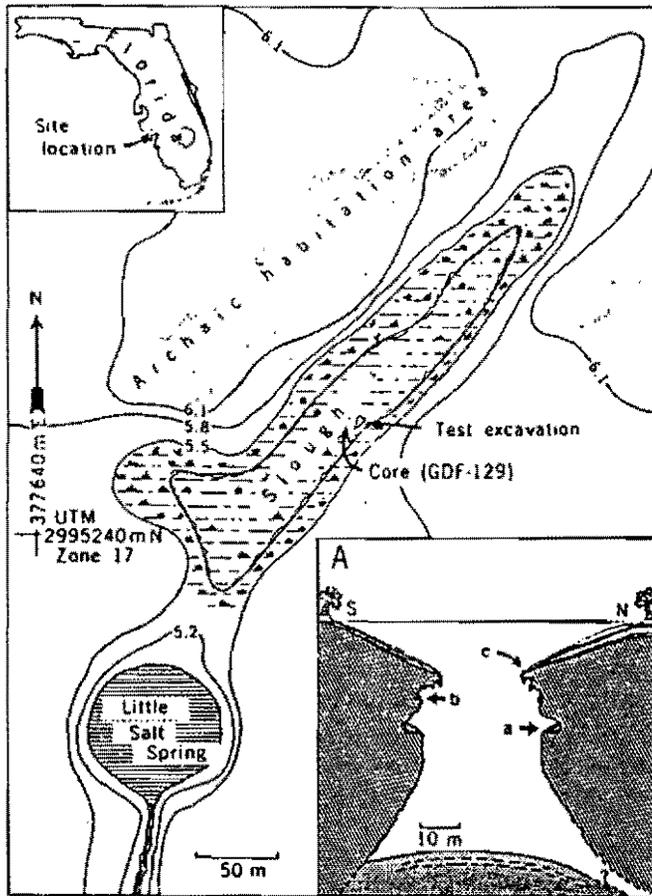


Fig. 1. Topographic map of Little Salt Spring. Numbers on contours are meters above mean sea level; to the left are universal transverse mercator (UTM) grid coordinates. (Inset A) Vertical section showing (a) 26-m ledge; (b) 18-m ledge, and (c) location of the stakes; the vertical scale is the same as the horizontal scale.

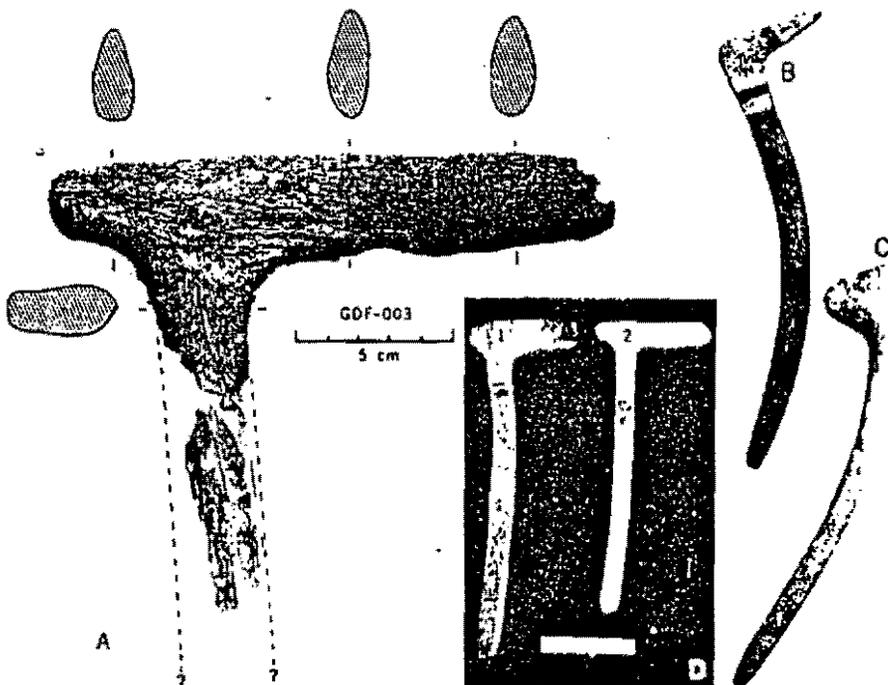


Fig. 2. (A) Broken nonreturning Paleo-Indian boomerang with cross sections. (B) Ceremonial matherwongul (Smithsonian Institution specimen 392784) from North Queensland, approximately 89 cm long. (C) Boomerang (Smithsonian Institution specimen 5634) of similar length collected in Australia by the Wilks expedition (1838 to 1842). (D) Models of nonreturning boomerangs constructed of laminated wood following the style of the incomplete specimen from Little Salt Spring. Despite the difference in density between laminated wood and oak (of which the Little Salt Spring boomerang is made) the models showed excellent stability in flight and were judged fully capable of maiming and downing game up to the size of small deer at a range of 40 to 60 m. Both models fractured during testing (see arrows) at the same place as the Little Salt Spring boomerang.

then cooked in situ in an upside-down position.

The presence of both loose and articulated valves of the freshwater mussel *Unio obesus* (L.), which existed in isolated colonies on the reentrant when the water level was only slightly higher, indicates that the water in the cavern during the cenote phase of the feature's history was fresh, although probably quite hard.

Fauna directly associated with the large tortoise includes two smaller extinct tortoises of the same species: the extinct large box turtle *Terrapene carolina putnami*; the extinct ground sloth *Megalonyx* sp.; two extant species of freshwater turtle, *Chrysemys floridana* and *Chrysemys nelsoni*; the land tortoise that presently inhabits Florida, *Gopherus polyphemus*; the modern diamondback rattlesnake, *Crotalus adamanteus*; the rabbit *Sylvilagus* sp.; and the wood ibis, *Mycteria americana*. A few meters farther east along the ledge portions of an immature mammoth or mastodon (*Mammuthus* or *Mammot* sp.) and an extinct bison were found.

By 10,000 radiocarbon years ago the water level in the feature had risen into the bottom of the basin, about 11 to 12 m below the present surface—an average rise of about 0.7 centimeter per year. During that period Paleo-Indians lived around the sinkhole. They built fires on the slope of the basin and consumed game, principally the white-tailed deer, *Odocoileus virginianus*. Vertebrate food refuse, together with wood, bone, shell, and stone artifacts, has been found in association with drowned informal hearths on the sand surface below more recent sediments now lining the basin. Near the bottom of the basin, around the opening to the lower cavern, numerous crudely pointed stakes made from small saplings and split segments of pine are driven into the sediment (5). The average radiocarbon age of wood from these stakes is 9572 years. Hickory nuts, isolated from the water-laid sediment into which the stakes were driven, were dated at 9920 years. Organically rich, freshwater calcitic mud samples trapped within freshwater gastropods (principally *Helisoma* sp.) also obtained from this sediment were analyzed for their pollen content. Although the pollen was well preserved and moderately abundant, only a relatively small number of plant types were encountered. The dominant trees in the area consisted of *Myrica* (wax myrtle), *Quercus* (oak), *Pinus* (pine), and *Carya* (hickory). The only herbaceous plants were ferns, composites, and grasses. No

pollen of floating or emergent aquatic forms such as water lilies, arrowhead, or cattail was found. This suggests that the slope of the upper basin was relatively well drained and the flatland region above and surrounding the feature may still have been relatively dry (6).

Among the artifacts recovered are a socketed antler projectile point with the tip of the dart shaft still preserved in its base and the basal portion of a carved oak mortar dated at 9080 years ago, similar in style to some of those recovered from peat at the much younger (~1200 years ago) Key Marco site some 130 kilometers farther south on the coast (7).

The most important Paleo-Indian artifact so far recovered is a well-preserved portion of a nonreturning oak boomerang (Fig. 2A). This specimen displays the thinned lenticular cross section and right-angled top of some of the weapons found in Australia, particularly the swan-necked or beaked variety from the Northern Territory, and should not be confused with the slightly curved, round-

ed "rabbit sticks" used by various American Indian groups including the Hopi of southwestern North America (8). Before the recovery of this specimen at Little Salt Spring, evidence for the use of nonreturning boomerangs was found in Australia, where the weapon type may still be in use among isolated aborigine groups (9); in ancient Egypt, where specimens of this type are reported among the grave goods of Tutankhamen (10); in India (11); and in western Europe (11). The discovery of a Paleo-Indian nonreturning boomerang in North America has a fundamental bearing on the age, origin, and distribution of this weapon (12). The specimen found at Little Salt Spring may be the oldest specimen of this type of weapon in the world and is the first found in the Western Hemisphere (13).

The water level in the spring continued to rise rapidly, averaging 0.7 cm/year, until about 8500 years ago, when it invaded the drainageway leading into the basin from the northeast and created

conditions there favorable for deposition of a brown sandy peat, followed by a freshwater calcitic mud. At that time the water level of the elongated, several-hundred-meter long, standing pond was about 1.0 m below the present surface of the spring (14). The peat layer at the base of the slough contains a pollen assemblage similar to that of a modern Everglades sawgrass-water lily habitat (15). The dominant pollen represents grasses, composites, and *Chenopodiaceae*. These are mixed with significant amounts of *Nymphaea* (water lily), *Typha* (cattail), and *Sagittaria* (arrowhead). Arboreal pollen consists of small amounts of oak, pine, and willow (*Salix*). This wet period between 8000 and 9000 years ago roughly corresponds to the onset of Holocene sedimentation in Mud Lake in north-central Florida and Lake Louise in the coastal plain of Georgia (16). It may also be correlated with the warmer, wetter period of mesic forest pollen evident in lake-bottom sediments in northern Georgia (17) and in the coast-

Table 1. Radiocarbon dates from Little Salt Spring and vicinity. Ages are uncorrected for reservoir or isotopic fractionation effects; their calculation is based on the Libby half-life of 5568 years. The error given is 1 standard deviation, which includes only the counting errors of the sample, modern standard, and background. All dates are years before present (1950).

Laboratory number	Site number	Material	Location	Depth below spring surface (m)	Depth above or below mean sea level (m)	Radiocarbon date (years before present)
Tx-2335	GDC-2120	Tortoise bone (carbonate fraction), <i>G. crassiscutata</i>	Reentrant at -26 m	26.0	-20.9	13,450 ± 190
Tx-2636	GDF-025	Wooden stake in tortoise <i>G. crassiscutata</i>	Reentrant at -26 m	26.0	-20.9	12,030 ± 200
I-6459	AH-14336	Peat or algal gyttja	Spring basin, below burial	7.4	- 2.3	10,980 ± 210
Tx-2595	GDF-011	Charcoal (small sample) from informal hearth	Spring basin, on gray sand	~6.1	~ - 1.0	10,190 ± 1,450
Tx-2461		Intact hickory nuts	Shelly calcitic mud in basin at drop-off	12.5	- 7.4	9,920 ± 160
I-6460		Wooden stake, pointed peeled sapling (formalin soak)	Spring basin at drop-off	~ 12.0	- 6.9	9,645 ± 160
Tx-2460		Wooden stake, pointed split pine	Spring basin at drop-off	12.4	- 7.3	9,500 ± 120
UM-1101	GDF-048	Peat or algal gyttja	Slough, below calcitic mud	N.A.†	2.9	9,100 ± 115
Tx-2594	GDF-010	Wood, carved oak mortar	Spring basin on gray sand associated with informal hearth	9.9	- 4.8	9,080 ± 250
I-6512	UW72-1	Unidentified wood fragment	Spring basin immediately below gray sand	~ 7.7	- 2.6	8,955 ± 145
UM-1100	GDF-047	Peat or algal gyttja	Slough below burial, above calcitic mud	N.A.	3.9	8,145 ± 115
UM-1157	GDF-064	Wood, digging stick	Slough, associated with burial	N.A.	4.1	6,830 ± 155
UM-1102	GDF-046	Human bone (carbonate fraction)	Slough, burial	N.A.	4.0	6,180 ± 95
UM-1103	GDF-046	Human bone (collagen)	Slough, burial	N.A.	4.0	5,850 ± 70
UM-1414	GDF core, 13 cm	Mucky organic deposit	Slough, core GDF-129	N.A.	4.1	5,390 ± 85
Gak-3548		Human bone (collagen)	Spring basin, burial	- 8.0-9.0	-2.0-3.0	5,220 ± 90
UM-1330	GDF-125	Mucky organic deposit	Base of seasonal pond 1.8 km southeast	N.A.	~ 4.0	4,230 ± 95
UM-1412	GDF core, 7 cm	Mucky organic deposit	Slough, core GDF-129	N.A.	4.4	3,520 ± 90

*Laboratories where the samples were radiocarbon-dated: Tx, University of Texas at Austin; I, Teledyne Isotopes, Wallwood, N.J.; UM, Department of Geology, University of Miami; and Gak, Gakushuin University, Tokyo. †N.A., not applicable.

001092

al plain of North Carolina (18). The more abundant moisture in the drainage lows of Dismal Swamp (North Carolina) between 10,600 and 8200 years ago (19) may reflect the same wet period.

Paleo-Indian utilization of the site apparently came to an end with this high stand of water in the feature and increased availability of fresh surface water in the area.

Archaic Period

Sometime between 8500 and 8000 years ago the water level in the feature began to drop. This is evidenced by the deposition of a second layer of brown peat, the base of which, at approximately 3.9 m above mean sea level (GDF core 129), was dated at 8145 years ago. By 6800 years ago, the dropping local groundwater level and the concomitant reduced availability of surface water again made the feature attractive to humans, and Little Salt Spring became a focus of activity of Archaic Period people. Their habitation area covers 10,000 to 20,000 square meters along the higher elevations paralleling the slough, particularly along the western side, and contains well-preserved vertebrate refuse

(20) including undrilled shark teeth and bone, shell, and stone tools. The dead were formally interred initially in the moist, soft peat of the slough, apparently just above the changing water level of the hard-water pond. Later, as the water level in the pond continued to drop, the burial sites followed, progressing into the exposed pond basin.

The cemetery covers more than 6000 m². The bodies were buried in extended fashion, apparently either on biers of green leafy limbs of wax myrtle, *Myrica cerifera*, or with leafy limbs placed between the arms and torso. Portions of the bodies were ceremonially wrapped with grass.

Preservation was sometimes remarkable because of the hard water and the resettling of fine peat, which combined to maintain an anaerobic environment after burial. In one case, a substantial portion of a brain with still discernible convolutions and cellular processes was found within a skull in a burial (21, 22). Dates of about 6000 years ago were obtained for human bone removed from an immediately adjacent burial. Wooden tools, including a pointed oak digging stick dated at 6830 years, and extremely well-preserved bone, shell, and stone tools have also been found with the burials. The most common artifacts are tapered points with roughly beveled bases, averaging 10 cm in length, made from the long bones of deer. The density of the burials is very high. Test explorations suggest that more than 1000 individuals rest in the cemetery. The skeletal elements of burials at the lowest elevations are equally well preserved but largely disarticulated, presumably by human foot traffic over the sloping soft sediments in which interments had been made. The associated stone projectile points are a distinctive large, triangular stemmed type known as Newnan's Lake points (Fig. 3). This type was dated at about 6000 years ago at the type site in north-central Florida and is found widely distributed over the Florida peninsula (23).

A small, incomplete wooden tablet or plaque with a raised central rib and edges bearing what may be the partial profile of a long-necked or long-billed bird (Fig. 4) was found underwater with the burials in the spring basin. This artifact resembles the typically tenoned wooden tablets or sluts with carved or painted animals or geometric figures recovered in the late 1890's from the Key Marco site (24).

The Archaic component represented in and around the spring is of special importance because of the range of cultural and physical evidence present. The pro-

jectile points suggest that the Archaic inhabitants of Little Salt Spring were part of a discrete Archaic Phase, identified with Newnan's Lake points, which around 6000 years ago occupied or strongly influenced most of peninsular Florida (25). Other artifacts and the unusual mortuary practice of interring the dead with carved wooden artifacts in moist peat or muck appear to be related to the much later Glades Period culture, especially the principal sites of Key Marco farther south and Fort Center to the east on Lake Okeechobee (26). These factors suggest that the conservative, somewhat atypical nature of the Glades Tradition (27) may be attributable to compression of an Archaic culture into the southern Florida area by later, possibly agricultural, peoples entering the peninsula from the north around the time of the development and spread of ceramics, rather than to environmental forces

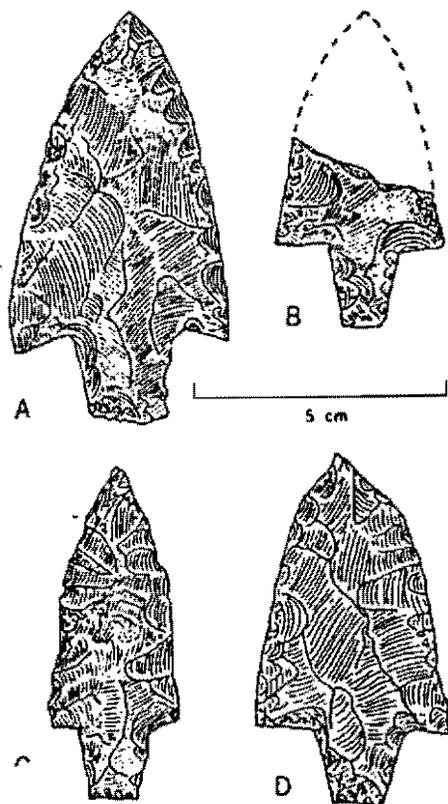


Fig. 3. Archaic projectile points from (A) Little Salt Spring basin, (B) midden, and (C) slough. (D) Archaic projectile point from site 8-A-356 near Newnan's Lake, the type site for this point style.

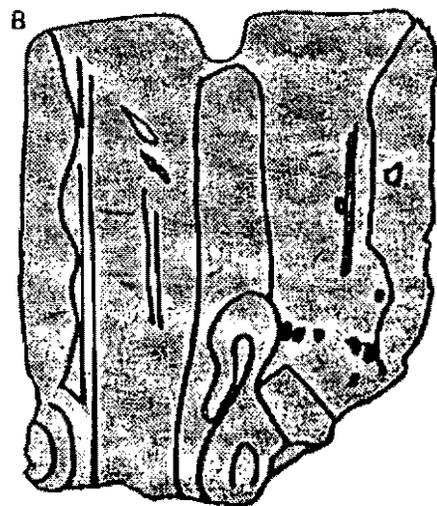


Fig. 4. (A) Incomplete, curved, flat wooden artifact found with Archaic burials in Little Salt Spring basin (specimen 14142, Florida State Board of Archives and History). (B) Line drawing emphasizing carved detail just above fracture.

001093

or influences from the Caribbean area. The idiosyncrasies of the Glades Tradition may reflect the effect of isolation of a strongly independent Archaic culture brought about by their hostility toward encroaching groups to the north and their containment by the sea on three sides in southern Florida (28).

The youngest radiocarbon date for a human bone specimen, which was recovered from approximately 8 to 9 m below the present water surface of the basin, is 5220 years. The average water level in the feature apparently began to rise shortly after this date, and fresh surface water (29) again became regionally abundant.

Conclusions

Unique cultural evidence, especially artifacts of wood, bone, and shell, which seldom survive in the Southeast, has been preserved in what can be described as a natural time capsule at Little Salt Spring. Humans inhabited the site between 12,000 and 9000 years ago and again between 6800 and 5200 years ago. During this time there were significant environmental changes related to deglaciation and the establishment of post-glacial conditions. The water level in the sinkhole rose from below -26 m to within 1 m of the present surface within 3500 years (12,000 to 8500 years ago). By approximately 5500 years ago, it had dropped by about 8 m and subsequently rose to the present level (30). These changes in the water table accompanied other important environmental changes, particularly in the local flora and fauna. The paleobotanical evidence substantiates this picture, indicating a period of wetness between 9000 and 8000 years ago and again during the past 4500 years (as shown by ¹⁴C dates on slough sediments). Evidence for the latter is the reappearance of such aquatic plants as water lilies, arrowhead, and cattail in the sediments of the slough (Table 1, laboratory numbers UM-1412 and UM-1414). The intervening dry periods would have exercised considerable control on human activities and the distribution of habitation sites on the inland portions of the peninsula, and this probably explains the concentration of early artifacts in solution features, spring runs, and the major drainages on the peninsula (31). The optimal humid conditions beginning around 9000 years ago may have contributed to an expanded human population. Concomitant overpredation by this population could explain the sudden disappearance of many large Pleistocene

vertebrate species, which may have survived previous dry periods in isolated enclaves.

Little Salt Spring has already provided the earliest evidence of activity of humans in Florida, their first association with an extinct vertebrate in the Southeast, and the first evidence that they preyed on an extinct species of giant tortoise. Further investigation should provide more abundant evidence of the material culture and thus insights into the subsistence of these early people and the environment in which they lived. Information of this sort is particularly needed for the Paleo-Indian Period in the Southeast, where the subsistence pattern on the coastal plain may have been as different from that on the central and high plains of the continent (32) as the subsistence pattern in the Great Basin area has proved to be. If our projections of the number of burials in the slough and spring basin are valid, we have here the best opportunity for physical anthropological studies on an Archaic population since the discoveries decades ago at Indian Knoll, Kentucky (33).

The great wealth of human remains, artifacts, vertebrate and invertebrate fossils, and plant fossils affords a unique opportunity to reconstruct the natural and cultural environment of southwest Florida during two critical periods of recent geological history, the Pleistocene-Holocene transition and the climatic optimum. In addition, the paleontological, paleobotanical, sedimentological, mineralogical, and geochemical studies of the sediments of both the spring and the slough will provide insight into the evolution of climate during these two critical periods.

References and Notes

1. Analyzed at the Ocala Laboratory of the U.S. Geological Survey, 11 December 1972.
2. J. P. Kenicott and N. J. Shackleton, *Science* 188, 47 (1975); C. Emiliani, S. Gartner, B. Lidz, K. Eldridge, D. K. Elvey, T. C. Huang, J. J. Stipp, M. F. Swanson, *ibid.*, 189, 1083 (1975).
3. H. K. Brooks, *Geol. Soc. Am. Annu. Meet. Abstr.* (1973), p. 558; *ibid.*, p. 599; P. J. Gleason, A. D. Cohen, W. G. Smith, H. K. Brooks, P. A. Stone, R. L. Goodrick, W. Spackman, Jr., *Miami Geol. Soc. Mem.* 2 (1974), p. 217.
4. F. Thompson, curator of malacology, Florida State Museum, personal communication.
5. The purpose of these stakes is unknown. They may represent only the basal portions of lunge poles erected upright around the opening.
6. Because of the excellent preservation of pollen trapped within these shells, it may be possible after further pollen analyses on these sediments to provide a complete pollen chronology and paleoecological reconstruction for the last 10,000 to 12,000 years.
7. M. Gilliland, *The Material Culture of Key Marco, Florida* (Univ. of Florida Press, Gainesville, 1975), plates 19 and 20.
8. M. Titnev, *Pop. Prubudy Mus. Archaeol. Ethnol. Harv. Univ. No. 22* (1944).
9. B. Ruhe, *Muny Happy Returns* (Viking, New York, 1977).
10. C. Desroches-Noblecourt, *Tutankhamen* (New York Graphic Society, New York, 1963), p. 271.
11. P. Musgrave, *New Sci.* 61, 186 (1974).
12. The nonreturning boomerang is apparently of much greater antiquity and distribution than is generally thought. An identifiable portion, the hook or "spur," of an atlatl or spear thrower has recently been found in sediments 9500 to 10,500 years old at Warm Mineral Springs (W. Cockrell, personal communication). The nonreturning boomerang was associated in Australia with the atlatl at the time of contact with European explorers. Because it now appears that the same association existed 8500 to 9000 years earlier in North America, it is possible that the development of the nonreturning boomerang was related to the atlatl. Eccentricity is a prerequisite for an effective nonreturning boomerang, a property that may have already existed in some launchers because of the shape or weight of the hook or handle. When game too small or quick to hit with the specialized short darts or spears of the atlatl sprang up, early hunters may have attempted to kill or injure the animal by spinning the short launcher after it. The bannerstone may be a means of introducing this eccentricity, or simply a way to make the launcher an effective defense weapon after all the darts had been launched.
13. The possibility that nonreturning boomerangs would be discovered in a Paleo-Indian or Archaic context in North America was anticipated by E. Callahan [M.S. thesis, Virginia Commonwealth University (1975)].
14. The top of a 0.85-m-thick layer of almost pure freshwater calcitic mud deposited in the slough almost 200 m northeast of the spring lies at an elevation of 3.87 m above mean sea level in GDF core 129. Calcitic muds of this type are precipitated in shallow water (about 0.5 m) by floating or attached periphyton [P. J. Gleason and W. Spackman, Jr., *Miami Geol. Soc. Mem.* 2 (1974), p. 146]. It appears that as a result, the water level in the feature had risen to within 1 m of the present level. The absence of brackish water fauna indicates that the spring was not flowing.
15. W. Reigel, Ph.D. thesis, Pennsylvania State University (1963).
16. W. A. Watts, *Geol. Soc. Am. Bull.* 80 (1969), p. 631; *Ecology* 52, 676 (1971).
17. ———, *Geol. Soc. Am. Bull.* 86 (1975), p. 287.
18. D. R. Whitehead, "Studies of full-glacial vegetation and climate in southeastern United States," in *Quaternary Paleogeology*, E. J. Cushing and H. E. Wright, Jr., Eds. (Yale Univ. Press, New Haven, 1967), pp. 237-248.
19. ———, *Ecol. Monogr.* 42, 301 (1972).
20. The occurrence of a Middle Archaic site on the southeastern coastal plain with identifiable vertebrate food remains is extremely rare and apparently unique in Florida.
21. W. S. Henry and M. R. Zimmerman, personal communications.
22. Another human brain preserved in a skull was recovered from stratified, undisturbed sediments on a ledge 13 m below the water surface at Warm Mineral Springs by W. Royal and E. Clark [*Am. Antiq.* 26, 286 (1960)]. The sedimentary sequence was radiocarbon-dated at 10,630 to 8500 years ago [C. J. Clausen, H. K. Brooks, A. B. Wesolowsky, *J. Field Archaeol.* 2, 191 (1973)].
23. C. J. Clausen, M.A. thesis, University of Florida (1964); R. P. Bullen, *A Guide to the Identification of Florida Projectile Points* (Florida State Museum, University of Florida, Gainesville, 1968), p. 30.
24. J. M. Goggin and W. C. Sturtevant, in *Explorations in Cultural Anthropology*, W. H. Goodenough, Ed. (McGraw-Hill, New York, 1964), p. 199; M. Gilliland, *The Material Culture of Key Marco, Florida* (Univ. of Florida Press, Gainesville, 1975), plates 10B, 31, 33, 34, 35, 36, 37B, 38, 67, 85B, 87, and 91. Plates 85B and 91 show, respectively, a slit with a notched end and a specimen with a raised central rib.
25. Numerous specimens of this abundant, easily recognizable point have been found in dozens of archaeological sites in 59 of the 67 Florida counties. Isolated specimens have been found in Alabama and southern Georgia. The land surface involved in Florida alone exceeds 100,000 km². These points represent the most common Archaic type dredged from drowned sites in Tampa Bay.
26. W. H. Sears, *Archaeology* 24, 322 (1971). The recurrent theme of circular, semicircular, and paired parallel ridges characteristic of the large ceremonial sites of the Glades Period in southern Florida, such as Fort Center, may be related to the basic morphology of the Little Salt Spring complex; that is, occupation along the two parallel ridges that border the slough and lead to the large circular spring basin where the dead were last ceremonially interred. Although no human

- skeletal remains reported, the elaborately carved wooden and bone artifacts found at Key Marco in peat below muck and above a layer of presumably marine clay may now be interpreted as purposely deposited offerings rather than articles that fell into the muck from a dwelling.
27. J. M. Goggin, in *The Florida Indian and His Neighbors*, J. W. Griffin, Ed. (Inter-American Center, Rollins College, Winter Park, Fla., 1949), pp. 28-33.
 28. The Glades Tradition maintained the production of a number of Archaic artifact types (including various shell tools, bone points, and spear throwers) and an essentially hunting and gathering subsistence until the time of contact with the Europeans. The associated ceramic style also remained essentially unchanged for more than 2000 years. According to Spanish sources, the Calusa Indians of southern Florida were almost fanatically hostile toward the agricultural tribes to the north.
 29. The basement muck in a small, shallow pond 1.8 km southeast of Little Salt Spring was radiocarbon-dated at 4230 ± 95 years ago (Table 1). These circular depressions containing seasonal ponds are numerous on the low coastal plain north and east of Charlotte Harbor. The data reflect the onset of seasonal ponding and possibly the approach of the sea to within a few meters of its present level.

30. D. W. Schall, F. C. Craighead, M. Stuiver, *Science* 163, 362 (1969).
31. Early stone and bone points are common only in these areas [B. I. Waller, *Fla. Anthropol.* 23, 129 (1970); S. J. Olsen, *Nat. Hist.* 67, 396 (1958)]. Many Archaic sites and artifacts throughout north-central Florida have been found below substantial deposits of eolian sands, usually near natural depressions that are now flooded, in wet prairies, or in spring runs and spring-fed rivers. The archeological evidence suggests that this sand was moving between 7000 and 4000 years ago [E. T. Hemmings and V. A. Kohler, *Bur. Hist. Sites Prop., Div. Archeol. Hist. Rec. Manage., Fla. Dept. State, Tallahassee, Bull.* 4 (1974), pp. 45-64].
32. H. M. Warrington, *Ancient Man in North America* (Museum of Natural History, Denver, Colo., 1937), pp. 155-207 and 249-254.
33. W. S. Webb, *Univ. Ky. Rep. Anthropol. Archaeol.* 4 (No. 3), 111 (1946).
34. Interest in Little Salt Spring was stimulated by W. R. Royal, who visited the site in 1939 with E. Clark (W. R. Royal and R. F. Burgess, *The Man Who Rode Sharks* (Dodd, Mead, New York, 1978)). Clark reported some of the findings, including the discovery of human skeletal material, in her book *The Lady and the Sharks* (Harper & Row, New York, 1969). The site was then briefly explored by H. K. Brooks and by J.

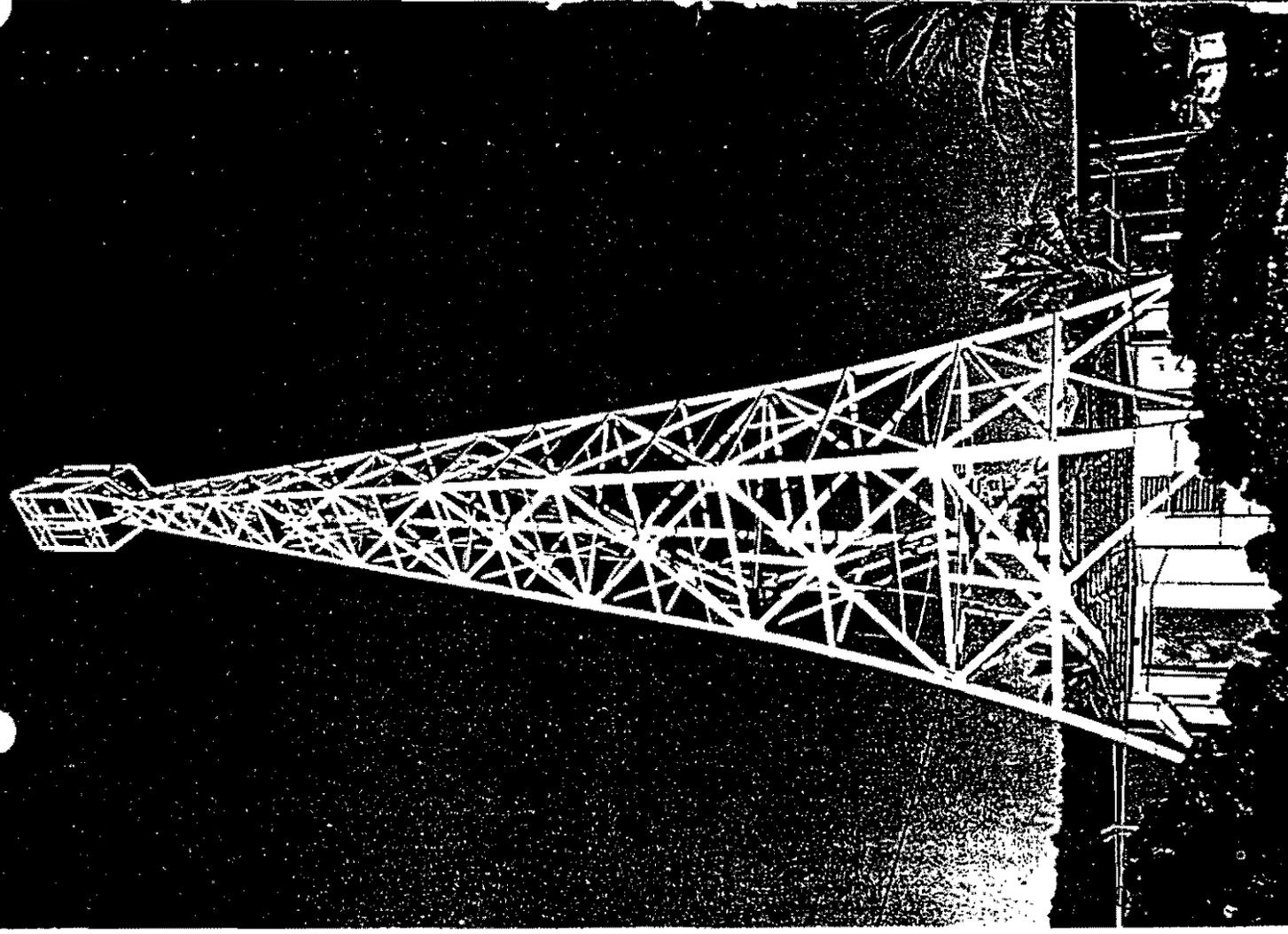
M. Goggin [*Am. Antiq.* 25, 348 (1960)]. General Development Corporation (GDC) has been supporting exploratory work at the site since 1971. In 1974, GDC established the General Development Foundation, a nonprofit research organization, and later deeded to the Foundation the spring site and surrounding acreage. In addition, GDC generously provided funds to continue exploration and research and has been the prime contributor in the continuing investigations. Further support has been provided by the Committee for Research and Exploration of the National Geographic Society; by the William G. Selby and Marie Selby Foundation of Sarasota, Florida; and by NSF grant ATM 75-22210 (Climate Dynamics Program). One of us (C.J.C.) has worked at the site on several occasions since March 1971. Scientists who have participated in aspects of the exploratory work and analysis since 1971 include H. K. Brooks, H. Yazdani, C. Bramblett, H. Edgerton, W. S. Hendry, M. R. Zimmerman, H. Hollien, F. Thompson, E. Wing, J. G. Brown, M. Almy, C. Jones, and C. Peterson. Special thanks are due J. Wallace, who provided a number of prints from the original glass plates of Key Marco artifacts. Contribution No. 11 from the Harold C. Urey Laboratory for Isotopic Paleotemperature Research, Department of Geology, University of Miami.

COVER

Little Salt Spring, Florida. Cross section of the pond and the underwater cavern. Abundant human remains, vertebrate and invertebrate fossils (food refuse), and wood, bone, and shell artifacts have been found in sediments on re-entrants in the cavern and on the floor of the pond and adjacent slough. The site includes an Archaic cemetery 5000 to 6000 years old, with an estimated 1000 burials. See page 609. [Steve Daniels, Department of Administration, State of North Carolina, Raleigh]

Sea Frontiers

International Oceanographic Foundation Volume 25, Number 5 September-October 1977 01095



Little Salt Spring Preserver of the Past

By CARL J. CLAUSEN and CESARE EMILJANI

TO THE CASUAL VISITOR, Little Salt Spring in western Central Florida appears to be a tranquil, 200-foot-wide pond surrounded by a ring of palm trees and hardwoods. But when early explorers tried to measure its depth they found a huge hole in the center of the pond, which was the broad opening of a large underwater cavern.

This cavern is shaped like an inverted funnel. It has a circular opening, 80 feet across at the top, and is about 200 feet deep and about 200 feet wide at the bottom. There are overhanging walls and circular ledges at 120 and 145 feet above bottom. The cavern was formed during the ice ages, when sea level was lower and the water table beneath the flat, porous surface of the Florida peninsula was also lower.

The Rise and Fall of Sea Level

Scientists now believe that there were a dozen ice ages during the past million years. Each time, ice built up on the northern continents to enormous proportions, reaching on Canada and the north-

200 feet 61 meters, 80 feet 24 meters,
120 feet 36 meters, 145 feet 44 meters

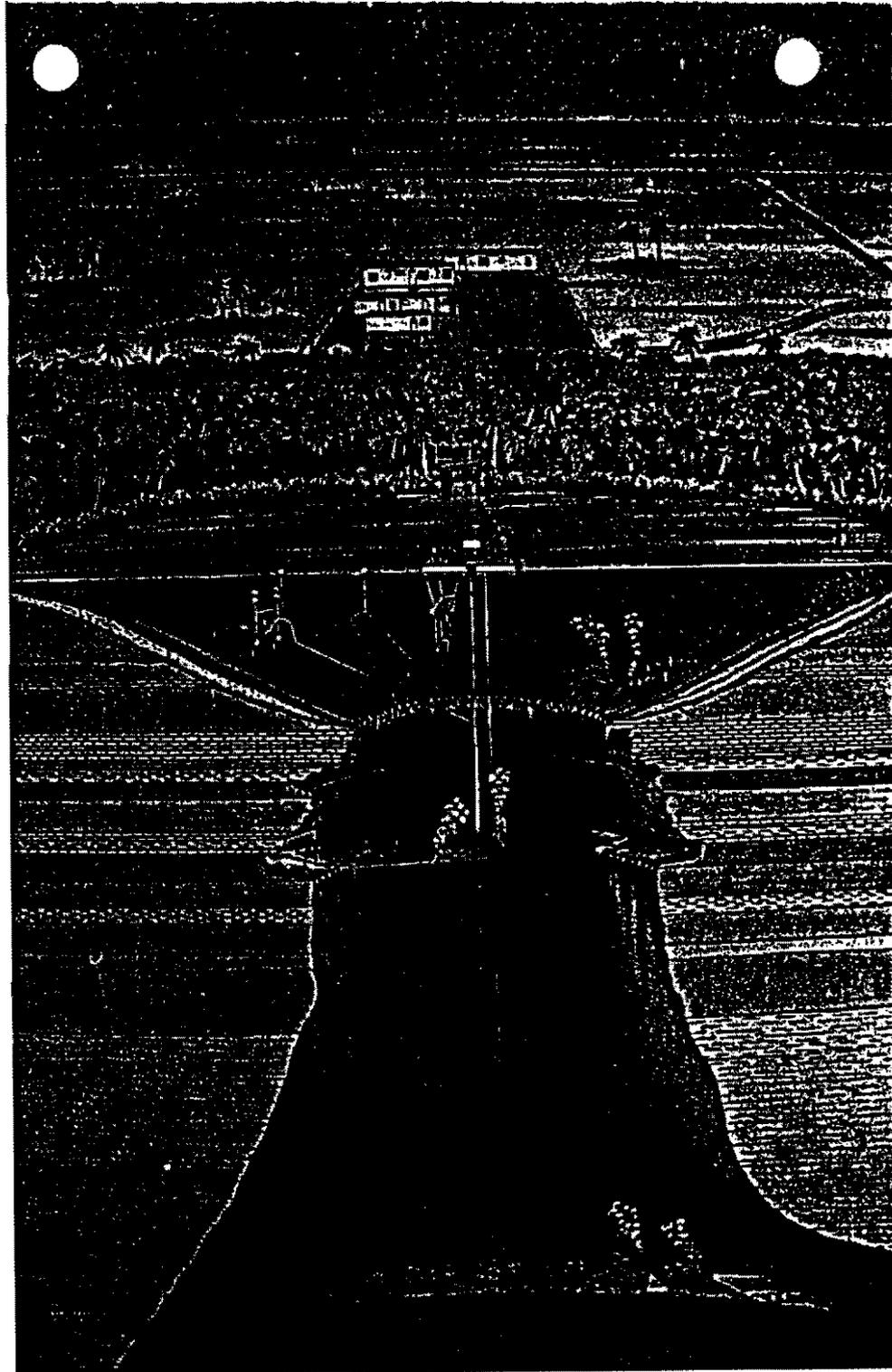
em states an extension and a thickness equivalent to those of the ice cap now covering Antarctica. Another huge ice cap covered northern Europe and portions of Siberia. The water to build all this ice on land came from the ocean, and sea level fell 300 feet. Each time, it took almost 100,000 years for ice to build up to its maximum extent. As the surface of the northern oceans froze, the supply of moisture to the ice caps was

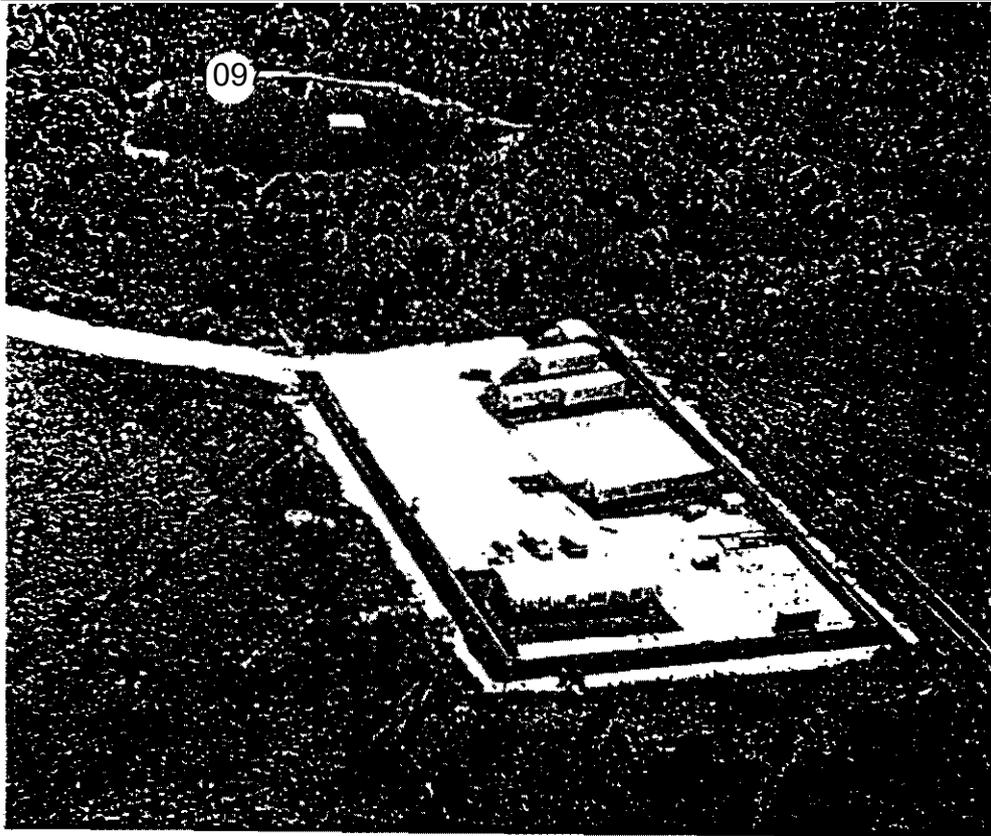
300 feet = 91 meters

A GREAT SECRET, concealed in the tranquil pond at Little Salt Spring, Florida, is revealed here in a cross-sectional view looking westward. Below the pond's surface is a shallow basin that empties into a deep, funnel-shaped cavern. From the floor of the basin and on ledges in the cavern walls, diving archaeologists have recovered preserved artifacts of ancient Indian origin, ranging in age from 5,200 to 12,000 years old.

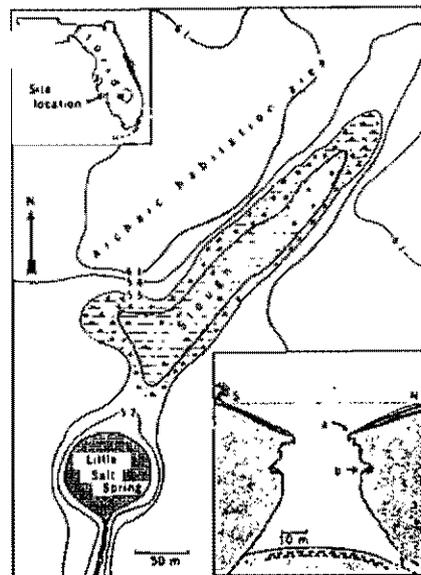
Steve Daniels

Sea Frontiers





All photographs by Carl J. Clausen



TO INVESTIGATE THE SPRING, a research facility was established on the west side (left). Important geographical and archaeological features of the site are outlined above. (Numbers on contour lines are meters above mean sea level.) A vertical section through the spring (inset) reveals the lip of the cavern (a) 12 meters below the surface, and a deep ledge in the wall (b) at 26 meters down.

cut, and in less than 10,000 years the ice disappeared.

It was during the long periods of ice build-up, when sea level and the Florida water table were slowly dropping, that heavy rainfalls on the Florida peninsula, rapidly absorbed by the porous limestone rock, formed underground courses sometimes as large as rivers. These waters, rich in carbon dioxide from the soil, enlarged the cavities through which they were percolating, sometimes creating large caverns. At the end of each

glaciation, when ice melted and sea level and the water table rose to their present point, the underwater cavities became flooded.

Ancient Man Visits the Spring

When the last ice age was at its maximum, 20,000 years ago, the underwater cave that is Little Salt Spring today was entirely dry. The land around it was a windswept, dry scrubland with a vegetation capable of surviving long, dry periods. So much of the atmospheric

moisture was being absorbed by the ice caps, which by this time had buried what is now Chicago and reached the area now New York, that little rainfall fell on the southern states. It is possible that humans and game animals could not live in Florida then, because there was not enough water to support them. But then, starting about 18,000 years ago, the ice caps began to melt, and the great rivers of North America and Europe, principally the Mississippi, the Rhine, Danube, and Volga, brought back to the

ocean the water that had been drawn many thousands of years before.

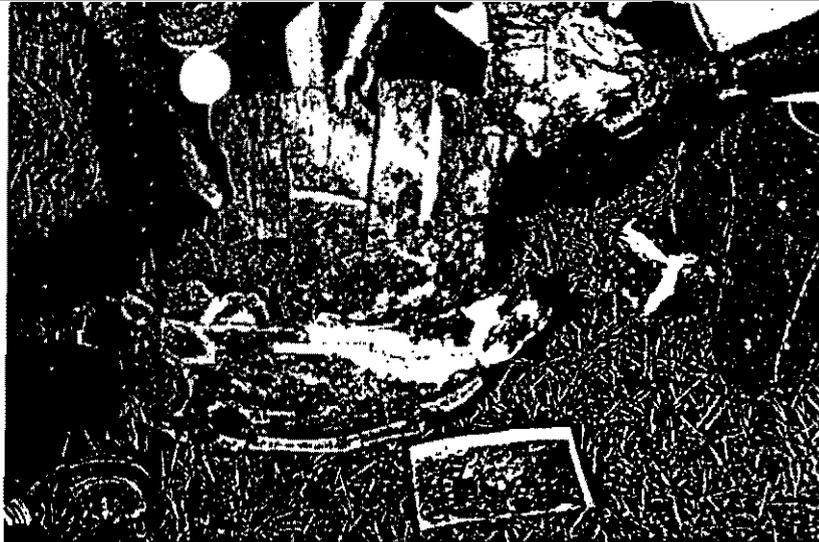
Sea level began slowly to rise and the floor of Little Salt Spring was flooded. In a few thousand years, water reached a ledge about 85 feet below the collapsed ceiling of the cavern. Man visited this ledge, for, resting on it, have been found the overturned shell of a giant, extinct land tortoise with an artificially pointed stake driven through the heart and with pieces of charcoal all around it. It was evidently killed and cooked in place. This happened 12,030 years ago, according to radiocarbon dating.

Two Periods of Occupation

Water continued rising, and all during those thousands of years of rising water level Little Salt Spring served as a huge freshwater well. As such, it attracted a considerable population of Indians, a population that began invading the peninsula as soon as the surface temperature of the sea rose, humidity increased, and the rains came back. The water table, however, was still too low for water to be as ubiquitous on the peninsula as is today. The primitive tribes, therefore, were forced to live in close proximity to large sinkholes and cavities where freshwater could be obtained.

Little Salt Spring was occupied during two periods, between 12,000 and 9,000 years ago, and again between 6,800 and 5,200 years ago. The first occupants were Paleo-Indians. They lived on the dry slope of the basin, just above the opening to the cavern, and in the area immediately adjacent. The slope of the basin is very steep (25 degrees) and, possibly to prevent people from falling in accidentally, they built a picket fence made 85 feet - 26 meters

098



out of wooden stakes all around it. Two pieces of this fence were dated by the radiocarbon method at 9,500 years ago.

Everybody knows that the Stone Age was so called because those ancient people used tools made of stone. Actually, *only* those tools made of stone have generally been preserved, giving the impression that these were the only tools made and used. The Stone Age, however, would be better called the Wooden Age, for it is likely that for each stone tool painfully made, primitive man must have made scores of wooden tools. The problem is, of course, that wood rots away very rapidly, and prehistoric wooden tools are extremely scarce. Not so at Little Salt Spring. The sediment covering the ledge deep into the cave, as well as the bottom of the basin and the adjacent slough, are rich in organic matter and devoid of oxygen. In this environment wood is preserved, and

many wooden tools have been recovered from the mucky sediments. Perhaps the most extraordinary discovery is a nonreturning boomerang. This type of weapon, common in Australia and known from ancient India and Egypt, is the first one discovered in the Americas. And not only that, it is also the oldest one known in the world, dating from approximately 9,500 years ago. Also of the same age are the base of a wooden mortar and a projectile made of a wooden shaft capped with an antler tip.

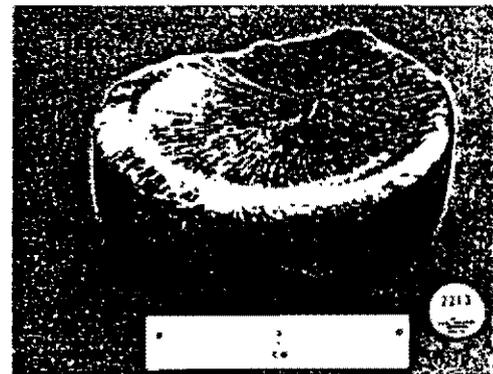
The Indians Leave—Then Return

Occupation of the ledge came to an abrupt end when the North American ice cap collapsed and huge floods poured down the valley of the Mississippi and into the Gulf of Mexico (see "The Great Flood," *Sea Frontiers*, Vol. 22, No. 5, September-October, 1976). It has been estimated that peak flood swelled the

A GIANT TORTOISE SHELL was discovered by divers on the floor of the 26-meter ledge (above left). The overturned, collapsed carapace of the now extinct animal (*Geochelone crassiscutata*) was collected and reconstructed (above). Along with the tortoise shell was found a sharply pointed wooden stake (above right), lodged between the carapace and plastron. The stake was apparently sharpened and used by Paleo-Indians to kill the tortoise for food, 12,000 years ago.



THE MOST IMPORTANT PALEO-INDIAN ARTIFACT so far recovered is a well-preserved portion of a nonreturning oak boomerang (above right). This weapon was used to maim and down small game animals at a range of 40 to 60 meters, and, although well-known from Australia, Egypt, and India, it is the first one discovered in the Western Hemisphere. Also found was the bottom portion of a carved oak mortar (right). Both items were dated at approximately 9,500 years before the present.





AN UNBELIEVABLE FIND—a 6,000-year-old human skull with the brain virtually intact—was recovered from the Archaic habitation area near the spring. Remarkable preservation of organic material at the Little Salt Spring site was possible because of the hard water and the settling of fine peat, which combined to make an environment completely devoid of oxygen. The great wealth of human remains, artifacts, and fossils at the spring, together with the potential for paleological and geological studies of the sediments, provides a unique opportunity to reconstruct the natural and cultural environment of southwest Florida during the last 12,000 years.

Mississippi to some 20 times the volume it had during the largest historic flood (February 17, 1937). Sea level, and hence the water level in Little Salt Spring, must have risen rather rapidly, inundating the ledge almost overnight. Water

level continued rising, and in 2,000 years it had reached the opening of the cave and began flooding the basin and the adjacent slough. Primitive man abandoned Little Salt Spring because, by that time, the water table was so

high that water was commonly available throughout Florida.

Between 9,000 and 8,000 years ago, a thick layer of peat was deposited underwater in both the basin and the slough. Then, shortly after 8,000 years ago, sea level and the water table began dropping again. In a thousand years, the water had receded to the opening leading into the cavern, exposing the entire floor of the basin. The Indians came back and started using Little Salt Spring as a source of freshwater once more. These Indians belong to the period archaeologically known as the Archaic. They lived in considerable number in and around the basin, and particularly on a low ridge that parallels the slough to the northwest. There they left many signs of their occupation, including innumerable bones of game animals (food refuse) as well as artifacts made of wood, stone, and shell. There are shell spoons, knives, and scrapers. And there is a wooden tablet with a bird carved on it.

Largest Prehistoric Cemetery

The Archaic Indians formally buried their dead in the soft muck of the basin and slough, on biers of wax myrtle, with branches between the arms and torso, and with a small treasure of wooden tools. There are more than a thousand bodies on the floor of the basin and slough, making Little Salt Spring the largest prehistoric cemetery in the world. (Human tissue is often well preserved in the oxygen-free muck. An almost intact human brain was found inside a 6,000-year-old skull. The state of preservation was so good that histological sections were made and 6,000-year-old neurons could be examined in

minute detail under the microscope.) Then sea level and water table rose again to the present point, and Little Salt Spring was abandoned once more.

Aside from the low ridge where the Archaic Indians had their dwelling, and which is, in effect, a kitchen midden covering 5 acres, exploration and excavation at Little Salt Spring is underwater and, as such, technically difficult. Even in the slough, where water is only 2 feet deep at most, careful digging that must be performed layer by layer, with continuous photographic recording of the findings, presents very serious problems. The problems increase downward, when excavations are undertaken into the floor of the basin, into the sediment on the ledge, and worst of all, into the thick sediment layer covering the floor of the cavern. The senior author has pioneered the development of special techniques for underwater archaeology and has applied these techniques to Little Salt Spring. More than 1,000 dives have been made, including some to the bottom.

Even though the material discovered at Little Salt Spring is extraordinary indeed, this is only the beginning. Only two of the 17,000 square meters of the basin and two of the 20,000 square meters of the slough have been excavated. Little Salt Spring already ranks as one of the major archaeological complexes of the western hemisphere; if it will deliver what preliminary explorations indicate, it will most assuredly come to be regarded as one of the prime archaeological complexes of the world. □

5 acres - 2 hectares, 2 feet - 0.6 meters, 230 feet - 69 meters, 17,000 square meters - 20,330 square yards, 20,000 square meters - 23,920 square yards

About the Authors

CARI J. CLAUSEN

Mr. Clausen has been involved in archaeological work for over 15 years, first as marine archaeologist for the state of Florida and then a project director of the Texas Antiquities Committee's Padre Island underwater archaeological research project. In April 1976, he became director of the Little Salt Spring research project in Sarasota County, Florida, sponsored by the General Development Foundation. His article, "Little Salt Spring," reflects this research. He received his B.A.E. in social sciences and an M.A. in anthropology from the University of Florida. In addition to numerous scientific papers, Mr. Clausen is the co-author with Robert Burgess of *Gold, Galleons and Archaeology*, based on his experiences in connection with the wrecks of the 1715 Spanish fleets on the Florida east coast.



Clausen

CESARE EMILIANI

Dr. Emiliani, chairman of the Department of Geology at the University of Miami, Florida, is renowned for his work in multiple Quaternary glaciations. The numerous deep-sea cores he has collected leading expeditions to the Atlantic Ocean and the Caribbean Sea have helped in this research. Dr. Emiliani was born and raised in Italy. He holds two doctoral degrees, one from the University of Bologna and one from the University of Chicago. His papers have contributed to the knowledge and understanding of glaciation, and his articles for *Sea Frontiers* have covered a wide variety of subjects in marine geology and related fields, including the present one based on the research at Little Salt Spring.



Emiliani

RECREATION AND OPEN SPACE

Table of Contents

Introduction .....	.298
Classification of Recreation Areas and Special Facilities .....	.298
Level of Service (LOS) and Special Criteria for Recreation, Open Space and Special Facilities .....	.299
Inventory of Existing Recreational Areas and Facilities .....	.302
Publicly Owned Recreation Areas and Facilities	302
Privately Owned Recreation Areas and Facilities	306
Existing Deficiencies and Future Needs .....	.306
Park Improvement Plans .....	.310
Acquisition	310
Construction	312
Operation and Maintenance	314
Preservation	314
Coordination with Government Agencies and Private Sector .....	.317
Goals, Objectives and Policies .....	.318

List of Tables

Table I - Criteria for Provision of Park and Recreation Areas 300

Table II - Proposed Criteria for Special Facilities 301

Table III - City Owned Recreational Areas, Facilities & Open Space 303

Table IV - Privately Owned Recreational Areas and Facilities 307

Table V - Potential Future Recreation Sites 308

Table VI - Existing Need for Recreation and Open Space Areas: 1988 309

Table VII - Future Recreation and Open Space Area Needs, 1993 and 1998 309

Table VIII - Park Facilities Needing Repair 313

Table IX - Recreation Area/Facility Acquisition and Improvement 316

List of Figures

Map 1 - Demand for Neighborhood Parks 311

INTRODUCTION

As North Port's population continues to grow and diversify, the demand for additional recreation opportunities and the need to protect valuable open space resources will intensify. Given that the average age of the City's population is projected to continue to decline, there will be an increasing demand for park sites with facilities intended for children and young adults. At the same time, additional recreation facilities are needed for the City's elderly population.

As the City's population expands outward from its present core, there will also be an increasing need to locate recreation facilities in these new growth areas. This growth in the City's population will, however, also create pressure to develop for residential use areas of potentially great future recreation value such as the lands located along the Myakkahatchee Creek and Myakka River.

These are just some of the issues that the City faces in meeting its need for recreation facilities. In order to keep pace with the demands generated by new growth, the City must plan now for both the improvement of its existing park sites as well as for the acquisition and improvement of additional recreation sites and open space.

CLASSIFICATION OF RECREATION AREAS AND SPECIAL FACILITIES

A classification of basic recreation areas and special facilities is necessary in order to develop local standards, adequately inventory existing areas and facilities, and to meet present and determine future needs. The basic types of recreation areas and facilities are described below:

Neighborhood Park:

A neighborhood park is a "walk to" park, generally located along streets where people can walk or bicycle without encountering heavy traffic. It serves the population of a neighborhood in a radius of up to one-half mile, and should generally have at least 2 acres for each 1,000 population. Its size usually ranges from 5 to 10 acres, and it serves a population of up to 5,000. Typical facilities developed in the neighborhood park may include playground apparatus, recreation buildings, multi-purpose courts, sports fields, picnic areas, and free play areas. Additional facilities may be added, depending on the recreation demands of the neighborhood.

Community Park:

A community park is a "ride-to" park, located along major collectors or arterials. It is designed to serve the needs of four to six neighborhoods - which may be said to constitute a community - and serves community residents within a radius of up to three miles, or a service population of up to 25,000. A minimum of 20 acres for each community park is recommended, with acreage needs based on a standard of two and one-half acres per 1,000 population.

Typical facilities at a community park include swimming pools, ball fields, tennis courts, play areas, picnic areas, multi-purpose courts, recreation buildings and sports fields. Additional recreation facilities may be included to meet a particular recreation demand in the community. In North Port, Butler Park and the Dallas White Complex provide adequate community park space to serve the demands of the present and projected population within the next ten year timeframe.

Regional Park:

A regional park is a park which is designed to serve two or more communities. At present North Port does not contain any regional parks. Myakka River State Park and the Oscar Scherer Recreation Center are the only regional parks presently located in Sarasota County. It is envisioned, however, that a regional park may be located in Myakka Estates sometime in the future.

Open Space:

Open space, as it relates to recreation, is an area, public or private, unoccupied or predominantly unoccupied by buildings, used for parks, recreation, agriculture, conservation, preservation of water resources, historic or scenic purposes. It varies in size and may take the form of air, land or water surfaces. In North Port, open space includes all existing mini-parks that are reserved for passive use as well as all park strips located along existing roadway rights-of-way.

Special Interest Park:

Special interest parks refer to parks that cannot be placed in the park categories listed above. They include scenic, historic, and service parks. North Port does not presently contain any special interest parks. However, the City intends to explore the possibility of designating Little Salt Spring, the Atwater Drive archaeological site, and the lands located along both the Myakkahatchee Creek and Myakka River as special interest parks.

Recreation Center:

A recreation or "community" center is a building especially designed for recreation and is sometimes designed in relation to a park area. It is operated to provide most types of community, group, or individual recreation programs and usually includes a social hall, club and meeting rooms, lounge, gymnasium, locker room, swimming pool, arts and crafts workshop, and waiting room. The City presently contains two recreation centers: The Al Goll Center and the Wilfred Churchill Hall.

Special Facilities:

Special Facilities include tennis courts, bikepaths, basketball courts, baseball fields, swimming pools, golf courses, etc. They are usually located in a park site but may also stand alone.

LEVEL OF SERVICE (LOS) AND SPECIAL CRITERIA FOR RECREATION, OPEN SPACE, AND SPECIAL FACILITIES

The general methodology used to determine the amount of land that should be devoted to recreational use is based on population. The City of North Port has adopted a level of service of at least 10 acres of recreation/open space land per 1000 population.

In addition to this LOS standard, the City also adopted a set of special criteria for the provision of specific recreational activities in order to meet the locational and functional needs of the population. Tables I and II below present the criteria the City has adopted governing the provision of general and special recreation facilities. These criteria are based on those established by the National Parks and Recreation Association and the Florida Recreation and Parks Association.

TABLE I
 Criteria for Provision of Park and Recreation Areas
 City of North Port

Park Facility	Location	Service Area	Per 1000 Population	Population Served	Acreage		Facilities
					Adjoining School	Separate Park	
Neighborhood Park	Neighborhood, adjacent to elementary school when feasible	1/4 to 1/2 mile radius	2 acres	Up to 5000	Min. of 2 acres	Min. of 5 acres	Landscape park for passive recreation, recreation, sitting areas, tables for games, picnic tables, tables, sand boxes, sports fields, swings, slides with possibility of night lighting.
Community Park	Contiguous neighborhoods, adjacent to or near high school when feasible	1/2 to 3 mile radius	24 acres	Up to 25000	Min. of 5 acres	Min of 15 acres	Basketball and tennis courts, softball, football, soccer fields, senior citizens area, picnic area, open or free area, play apparatus, recreation building, landscaping
City Wide Park	Urban areas	30-40 minutes driving time	5 acres	one for each 50000		Min. of 100 acres, 200 acres or more desirable	Playground apparatus area, restrooms, hiking and riding trails, nature center, boating, swings, picnic areas and sports areas.
Open Space	Neighborhood or contiguous to	1/4 mile radius and up	2 acres	500-2000	N/A	N/A	None. Reserved for passive use.
Special Interest Park	On or along scenic or historic site	City-wide	Based on Community Demand	City-wide	N/A	N/A	Minimal (e.g., picnic areas, hiking trails, canoe launches). Mainly for passive use.

TABLE II
Proposed Criteria for Special Facilities
City of North Port

Special Facility	Size	Population Served	Service Area	Location
Lighted tennis courts	2 acres	2,000	1 mile radius	Neighborhood Park and/or Playfield, Community Park
Lighted basketball courts	.6 acres	5,000	1 mile radius	Neighborhood Park and/or Playfield, Community Park
Lighted baseball diamonds, regulation	4.5 acres	6,000	1 mile radius	Neighborhood Park and/or Playfield, Community Park
Softball and/or youth diamonds	4.5 acres	3,000	1 mile radius	Neighborhood Park and/or Playfield, Community Park
Field sports-soccer, field hockey, rugby, open space	2-3 acres	5 acre per 1,000	1 mile radius	Neighborhood Park and/or Playfield, Community Park
Athletic field-track, football, gymnasium	min. of 8 acres	80,000	15-20 minute drive	Within Urban Area
Swimming pool	1-2 acres	27 ft ² /person, 1/7,500	1-1.5 mile radius	Neighborhood Park and/or Playfield, Community Park
Shuffleboard-battery of 12	1 acre	1,000	1 mile radius	Neighborhood Park and/or Playfield, Community Park
Three walled court area-handball, racquetball	.5 acre	10,000	1 mile radius	Neighborhood Park or Playfield
Golf Course	min. of 50 acres for 9 and 100 acres for 18 holes	50,000 18 hole	Within 20 miles of population center	Where population demand and required acreage are desirable

In addition, the City's Parks and Recreation Advisory Board has established the following guidelines to be used to evaluate the City's existing recreation program and to make recommendations for the future:

A recreation program should:

- Provide equal opportunity. Programs should be sufficiently broad to enable all residents to be served.
- Serve all ages. Programs should provide for children of all ages, young adults, and senior citizens.
- Provide equally for both sexes. Activities for men and boys generally are the focus of recreation programs in many cities. Women and girls are also entitled to a full range of recreational opportunities.
- Provide a range of choices. Programs should not be devoted to a single type of activity such as athletic games and sports, but should also provide other games, music, arts and crafts, nature, drama, social recreation and other activities.
- Continue throughout the year. Recreation needs exist for twelve months of the year. Activities are needed when other recreation opportunities are limited.
- Provide outlets for creative expression. Although it is important to provide structured activities, the creative needs of individuals should not be neglected.
- Serve specific interests and needs of different neighborhood populations. Because neighborhoods in many cases possess different socio-economic characteristics which are reflected in recreation interests and needs, programs need to be diversified to meet these needs.
- Make possible the wisest use of available resources. Expenditures for special services benefiting a small number of persons often, because of limited financial resources, deprive a majority of persons from recreational opportunities. The program should be formulated on the basis of serving the best interest for the largest number of people.
- Place recreational opportunities within the financial abilities of all persons. Facilities and programs are effective only when they are free or have charges that can be afforded by the majority of the population.

INVENTORY OF EXISTING RECREATION AREAS AND FACILITIES

Publicly Owned Recreation Areas and Facilities

According to an inventory of recreation areas and special facilities completed in October 1987, North Port currently contains 185.5 acres of publicly owned park sites, open space, and other recreation facilities. Of this 185.5 acres, 89.55 acres have been improved. Table III below presents a list of all existing recreation areas, facilities, and open space owned by the City. These areas are also depicted on the City's Existing Land Use Map in the Future Land Use Element.

The first 11 recreation and open space areas/facilities listed in Table III are maintained by the City's Parks and Recreation Department. The remaining park sites and open space areas, except for those located within the Jockey Club, are maintained by the City's Public Works and Roads & Drainage Departments. None of these

TABLE III: CITY OWNED RECREATIONAL AREAS, FACILITIES, AND OPENSACE

AREA/FACILITY	CLASSIFICATION	LOCATION	ACRES	EXISTING EQUIPMENT
1. Kirk Park	Neighborhood Park/ Active	Trionfo Ave. and Gorgas Street	1.50	8 Shuffleboard Courts, 1 Basketball Court, 1 Slide, 2 Seesaws, and 1 Picnic Table
2. LaBrea Park	Neighborhood Park/ Active	Pan Am. Blvd., LaBrea, and E. Sidney Ave.	2.69	1 Basketball Court, 1 T-Ball Field, 1 Shelter, Monkeybars, and Swingset
3. Highland Park Ridge	Neighborhood Park/ Active	North Port Blvd., Kenwood Dr., Mesa St., and Harmony Rd.	6.17	Tennis Court, Raquetball Court, 3 Shuffleboard Courts, and a horseshoe pit
4. Pine Park	Open Space/Mini- Park/Passive	McKibben Dr. and Malamin Rd.	1.22	None
5. McKibben Park	Neighborhood Park/ Active	Lingle St. and Trekell St.	3.51	Tennis Court, Handball Court, and 2 Shuffle- board Courts
6. Hope Park	Open Space/Mini- Park/Passive	Hope Ct. and San Pablo Ave.	1.10	None
7. Marius Park	Open Space/ Mini-	Marius Circle	0.51	2 Benches
8. Marina	Special Facility	off Chancellor Blvd.	1.04	Boatramp, Shelter and Picnic Table
9. Veterans Park	Neighborhood Park/ Passive/Active	Tamiami Trail and Biscayne	2.63	Memorial Monument, 4 Benches, Water Fountain, and Lake
10. Butler Memorial Park	Community Park/ Active	Price Blvd.	40.00	1 Major League Ballfield, Pavillion, Volleyball Courts, B-B-Q Pits and Tables, Bike Path, Canoe Launch, and Hiking Path

TABLE III: CITY OWNED RECREATIONAL AREAS, FACILITIES, AND OPENSACE

AREA/FACILITY	CLASSIFICATION	LOCATION	ACRES	EQUIPMENT
11. Dallas White	Community Park/	Greenwood Ave.	17.87	Pool, Swings, Seesaw, Tennis Courts, 2 Slides, Softball Field, 2 Small Spinners, 1 Large Spinner, 1 Large Shelter, 4 B-B-Q Pits, 2 Volleyball Courts, Boat Dock, Scout Building, Horseshoe Pits, and Basketball Court
12. Wilfred Church Hill Hall	Recreation Center	Pan Am. Blvd. and Trott Circle	5.00	Social Hall
13. Palms 1	Neighborhood Park/ Unimproved-Passive	52nd Addition	16.43	None
14. Palms 2	Neighborhood Park/ Unimproved-Passive	52nd Addition	21.28	None
15. Palms 3	Neighborhood Park/ Unimproved-Passive	52nd Addition	2.51	None
16. Glasser Field*	Special Facility	Pan Am. Blvd./ 52nd Addition	3.30	Little League Baseball Field
17. Jockey Club 1*	Open Space	52nd Addition	2.10	None
18. Jockey Club 2*	Open Space	52nd Addition	2.25	None
19. Jockey Club 3*	Open Space	52nd Addition	11.84	None
20. Park Strips	Open Space	Original Addition	4.98**	None
21. Park Strips	Open Space	3rd Addition	4.77**	None

TABLE III: CITY OWNED RECREATIONAL AREAS, FACILITIES, AND OPENSACE

AREA/FACILITY	CLASSIFICATION	LOCATION	ACRES	EQUIPMENT
22. Park Strips	Open Space	15th. Addition	0.94	None
23. Park Strips	Open Space	48th. Addition	21.08**	None
24. Park Strips	Open Space	50th. Addition	8.72**	None
25. Park Strips	Open Space	51st. Addition	1.16**	None
26. Park Strips	Open Space	53rd Addition	1.15**	None
27. Park Strips	Open Space	Unplatted	1.15**	None
28. Al Goll Center	Recreation Center	Dallas White Recreation Complex	***	N/A
29. Bikepaths	Recreation Facility	(See Traffic Circulation Element)	****	N/A

- * Leased From City
 ** Represents aggregation of all Park Strips in the Addition
 *** Located on 17.87 acre Dallas White Recreation Complex
 **** 5.9 Miles

latter park lands are improved. Glasser Field and the open space areas in the Jockey Club are leased from the City to private, nonprofit organizations.

The Jockey Club is a deed-restricted community and hence access to the open space areas located within it is limited. The Jockey Club Association is responsible for maintenance of those leased open space areas. Public access to all other park sites and open space areas listed in Table III is unrestricted. All of the park lands and special facilities listed in Table III are located within Planning District 12, i.e., the presently urbanized area of the City.

Privately Owned Recreation Areas and Facilities

There are approximately 839 acres of privately owned recreation areas and facilities in the City of North Port. Of these 839 acres, however, only 254 acres are presently available for some form of active or passive recreation use. The remaining acreage represents lands owned by GDC (572 acres) and the developers of the Panacea DRI (14 acres) that have been designated as future recreation sites. Table IV below presents an inventory of those privately owned recreation areas and facilities presently available for use in the City of North Port. The list of potential future park land sites presently owned by GDC and the developers of the Panacea DRI is contained in Table V.

The data in Table IV indicate that of the 254 acres of privately owned recreational facilities presently available in the City, 75 percent are presently improved. The major improved privately owned recreation sites/facilities are the North Port Country Club, the North Port Yacht Club, the Holiday Park Recreation Association, and the Jockey Club Property Owners Association. The Yacht and Country Clubs do provide access to the public.

The 39.5 acre Little Salt Spring archaeological site has not been officially designated as a recreation area. The City does intend, however, to discuss with the owner of the site, the University of Miami, the possibility of designating Little Salt Spring as a Special Interest Park and opening it up to limited public access. Such an arrangement could include the possibility of creating a nature boardwalk and charging fees for its use in order to generate funds needed to continue research of the site.

EXISTING DEFICIENCIES AND FUTURE NEEDS

As noted above, the City has adopted a level of service standard of 10 acres of recreation and open space area per 1000 population. Given an existing 1988 peak season population of 12,264, there exists a present demand for slightly over 120 acres. Based on the projected growth in the City's population, by 1993 and 1998 the demand for recreation and open space areas will have grown to approximately 150 and 200 acres, respectively.

Clearly, if for analytical purposes the City wishes to include both public and private existing recreation and open space areas, then the City's existing supply of 439 acres (185 acres public/254 acres private) more than satisfies this demand. The City, however, should examine its existing inventory in terms of only the 185 acres of public recreation and open space area it possesses. Using this method, the data indicate that by 1998, unless additional lands are acquired, the City will experience a slight deficit of 15 acres in available recreation and open space area.

In addition to analyzing the combined need for additional recreation and open space areas, Tables VI and VII examine the separate existing and future needs for open space, community parks, and neighborhood parks. These needs are estimated using the number of acres per 1000 population criteria established by the City for each recreation type and the current and projected population figures for the City.

TABLE IV: PRIVATELY OWNED RECREATIONAL AREAS AND FACILITIES

AREA/FACILITY	CLASSIFICATION	LOCATION	ACRES	EQUIPMENT
1. North Port Yacht Club	Special Facility	Chancellor Blvd. and Markham Waterway	1.10	
2. North Port Country Club	Special Facility	Greenwood Ave.	188.00	Golfcourse, Clubhouse, Swimming Pool
3. Holiday Park Recreation Center	Recreation Center	Holiday Blvd.	2.00	
4. Little Salt Spring	Archeological Site	Price Blvd.	39.50	None
5. Holiday Park	Open Space	Holiday Park Units I & II	24.08	None
6. Jockey Club Property Owners Association	Special Facility	Pan American and Appomattox	3.5	Swimming Pool 2 Tennis Courts, Basketball Court

TABLE V: POTENTIAL FUTURE RECREATION SITES *

<u>ADDITION **</u>	<u>NO. OF SITES</u>	<u>ACREAGE</u>
Original	1	2.01
11th	2	10.28
12th	3	10.53
17th	4	9.83
18th	1	3.64
19th	4	11.66
20th	3	11.54
21st	1	5.04
22nd	2	9.77
23rd	1	2.02
24th	5	14.29
25th	5	14.91
29th	1	2.81
32nd	2	4.69
33rd	2	5.72
34th	2	7.04
36th	1	3.30
37th	2	11.25
39th	1	1.75
44th	13	20.41
45th	12	25.13
46th	35	59.07
47th	28	33.19
48th	4	15.00
49th	39	36.73
51st	6	14.05
52nd	19	76.24
54th	7	24.33
56th	1	0.86
Myakka Estates:		
V	1	4.09
VII	2	31.00
VIII	1	8.00
IX	2	82.09
Panacea		<u>14.00</u>
TOTALS	<u>213</u>	<u>586.27</u>

* All property owned by GDC except for Panacea acreage. Does not include other property owned by GDC such as church and residential sites which could be acquired for use as potential future park sites.

** Additions refer to officially platted and recorded subdivisions located within the City.

The data in Tables VI and VII indicate that the City has an adequate overall supply of recreation areas to meet both the existing as well as the future need for open space and community parks. However, the City has also adopted criteria governing the location of recreation areas in terms of their functional geographic service area. Neighborhood parks have a service area of between one-quarter and one-half mile. Although the City has an adequate total supply of neighborhood parkland, several areas located within the City's urbanized area that are growing rapidly are not located within the service area of any of the City's existing neighborhood park sites.

Map 1 below depicts where the City's current neighborhood parks (including mini-parks presently functioning as sub-neighborhood parks) are located and their respective service areas in relation to where the demand for future neighborhood parks will likely be concentrated based upon population projections.

**TABLE VI
EXISTING NEED FOR RECREATION AND OPEN SPACE AREAS:
1988**

Area Type	Total Available Acres	Acres Required	Acres Needed
Open Space*	55.67	25.0	None
Neighborhood	56.72	25.0	**
Community Park	57.87	31.0	None
TOTAL	170.26	62.0	**

* Includes mini-parks and park strips.

** Additional neighborhood parkland required to address specific locational needs. See below.

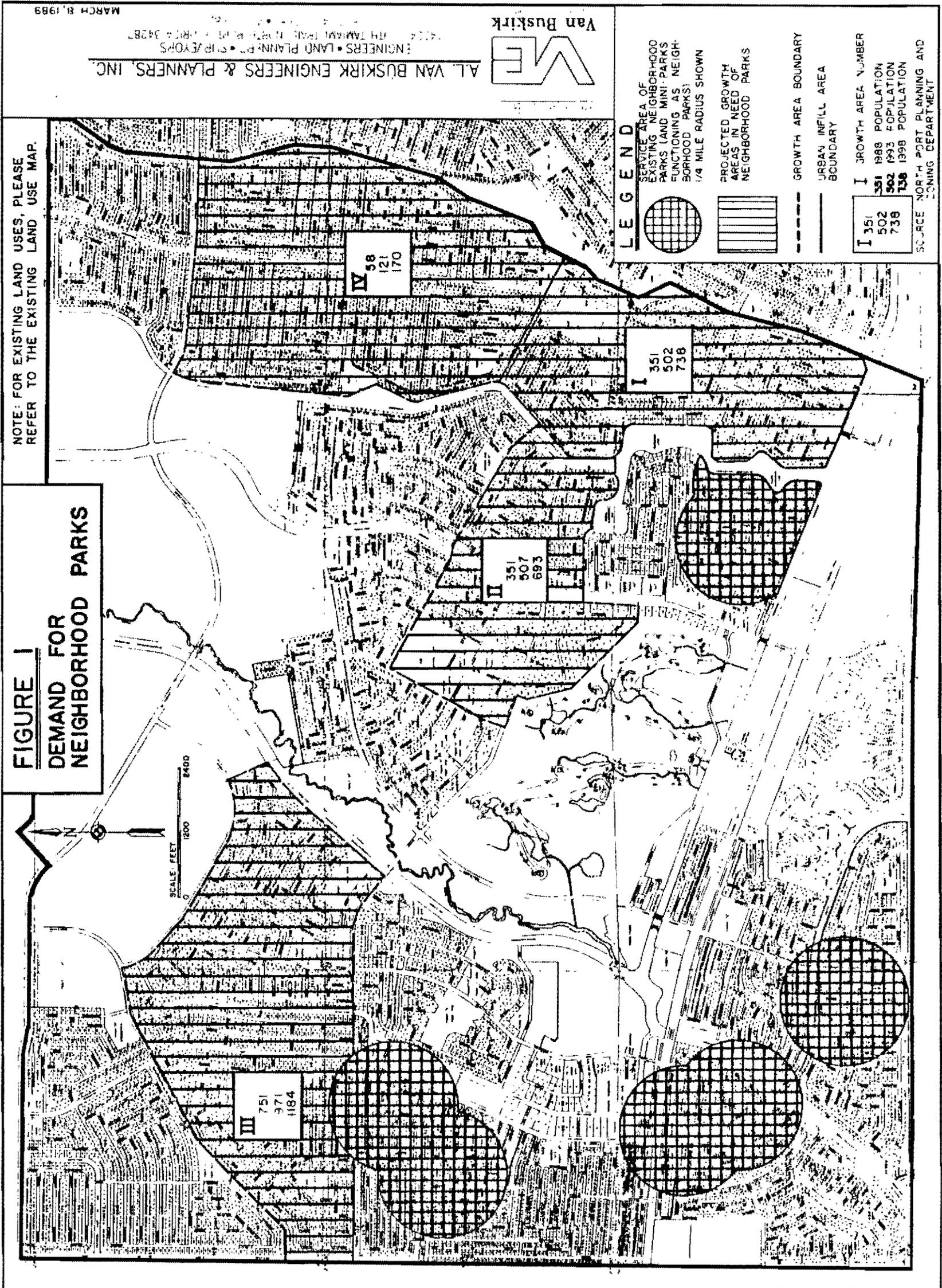
SOURCE: North Port P&Z Department.

**TABLE VII
FUTURE RECREATION AND OPEN SPACE AREA NEEDS:
1993 AND 1998**

<u>Classification</u>	<u>1993</u>			<u>1998</u>		
	<u>Demand</u>	<u>Supply</u>	<u>Total Need</u>	<u>Demand</u>	<u>Supply</u>	<u>Total Need</u>
Open Space	31.0	55.7	None	41.0	55.7	None
Neighborhood Park	31.0	56.7	**	41.0	56.7	**
Community Park	38.9	57.9	None	50.7	57.9	None
Total	100.9	170.3	**	132.7	170.3	**

** Additional neighborhood parkland required to address specific locational needs. See below.

SOURCE: North Port P&Z Department



PARK IMPROVEMENT PLANS

The analysis presented above indicates that based on the special criteria that the City has adopted, the only projected deficiency facing the City over the 5-year capital improvement planning period is in available neighborhood park sites. The City's Parks and Recreation Advisory Board has also indicated, however, that there are several other priority areas that need to be addressed as well in order to satisfy the recreational needs of the City's population.

The Board was established in 1984 by Ordinance No. 84-167 and advises the City Commission on all recreational matters including:

- Preplanning and development of a recreational program assuring that all public recreational facilities are properly and efficiently operated and each facility is utilized to its optimum to the benefit of all citizens.
- Examining the use and condition of all public recreational facilities and recommending such changes deemed appropriate.
- Acting as a liaison with all local clubs and organizations in preplanning the use of all public recreational facilities.
- Preplanning for additional public recreational facilities based on need, location, detailed plans and cost estimates.

Acquisition

The Parks and Recreation Advisory Board has recommended that the City acquire up to an additional 25 acres of neighborhood parkland over the 5-year planning period to accommodate the demand for neighborhood parks in four growth areas located within the City's Urban Infill Area. These growth areas and their current and projected populations (for 1993 and 1998) are depicted in Map 1.

According to the projections, by 1993 the population in Growth Area 4 will not yet have reached the threshold criteria adopted by the City for the provision of a neighborhood park. However, given that this area is among the fastest growing in the City and that the cost of acquiring land for a park in this area will increase each year, the City nonetheless provisionally plans to consider acquisition of the land needed in this area for a neighborhood park. The estimated cost of acquiring the total additional 25 acres of parkland is \$100,000 per year. The City will consider the use of utility taxes and special assessments to help finance the cost of acquisition. Acquisition of this land would also eliminate the aforementioned projected city-wide deficit of 15 acres anticipated by 1998 in recreation and open space areas.

The first proposed new neighborhood park site is in Growth Area 1 (4th Addition). The exact location of the additional future sites to be acquired within the Urban Infill Area will be determined by the Advisory Board in conjunction with an annual update of the park acquisition program, based upon the projected location of future residential growth in the City.

Since the City does not own a large supply of park land available for future development, it would have to purchase, or have transferred to it, the land required for these future neighborhood parks from the private sector. GDC has designated over 572 acres of land for the development of future park sites. Table V above lists the location of these potential future sites and the total available acreage. This land should be sufficient to satisfy the build-out population demand for recreation and open space area.

Land designated for potential future uses other than park sites by GDC and other property owners may also be purchased by, or transferred to, the City to accommodate the need for additional neighborhood park sites. The acquisition any future park sites will be based upon the locational criteria the City has adopted, community demand, and available funding.

A major priority of the City's Parks and Recreation Department is the establishment of a special interest park along the Myakkahatchee Creek. The City will explore the feasibility of preserving up to 264 lots along both sides of the creek from the platted lots below North Port Estates II southeasterly to the Snover Waterway and providing for additional public access. As outlined in the Future Land Use Element, the City has designated this land as Conservation-Restricted and plans to pursue a number of policies in order to preserve these lands, including transfer of development rights, lot swapping, and direct acquisition.

Preservation of these lands totalling over 57 acres would more than address the present lack of resource-based recreation sites in the City for community-wide access and use. As a special interest park, the Creek and the lands located alongside it, would be ideal for canoeing, hiking, and fishing among other activities. Preservation of these lands would also address the City's concerns with flooding in the area (See Drainage Sub-element) and conservation of the City's potable water supply (See Potable Water Sub-element).

The current estimated assessed value of the property along the Creek is \$439,000. Given the high cost involved, the City is actively considering other policies, as noted above, to preserve these lands in addition to direct acquisition. The City is also actively investigating the use of federal and state grant programs to supplement planned City expenditures. The City furthermore intends to explore the use of other possible financing mechanisms such as utility taxes and special assessments to pay for the cost of acquiring these lands.

Construction

The new active neighborhood park sites that the City provisionally plans to acquire will need to be improved. The City has also identified a number of existing neighborhood park sites that have equipment that needs to be either repaired or replaced. Table VIII presents a list of those existing facilities/equipment that are in need of repair or replacement. In addition, the City intends to provide landscaping for both the new park sites it is considering to acquire as well as for its existing park sites. The estimated annual cost of these improvements over the 5-year planning period is \$30,000.

Another priority of the City's Parks and Recreation Department for consideration by the City Commission is the construction of a multi-purpose civic center to be located in Butler Community Park. Construction of the center would satisfy the City's existing and projected need over the 10-year plan timeframe for improved community parkland. Presently, the City has two small community-type centers, Al Goll Center and the Wilfred Churchill Hall, which are very limited in the range of activities they offer. The proposed civic center would offer a wide variety of activities for all age groups, including concerts, stage shows, indoor tennis and basketball, and business expositions. The center could also be used by the North Port Elementary School, which presently lacks adequate gym facilities.

The estimated 1988 cost of the Center is \$600,000. GDC has committed to providing \$100,000 of this cost: \$50,000 prior to the start of construction and another \$50,000 upon completion of the project. The City will assess the use of a bond issue to finance the remaining costs of constructing the center. The estimated annual cost of retiring the debt associated with the bond issue over the 5-year planning period is \$75,000. The City is also currently attempting to locate and obtain grant funds to help finance the center. Ultimately, construction of this facility will be based upon economic feasibility, as identified in the annual capital budget process.

Bicycle riding ranks second in demand across the State of Florida among resource-based outdoor recreation activities. In recent years the City of North Port has constructed several bikepaths in the urbanized core

**TABLE VIII
PARK FACILITIES NEEDING REPAIR**

<u>PARK</u>	<u>SPECIFIC FACILITIES & EQUIPMENT NEEDING REPAIR</u>
KIRK PARK	Basketball court (on grass)
HIGHLAND RIDGE PARK	Tennis court (resurfacing); racquetball court; 3 shuffleboard courts (resurfacing)
LaBREA PARK	Basketball backboards & rims; 1 shelter; monkey bars
MARINA (Chancellor Blvd.)	Shelter and picnic tables
BUTLER MEMORIAL PARK	Ballfield (repairs, water); canoe launch
DALLAS WHITE PARK	Pool (re-Marciting, lighting); softball field (major repairs); 2 small shelters (roofs); basketball court (backboards, rims)
McKIBBEN PARK	Handball court (fencing, painting); 2 shuffleboard courts (resurfacing)

SOURCE: North Port Parks and Recreation Department, 1988.

of the City. However as the City continues to grow so too does the need to upgrade and expand the existing bikepath system. The City intends to formulate a plan for the development of a city-wide bikepath system that will not only meet present recreation and transportation needs in existing developed areas but also allow for expansion into areas of new development.

As outlined in the Traffic Circulation Element, the City intends to budget up to \$150,000 over the period FY89/90-FY93/94 for the construction of at least 2 additional miles of bikepaths. The location of these bikepaths will be guided by the aforementioned plan. As a pilot project, the City plans in FY 88/89 to construct bikelanes along both sides of the divided segment of Biscayne Drive north of US 41.

Operation and Maintenance

The City's 85-mile system of fresh and tidal water canals, in addition to retaining storm water runoff, provide some recreational value to the citizens of North Port. In particular, the canal system south of U.S. 41 is used by residents for boating. The navigability of several of these canals, however, has deteriorated in recent years due to siltation. In order to help maintain the recreational value of these canals, the City intends to explore the feasibility of--and different options for--providing maintenance assistance (See Drainage Sub-element).

As mentioned previously, the City's Parks and Recreation Department is also responsible for the operation and maintenance of most of the improved publicly owned parks and facilities in the City. Primary maintenance activities include mowing, weeding and collection of litter.

Preservation

In addition to the Myakkahatchee Creek discussed above, the City would also like to preserve several other areas for passive recreation use and eventually designate them as special interest parks.

As documented in the Conservation and Coastal Zone Management Element, Little Salt Spring is one of the most valuable and unique archaeological sites in the State of Florida, if not in all of the United States. Little Salt Spring has provided the scientific community with the earliest evidence of human activity in Florida. Further investigation, as time and economics permits, may lead to even more fascinating discoveries and help unlock the mysteries of early human inhabitation in Southwest Florida.

In order to preserve and enjoy this unique area, the City has designated the site on the Future Land Use Map as Conservation-Restricted and proposes to work cooperatively with the University of Miami, which owns the site, to open up the Spring to limited public access.

An archaic Indian midden including a burial ground is located just across from Little Salt Spring. The midden site has already been platted and could someday be developed for residential use. The City intends to encourage the further study of the site in order to determine its archaeological and potential recreational value and preserve the area in the meantime. It has been designated as a Conservation-Restricted area on the City's Future Land Use Map.

Another site of potential archaeological and recreational importance is the Atwater Drive site. At this point the degree of significance of the Atwater Drive site is difficult to weigh, especially in comparison to the obviously valuable Little Salt Spring area. The City intends to encourage the further study of this site as well and preserve the area in the meantime (this area has also been designated as Conservation-Restricted on the City's Future Land Use Map).

The Outstanding Florida Water (OFW) and Wild and Scenic designated portion of the Myakka River that flows through the City of North Port would make an ideal future area for passive recreational use. The City intends to adopt new land development regulations and work with the State, which owns a 400 acre tract of land along

the River, to ensure the preservation of, and access to, this area. It has been designated on the City's Future Land Use Map as Conservation-Restricted.

Finally, the City will continue to work with the County of Sarasota and the residents of Warm Mineral Springs to preserve the unique value of the Spring, which is used by many of North Port's citizens.

The major costs associated with implementing the above additions to the City's recreation and open space system are summarized in Table IX below.

The proposed designation of future recreation areas and open space listed above are depicted in the Future Land Use Map contained in the Future Land Use Element.

TABLE IX
RECREATION AREA/FACILITY ACQUISITION AND IMPROVEMENT PROGRAM,
NORTH PORT FY 1989/90-1993/94

Type	Year									
	89/90		90/91		91/92		92/93		93/94	
	Acres	\$*	Acres	\$	Acres	\$	Acres	\$	Acres	\$
Neighborhood Park:										
Acquisition	5.0	100	5.0	100	5.0	100	5.0	100	5.0	100
Improvements**	-	30	-	30	-	30	-	30	-	30
Community Park:										
Improvements***	-	75	-	75	-	75	-	75	-	75
Special Interest Park:										
Acquisition****	3.0	60	3.0	60	3.0	60	3.0	60	3.0	60
Total	8.0	265	8.0	265	8.0	265	8.0	265	8.0	265
GRAND TOTAL	FY 1989/90 - FY 1993/94						\$ 1,325,000			

* In thousands.

** To both new and existing parks.

*** Multi-purpose civic center.

**** Lands along the Myakkahatchee Creek.

SOURCE: North Port P&Z Department.

COORDINATION WITH GOVERNMENT AGENCIES AND PRIVATE SECTOR

In order to implement the park acquisition, construction, maintenance, and preservation plans outlined above, the City will need to cooperate and work closely with a number of public and private entities. Reference has already been made to the need to work closely with the University of Miami and the State of Florida with regard to preserving and opening up to public access to both Little Salt Spring and the lands located along the Myakka River.

In addition, the City intends to work cooperatively with GDC and other property owners to preserve the lands located along the Myakkahatchee Creek. The City also intends to work with GDC to preserve the archaic Indian midden site and to develop a program for the acquisition of future sites currently owned by GDC. The City will coordinate with the Sarasota County School Board to provide recreation opportunities for students--as well as nearby residents--at the North Port elementary school. Finally, the City will continue to work with Sarasota County on consolidating the operation and maintenance of the City's park system.

GOALS, OBJECTIVES AND POLICIES

Goal Statement:

To provide sufficient developed open spaces, recreational facilities and programs for all age groups to satisfy the needs of the present and future residents of the City of North Port.

Objective 1:

The City shall adopt and maintain measurable standards governing the provision of recreation and open space areas.

Policy 1.1:

The City hereby adopts a level of service of 10 acres of recreation and open space area per 1000 population.

Policy 1.2:

By 1991, the City shall adopt land development regulations consistent with F.S. 163.3202 (1), as amended, which provide for specific open space definitions and standards.

Objective 2:

By 1994, increase the number of physical improvements (e.g. equipment and/or structures) on existing active recreation sites to meet the demands of the present and projected population.

Policy 2.1:

Consider the construction of a multi-purpose civic center to be located in the 40 acre Butler Community Park to provide for recreational activities for all age groups.

Policy 2.2:

Provide for landscaping, repair and the replacement of equipment located in existing neighborhood park facilities.

Policy 2.3:

Explore the feasibility of, and different options for, maintaining existing fresh and tidal water canals for improvement of recreational value.

Objective 3:

By 1994, where economically feasible, acquire and improve additional recreation areas to meet existing and projected demand.

Policy 3.1:

The Parks and Recreation Advisory Board will continue to provide a formal advisory role in formulating future recreation area improvement, acquisition, and utilization plans and programs.

Policy 3.2:

Where economically feasible, acquire up to 25 additional acres of neighborhood parkland over the period 1989-1994 to satisfy projected demand in new growth areas of the City.

Policy 3.3:

Monitor the City's projected total population growth and its spatial distribution and adjust acquisition schedule of neighborhood park land accordingly.

Policy 3.4:

Through the Department of Parks and Recreation, consider the implementation of a Parks Improvement Needs survey to identify facilities desired by residents within neighborhood parks.

Policy 3.5:

As identified through resident surveys, provide landscaping and purchase and install equipment to improve new neighborhood park acquisitions.

Policy 3.6:

Formulate a city-wide bikeway network plan that will meet present recreation and transportation needs in existing developed areas and can be implemented later in areas of new development.

Policy 3.7:

Budget up to \$150,000 for the construction of at least 2 additional miles of bikepaths over the period FY89/90-FY93/94. The location of additional bikepaths will be guided by the aforementioned plan under Policy 3.6.

Policy 3.8:

Assess/analyze different options for financing proposed acquisitions, improvements, and plans including the use of utility taxes and special assessments.

Policy 3.9:

Through the efforts of the Department of Parks and Recreation and the Parks and Recreation Advisory Board, conduct an annual survey of community desires for new city-wide park acquisitions and improvements.

Objective 4:

By 1994, ensure increased access to all publicly owned recreation areas and facilities for all citizens, including the handicapped/disabled.

Policy 4.1:

Conduct review of all publicly owned recreation and open space areas to assess the need for improvements such as parking facilities and boat ramps to improve public access.

Policy 4.2:

Coordinate with the State of Florida to provide for public access to the 400-acre conservation area presently located along the Myakka River.

Objective 5:

Identify and preserve potential recreation areas that are vulnerable to immediate non-recreational development.

Policy 5.1:

Designate on the City's Future Land Use Map lands located along the Myakkahatchee Creek and the Myakka River as Conservation-Restricted.

Policy 5.2:

Designate on the City's Future Land Use Map Little Salt Spring, the archaic Indian burial grounds located across from Little Salt Spring, and the Atwater Drive Archaeological site as Conservation-Restricted areas prohibiting any new development or expansion/replacement of existing development except for accessory uses incidental to conservation operations and resources.

Policy 5.3:

Assess/analyze different options, including transfer of development rights, lot swapping, and direct acquisition, for implementing policies 5.1-5.3.

Objective 6:

Developers of unplatted tracts of land as well as developers of existing and future DRIs within the City shall be required to provide their proportionate fair share of recreation areas and open space necessary to accommodate the recreational needs of residents of such developments.

Policy 6.1:

Monitor future implementation of the Panacea DRI to ensure recreation and open space areas are provided as called for in the DRI Development Order.

Policy 6.2:

Monitor future phased development of existing and future platted lands located within the Myakka Estates DRI to ensure recreation and open space areas are provided as called for in the DRI Development Order.

Policy 6.3:

Modify current land development regulations to ensure developer exactions are provided based upon the City's adopted Level of Service (LOS) standard.

Objective 7:

As specified in the policies below, negotiate with the private sector to increase the number of recreation and open space areas necessary to meet existing and future demand, and to maintain adopted LOS standards.

Policy 7.1:

Negotiate with General Development Corporation (GDC) and other property owners the transfer/acquisition of future park sites for new neighborhood parks in response to population growth.

Policy 7.2:

Negotiate with General Development Corporation (GDC) and other property owners to ensure the preservation/acquisition of lands located along the Myakkahatchee Creek and Myakka River.

Policy 7.3:

Encourage General Development Corporation (GDC) not to sell off future designated park sites to third parties without first consulting with the City.

Objective 8:

Establish Special Interest Parks to enhance the public's appreciation and enjoyment of the City's outstanding natural resource areas.

Policy 8.1:

Work cooperatively with the University of Miami to designate Little Salt Spring as a Special Interest Park and open it up to limited public access.

Objective 9:

Coordinate with other government agencies and the private sector to implement park acquisition, construction, maintenance, and preservation plans.

Policy 9.1:

Continue to work with Sarasota County on consolidating the operation and maintenance of the City's park system.

Policy 9.2:

Cooperate with the University of Miami to open Little Salt Spring to limited public access.

Policy 9.3:

Work cooperatively with General Development Corporation (GDC) and other landowners to preserve lands along the Myakkahatchee Creek and Myakka River for recreational use.

Policy 9.4:

Work cooperatively with General Development Corporation (GDC) to preserve the archaic indian burial ground located across from Little Salt Spring.

Policy 9.5:

Coordinate with the State of Florida to open State owned lands along the Myakka River to public access.

Policy 9.6:

Work with the Sarasota County School Board to provide recreation facilities and programs at the North Port Elementary School and at the proposed new civic center.

Policy 9.7:

Increase cooperation with the Sarasota County Historical Society, the Environmental Coalition of Southwest Florida (ECOSWF), the Southwest Florida Regional Planning Council (SWFRPC), and related public and private agencies to ensure the preservation and protection of archaeological resources within the City.

INTERGOVERNMENTAL COORDINATION

Table of Contents

Entities With Which The City Is Associated	325
Effectiveness of Coordination	332
Existing Intergovernmental Coordination Procedures	332
..... Sarasota County	332
..... Sarasota-Manatee Area Transportation Study	332
..... Charlotte County	332
..... DeSoto County	332
..... Southwest Florida Regional Planning Council (SWFRPC)	333
..... Southwest Florida Water Management District, Manasota Basin Board, and Manasota-Peace River Water Supply Authority	333
Special Coordination Programs	333
..... Charlotte Harbor Resource Planning and Management Committee	333
..... Myakka River Study Committee	333
Other Mechanisms	333
..... Ad Hoc Committees	333
..... Special Agreements	334
..... Emergency Management	334
..... Interlocal Agreements	334
Specific Problem Areas	334
..... Land Use	334
..... Traffic Circulation	335
..... Housing	335
..... Parks and Recreation	335
..... Coastal Management	336
..... Conservation	336

.....Environmental Services 337

.....Capital Improvements 337

Relevant Regional Issues 337

Goals, Objectives and Policies338

Appendix: Local Plan Review List - SWFRPC Issues & Goals341

List of Maps

Map 1 - Location Map, North Port and Neighboring Cities 326

Map 2 - Coordination Issues 327

List of Tables

Table 1 - Governmental Entities & Their Relationships With the City 329

ENTITIES WITH WHICH THE CITY IS ASSOCIATED

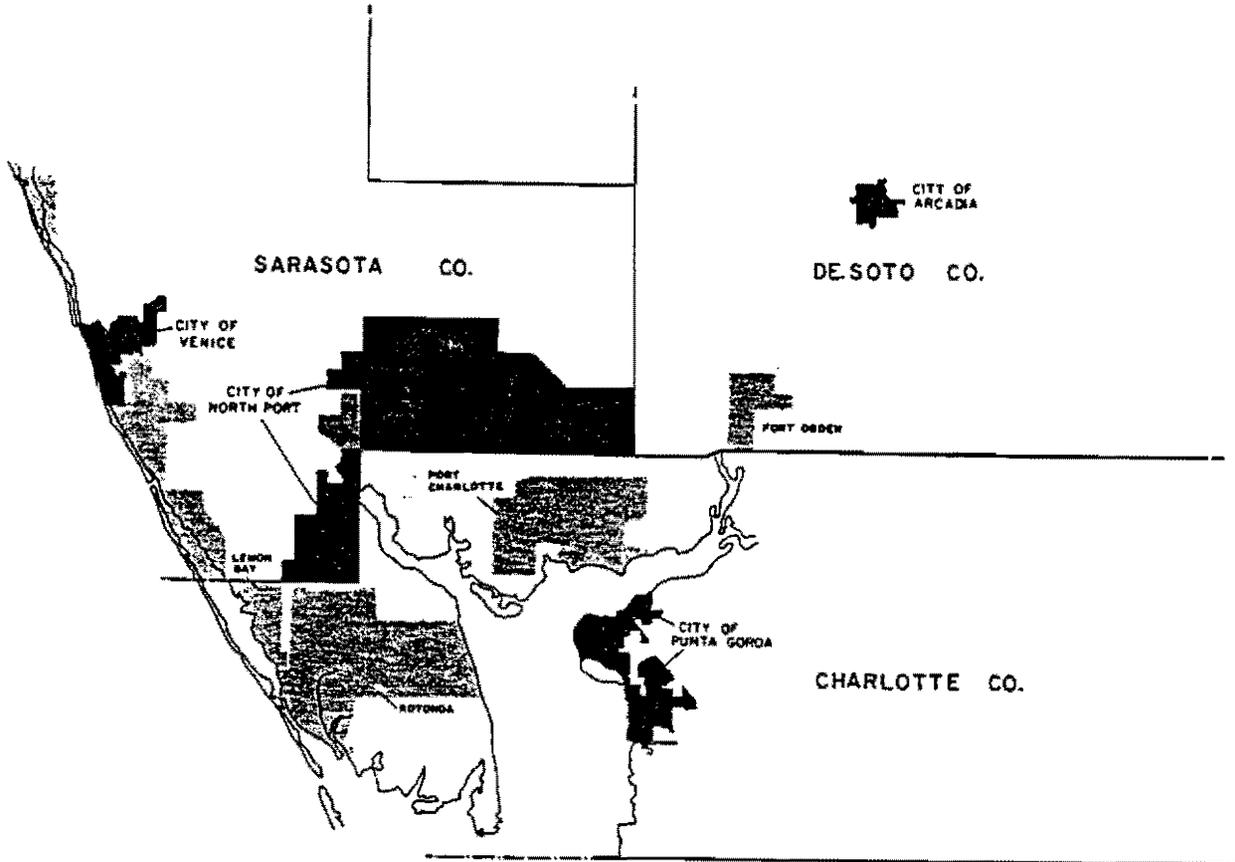
The City of North Port was incorporated in 1959. Originally established as a community of 54 square miles, the City, through annexations, has increased in size to its current 74.5 square miles. North Port is thus the third largest city in Florida in areal extent; only Jacksonville and Cape Coral are larger.

The City is located entirely within Sarasota County, but shares a 22-mile-long border with Charlotte County, and a shorter border—some 3 miles long—with DeSoto County. There are no other general purpose units of local government adjacent to the City. The nearest other cities are Venice, Arcadia and Punta Gorda, with Punta Gorda being the closest. These entities are depicted on Map 1. Relevant issues with each jurisdiction are depicted on Map 2.

In addition to other local governments, the City interacts or coordinates with several independent special districts, independent governmental entities, and agencies of State Government in its management of growth and growth impacts. Local government entities and independent districts include:

<u>ENTITY</u>	<u>SUBJECT</u>
Englewood Water District	Water service in S.W. portion of the City
North Port Water Control District	Drainage
Sarasota County Hospital Board	Policy-making for independent hospital district
Sarasota County Law Library	Keeping the county court library current
Sarasota County Public Library	Library System
Sarasota County Mosquito Control	Mosquito control
Sarasota County School Board	Education services
Sarasota County Soil & Water Conservation District	Technical information on soil and water conservation
Sarasota County Disaster Preparedness	Disaster preparedness
Sarasota County Parks & Recreation	Parks & recreation services
Sarasota County Pollution Control	Pollution control
Sarasota County Environmental Services	Environmental services

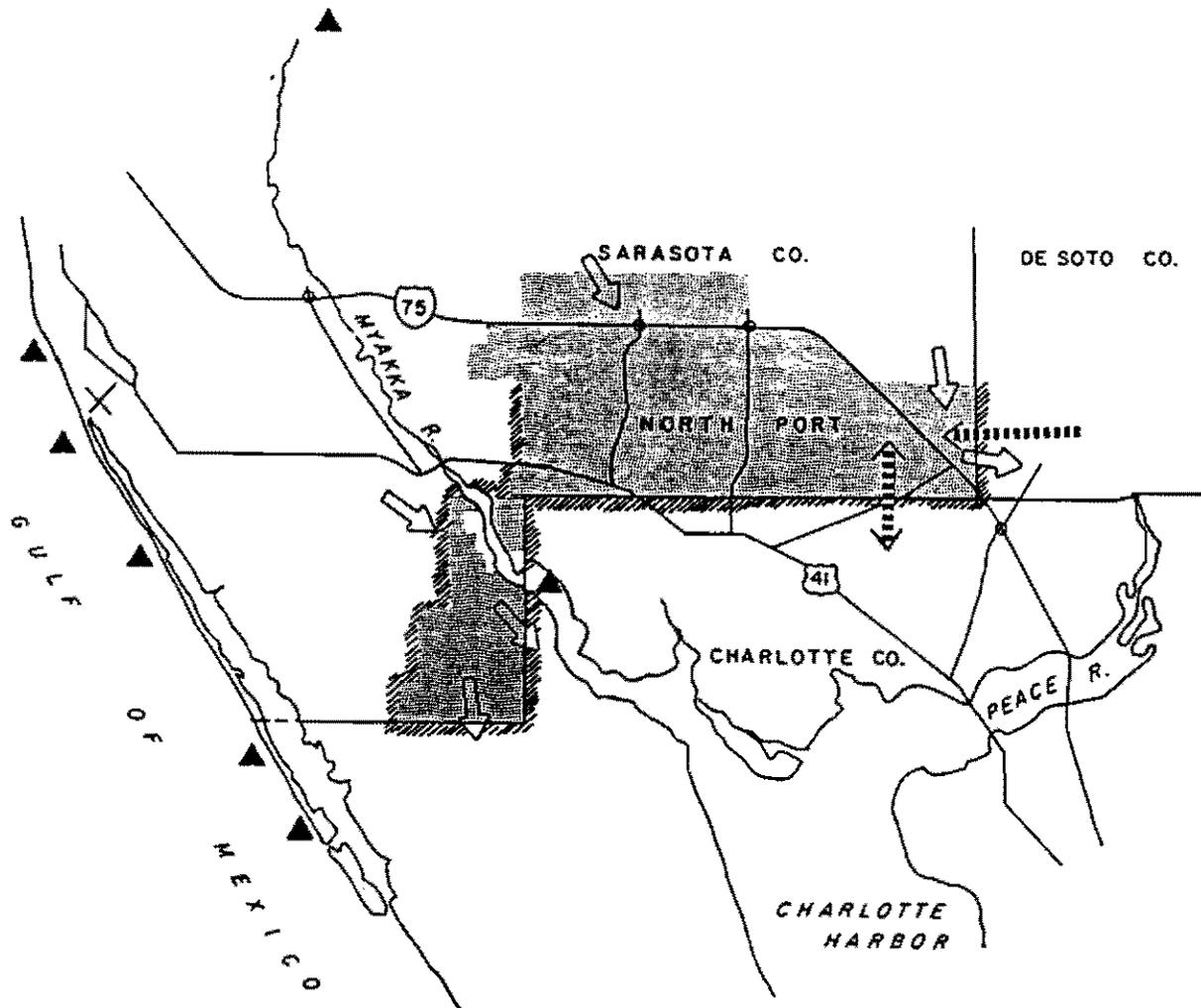
There are a number of independent multi-jurisdictional agencies that have North Port within their jurisdictions. These include:



0 1 2 3 4 5 6 (MILES)
SWFRPC JULY 85, RNC

DELIMITED AREA
SOURCE: FDOT

MAP 1



- LEGEND**
- ▲ RECREATION
 - ←--- WATER SUPPLY
 - DRAINAGE
 - ▨ URBANIZATION

**MAP 2
COORDINATION ISSUES**

ENTITY**SUBJECT**

Southwest Florida Regional
Planning Council

Growth management and regional
issues, municipalities in
Sarasota caucus for membership
on the Council

Southwest Florida Water
Management District
(Manasota Basin Board)

Water-related issues of public
services and conservation

District 8 Health Planning
Council, Inc.

Health facilities

Area Agency on Aging

Programs for the elderly

Manatee-Sarasota Private
Industry Council

Job training programs

Sarasota-Manatee Metropolitan
Planning Organization (MPO)

Transportation planning
issues

Sarasota-Manatee Airport
Authority

Regional airport
management

Water Supply Authority
(WSA)

Coordinating water supply plans
and activities

West Coast Inland
Navigation District

Navigation matters (The City
is not directly affected)

There are a number of state entities with significant influence on activities of the City. These include:

Agency**Comprehensive Plan
Subject Areas**

Agriculture (Department)/
Div. of Forestry

Certain Land Uses/
Forestry

Business Regulation (Department)

Certain Land Uses

Commerce (Department)

Certain Land Uses

Community Affairs (Department)

Growth Management

Environmental Regulation (Department)

Public Services, Conservation

Game and Freshwater Fish (Commission)

Conservation

Health and Rehabilitative Services
(Department)

Housing, Wells, Septic
Tanks as Infrastructure

Labor (Department)

Economic Assumption

Law Enforcement (Department)

Public Safety

State entities (continued from page 328):

Natural Resources (Department)	Conservation
Professional Regulation (Department)	Certain Land Uses (Prisons)
State (Department)	Historical Resources
Transportation (Department)	Transportation
Corrections (Department)	Certain Land Uses
Public Service (Commission)	Public Services
Highway Safety (Department)	Public Safety

Post-secondary educational institutions with which the City and its residents interact on a regular basis include the following:

<u>Institution</u>	<u>Services offered</u>
Manatee Community College	Two-year community college
University of S. Florida/ New College	Four-year degree programs
Charlotte Vo-Tech	Vocational training
Sarasota Vo-Tech	Vocational training

There are a number of services provided in North Port by private utilities. These include:

<u>Utility</u>	<u>Service</u>
General Telephone Company	Telephone Service
Florida Power & Light	Electrical Service
General Development Utilities	Water, Sewer Services
Storer Cable Television	Cable Television

Each agency or entity listed below in Table 1 has a relationship with the City. This role may have several different aspects: general information or coordination; policing or regulatory; an infrastructure responsibility or service role; planning or technical assistance; financing or taxation; or a combination of any of these roles. Table 1 lists the entities and describes their roles.

Table 1

<u>ENTITY</u>	<u>ROLE</u>	<u>LOCAL CONTACT</u>
Sarasota County	C,R,I,T,A	City Manager
Charlotte County	C	"
DeSoto County	C	"

Table 1 (continued from page 329):

Englewood Water District	C,I	"
Sarasota Hospital Board	I,T	"
Sarasota Law Library	C,T	"
Sarasota Mosquito Control	I,T	"
Sarasota School Board	I,T	"
Sarasota Soil and Water Dist.	C	"
S.W. Fla. RPC	C,A	"
S.W. Fla. WMD	C,R,I,T,A	"
Health Planning Council	C,A	"
Area Agency on Aging	C,A	"
Private Industry Council	C	"
Water Supply Authority	I,T	"
Business Regulation (Department)	R	"
Commerce (Department)	C	"
Community Affairs, (Dept.)	C,A,R	"
Environmental Regulation (Department)	R,I	"
Health and Rehabilitation (Department)	R,A	"
Labor (Department)	C	"
Law Enforcement (Department)	C	"
Natural Resources (Dept.)	C,A,R	"
Professional Regulation (Department)	R	"
State (Department)	C	"
Transportation (Department)	I,R	"
Corrections (Department)	C	"
Agriculture (Department)	C	"
Highway Safety (Department)	C,R	"
Public Service Commission	R	"

Table 1 (continued from page 330):

Game and Freshwater Fish Comm.	C	"
General Telephone Company	I	"
Florida Power and Light	I	"
General Development Utilities	I	"
Storer Cable Television	I	"
Forestry	C,A	"

NOTE: "C" denotes general information and coordination; "R" denotes regulation or police power; "I" denotes infrastructure responsibility or other service provision responsibility; "T" denotes financing or taxation; "A" denotes a planning or technical assistance role.

**SUMMARY OF CITY DEPARTMENTS AVAILABLE FOR ASSISTANCE
AT THE DISCRETION OF THE CITY MANAGER**

The City Manager has the primary responsibility for coordinating with each entity listed. City departments available to assist at the discretion of the City Manager in these coordination efforts are as follows:

- Administration
- Building
- City Clerk
- Data Processing
- Finance
- Fire & Rescue Department
- Parks & Recreation
- Personnel
- Planning & Zoning
- Police Department
- Public Works
- Road & Drainage
- Social Services

EFFECTIVENESS OF COORDINATION

Existing Intergovernmental Coordination Procedures

The greatest share of interactions between the citizens of the City and the entities listed above, occurs on an "as needed" basis. The services provided by countywide or statewide entities are available to the City's residents, and no further coordination mechanisms are needed for such services.

There are services needed or provided by the City that do require more formalized interaction between the City and the other entity involved. This section describes in greater detail the procedures in use.

Sarasota County

An agreement existed from 1984-1986 between the City and the County involving the sharing of planning services. In the earlier years of the City, coordination was not good. In order to ensure that the original City had a broader diversity of economic services available than that provided within the original City plan, North Port initiated a series of annexations for additional land use diversity. The completion of the planning services agreement, however, in which the County provided the City a paid planner, enabled the two entities to closer coordinate areawide land use needs. The planning operation is now totally supported by the City, and the City Planning & Zoning Department is the lead entity in preliminary discussions with the County on a variety of issues.

Sarasota County has for several years maintained a South County Courthouse Annex, which offers many of the same services provided in the County Courthouse in Sarasota, but much more conveniently located in South Venice for South County and North Port residents. Provided via branch offices of various county departments, these services include: Building and Zoning; Clerk of Courts; Forestry (a division of the county's Natural Resources Department); Health Dept. (Environmental Engineering and Environmental Health, clinic and nursing services); Property Appraiser; Elections; Tax Collector; Transportation Engineering; Utilities; and Veterans Services.

Sarasota-Manatee Area Transportation Study

The City is not within the designated urban area of the Metropolitan Planning Organization, but is within the overall two-county study boundary. The City is a non-voting participant on the MPO. The 1990 U.S. Census will likely declare that North Port is an urbanized area, thus qualifying the City for voting membership. However, no final decision has been made to include the City in SMATS or to include the City in the yet to be established Charlotte County MPO.

Charlotte County

Interaction with Charlotte County is on an "as needed" basis. The Charlotte County transportation planning program does include the City of North Port in some detail in order to assess interjurisdictional transportation and drainage impacts. The City and the County have an ongoing planning coordination program at the staff level.

DeSoto County

Interaction with DeSoto County is on an "as needed" basis. There is sharing of transportation infrastructure with DeSoto County. However, this, too, is incorporated in Charlotte County's transportation model.

Southwest Florida Regional Planning Council (SWFRPC)

The City participates in periodic caucuses to determine the municipal representative for Sarasota County on the Council. The City's Planning Director is also a member of the Council's technical advisory committee. The Council provides a forum for discussion of areawide issues that affect the City, and its staff will undertake assessments of these issues, providing technical guidance which the City may tailor to its own needs. Written guidance in comprehensive planning is provided through the Regional Comprehensive Policy Plan. The Council is the designated review agency for the City's Comprehensive Plan, clearinghouse items involving areawide reviews, and Development of Regional Impact (DRI) reviews. Two parts of the City (Myakka Estates and Panacea) have undergone such reviews. The Panacea area contains the City's expected major industrial and warehousing area.

Southwest Florida Water Management District, Manasota Basin Board, and Manasota-Peace River Water Supply Authority

The District is the entity that oversees the City's stormwater management program, the development of water supplies for the City, and sponsored the establishment of the Water Supply Authority. The district also has permit authority over significant development needing stormwater management plan approval and consumptive water use approval. The Basin Board operates under the aegis of the District, but can play a funding role in stormwater or water supply development programs of the City. The District also has taxing authority up to 1 mill.

Special Coordination Programs

Charlotte Harbor Resource Planning and Management Committee

The City was fully represented on the Committee. The resultant plan was approved by the Governor and Cabinet and caused the City to make amendments to its Comprehensive Plan. These amendments brought the City into compliance with the program. The SWFRPC monitors Plan compliance, with enforcement actions initiated by the Florida Department of Community Affairs. To date, the City is deemed in compliance with the Plan.

Myakka River Study Committee

This Committee was created through an act of the Legislature. The City is a full voting member, as are various local and state governmental entities and environmental groups. Supported by Florida Department of Natural Resources staff, the Committee is still assessing the conditions of the Myakka River before developing a management plan. The City is represented on the Committee by its Planning Director. The Committee will be requesting that the City enter into interlocal agreements with other entities to ensure that the River's ultimate management plan will be adequately implemented.

Other Mechanisms

Ad Hoc Committees

The City sponsors or participates in temporary committees created to address interjurisdictional issues. One such has been the three-county Solid Waste Committee, which examined the feasibility of resource recovery. An additional committee examines City and bi-county transportation needs in Charlotte and Sarasota. A third committee is examining the condition and functioning of the Big Slough (the Myakkahatchee Creek).

Special Agreements

A small portion of the City lies within the Englewood Water District's legislatively established boundaries. An agreement exists through the Myakka Estates development order coordinating water supply responsibility in that area.

Emergency Management

A six-county emergency management agreement covers North Port, ensuring that the City will receive support from neighboring jurisdictions in limited area emergencies.

Interlocal Agreements

The City has a long-established series of agreements with the counties and neighboring cities in the general area of public safety. These formal arrangements are primarily mutual aid agreements between the City's Police and Fire Departments and the sheriff's departments and police departments of neighboring jurisdictions.

Specific Problem Areas

The current level of coordination meets current needs. However, forecasted growth can be expected to increase the coordination needs with the following entities in the following subject areas:

Land Use

Every incremental increase in the City's population by 6,000 will create a demand for another school. With a buildout population of approximately 225,000, the City will need approximately 23 elementary schools, eight middle schools, and six high schools. The exact number of facilities, acreage needed, and siting will need coordination with the school boards. The City and the School Boards of Sarasota and Charlotte County should develop an interlocal agreement on siting, bussing and other areas of mutual concern.

The City is fortunate in having a number of post-secondary educational institutions (see list on page 5) conveniently located for ready access by its citizens. It is anticipated that additional city residents will begin to take advantage of these educational resources in the future. As such, the City shall increase cooperative efforts.

Increasing urbanization along the City's borders will also become a concern. Virtually all of the City's border with Charlotte County will become urbanized, since adjacent Charlotte County is currently platted in the same manner as the City, and by the same land development Company, General Development Corporation. Although current and future land use patterns between the two jurisdictions are compatible, there is still the likelihood of border friction. Similarly, there will be a considerable amount of traffic between the two jurisdictions. An approved system of collectors and minor arterials should be assessed. There should be an interlocal agreement between the City and Charlotte County on transportation planning and land use change notification.

There will also be increasing urbanization along the City's borders with Sarasota County. This is more likely in the Warm Mineral Springs/US 41 areas and, more long-term, along the Myakka Estates border. Increased traffic demand and land use incompatibilities are likely possibilities unless there are agreements in transportation planning (possibly resolvable through SMATS) and formal assurances in land use change notification. Current coordination is good, but should significant staff changes occur, informal working relationships would be lost unless buttressed by a formal notification system, in accordance with City Ordinance No. 87-252 (Participation & Notification Procedures).

The border with DeSoto County should experience less urban pressures. One development company in DeSoto County, General Development Corporation, has formulated plans for development of most of the City's boundary with DeSoto. This project, Villages of DeSoto, has an uncertain future, but conceptual plans do provide for land uses compatible with those of the City. The City should participate in all reviews of this project.

The City's western and northern borders are along stretches of unincorporated Sarasota County. The City's land uses forecasted for those areas should not result in conflicts, but monitoring of development proposals in those portions of the county and City should continue.

Traffic Circulation

Traffic will be generated from the land use proposals discussed above. The City should continue to participate in transportation planning programs of Charlotte County, and become involved in the transportation planning programs of the Sarasota-Manatee MPO and the Charlotte County MPO, once established. The Villages of DeSoto should be continually monitored for potential traffic impacts.

The Florida Department of Transportation maintains I-75 and US 41, the City's two main routes to the jurisdictions. The City should support FDOT's attempts to keep these roadways well maintained, and operating at adopted service levels.

Housing

The City is part of a two-county housing market. Most of the City's housing is new, and is more affordable than the greater part of Sarasota County's housing. The City's housing is also comparable to the greater part of adjacent Charlotte County.

The City does have concerns about adequate shelter space needed for the mobile home parks to the west in unincorporated Sarasota County, which rely solely on the City's Civil Defense Capability for hurricane evacuation. Although the parks are currently of good quality, the City should require that the County has a housing code that would ensure that the parks' housing remains of good quality and that they make provision for hurricane evacuation needs.

Parks and Recreation

The City's parks are of comparable quantity and quality to those of the surrounding community. It does this on its own, although the County does provide fiscal assistance for boating facilities. However, the City has not provided two types of parks: Regional parks, and Special Interest Parks.

Regional parks are of large size and are expected to serve more than one jurisdiction. There is only one "regional" park nearby, Myakka River State Park. Access to it is difficult in that there is no direct access route, but its quality is good.

Special Interest parks are more difficult for the City to provide since they are related to either historical/archaeological/cultural resources or to outstanding natural features for recreation. The City is adjacent to Warm Mineral Springs, a combination archaeological/outstanding natural feature which is not well protected by law. Little Salt Springs, a significant archaeological feature, is located within the City and is currently owned by the University of Miami. This feature, along with an adjacent Indian burial site, could serve as a Special Interest Park.

Additionally, the area's beaches and open bay systems qualify as outstanding features for recreation, but the City's access to these facilities is limited by distance and access routes. Traffic congestion in the future will

only make it worse. The City should insure, with the aid of neighboring jurisdictions, FDOT, and the Florida Department of Natural Resources, that the City's access to these outstanding features does not further deteriorate.

Coastal Management

Some of the City's coastal management issues would be resolved through adequate access to the area's outstanding recreational amenities. Others remain, primarily related to hurricane evacuation.

The City is relatively well protected from lesser storms. Only the areas along the Myakka River and Myakkahatchee Creek are likely to flood during such events. Should the City enact the recommendations in the Coastal Management Element, it should be relatively self sufficient in the event of lesser storms. Such recommendations would involve further consideration with Sarasota County Disaster Preparedness and the School Board, in addition to adopting a City Hurricane Evacuation Plan. However, the City will be on the route of evacuees coming from Charlotte County, and should keep such routes relatively unobstructed by unnecessary traffic.

Greater storms, however, will require evacuation of substantial portions of the City's population. Such evacuation would most likely be into Sarasota County (only in rare circumstances would travel be into Charlotte County for any route other than I-75). The City will need assurances in the County's emergency management program that City traffic can be accommodated.

Conservation

Most of the City's natural features have been altered for residential development. As a result, a significant portion of the natural amenities have been lost. Those that remain involve natural features, desirable natural drainage patterns, and terrestrial/marine vegetation and motile species. The natural features are wetlands in the City's northern border, Myakka Estates, and parts of Myakkahatchee Creek and the Myakka River. The City should work with the Florida Department of Natural Resources and Southwest Florida Water Management District to make sure such features are adequately identified and protected. The functions of natural drainage features should be protected in conjunction with the Southwest Florida Water Management District, and Sarasota, Charlotte, and DeSoto Counties.

Sensitive habitat for rare, endangered, unique, threatened, and Special Concern species should be identified and protected through coordination with the Game and Freshwater Fish Commission, and DNR programs. Similarly, such classified vegetative species should be protected through coordination with these agency programs and with the Division of Forestry's programs against exotics and wildfire.

The Myakka River Management Coordinating Council, mentioned previously under "Special Coordination Programs", is completing work on a resource management plan for the River. Upon consideration and adoption by the City Commission, the plan will commit the City to help with preservation efforts for the River.

The tremendous potential of the Little Salt Springs archaeological site has already prompted greater levels of cooperation between the City and the site's owner, the University of Miami. The University has approached the City with a proposal for making joint application for grant funding to construct a visitors' interpretive center. Should this project meet with success, it would be an important first step toward satisfying the City's need for Special Interest Parks.

The City has had an ongoing agreement with the Division of Forestry, which is conducting a study of the effectiveness of controlled burning in the area.

Environmental Services

Water

The City shares its water distribution system (General Development Utilities) with Charlotte County. Further, the establishment of the four county Manasota/Peace River Water Supply Authority (WSA), expands the potential for the City to be impacted by the decisions of other jurisdictions. The City should monitor and increase its participation in the WSA.

Sewerage

The City is served in part by General Development Utilities and in part by septic tanks. Should the City, upon recommendation by the recently formed Public Utilities Committee, determine that it is necessary to become more involved in sewerage services, it will need to increase its interaction with FDER and Sarasota County's health department and pollution control department.

Solid Waste

Solid waste disposal service is operated by the City, with disposal occurring in a Sarasota County run landfill. The City has had informal deliberation with its three adjacent jurisdictions on resource recovery. Should such a process be determined to be feasible, a formal agreement will be needed between participating jurisdictions.

Drainage

Drainage works are provided through the North Port Water Control District and the City Road and Drainage Department. Ordinance #82-124, currently in effect, contains the City's official regulations regarding stormwater and drainage. If it becomes necessary for the City to take over the works of the District due to future development, the City will need to increase its interaction with the Southwest Florida Water Management District and FDER.

Aquifer Recharge

Aquifer recharge areas are not generally known, nor does the City have the institutional capacity to identify these areas. The City should enter into an agreement with SWFWMD to identify such areas.

Capital Improvements

Florida has entered an era where additional growth of urban areas is to be concurrent with the availability of facilities. The City's growth is largely dependent upon other entities' services. These include water and sewer (private enterprises), drainage (independent district), solid waste (Sarasota County), roads (FDOT), schools (Sarasota and Charlotte Counties), libraries (Sarasota County), and health facilities (hospitals in the neighboring communities of Venice and Port Charlotte). The City will need to participate in these agencies' planning to ensure that they fund the City's needed improvements, and to consider consolidation in the provision of regional services where deemed economically feasible.

Relevant Regional Issues

As an entity within the Southwest Florida Regional Planning Council, the City has used the applicable portions of the Regional Policy Plan as guidance in preparing its plan. The appendix indicates the Council's goals relevant to local plans, the goals relevant to the City, and the elements of the City's plan in which particular goals are addressed.

GOALS, OBJECTIVES, AND POLICIES

GOAL STATEMENT

To practice effective intergovernmental coordination and communication, so as to attain the goals and objectives of the elements of the City of North Port Comprehensive Plan, and to promote cooperation, through which present and future mutual areas of concern can be addressed and conflicts resolved.

OBJECTIVE 1

By 1994, the City will have exercised the appropriate mechanisms with other jurisdictions which are needed to manage growth and adjacent development impacts and establish and maintain adopted levels of service standards.

Policy 1.1:

The City will negotiate a memorandum of understanding (MOU) and expand cooperation with the Sarasota County School Board and the Charlotte County School Board regarding such matters as bussing and facility and site planning, including middle and high schools, within the ten-year timeframe of this plan.

Policy 1.2:

The City will discuss with surrounding counties the appropriate level of responsibility for maintenance and expansion of shared facilities, and will execute all appropriate agreements.

Policy 1.3:

The City will establish or participate in procedures by which the City and surrounding jurisdictions will exchange pending land development applications, and will provide for comments and recommendations by such jurisdictions during the application review process.

Policy 1.4:

The City declares an interest in land development applications within four miles of its borders, and in any other land development beyond four miles which may have impacts upon the City.

Policy 1.5:

The City may execute joint participation agreements with the appropriate entities for the development of growth management information needed by an agency for areas within the City.

OBJECTIVE 2

From the time of plan adoption, the City will maximize its formal and informal interaction with other jurisdictions.

Policy 2.1:

The City will participate in RPC areawide planning programs and in its technical advisory committee.

Policy 2.2:

The City will participate in all Sarasota and Charlotte County technical advisory committees.

Policy 2.3:

The City will participate in all planning or resource management programs for the Myakka River or Charlotte Harbor.

Policy 2.4:

In the event or the likelihood of a dispute with a neighboring jurisdiction or regional or state agency, the City agrees to initial use of informal mediation programs of the Regional Planning Council or the Florida Growth Management Mediation Center; if such mediation fails, cannot be initiated or is inappropriate, then other forms of dispute resolution may be pursued as set forth in state law.

Policy 2.5:

The City will share its information on comprehensive planning with any interested entity, and will make use of other agencies' information to the extent feasible and relevant.

Policy 2.6:

The City will pursue further annexations only of those areas for which services can be provided by the appropriate party; notwithstanding the City's home rule powers, the City will advise Sarasota County of any contemplated future annexations and contractions of the City.

Policy 2.7:

The City will continue to cooperate with the State Division of Forestry in assessing and implementing controlled burn programs.

Policy 2.8:

The City will increase coordination with all appropriate agencies for the purpose of securing grants.

Policy 2.9:

The City will increase coordination with independent and dependent districts, the North Port Water Control District, Holiday Park and the North Port Health Authority.

Policy 2.10:

The City will increase coordination with private sewer and water utilities providing service within its boundaries.

Policy 2.11:

The City will endeavor to increase coordination and planning with the Sarasota County Disaster Preparedness Department.

Policy 2.12:

The City will review existing and consider future mutual aid agreements for fire and police service in an ongoing effort to improve public safety for its residents.

Policy 2.13:

The City will continue discussions and negotiations with the Sarasota County Parks and Recreation Department, the purpose of which shall be greater public access to the parks system and cost savings for the City and the county.

Policy 2.14:

The City will pursue full voting memberships in the SMATS/Sarasota MPO and the future Charlotte County MPO.

Policy 2.15:

The City will pursue interlocal agreements with neighboring governmental entities for the purpose of reducing costs through consolidating purchases.

Policy 2.16:

The City shall increase coordination with appropriate jurisdictions and governmental agencies in assessing consolidation in the delivery of services where deemed economically feasible.

Policy 2.17:

The City shall coordinate with the State of Florida to provide for public access to the 400-acre conservation area located along the Myakka River.

Policy 2.18:

The City shall increase cooperation with the Sarasota County Historical Society, the Environmental Confederation of Southwest Florida (ECOSWF), the SWFRPC, and related public and private agencies to ensure the preservation and protection of archaeological resources within the City.

001146

III. LOCAL PLAN REVIEW LIST - SWFRPC ISSUES AND GOALS

	Furthers RCPP1		See 2 Comments
	Yes	No	
1. EDUCATION			
E. Educational Facilities and Staffing			
Goal: By 1995, The Facility And Staff Needs Resulting From Population Growth Will Be Met On An Annual Basis.			See Land Use Element
2. CHILDREN			
F. Community-based Health, Social, and Rehabilitative Services			
Goal: From 1990, The Percentage And Number Of Community-Based Services Will Increase Over Centralized Services.			See Land Use Element
4. THE ELDERLY			
B. Achieving Maximum Self-sufficiency, Self-support, and Personal Independence			
Goal: By 2000, All Relevant Programs Will Improve, Enhance, Or Maintain The Level Of Independence Of Elderly Citizens.			See Housing Element
5. HOUSING			
A. Availability and Affordability of Housing			
Goal: By 2010, The Population Of The Region Will Reside In Safe, Sanitary, And Decent Housing.			See Housing Element
B. Housing for Seasonal Workers			
Goal: By 2000, The Expected Housing Needs Of Seasonal Workers In The Region Will Be Met.			N/A

001146

001147

	Furtherers		Comments
	RCPP ¹	See 2	
	Yes	No	
C. Conservation and Rehabilitation of Existing Housing and Neighborhoods			
Goal: By 1995, The Region's Neighborhoods Will Be Protected From Factors That Cause Decline.			See Housing Element
D. Low Income Housing			
Goal: By 2010, The Area's Unmet Housing Needs Existing in 1990 Will be Reduced by 50%.			See Housing Element
6. HEALTH			
G. Community-based Health, Social, and Rehabilitative Services			
Goal: From 1990, The Percentage And Amount Of Services Provided By Community-Based Health Programs Will Be Increased Over 1986 Levels.			See Housing Element
K. Environmental Health Care Protection			
Goal: By 1995, Each Coastal County Should Have A Local Pollution Control Program, And By 2000 Each Inland County Should Have Such a Program.			N/A
7. PUBLIC SAFETY			
B. Safe and Secure Citizenry			
Goal: From 1990, Accidents, Damage, and Deaths Resulting From Normal Daily Activity Will Be Reduced And The Region Will Be Prepared For Hazardous Situations.			See Traffic Circulation and Cons. & Coastal Mgmt. Element
E. Adequate Correctional Facilities			
Goal: From 1990, The Region Will Have Adequate Facilities For Its Correctional Population.			N/A

001148

	Furtherers		See 2 Comments
	RCPP ¹	Yes/No	
F. Evacuation Time and Route Protection			See Coastal Management Element
Goal: By 1995, Evacuation Times Will Be Restored To 1985 Levels, And By 2010, Evacuation Times Will Not Exceed 18 Hours In Any Part Of The Region.			
G. Adequate Storm Evacuation Shelters			See Coastal Management Element
Goal: By 2010, There Will Be Adequate Shelter Space For Citizens Who Do Not Wish To Evacuate From The Region.			
WATER RESOURCES			
A. Protection of the Water Supply			See Conservation & Water Supply Element
Goal: From 1991, All Existing And Identified Future Water Supply Sources Will Be Protected From Degradation By Competing Uses And From Impacts By Human Activities, And By 1995, Per Capita Use Of Water Will Be Less Than That Of 1985.			
B. Protection of Water Resources			See Water Supply Element
Goal: All Water Resources Identified In 1985 Will Remain In Equal To Or Improved Conditions, By The Year 2010.			
C. Protection of Natural Systems			See Conservation Element
Goal: By 2000, All Identified Natural Systems Will Be In A Condition Equal To Or Improved Over 1985.			
D. Treatment of Effluent			See Sewage Element
GOAL: After 1987, All Effluent Will Meet Or Exceed State Water Quality Standards Pertinent To The Intended Use Of The End-Product.			

001148

001149

		Further:	
		RCPP ¹	See 2
		Yes	No
		Comments	
9. COASTAL AND MARINE RESOURCES			
A. Protection of Coastal Resources			
Goal: By 2010, Identified Coastal Resources Will Be Equal To Or Improved Over 1985 Conditions.			See Coastal Management Element
B. Protection of Marine Resources			
Goal: By 2010, The Acreage Of Coastal And Marine Vegetation And The Diversity Of Marine Species Will Meet Or Exceed That Existing In 1986.			See Coastal Management Element
C. Access in Coastal Areas			
Goal: By 2010, The Region Will Have Increased Public Access To Beaches And Open Waters By 50% Over 1985 Conditions.			N/A
D. Beach Erosion and Dune Loss			
Goal: By 2010, The Acreage Of Beaches And Dunes Will Meet Or Exceed That Of 1985.			N/A
E. Development on Barrier Islands			
Goal: From 1990, There Shall Be No Further Development On Barrier Islands That Disrupts The Natural Processes Of The Barrier Island.			N/A
10. NATURAL SYSTEMS AND RECREATIONAL LANDS			
A. Protection of Natural Systems			
Goal: By 2010, The Diversity And Extent Of The Region's Protected Natural Systems Will Have Been Expanded Beyond That Existing In 1986.			See Conservation Element
B. Protection of Endangered Species			
Goal: From 1990, The Mortality of The West Indian Manatee And Florida Panther Population Will Not Exceed 1985 Levels. Further, The Current Diversity Of All Endangered,			See Conservation Element

001149

Threatened And Species Of Special Concern Will Be Maintained Unless The Proliferation Of The Individual Species Removes Them From The Endangered List.

Further RCPP ¹ Yes/No	See 2 Comments
	See Conserva- tion Element
	See Parks & Recrea- tion Element
	See Conserva- tion Element
	See Conserva- tion Element

C. Land Management and Use

Goal: By 2010, The Acreage Of Unique Natural Habitat And Ecological Systems Being Publicly Owned Or Managed Will Increase By 10% Over 1985 Conditions.

D. Parks and Recreation

Goal: By 1990, The Region Will Identify Areas To Provide Adequate Public Park Space And Adopt A Management Plan To Provide The Necessary Infrastructure, And By 2010, Adequate Park And Recreational Facilities Will Exist To Meet The Region's Needs.

E. Protection of Native Species from Encroachment by Exotic Species

Goal: By 1990, The Region Will Have Identified Management Techniques To Control Encroachment By Exotic Species, And By 2010, The Acres Invaded By Exotic Species Will Not Exceed In Total Those Invaded in 1990.

11. AIR QUALITY

A. Improving Air Quality

Goal: By 1990, The Region Will Have A Coordinated Program In Which Area Local Governments Act To Ensure The Maintenance Of Air Quality, And Each Year To Year 2010, The Area's Air Quality Will Meet Or Be Improved Over 1992 Or 1985 Standards, Whichever Is Applicable.

See
Conserva-
tion
Element

001151

	Furtherers		Comments
	RCPP ¹	See 2	
	Yes	No	
12. ENERGY			
A. Energy Resources			
Goal: By 2010, The Proportion Of The Region's Energy Supplied By Fossil Fuels Will Be Reduced Over 1985 Levels.			See Housing Traffic Circulation Element
B. Efficient Use of Energy			
Goal: By 2000, Per Capita Energy Use Will Be Less Than That In 1986.			See Housing Traffic Circulation Element
13. HAZARDOUS AND NONHAZARDOUS MATERIALS AND WASTE			
A. Reducing Hazardous Waste and Materials			
Goal: By 1988, The Percentage Of Special And Hazardous Waste Improperly Disposed Of Will Begin And Continue To Decline Over Previous Years.			See Solid Waste Element
B. Solid Waste Treatment and Disposal			
Goal: By 1991, The Per Capita Amount Of Solid Waste Being Disposed Of In Landfills Will Begin To Decline And Will Continue To Decline Over Previous Years.			See Solid Waste Element
14. MINING			
A. Reclamation of Mined Areas			
Goal: By 1991, The Acreage Being Reclaimed Will Meet Or Exceed That Being Mined On An Annual Basis.			N/A
B. Mining Regulation			
Goal: By 1990, All Area Governments Will Have Identified Lands Suitable For Mining And By 1991 Instituted Regulations Regarding Adverse Land And Water Impacts of Mining.			See Conservation Element

001151

		Furtherers:		
		RCPPI ¹	See 2	
		Yes	No	Comments
C. Environmental Protection				
Goal:	By 1991, All New Mining And Existing Operations Will Be Prohibited From Causing Long-term Environmental Damage And, By 2010, There Will Be Fewer Mined Acres Lacking Adequate Restoration Or Mitigation Plans Than There Were In 1986.			N/A
D. Providing for Environmental Health Care Protection				
Goal:	By 1991, No Mining Operations Will Be Allowed To Increase Offsite Air Or Water Pollution Or Increase Potential Radiation Exposure To Citizens.			N/A
16. LAND USE				
A. Balanced and Planned Development				
Goal:	By 2010, 95% Of Growth Occurring Since 1990 Will Have Occurred In Central Business Districts, Areas Designated As Urban, Or Areas Provided With Urban Services, And Will Have Reduced Vacant Unused Urban Lands And Central Business Districts by 30% Of 1990 Levels.			See Land Use Element
B. Natural Resources Preservation				
Goal:	By 1991, All Forecasted Growth Of Urban Areas Will Be Directed Away From And Out Of Natural Resource Protection Areas, And By 2010, The Acreage Or Overall Quality Of Natural Resource Protection Areas Will Increase By 10 Percent Over That Of 1990.			See Land Use Element
C. Platted Lands				
Goal:	By 2010, The Number of Vacant Platted Lots In Areas Without Adequate Infrastructure Or In Areas Not Designated For Urban Development In Southwest Florida Will Be Reduced By 30%.			See Land Use Element

001153

17. PUBLIC FACILITIES AND SERVICES	Further	RCPP ¹	See 2	Yes	No	Comments
A. Maximizing the Use of Existing Public Facilities						See All Facility Elements
Goal: By 1990, All Area Jurisdictions Will Determine The Extent Of Underutilized Facilities, And After 1990, The Utilization Of These Facilities Will Increase On An Annual Basis until Adopted LOS Are Reached. Jurisdictions Will Implement Programs To Maximize Use Of Existing Facilities.						
B. Planning for Public Facilities and Services						See All Facility Elements
Goal: By 2010, All Areas Will Be Adequately Provided With Required Public Or Private Facilities And Services.						
18. CULTURAL AND HISTORICAL RESOURCES						
A. Access to Cultural and Historical Resources						See Land Use, Coastal Management Element
Goal: By 1991, Access To Cultural And Historical Facilities And Programs Will Be Increased By 10% Over 1985 Levels, And Will Continue To Increase Consistently With Overall Regional Population Increases.						
B. Development of Historical and Cultural Programs						See Land Use, Coastal Management Element
Goal: By 1995, The Area Will Have Increased By 10% The Number Of Its Cultural And Historic Resources Over 1985 Levels.						
C. Preservation of Historic and Archaeological Resources						See Land Use, Cons. & Coastal Mgmt. Element
Goal: After 1988, There Will Be No Further Loss Of Significant Historical And Archaeological Resources.						

001153

001154

19. TRANSPORTATION

A. Integrated Transportation Systems

Goal: After 1989, The Region Will Have A Coordinated Program With The Appropriate State Agencies To Ensure That Their Transportation Programs Acknowledge And Are Integrated With Local Comprehensive Planning Functions.

See Traffic
Circulation
Element

B. Transportation to Aid Growth Management

Goal: By 2010, Roadway Congestion Will Be Reduced By 50% Over 1985 Conditions, And There Will Be No Congestion For Other Transportation Modes.

See Traffic
Circulation
Element

C. Coordination of Road Systems

Goal: After 1991, All Area Local Governments Will Have Adopted Interlocal Agreements Providing The Appropriate Sharing Of Costs For Mutually Needed Local Roadway Facilities.

See Inter-
governmental
Coordination
Element

D. Maintaining Rail Service

Goal: After 1987, The Number Of Miles Of Rail Line In The Region Will Not Decrease; and After 1991, The Percentage Of Goods Moved By Rail Will Increase.

N/A

E. Bike Paths, Sidewalks, and Transportation Access

Goal: By 2010, All Urban And Suburban Areas Will Have A Coordinated Network Of Sidewalks, Bikeways, And Other Non-Motorized Facilities Connecting Residential, Commercial, Industrial, And Institutional Uses.

See Traffic
Circulation
Element

Furtherers:		See 2	Comments
Yes	No		

001154

001155

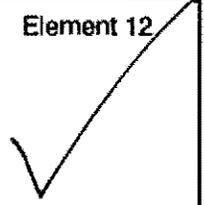
	Furtherers		See 2: Comments:
	RCPP ¹	Yes/No	
20. GOVERNMENTAL EFFICIENCY			
A. Intergovernmental Coordination			
Goal: After 1991, Each Agency With Jurisdiction Will Participate At The Appropriate Effective Level In Intergovernmental Coordination Programs.			See Inter-governmental Coordination Element
D. City and County Borders			
Goal: By 1991, Each County And City Will Identify The Border Areas And Services Where Coordination Will Be Needed; And By 1996, Each Jurisdiction Will Have Enacted The Appropriate Administrative Arrangement To Ensure Coordination Occurs.			See Inter-governmental Coordination Element
21. THE ECONOMY			
A. Economic Stability			
Goal: After 1990, The Region's Dependence On Seasonal Employment Will Decline On An Annual Basis Until The State Average Is Achieved.			See Land Use Element
B. Job Opportunities			
Goal: By 1990, And Each Year After That, The Region's Job Creation Rate Will Exceed The State Average.			N/A
22. AGRICULTURE			
A. Agricultural Industry			
Goal: By 1991, The Rate Of Agricultural Goods Production Will Increase, And By 2000 The Agricultural Industry Production Will Be Stabilized Or Increased Over 1985 Conditions.			N/A

001155

		Furthered:	See	2:
		RCPP ¹		
Yes	No	Comments:		
PLAN IMPLEMENTATION				
A. Intergovernmental Coordination and Cooperation				
Goal: By 1991, Ensure That All Necessary Interagency Agreements Are In Place, And Are Maintained Through Time.				See Inter-governmental Coordination Element
C. Citizen Participation and Public Information				
Goal: By 1990, Each Public Agency Will Establish Ongoing Public Information And Participation Programs, And By 1995, Each Public Agency Will Reevaluate Adopted Plans Through A Public Participation Program.				See Public Participation Procedures Element
D. Economic Feasibility				
Goal: By 1990, The Additional Funding Programs And Sources Needed For Each Locality Will Be Identified, And Funding Will Be Increased Annually, Consistent With The Plans and Goals.				See Capital Improvement Element

¹ The RCPP would be furthered if implementation of the proposed plan or amendment would produce progress toward achievement of the regional goal.

² Comments are provided in Attachment



CAPITAL IMPROVEMENTS

Introduction	355
Capital Improvements Program	355
Inventory of Needs Derived from Other Elements and Departments	356
Traffic	356
Road and Drainage	356
Water and Sewer	356
Drainage	356
Sanitation	356
Recreation	363
Police	363
Fire and Emergency Medical	363
Public Education and Public Health	363
Financial Resources	366
Local	366
.....Property Taxes (Ad Valorem)	366
.....Special Assessments	366
.....Franchise Fees	366
.....Other Taxes, Fees and Charges	366
.....Special Sources	367
State	367
.....Revenue-Sharing Trust Fund	368
.....Half-Cent Sales Tax	368
.....County-Voted Gas Tax	368
.....County Local Option Gas Tax	368
Federal and State Grants and Loans	368

Local Policies and Practices	370
Level of Service	370
Capital Improvement Program	372
Urban Infill Area	372
Municipal Service Taxing Districts	372
Evaluation of Capital Improvement Projects	372
Analysis and Fiscal Assessment	373
Accounting System	373
General Fund	373
Special Revenue Funds	373
Capital Projects Funds	373
Projected Revenues, Tax Base and Ad Valorem	373
Road and Drainage District	375
General Fund	375
North Port Fire and Rescue District	375
Debt Capacity	375
Issues and Recommendations	381
Potential Revenue Sources	381
..... Municipal Utility Tax	381
..... Capital Outlay Construction Trust Fund	381
..... Impact Fees	383
Issue 1	383
Issue 2	383
Goals, Objectives and Policies	385
Implementation of 5-Year Schedule of Improvements	389
Concurrency Management	389
Monitoring and Evaluation	394
Appendix A	396

List of Tables

Table 1 - Inventory of Needs Derived from Other Elements	357
Table 2 - Traffic Element and DRI's	359
Table 3 - Road and Drainage	360
Table 4 - Water and Sewer Element	361
Table 5 - Drainage Element	362
Table 6 - Departments Funded Through the General Fund	364
Table 7 - North Port Fire and Rescue District	365
Table 8 - Tax Base, Millage Rate and Ad Valorem Revenue	374
Table 9 - Road and Drainage District Revenue and Expenditures	376
Table 10 - General Fund Revenue Projections	377
Table 11 - General Fund Expenditure Projections	378
Table 12 - General Fund Summary of Revenue and Expenditures	379
Table 13 - Fire and Emergency Medical Services Revenues and Expenditures	380
Table 14 - Potential Revenue Sources	382
Table 15 - 5-Year Schedule of Improvements, 1990-1995	390
Table A1 - North Port Fire and Rescue District Line Personnel and Company Needs for 1989-94	397
Table A2 - North Port Police Department Personnel and Equipment Needs Projections for 1989-94	398

List of Figures

Figure 1 - Federal Grants	369
---------------------------------	-----

INTRODUCTION

Growth management legislation passed in 1985 mandates that local governments plan for the availability and funding of public facilities and services to support development concurrent with the impacts of such development. The Capital Improvements Element (CIE) is intended to provide the data and analysis required to ensure concurrency.

As outlined in 9J-5.016, F.A.C., the purpose of the Capital Improvement Element is:

- To evaluate the need for public facilities as identified in other comprehensive plan elements;
- To estimate the cost of improvements for which the local government has fiscal responsibility;
- To analyze the fiscal capability of the local government to finance and construct improvements;
- To adopt financial policies to guide the funding of improvements; and
- To schedule the funding and construction of improvements in a manner necessary to ensure that capital improvements are provided when required.

The CIE for the City of North Port determines the economic feasibility of improvements identified in other plan elements and by City departments. Revenues, expenditures, and demands for services are expected to grow proportionate to the population. If population growth slows, it is anticipated that increases in revenues, expenditures and demands for services will also slow. A population growth rate of 4.94% for North Port was used throughout the Comprehensive Plan. This growth rate is based on historical data.

The CIE will be revised annually and adjustments to improvement schedules can be made based on new information. The second 5 year planning horizon (1994-1999) will be addressed through this ongoing update process.

Capital Improvements Program

The CIE is only required by 9J-5, F.A.C., to address public facilities identified in other elements of the comprehensive plan.

The City of North Port's CIE has an additional purpose, which is to evaluate the need for public facilities as identified by City Departments not included in other comprehensive plan elements. The combination of this purpose and the inclusion of small scale, low cost, recurring capital improvements (such as motor vehicle purchases), effectively makes North Port's CIE a Capital Improvement Program (CIP).

The content of this element includes: 1) an inventory of needs derived from other elements and City departments; 2) an inventory of financial resources and local practices; 3) an analysis of revenues and expenditures; 4) a discussion of issues and recommendations; 5) goals, objectives and policies; 6) 5-year schedule of improvements; and 7) monitoring and evaluation.

Inventory of Needs Derived from Other Elements and Departments

Facility improvements have been identified in other comprehensive plan elements to meet the current and future demands of North Port residents and reported in Table 1. In addition, City Police and Fire/Emergency Medical services were analyzed and needed improvements have been included in the CIE.

This inventory contains both relatively large scale non-recurring improvements and other improvements which represent significant capital expenditures by City departments. Tables 1-6 list capital improvements and cost estimates identified for FY 1989-90 through FY 1993-1994, since this plan is scheduled for adoption prior to the start of FY 1989-90. This is consistent with Section 9J-5.016, F.A.C., which requires the CIE to address existing and future capital improvements needed for at least the first five fiscal years after the adoption of the comprehensive plan.

Traffic

Table 2 provides a description of needed traffic improvements as identified in the Traffic Element and as required by approved Developments of Regional Impact (DRI). Costs associated with DRI improvements are estimates to be paid by the developers.

Road and Drainage

The capital improvement needs of the Road and Drainage District are provided in Table 3. This dependent, special assessment district is responsible for the non-DRI traffic improvements identified in Table 2.

Water and Sewer

Table 4 reports the capital improvements needs identified in the Sewer Sub-element. Project costs and responsible entities are given with a description of the improvement. Water and sewer services are provided under a franchise agreement and the City is not financially responsible for most improvements. North Port can help to ensure the completion of improvements through the rate setting process and franchise renewal process. No expansions are expected to the North Port Water Treatment Plant as capacity exists to serve the residents of North Port through the planning horizon.

Drainage

Drainage projects, responsible entities, and cost estimates are reported in Table 5. The City has limited exposure on drainage since the majority of North Port is served by the North Port Water Control District (NPWCD), which is an independent district.

Sanitation

Sanitation improvements are listed in Table 6 with other capital improvements for departments funded through the general fund. Recycling equipment, dumpsters, and two collection vehicles are projected within the 5 year planning horizon.

TABLE 1: Inventory Needs Derived From Other Elements
City of North Port - Comprehensive Plan Capital
Improvement 1989-1994

Project Description	Target Year	Estimated Cost (\$000)
TRAFFIC CIRCULATION FACILITIES		
1. Intersection improvement Pan-American Blvd. and U.S. 41.	1989-1990	100
2. Resurfacing program for urban in fill area.	1989-1994	2,500
3. Street Lights.	1989-1994	650
4. Road Signs.	1989-1994	250
5. Traffic Counters.	1989-1990	5
6. Traffic Software.	1989-1990	5
7. Bike Paths.	1990-1992	150
8. Sidewalks.	1990-1992	150
9. Highway Beautification.	1990-1991	75
10. Intersection improvement (Panacea)	1991-1992	20
11. Intersection improvement North Port Blvd. (South) and U.S. 41.	1993-1994	70
12. Spring Haven Extension from Pan American to Price Blvd.	1989-1994	220
13. Extension Cranberry Blvd. from Creighton to Toledo Blade.	1989-1994	320
14. Complete Haberland Blvd. to Hillsborough.	1989-1994.	430
15. Construct Bridge over Cocoplum at Haberland Blvd.	1989-1994	350
16. Complete Sunnybrook Blvd. from S.R. 776 to County Line.	1989-1994	1,566
17. Extension of Toledo Blade Blvd. North of I-75.	1989-1994	650
18. Completion of Hillsborough Blvd. from Chamberlain Blvd. to Cranberry Blvd.	1989-1994	1,030
SANITARY SEWER FACILITIES		
19. Utility accounting study for purposes of franchise renewal.	1989-1990	30
20. Extension of sewer collection system in urban infill area.	1989-1994	1,946
21. Expansion of NPWTP from rated capacity of 0.957 mgd to 1.5 mgd.	ED	1,265
22. Inflow infiltration analysis.	1989-1990	55

TABLE 1: Inventory Needs Derived From Other Elements
 City of North Port - Comprehensive Plan Capital
 Improvement 1989-1994 (Cont.)

Project Description	Target Year	Estimated Cost (\$000)
SANITARY SEWER FACILITIES		
23. Evaluation of reuse options for adoption.	1989-1990	10
24. Expansion of wastewater treatment facilities from rated capacity of 1.5 mgd to 2.3 mgd.	1991-1992	1,095
25. Demonstration project for reuse of treated effluent.	1991-1992	60
SOLID WASTE FACILITIES		
26. Dumpsters	1989-1990	10
27. Recycling equipment.	1989-1990	20
28. Purchase collection vehicles.	1991-1994	110
DRAINAGE FACILITIES		
29. Aerial and topo mapping of Big Slough Watershed.	1989-1990	100
30. Big Slough Watershed Study.	1989-1991	200
31. Plan of water management modeling and analysis.	1990-1991	100
32. Reconstruction of the R-36 Channel.	1989-1990	To be determined
33. Completion of construction of the plan of water management.	1989-1994	To be determined
34. Retrofit storm water system for treatment for pollution control.	1990-1992	525
RECREATION FACILITIES		
35. Neighborhood Parks:		
Acquisition	1989-1994	500
Improvements	1989-1994	150
36. Community Park:		
Multi-purpose Civic Center	1989-1994	375
37. Special Interest Park	1989-1994	300

NOTE: A breakdown of the needs summarized in Table 1 by whether they mitigate existing or projected future deficiencies can be found in the data and analysis section of each of the other constituent Elements of the Plan.

TABLE 2:

CAPITAL IMPROVEMENT PROGRAM
TRAFFIC ELEMENT AND DRI'S
 All amounts in Thousands of Dollars (000)
 (1988 Dollars)

IMPROVEMENTS	DESCRIPTION/LOCATION	PROGRAM					TOTAL 1989-94
		1989-90	1990-91	1991-92	1992-93	1993-94	
<u>TRAFFIC ELEMENT</u>							
Intersection Improvements	Pan American Blvd. & U.S. 41	100 ¹					100
Resurfacing Program	Urban Infill Area	500	500	500	500	500	2500
Street Lights	Road & Drainage District	130	130	130	130	130	650
Road Signs	Road & Drainage District	50	50	50	50	50	250
Traffic Counters	Road & Drainage District	5					5
Traffic Software	Road & Drainage District	5					5
Bike Paths	Urban Infill Area		75	75			150
Side Walks	Urban Infill Area		75	75			150
Highway Beautification	U.S. 41		75 ²				75
Intersection Improvements (Panacea)						20	20
Intersection Improvements	North Port Blvd. S & U.S. 41					70	70
Total		790	905	830	680	770	3975
<u>OTHER IMPROVEMENTS³</u>							
Spring Haven Blvd.	Extension from Pan American to Price Blvd.						220
Cranberry Boulevard	Extension to Creighton to Toledo Blade						320
Haberland Boulevard	Complete to Hillsborough						430
Haberland Boulevard	Bridge over Cocoplum						350
Sunny Brook Boulevard	Complete SR776 to County Line						1566
Toledo Blade Boulevard	Extension North of I-75						650
Hillsborough Boulevard	Chamberlain Blvd. to Cranberry Boulevard						1030
Total							4566

8-18-88

1 Apply for 50% grant FECT
 2 Apply for Grant FDOT for landscaping and lighting.
 3 Estimates only - not to be used for negotiation
 Cost to be paid by developers

TABLE 3:

CAPITAL IMPROVEMENT PROGRAM
ROAD & DRAINAGE
 All amounts in Thousands of Dollars (000)
 (1988 Dollars)

IMPROVEMENTS	DESCRIPTION/LOCATION	PROGRAM					TOTAL 1989-94
		1989-90	1990-91	1991-92	1992-93	1993-94	
<u>ROAD & DRAINAGE (BLD, EQUIP, ETC.)</u>							
One Tractor/Mower	Road & Drainage District	20	20	20	20	20	100
One Backhoe, Front End Loader (1/2 yd)	Road & Drainage District	50					50
One Tractor Trailer Lowboy	Road & Drainage District	70					70
One Street Repair Vehicle	Road & Drainage District	60					60
One Dump Truck (7.5 yds.)	Road & Drainage District	60					60
Two Pick-up Trucks	Road & Drainage District		28				28
Two Pick-up Trucks	Road & Drainage District			28			28
Roads & Drainage Building Facility for Sign Shop, Chemical Storage, mechanic, vehicle storage, etc. 5,000 sq. ft.	Located at 10 acre site Price Boulevard and Creighton Waterway	165					165
Fence for 10 acre site		30					30
Two Hydraulic Lifts			10				10
One Hydraulic Excavator	Road & Drainage District		135				135
Sidewalk Handicapped Ramps Eager St. and Alley Drainage Project	Urban Infill Area	60	60	60	60	60	300
	Urban Infill Area		50				50
Total		515	303	108	80	80	1086

8-18-88

TABLE 4

**CAPITAL IMPROVEMENT PROGRAM
WATER & SEWER SUB-ELEMENT**
All amounts in Thousands of Dollars (000)
(1988 Dollars)

IMPROVEMENTS	ENTITY	PROGRAM					TOTAL 1989-94
		1989-90	1990-91	1991-92	1992-93	1993-94	
Utility Accounting Study for Purpose of Franchise Renewal	City of North Port	30					30
SEWER SUB-ELEMENT							
Extension of Sewer Collector ¹ system in Urban Infill Area	General Development Utilities	365	371	407	380	423	1,946
Expansion of NPWTP from rated capacity of 0.957 mgd to 1.5 mgd ²	General Development Utilities	1,918					1,265
Inflow Infiltration Analysis ³	Gen. Develop. Utilities	55					55
Evaluation of reuse options for adoption ⁴	City of North Port	10					10
Expansion of NPWTP from rated capacity of 1.5 mgd to 2.3 mgd ⁵	General Development Utilities			1,095			1,095
Demonstration Project for reuse of treated effluent ⁵	City of North Port			60			60
TOTAL		2,378	371	1,562	380	423	5,114

8-18-88

1 These estimates are based on projected dwelling unit increases times the average cost of sewage line extension in the Urban Infill Area. The Public Utility Committee will evaluate options for extensions and make recommendations to the City Commission. Options include tax assessments, industrial revenue bonds, etc. The utility is required to provide sewage collections systems for plats that reach a density of 66 2/3%. This obligation should be considered when developing options (ie. proration of reimbursement of up-front cost should be conducted as part of the rate setting process or franchise renewal).

2 Cost estimate based on values in engineering report. Port Charlotte Area Wastewater Master Plan, CH2M Hill (March 1987) project under construction. Expansions have been identified through the CUP process.

3 Best estimate for studies and analyses to determine infiltration problems and cost to mitigate. Utility should be encumbered to undertake as part of the rate setting analysis or franchise renewal.

4 Best estimate for economic studies, preliminary engineering and construction estimates for pilot project by Public Utility Committee. City to apply for grants for fund.

5 Best estimate for pilot re-use project. City to apply for grants for funds or economically feasible projects.

TABLE 5:

CAPITAL IMPROVEMENT PROGRAM
DRAINAGE ELEMENT
 All amounts in Thousands of Dollars (000)
 (1988 Dollars)

IMPROVEMENTS	ENTITY	PROGRAM				TOTAL 1989-94
		1989-90	1990-91	1991-92	1992-93		1993-94
<u>DRAINAGE ELEMENT</u>						
Aerial and Topographic mapping of Big Slough Water Shed -	SWFWMD	100				100
Big Slough Study	Big Slough Watershed Advisory Committee	100 ¹	100 ¹			200 ¹
Plan of Water Management modeling and analysis to determine level of completion and alternative facilities for required level of services	City		100 ²			100 ²
Reconstruction of the R-36 Channel	NPWCD	To	be	determined		
Completion of Construction of the Plan of Water Management						
1. Install new water control structures	GDC	To	Be	Determined		
2. Rehabilitate existing Structures	GDC	To	Be	Determined		
3. Reconstruct hydraulic gradient of flow line of canals and ditches	GDC	To	Be	Determined		
4. Other Facilities	GDC/NPWCD	To	Be	Determined		
Retrofit storm water system for treatment for pollution control	NPWCD/City of North Port		250 ³	275 ³		525 ³
						8-18-88

- 1 Grant request from SWFWMD (85 SWFWMD, 30 GDC, 42.5 NPWCD, 42.5 City)
 2 Special Trust Fund monies in the Pollution Recovery Fund
 3 If the Big Slough is not funded or cannot provide analysis of facilities required to meet level of services, then City has option to do so in 1990-91

Recreation

Recreation needs are identified in the Recreation Element and reported in Table 6. The City projects acquisition of neighborhood and special interest park land and neighborhood park improvements through 1994. The capital expenditures identified for community park improvements are principle and interest payments on a multi-purpose civic center.

Police

City police expenditures are handled through the general fund. Capital improvement needs are reported in Table 6. These needs were identified using the methodology detailed in Appendix A for police level of service.

Fire and Emergency Medical

Table 7 reports the capital improvements program for the North Port Fire and Rescue District (NPFRD). The information was obtained from the NPFRD and level of service methodology is detailed in Appendix A.

Public Education and Public Health

The School Board of Sarasota County (SBSC) operates one school in the City, the location of which is depicted on the Existing Land Use Map in the Future Land Use Element. This elementary school is currently staffed for 640 students and has been used since 1984. The Future Land Use Map in the Future Land Use Element depicts the location of possible future sites for these projected new school facilities. The SBSC projects an additional elementary school in South Sarasota County in 1993. This facility will probably be constructed within the urban infill area of North Port with a permanent capacity of 630 students. There is existing sufficient infrastructure capacity for this facility.

In the second 5 years of the planning horizon, two additional schools are projected for North Port. A middle school is planned for 1995 with a permanent capacity of 930 students and another elementary school is planned for 1998 with a permanent capacity of 630.

The existing school serves residents of North Port and residents of Sarasota County living on the North Port side of River Road. The SBSC does not project for each municipal area, but for the county as a whole and then by general regions of the county.

Current Public Health Facilities in North Port provide physician and nursing home care. A number of hospitals are located in the area and the North Port Fire and Rescue District transports patients primarily to St. Joseph and Fawcett Memorial Hospitals in Port Charlotte. Though serviced by health facilities located both in Sarasota and Charlotte Counties, North Port lies within the geographic service area of the Sarasota County Department of Health and Rehabilitative Services. The City does not intend to subsidize any private for profit health facility organization.

Presently, the North Port Health Facilities Authority Board is analyzing the need for additional health care facilities in the City. Adequate infrastructure is available within the urban infill area to accommodate any future health care needs identified over the course of the 10-year planning timeframe. Physician services will be provided by the private sector and will increase with population growth. Nursing care is expected to trend towards home care and services will be provided by the private sector.

TABLE 6:

CAPITAL IMPROVEMENT PROGRAM
DEPARTMENTS FUNDED THROUGH THE GENERAL FUND

IMPROVEMENT	1989-90	1990-91	1991-92	1992-93	1993-94	1989-94
<u>SPECIAL PROJECT</u>						
Feasibility Study for Building Space, Communications Center and City Hall Complex ³		\$10,000				\$10,000
TOTAL		\$10,000				\$10,000
<u>SANITATION</u>						
Dumpsters	\$10,000					\$10,000
Recycling Equipment	\$20,000					\$20,000
Collection Vehicle			\$55,000			\$55,000
Collection Vehicle					\$55,000	\$55,000
SANITATION TOTAL	\$30,000		\$55,000		\$55,000	\$140,000
<u>RECREATION</u>						
Neighborhood Park - Acquisition	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$500,000
- Improvements	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Community Park ¹ - Improvements	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$375,000
Special Interest Park - Acquisition	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
RECREATION TOTAL	\$265,000	\$265,000	\$265,000	\$265,000	\$265,000	\$1,325,000
<u>POLICE</u>						
4 New Cars	\$56,000	\$56,000				\$112,000
5 New Cars			\$70,000	\$70,000	\$70,000	\$210,000
Firing Range ²						
POLICE TOTAL	\$56,000	\$56,000	\$70,000	\$70,000	\$70,000	\$322,000
TOTAL	\$351,000	\$331,000	\$390,000	\$335,000	\$390,000	\$1,797,000

8-18-88

1 Principal and interest payments on Multi-purpose Civic Center as per Recreation Element.

2 Conduct economic feasibility studies, identify sources of revenues and funds, determine construction cost estimate. As a result, feasibility shall be determined and schedules executed.

Source: North Port Planning Department
Florida Environmental, Inc.

Date: August, 1988

3 Siting of facilities and construction costs shall be determined based on feasibility study results.

TABLE 7:

CAPITAL IMPROVEMENT PROGRAM
NORTH PORT FIRE AND RESCUE DISTRICT

IMPROVEMENT	1989-90	1990-91	1991-92	1992-93	1993-94	1989-94
Type III, Diesel Rescue Unit ¹	\$27,000					\$27,000
Replace Life Pack Five	\$8,000					\$8,000
Class A, Diesel Pumper		\$100,000				\$100,000
Replace Logging Recorder		\$7,000				\$7,000
Replace Life Pack Five			\$8,000			\$8,000
New Car			\$15,000			\$15,000
Computer Upgrade			\$10,000			\$10,000
Remodel Fire Station				\$100,000		\$100,000
Rechasis Type III Rescue Unit				\$30,000		\$30,000
New Pickup or Car				\$15,000		\$15,000
Rechasis Type III Rescue Unit					\$30,000	\$30,000
2 New Cars					\$30,000	\$30,000
New 4 Wheel Drive Unit					\$17,000	\$17,000
Replace Life Pack Five					\$8,000	\$8,000
TOTAL	\$35,000	\$107,000	\$33,000	\$145,000	\$85,000	\$405,000

8-18-88

1 Assumes \$25,000 grant from H.R.S. to offset purchase price of \$52,000.

Source: North Port Fire District
Florida Environmental, Inc.

Date: August, 1988

Financial Resources

Planning for capital improvements requires an analysis of available revenue sources. The following section provides a description and the status of current and potential revenue sources for the City of North Port. The revenues listed include all major funding sources available to the City and is not limited to those sources which will be used only for capital improvements.

Local

Property Taxes (Ad Valorem)

Property taxes are based on the assessed value of property and a millage rate. A mill is equivalent to \$1 per \$1,000 of assessed value. Revenues collected from ad valorem taxation are not restricted and can be used to fund operating expenses and capital improvements.

CURRENT STATUS: Property taxes are levied on November 1 of each year and the Sarasota County Tax Collector's office bills and collects property taxes on behalf of the City of North Port. The City millage rate for Fiscal Year (FY) 1987-88 was 5.67 which generated \$1.668 million. The tax yield for FY 1989-90 is expected to be \$1.791 million with a millage of 5.67.

Special Assessments

Special assessments are levied as a millage rate or flat fee on persons who directly benefit from the service or facility being provided. Municipal Service Taxing Districts (MSTD) use special assessments and can be established city-wide, as with the Road and Drainage District, or locally.

CURRENT STATUS: The North Port Fire and Rescue District (NPFRD) assesses \$40 per improved lot and \$8 per unimproved lot each year. This assessment is the major revenue source for the NPFRD. The Road and Drainage District also uses assessments as a major revenue source. The rate charged is \$25 per lot and \$15 per acre. Approximately 40% of North Port's revenues were generated by special assessments in FY 1987-88.

Franchise Fees

Companies providing utilities to the City are charged a franchise fee. This tax is a percentage of revenues generated within the franchise area by the provider of the utility.

CURRENT STATUS: Water, sewer, and gas; telephone; cable television, and electric utilities pay franchise fees. An estimated \$388,845 was generated in FY 1987-88 and \$428,212 is expected to be generated in FY 1989-90.

Other Taxes, Fees & Charges

This category includes charges for building permits and occupational licenses; fines and forfeitures; administrative fees and other user charges. Income received as interest from City funds, the sale of public property, rental income and private donations are also included in this category.

CURRENT STATUS: Charges for commercial and special waste collection and for permits and occupational licenses are the major revenue sources within this category. Totals from all sources for FY 1987-88 was estimated at \$527,428. It is anticipated that \$471,876 will be collected in FY 1989-90. The largest single fac-

tor responsible for the drop in revenues in this category was an \$85,000 reduction in interest revenues accruing from surplus funds in this time period.

Special Sources

Additional sources of revenue are available for the City of North Port. Based on the levels of service to be adopted by the City and the current sources of revenue, it may be necessary to consider some of the following funding sources for capital improvements.

- **Municipal Utility Tax:** A municipality may levy a tax on the purchase of electricity, metered or bottled gas, water service, telephone service and telegraph service. The tax shall be levied only upon purchase within the municipality and shall not exceed 10 percent of the payments received by the seller of the taxable item.
- **Capital Outlay Construction Trust Fund:** An alternative method of supporting capital projects is to establish a Capital Outlay Construction Trust Fund (COCT) and provide for a set millage rate earmarked for the Fund. Revenues are credited to the Fund and collect interest until such time as required funds are accumulated to provide for project cost.
- **Special Assessments:** As previously mentioned, special assessments are used to provide facilities or services to those who directly benefit. Additional districts may be established in North Port to provide funding for capital improvements projects.
- **Borrowing:** It may be necessary for the City to borrow money to fund long-term capital improvements. Long-term bond issues are the most common type of financing for capital improvements.
- **Impact fees:** "Impact fees" are charges assessed against new development that attempt to cover the cost of providing capital facilities needed to serve that development. As such, impact fees can only be used for capital needs necessitated by new growth; they cannot be used for operation, maintenance, or replacement of existing facilities.

General obligation bonds are backed by the full faith and credit of the local government and are required to be approved by voter referendum. General obligation bonds are secured by the taxing power of the government and have lower risks and lower interest rates than other bonds. General obligation bonds should finance projects which benefit all residents of the City.

Revenue bonds are financed by those directly benefiting from the capital improvement. The bond is retired with user charges collected from the direct beneficiary of the capital improvement. Rates tend to be higher than charged on general obligation bonds. Under the new Charter, voter referendum is required for issuance.

Industrial revenue bonds are issued by local government but are assumed by companies who use the revenue for the construction of facilities. The company benefits from a low interest rate carried by the bond due to its tax exempt status and local government benefits from private sector retiring the debt and the potential for increased employment opportunities in the community.

CURRENT STATUS: The City of North Port has no outstanding debt. Industrial revenue bonds have been assumed by General Development Utilities, Inc.

State

The City of North Port receives revenue from the State through a number of sources. This section discusses funds that are a) generated locally but collected and later returned by a state agency; b) adopted as a local

option tax collected and returned by the state; or c) general revenues collected by the state and shared with local governments in the form of grants.

Revenue Sharing Trust Fund:

The fund includes the 11-cent cigarette tax, the 8th cent of the Motor Fuel Tax and 25% of the alternative fuel taxes collected. These revenues are allocated to municipalities based on population, sales tax collections and the relative revenue raising capacity of the municipality. The 2-cent cigarette tax is distributed to municipalities through another formula.

CURRENT STATUS: A total of \$206,877 was returned to the City in FY 1987-88. The City places the 8th cent gas and alternative fuel taxes (\$63,000 in FY 1987-88) in the Road and Drainage District Fund and the remainder of the revenue in the General Fund. It is anticipated that \$222,454 will be generated in FY 1989-90 with \$66,841 going to the Road and Drainage District Fund. The 2-cent cigarette tax generated an estimated \$66,523 in FY 1987-88 and is expected to generate \$71,951 in FY 1989-90.

Half-cent Sales Tax

This tax is collected by the State and shared with counties and municipalities. The formula is based on City and County population. North Port received \$450,815 in FY 1987-88 from this source and is expected to receive \$496,456 in FY 1989-90.

County Voted Gas Tax

This one-cent per gallon tax option is adopted by the County by voter referendum. Sarasota County voted a 1-cent tax to go into effect during 1988. North Port is expected to receive \$42,135 from this tax in FY 1989-90. Revenues are restricted to transportation purposes.

County Local Option Gas Tax

This tax may be levied up to 6 cents per gallon by the County Commission or voter referendum. Revenues are restricted to transportation and the City of North Port receives a percentage of the \$.06 maximum rate levied by Sarasota County. North Port's share came to \$228,299 in FY 1987-88 and is expected to receive \$252,811 in FY 1989-90.

Federal and State Grants and Loans

The U.S. State and Local Fiscal Assistance Act of 1972, which formerly provided for a system of federal general revenue sharing, has now been substantially modified. Federal funds are currently either: a) allocated to state agencies which administer block grants in accordance with the programs which they monitor; or b) reserved at the federal agency level and disbursed as block grants directly to state and local agencies or other eligible organizations and individuals. The purpose of the block grant program is to enable greater latitude by recipients in actual use of the funds, although recipients are still required to use the funds for specific categories of projects. These funds are not distributed by allocation, but rather, require competitive applications. Consequently, these grant monies are generally a non-recurring source of funds, and as such cannot be accurately projected for budgeting purposes.

A partial list of available federal grant sources is included in Figure I. Other grants are administered at the state level, with state executive departments acting as "pass-through agencies" for federally-funded project grants.

In addition to block grants, several federal agencies offer direct loan programs, but their applicability to capital improvement projects is extremely limited. State loans, on the other hand, are usually available to finance such capital projects as land acquisition for low-income housing. The Department of Community Affairs' Bureau of Housing administers loans and grants for these purposes through eligible local governments.

The City of North Port has received state grants for the preparation of the Comprehensive Plan and for the Solid Waste Resource Recovery Study and has recently hired personnel to aggressively pursue grant monies.

**FIGURE I:
FEDERAL GRANTS**

Sample List of Administering Federal Agencies and Program Titles

Department of Commerce

- Public Works and Developments Facilities
- Support for Planning Organizations
- Public Works Impact Projects
- Public Telecommunications Facilities
- Construction and Planning

Department of Health and Human Services

- Community Health Centers

Department of Housing and Urban Development

- Housing Development Grants
- Community Development Block Grant/Entitlement
- Community Development Block Grant/Small Cities Program
- Urban Development Action Grant

Department of Interior

- Outdoor Recreation - Acquisition, Development, and Planning
- Urban Park and Recreation Recovery Program

Department of Transportation

- Urban Mass Transportation Capital Improvement Grants
- Urban Mass Transportation Technical Studies Grants

Environmental Protection Agency

- Construction Grants for Wastewater Treatment Works
- Comprehensive Estuarine Management

Source: "Catalog of Federal Domestic Assistance", 1986, Government Printing Office, Washington, D.C.

Local Policies and Practices

Local policies are needed to guide the location and timing of land development in support of the Goals, Objectives & Policies of the Future Land Use Element. Policies will be influenced by state, county, franchised utilities, and special agencies that provide public facilities and services in the City of North Port. The management of overlapping public facilities and services is addressed in the Intergovernmental Coordination Element.

Level of Service

Chapter 163, F.S., and Chapter 9J-5, F.A.C., require the City of North Port to adopt level of service (LOS) standards in its Comprehensive Plan. LOS standards are an indication of the extent or degree of service to be provided by a public facility. These standards are based on operational characteristics of the facility and indicate the capacity per unit of demand.

LOS standards are designed to affect the timing and location of growth. Development may not be permitted if it will decrease the LOS provided by the facility or service. This protection ensures that public facilities and services to support development are provided concurrent with the impacts of such development.

Current LOS standards to be adopted by the City of North Port through this Comprehensive Plan are:

LEVEL OF SERVICE STANDARD

POTABLE WATER

Supply and Treatment

90 gallons per day per capita with quality meeting or exceeding EPA and DER Primary and Secondary Drinking Water Standards.

Distribution

Residential: A goal of 80% of all households within the Urban Infill Area and future growth areas will be served with central potable water by 1995.

Commercial: All new commercial within the City will be served by central potable water, or by individual water wells consistent with regulations promulgated by DHRS and administered by Sarasota County if central service is not available or economically feasible.

Industrial: All new industrial within the City will be served by central potable water, or by individual water wells consistent with regulations promulgated by DHRS and administered by Sarasota County if central service is not available or economically feasible.

SANITARY SEWER

Collection

Residential: A goal of 80% of all households within the Urban Infill Area and future growth areas will be served with central sanitary sewer by 1995. All plat units inside and outside the Urban Infill Area will also be served by central sanitary sewer pursuant to the DER Consent Order with GDC.

Commercial: All new commercial within the City will be served by central sanitary sewer, or by on-site treatment systems consistent with regulations promulgated by DHRS and DER if central service is not available or economically feasible.

Industrial: All new industrial within the City will be served by central sanitary sewer, or by on-site treatment systems consistent with regulations promulgated by DHRS and DER if central service is not available or economically feasible.

Treatment

80 gallons per capita per day

Disposal

80 gallons per capita per day

DRAINAGE

Primary Drainage System

Design Storm Within North Port:

- 10-year frequency, 5-day duration for existing surface water management systems.

- 25-year frequency, 24-hour duration pursuant to SWFWMD criteria for permitting new surface water management systems.

SOLID WASTE

Collection

Residential: twice weekly

Commercial: by contract

Disposal

3.5 pounds/capita/day for residential and commercial generation.

TRAFFIC

<u>Roadway Facility Type</u>	<u>LOS Standard*</u>
Principal Arterial	"C" peak hour
Rural Major Collector	"C" peak hour
Urban Collector Roadways	"C" peak hour
Rural Minor Collector Roadways	"C" peak hour

* Based on 100th design hour criteria

RECREATION & OPEN SPACE

Entire City

10 acres/1,000 population

Capital Improvement Program

A Capital Improvement Program is a plan for capital expenditures to be incurred over a fixed period of years to meet anticipated needs. It sets forth capital projects and estimates resources needed to finance projects.

The Capital Improvement Program (CIP) is typically not the same as the CIE. Generally, the CIE contains only large scale, non-recurring capital improvements which may require multi-year financing. The CIP is more inclusive however, and contains low cost, small projects which are generally recurring. Also the CIP is not limited to those public facilities addressed in the Comprehensive Plan, as is the CIE.

The CIE for North Port is both a CIE and a CIP since it includes both small and large projects of recurring and non-recurring natures, and because it includes public facilities not addressed in the Comprehensive Plan, such as fire/emergency medical and police services. Currently the City of North Port funds capital projects on an annual "pay as you go" basis.

Urban Infill Area

The designation of urban infill areas may be used to indicate areas where the local government intends to provide and encourage others to provide public facilities and service. The urban infill area may encourage more efficient growth patterns by timing public facility improvements and the provision of services.

Municipal Service Taxing Districts

Districts may be established to fund improvements by charging those persons that receive direct benefits. Improved services may be provided within geographic areas through the assessment of property owners benefiting from the improvements.

Assessments may be based on ad valorem, a flat fee or on relative benefit, such as a front foot charge.

Evaluation of Capital Improvement Projects

Capital improvement projects will be evaluated and updated annually in conformance with the review process for the CIE. Each proposed capital improvement project will be evaluated and ranked according to the following priority level guidelines:

Level One - whether the project is needed to protect public health and safety, or to preserve or achieve full use of existing facilities.

Level Two - whether the project increases efficiency of use of existing facilities, prevents or reduces future improvements costs, provides service to developed areas lacking full service or promotes in-fill development.

Level Three - whether the project represents a logical extension of facilities and services within a designated service area.

Analysis and Fiscal Assessment

This section examines the City of North Port's ability to fund the improvements listed in Tables 1-6. Revenues and expenditures will be examined to determine whether sufficient revenue will be available when improvements are needed.

Revenue estimates were projected and balanced against projected expenditures. In addition to the direct costs associated with improvements, operating and maintenance costs were estimated to evaluate the total impact to City finances.

Accounting System

The accounts of the City are organized on the basis of funds and account groups, each of which is considered a separate accounting entity. The operations for each fund are accounted for with a separate set of self-balancing accounts that comprise its assets, liabilities, fund equity, revenue and expenditures, or expenses, as appropriate. Government resources are allocated to and accounted for in individual funds, based upon the purposes for which they are to be spent and the means by which spending activities are controlled. The purpose of the City's various funds and account groups are as follows:

General Fund

The General Fund is the general operating fund of the City. It provides operating and capital revenues for general government, police, public works, sanitation, and recreation. The General Fund will have an estimated fund reserve of \$1.4 million for FY 1988-89 and no debt.

Special Revenue Funds

Special Revenue Funds are used to account for the proceeds of specific revenue sources (other than special assessments or major capital projects) that are legally restricted to expenditures for specified purposes. The major special revenue funds consist of: 1) the Road and Drainage District Fund which provides operating and capital revenues for road and drainage improvements other than primary drainage. According to the proposed 88-89 budget, the Road and Drainage District will have an estimated fund reserve of \$2.14 million; and 2) the North Port Fire and Rescue District Fund which provides revenue for operating and capital improvements will have an estimated fund reserve of \$259,723.

Capital Projects Funds

Capital Projects Funds are used to account for financial resources to be used for the acquisition or construction of major capital facilities.

Projected Revenues, Tax Base and Ad Valorem

The City of North Port's tax base was projected to increase assuming a 4.94 percent rate of growth for the net adjusted taxable value of property as indicated in Table 8. The City's assessment ratio is projected to remain stable at 100 percent and the millage is expected to remain constant at 5.67 mills.

TABLE 3:

**CAPITAL IMPROVEMENT PROGRAM
TAX BASE, MILLAGE RATE AND AD VALOREM REVENUE**

FISCAL YEAR:	1989-90	1990-91	1991-92	1992-93	1993-94	1989-94
Tax Base	\$315,925,207	\$331,531,912	\$347,909,589	\$365,096,322	\$383,132,081	
Millage	5.67	5.67	5.67	5.67	5.67	
REVENUE	\$1,791,296	\$1,879,786	\$1,972,647	\$2,070,096	\$2,172,359	\$9,886,184
Annual Growth Rates						
Tax Base	4.94 %					

4.94 % is the growth rate generated by the growth model

Source: North Port Finance Department
Florida Environmental, Inc.
Date: August, 1988

Road and Drainage District

The expected revenues available to the North Port Road and Drainage District for FY 1989-90 through FY 1993-94 are reported in Table 9 by source. These projections are based on past trends and the projected population growth rate of 4.94%. Capital outlay projections were previously outlined in Table 2 and are included here. It is anticipated that the Road and Drainage District will have accumulated \$493,212 in revenue over expenditures for the planning period (1989-1994), after meeting the planned capital improvements. This surplus does not include the current fund reserve.

General Fund

General fund revenues projections are reported in Table 10. Most revenue projections were based on past trends and the population growth rate of 4.94%. Interest income is based on the minimum rule of 15% for a reserved balance and interest rates.

General Fund expenditures were projected using trends and the growth rate and are reported in Table 11. Sanitation, recreation and police services were separated from the remaining departments. Capital outlay estimates for sanitation, recreation and police were taken from Table 6 and included here. Personnel and operating expenditures were assumed to grow at the population growth rate for sanitation and recreation. Police personnel expenses were projected to increase based on maintaining the current level of service. This methodology is detailed in Appendix A. As shown in Table 12, the General Fund is forecasted to accumulate \$997,917 in expenditures over revenues necessary to provide the planned capital improvements over the planning period (1989-94). This deficit does not include the current fund reserve. The projected deficit also does not include over \$950,000 the City anticipates to receive from settlement of a dual taxation suit filed against Sarasota County (for approximately twelve years, the County taxed City residents for roadway improvements located within unincorporated Sarasota County without carrying out any such improvements in the City).

North Port Fire and Rescue District

Projections of revenues and expenditures for the NPFRD are shown in Table 13. Assessments increase with the growth in dwelling units. The assessment rates used assume an increase to \$46.50 per improved lot and \$9.30 per unimproved lot. Expenditures were projected to increase at the growth rate of 4.94% since alarms are expected to increase proportionate to the population. Capital outlays were taken from Table 7 and included here. The NPFRD is expected to have expenditures of \$15,944 in excess of revenues after meeting the planned capital improvements over the planning period (1989-94).

Debt Capacity

The City currently has no outstanding debt. Section 9J- 5.016(2)(f)(6) F.A.C. requires local governments to project debt capacity. The maximum allowable debt for the City may be 10% of the assessed value of real and personal property and this would yield an estimated maximum debt of approximately \$32 million.

TABLE 9:

**CAPITAL IMPROVEMENT PROGRAM
ROAD AND DRAINAGE DISTRICT REVENUE AND EXPENDITURES**

REVENUES	1989-90	1990-91	1991-92	1992-93	1993-94	1989-1994
Assessments	\$1,900,000	\$1,900,000	\$1,900,000	\$1,900,000	\$1,900,000	\$9,500,000
Local Option 6 Cent Gas Tax	\$252,811	\$260,396	\$268,208	\$276,254	\$284,541	\$1,342,210
Local Option Voted 1 Cent Gas Tax	\$42,135	\$43,399	\$44,701	\$46,042	\$47,424	\$223,702
Revenue Sharing Trust Fund (8th Cent, Alternative Fuels)	\$66,841	\$68,846	\$70,912	\$73,039	\$75,230	\$354,868
Road and Bridge (County)	\$71,663	\$75,203	\$78,918	\$82,817	\$86,908	\$395,509
Interest	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
Misc. Revenues	\$45,744	\$48,004	\$50,375	\$52,864	\$55,475	\$252,462
TOTAL	\$2,429,195	\$2,445,848	\$2,463,114	\$2,481,016	\$2,499,578	\$12,318,750
EXPENDITURES						
Personnel Services	\$539,769	\$566,434	\$594,416	\$623,780	\$654,595	\$2,978,994
Operating Expenses	\$685,910	\$719,794	\$755,352	\$792,666	\$831,824	\$3,785,546
Capital Outlay	\$1,305,000	\$1,208,000	\$958,000	\$760,000	\$830,000	\$5,061,000
TOTAL	\$2,530,679	\$2,494,228	\$2,307,767	\$2,176,446	\$2,316,418	\$11,825,540
Revenues Minus Expenditures (Surplus, (Deficit))	(\$101,484)	(\$48,380)	\$155,346	\$304,570	\$183,160	\$493,212
Annual Growth Rates						
Gas Tax	3.00 %					
Road and Bridge	4.94 %					
Misc. Revenues	4.94 %					
Personnel Services	4.94 %					
Operating Expenses	4.94 %					

4.94 % is the growth rate generated by the growth model

Source: North Port Road and Drainage District
North Port Finance Department
Florida Environmental, Inc.
Date: August, 1988

TABLE 10:

CAPITAL IMPROVEMENT PROGRAM
GENERAL FUND REVENUE PROJECTIONS

REVENUES	1989-90	1990-91	1991-92	1992-93	1993-94	1989-1994
Ad Valorem (5.67 Mills)	\$1,791,296	\$1,879,786	\$1,972,647	\$2,070,096	\$2,172,359	\$9,886,184
Franchise Fees	\$428,212	\$449,365	\$471,564	\$494,859	\$519,305	\$2,363,305
Licenses and Permits	\$296,454	\$311,099	\$326,467	\$342,594	\$359,519	\$1,636,133
Revenue Sharing Trust Fund (11 Cent Cigarette Tax)	\$155,613	\$161,838	\$168,311	\$175,044	\$182,045	\$842,850
2 Cent Cigarette Tax	\$71,951	\$74,829	\$77,823	\$80,935	\$84,173	\$389,711
1/2 Cent Sales Tax	\$496,456	\$520,981	\$546,717	\$573,725	\$602,067	\$2,739,945
Other Taxes	\$3,050	\$3,050	\$3,050	\$3,050	\$3,050	\$15,250
Fines and Forf.	\$50,000	\$52,470	\$55,062	\$57,782	\$60,637	\$275,951
Interest	\$60,000	\$62,964	\$66,074	\$69,338	\$72,764	\$331,141
Solid Waste Fees	\$37,760	\$39,625	\$41,583	\$43,637	\$45,793	\$208,398
Recreation Fees	\$11,893	\$12,481	\$13,097	\$13,745	\$14,423	\$65,640
Misc. Revenues	\$12,719	\$13,348	\$14,007	\$14,699	\$15,425	\$70,198
TOTAL REVENUES	\$3,415,404	\$3,581,836	\$3,756,403	\$3,939,505	\$4,131,560	\$18,824,707
Annual Growth Rates						
Cigarette Tax	4.00 %					
Franchise Fees	4.94 %					
Licenses and Permits	4.94 %					
Sales Tax	4.94 %					
Fines and Forf.	4.94 %					
Interest	4.94 %					
Solid Waste Fees	4.94 %					
Recreation Fees	4.94 %					
Misc. Revenues	4.94 %					
Other Taxes	Average					

4.94 % is the growth rate generated by the growth model

Source: North Port Finance Department
Florida Environmental, Inc.
Date: August, 1988

TABLE 11:

CAPITAL IMPROVEMENT PROGRAM
GENERAL FUND EXPENDITURE PROJECTIONS

EXPENDITURES							
GENERAL FUND OTHER THAN SANITATION, RECREATION AND POLICE							
Personnel Services	\$1,085,700	\$1,139,333	\$1,195,616	\$1,254,680	\$1,316,661	\$5,991,990	
Operating Expense	\$643,534	\$675,325	\$708,686	\$743,695	\$780,433	\$3,551,672	
Capital Outlay	\$29,000	\$30,433	\$31,936	\$33,514	\$35,169	\$160,051	
TOTAL	\$1,758,234	\$1,845,090	\$1,936,238	\$2,031,888	\$2,132,263	\$9,703,713	
<u>SPECIAL PROJECT</u>							
Feasibility Study for Office Space, Communications Center and City Hall Complex ²		\$10,000				\$10,000	
TOTAL		\$10,000				\$10,000	
<u>SANITATION</u>							
Personnel Services	\$266,260	\$279,413	\$293,216	\$307,701	\$322,902	\$1,469,493	
Operating Expense	\$5,881	\$6,171	\$6,476	\$6,796	\$7,132	\$32,455	
Capital Outlay	\$30,000		\$55,000		\$55,000	\$140,000	
TOTAL	\$302,141	\$285,584	\$354,692	\$314,497	\$385,033	\$1,641,948	
<u>RECREATION</u>							
Personnel Services	\$190,572	\$199,986	\$209,865	\$220,233	\$231,112	\$1,051,768	
Operating Expense	\$54,401	\$57,089	\$59,909	\$62,868	\$65,974	\$300,241	
Capital Outlay	\$265,000	\$265,000	\$265,000	\$265,000	\$265,000	\$1,325,000	
TOTAL	\$509,973	\$522,075	\$534,774	\$548,101	\$562,086	\$2,677,010	
<u>POLICE</u>							
Personnel Services ¹	\$986,163	\$1,002,763	\$1,019,363	\$1,035,963	\$1,052,563	\$5,096,815	
Operating Expense	\$67,247	\$70,569	\$74,055	\$77,714	\$81,553	\$371,138	
Capital Outlay	\$56,000	\$56,000	\$70,000	\$70,000	\$70,000	\$322,000	
TOTAL	\$1,109,410	\$1,129,332	\$1,163,418	\$1,183,677	\$1,204,116	\$5,789,953	
TOTAL EXPENDITURES	\$3,649,758	\$3,802,082	\$3,934,123	\$4,098,163	\$4,228,499	\$19,822,624	

TABLE 11: (cont.)

Annual Growth Rates	
Personnel Services	4.94 %
Operating Expense	4.94 %

Source: North Port Finance Department
Florida Environmental, Inc.
Date: August, 1988

1 Increase is based on maintaining current ratio of patrol.
2 Siting of facilities and construction costs shall be determined based on feasibility study results.

8-18-88

TABLE 12:

CAPITAL IMPROVEMENT PROGRAM
GENERAL FUND SUMMARY OF REVENUE AND EXPENDITURES

	1989-90	1990-91	1991-92	1992-93	1993-94	1989-1994
REVENUES	\$3,415,404	\$3,581,836	\$3,756,403	\$3,939,505	\$4,131,560	\$18,824,707
EXPENDITURES						
Other General Fund	\$1,758,234	\$1,845,090	\$1,936,238	\$2,031,888	\$2,132,263	\$9,703,713
Special Project		\$10,000				\$10,000
Sanitation	\$302,141	\$285,584	\$354,692	\$314,497	\$385,033	\$1,641,948
Recreation	\$509,973	\$522,075	\$534,774	\$548,101	\$562,086	\$2,677,010
Police	\$1,109,410	\$1,129,332	\$1,163,418	\$1,183,677	\$1,204,116	\$5,789,953
TOTAL	\$3,649,758	\$3,802,082	\$3,934,123	\$4,098,163	\$4,228,499	\$19,822,624
Revenues Minus Expenditures (Surplus, (Deficit))	(\$234,353)	(\$220,246)	(\$177,720)	(\$158,658)	(\$96,939)	(\$997,917)

Source: North Port Finance Department
Florida Environmental, Inc.
Date: August, 1988

TABLE 13:

CAPITAL IMPROVEMENT PROGRAM
FIRE AND EMERGENCY MEDICAL SERVICES REVENUES AND EXPENDITURES

REVENUES	1989-90	1990-91	1991-92	1992-93	1993-94	1989-1994
Assessments ¹	\$994,509	\$1,095,748	\$1,107,920	\$1,121,284	\$1,135,914	\$5,455,375
Misc. Revenues	\$51,420	\$53,960	\$56,626	\$59,423	\$62,359	\$283,789
TOTAL	\$1,045,929	\$1,149,708	\$1,164,546	\$1,180,707	\$1,198,273	\$5,739,163
EXPENDITURES						
Personnel Services	\$841,560	\$901,560	\$901,560	\$961,560	\$961,560	\$4,567,800
Operating Expenses	\$169,082	\$177,435	\$186,200	\$195,399	\$205,051	\$933,168
Capital Improvements ²	\$35,000	\$107,000	\$33,000	\$145,000	\$85,000	\$405,000
TOTAL	\$1,045,642	\$1,185,995	\$1,120,760	\$1,301,959	\$1,251,611	\$5,905,968
Revenues - Expenditures {Surplus, {Deficit}}	\$287	(\$36,287)	\$43,786	(\$121,252)	(\$53,339)	(\$166,805)
Annual Growth Rates						
Misc. Revenues	4.94 %					
Operating Expenses	4.94 %					

- 1 1989-90 assumes a 10% increase in assessments to \$44 for improved lots and \$8.80 for unimproved lots.
 1990-91 assumes an additional 9% increase in assessments to \$48 for improved lots and \$9.60 for unimproved lots.
 2 First year capital improvements assumes a \$25,000 grant from H.R.S. for purchase of a rescue vehicle.

Source: North Port Fire District
 North Port Finance Department
 Florida Environmental, Inc.
 Date: August, 1988

Issues and Recommendations

The City relies on three funds to provide the needed financial resources for implementation of capital improvements to maintain level of service standards (LOS) called for in plan elements and by City Departments. These funds are the Road and Drainage District Fund, the General Fund and the North Port Fire and Rescue District (NPFRD) Fund.

The Road and Drainage District Fund has sufficient revenues over the planning period to meet required capital improvements and expenses. The General Fund has a projected cumulative revenue shortfall of \$997,917 over the five year planning period which is largely due to increased capital investments for recreation facilities. The North Port Fire and Rescue District (NPFRD) has a projected cumulative revenue shortfall of \$735,047 over the five year planning period which is largely due to the method of taxation. Within the NPFRD, assessments for developing lots or growth does not yield sufficient revenues to pay the increase in costs to serve new development.

There are several options or alternatives the City may select to mitigate these revenue shortfalls over the five year planning period. The City is financially sound with no debt, sufficient reserves and untapped revenue sources.

Potential Revenue Sources

The City of North Port, like many cities in Florida, will be looking to future revenue sources for funds to meet ever-increasing operating and capital costs to provide citizens with required levels of service. There has been resistance to increases in ad valorem property taxes in favor of other forms of taxes, user fees and special assessment districts. A few of these potential revenue sources are described and forecasted revenues over the planning period are presented. These potential revenues source illustrations are provided for informational purposes only. Potential revenues are:

Municipal Utility Tax

A municipality may levy a tax on the purchase of electricity, metered or bottled gas, water service, telephone service and telegraph service. The tax shall be levied only upon purchases within the municipality and shall not exceed 10 percent of the payments received by the seller of the taxable item. Table 14 shows estimated revenue forecasts that the City of North Port may receive based on the 10% maximum tax on electricity, telephone, and water.

Capital Outlay Construction Trust Fund

An alternative method of supporting capital projects is to establish a Capital Outlay Construction Trust Fund (COCT) and provide a set millage rate earmarked for the Fund. The revenues are credited to the Fund and collect interest until such time as required funds are accumulated to provide for project cost. An example would be to set 0.250 mills aside for a COCT Fund. The following illustrative example demonstrates the sum of monies that would accumulate over the planning period based on forecasted revenues for capital projects:

----- COCT FUND -----					
<u>1989-90</u>	<u>1990-91</u>	<u>1991-92</u>	<u>1992-93</u>	<u>1993-94</u>	<u>1989-94</u>
\$78,981	\$89,201	\$84,113	\$98,003	\$103,623	\$453,921

TABLE 14: CAPITAL IMPROVEMENT ELEMENT
Potential Revenue Sources
 All Amounts in Thousand of Dollars (000)

Municipal Utility Tax

SERVICE	-----Program-----					Total
	1989-90	1990-91	1991-92	1992-93	1993-94	
Electrical ¹	644	674	707	744	784	3,553
Telephone ²	245	257	270	284	299	1,355
Water ³	164	172	181	190	201	908
Total	1,053	1,103	1,158	1,218	1,284	5,816

1 Estimated at \$62.22/cap

2 Estimated at \$16.62/cap

3 Estimated base on Water Element forecast

Impact Fees:

Impact fees are a funding mechanism that helps to ensure that new development "pays its own way" and helps to ensure that existing residents will not be unduly subsidizing capital costs attributed to new development. In different terms, impact fees are a cost-shifting tool that shifts the cost of new development from the general public to those that actually create the need for additional or new services.

Issue 1:

To achieve the goals and objectives of this plan, the General Fund is projected to have a cumulative revenue shortfall of \$997,917 over the five year planning period.

Recommendation 1:

As of September 1988, the City anticipated receipt of an estimated \$950,000 from the dual taxation settlement with Sarasota County. These funds may be sufficient to cover the projected revenue shortfall over the planning period.

Recommendation 2:

The estimated General Fund reserve of \$1.4 million is sufficient to cover the projected revenue shortfall over the planning period and provide for a 15% reserve.

Recommendation 3:

Since no existing Level of Service deficiencies exist, it can be assumed that current residents have paid for their current level of service. Impact fees may be considered which require new development to pay its fair share for increased capital improvements necessitated by new growth.

Recommendation 4:

The levying of a Municipal Utility Tax would generate sufficient revenues to meet revenue shortfalls in the General Fund.

Recommendation 5:

Another option is to provide for a millage set aside to be placed in a Capital Outlay and Construction Trust Fund. This option could help to reduce revenue shortfalls over the five year planning period.

There are several options or combinations of options that the City can address to meet forecasted revenue shortfalls in the General Fund over the planning period. These options are not expected to cause undue financial stress on the community.

Issue 2:

The North Port Fire and Rescue District has a projected cumulative revenue shortfall of \$735,047 over the five year planning period in order to maintain its current level of service. As previously stated, the revenue yield is generally fixed while expenditures increase resulting in future revenue shortfalls.

Recommendation 1:

The current assessment rate of \$40 per developed lot and \$8 per undeveloped lot could be increased to \$46.50 and \$9.30 respectively in FY 1989-90. This would generate revenues to meet forecasted shortfalls over the five year planning period. The current ordinance creating the district and the method of levying taxes will require amendment since the developed lots are capped at an annual 10% rate of increase.

Recommendation 2:

The implementation of a user fee is another option which should be explored by the district.

Recommendation 3:

The North Port Fire and Rescue District has an estimated reserve on \$259,723 for the proposed FY 1988-89 budget. Some of these funds may be applied to revenue shortfalls while maintaining a 15% reserve for the financial integrity of the fund.

The options to meet revenue shortfalls for the North Port Fire and Rescue District are limited but should be addressed so that future revenue yields grow at the same rate as expenditures.

GOALS, OBJECTIVES AND POLICIES

GOAL:

The city shall undertake actions to adequately provide needed public facilities for both existing and future residents in a timely and efficient manner consistent with available resources that will promote orderly growth.

Objective 1:

Capital improvements shall be provided as required on an annual basis to correct existing deficiencies, to accommodate projected future growth and to replace obsolete and worn-out facilities in accordance with an adopted Capital Improvement Program.

Policy 1.1:

The City shall include in its 5-year schedule of capital improvements:

- All projects identified in other comprehensive plan elements;
- All public safety projects identified in the Capital Improvements Element;
- Those capital improvements required of the franchised sewer and water utility for which the City has no financial responsibility; and
- The capital improvements required for drainage and to meet DRI commitments for which the City has no financial responsibility.

Policy 1.2:

Capital improvement projects will be evaluated and updated annually in conformance with the review process for the CIE. Each proposed capital improvement project will be evaluated and ranked according to the following priority level guidelines:

- Level One - whether the project is needed to protect public health and safety, or to preserve or achieve full use of existing facilities;
- Level Two - whether the project increases efficiency of use of existing facilities, prevents or reduces future improvements costs, provides service to developed areas lacking full service or promotes in-fill development;
- Level Three - whether the project represents a logical extension of facilities and services within a designated service area.

Objective 2:

In order to limit public expenditures that may be construed as subsidizing development and post-disaster redevelopment in coastal high-hazard areas, from 1988, the City of North Port will regulate the number and type of structures subject to damage in FEMA "A" Zones, or Category 1 SLOSH Zones.

Policy 2.1:

The City shall promote the relocation of repeatedly damaged structures in FEMA "A" Zones, or Category 1 SLOSH Zones, to safe locations, consistent with road right-of-way needs.

Policy 2.2:

The City will enforce FEMA, DNR and local setback and height requirements for the safety of structures, especially those located along the Myakkahatchee Creek.

Objective 3:

Future development will bear a proportionate fair share cost of facility improvements necessitated by the development in order to maintain adopted LOS standards.

Policy 3.1:

The availability of public facilities shall be determined and measured using the following Level of Service (LOS) standards for the required public facility classifications (the LOS standards documented in the relevant Comprehensive Plan Elements).

LEVEL OF SERVICE STANDARD**POTABLE WATER****Supply and Treatment**

90 gallons per day per capita with quality meeting or exceeding EPA and DER Primary and Secondary Drinking Water Standards.

Distribution

Residential: A goal of 80% of all households within the Urban Infill Area and future growth areas will be served with central potable water by 1995.

Commercial: All new commercial within the City will be served by central potable water, or by individual water wells consistent with regulations promulgated by DHRS and administered by Sarasota County if central service is not available or economically feasible.

Industrial: All new industrial within the City will be served by central potable water, or by individual water wells consistent with regulations promulgated by DHRS and administered by Sarasota County if central service is not available or economically feasible.

SANITARY SEWER**Collection**

Residential: 80% of all households within the Urban Infill Area and future growth areas will be served with central sanitary sewer by 1995. All plat units inside and outside the Urban Infill Area will also be served by central sanitary sewer pursuant to the DER Consent Order with GDC.

Commercial: All new commercial within the City will be served by central sanitary sewer.

Industrial: All new Industrial within the City will be served by central sanitary sewer.

On-site treatment will be allowed consistent with regulations promulgated by DHRS and DER.

Treatment

80 gallons per capita per day

Disposal

80 gallons per capita per day

DRAINAGE

Primary Drainage System

Design Storm Within North Port:

- 10-year frequency, 5-day duration for existing surface water management systems.

- 25-year frequency, 24-hour duration pursuant to SWFWMD criteria for permitting new surface water management systems.

SOLID WASTE

Collection

Residential: twice weekly

Commercial: by contract

Disposal

3.5 pounds/capita/day for residential and commercial generation.

TRAFFIC

<u>Roadway Facility Type</u>	<u>LOS Standard*</u>
Principal Arterial	"C" peak hour
Rural Major Collector	"C" peak hour
Urban Collector Roadways	"C" peak hour
Rural Minor Collector Roadways	"C" peak hour

* Based on 100th design hour criteria

RECREATION & OPEN SPACE

Entire City: 10 acres/1,000 population

Policy 3.2:

The City shall adopt appropriate legislation to ensure that future development will bear its proportional share of the costs of facilities necessitated by the development in order to maintain adopted LOS standards.

Objective 4:

The City shall coordinate the management of its fiscal resources and land use decisions to ensure the provision of needed capital improvements as identified on an annual basis in the City's Capital Improvement Program for previously issued development orders and for future development in order to maintain adopted Level Of Service standards.

Policy 4.1:

The City shall adopt a Capital Improvement Budget at the same time it adopts an Annual Operating Budget. The Capital Budget shall include those projects as specified in the policies of the other Comprehensive Plan elements necessary to maintain the adopted levels of service.

Policy 4.2:

The City shall participate in studies to determine capital improvements needed to mitigate both current and future drainage problems.

Policy 4.3:

The City shall consider the establishment of Municipal Service Taxing Units (MSTU's) to provide services to specific developments to maintain LOS and to specific areas that desire level of services are in excess of adopted standards.

Policy 4.4:

The city shall pursue grants or private funds to finance capital improvements.

Policy 4.5:

The city shall address all identified options and recommendations as a means to insure economic feasibility.

Policy 4.6:

Prior to the inaugural issuance of any general obligation debt instrument, the City shall adopt specific debt management standards which address at a minimum the following requirements of F.A.C. 9J-5.016(3)(c):

- The limitation on the use of revenue bonds as a percent of total debt
- The maximum ratio of total debt service to total revenue
- The maximum ratio of outstanding capital indebtedness to property tax base

Policy 4.7:

The City shall manage its fiscal resources to insure the provision of needed capital improvements for previously issued development orders.

Policy 4.8:

By 1991, the City shall adopt a Concurrency Management System Ordinance consistent with F.S. 163.3202(1), as amended, to provide for the availability of public facilities and services needed to support development concurrent with the impacts of such development.

Implementation of 5-Year Schedule of Improvements

The City's Capital Improvement Program, which will be adopted as a component of the Annual Budget by City Ordinance, is the mechanism by which the City of North Port can effectively stage the timing, location, projected cost, and revenue sources for the capital improvements derived from the other comprehensive plan elements and from other City Departments, in support of the Future Land Use Element. The City's annual Capital Improvement Program shall incorporate those improvements as scheduled for appropriation in the City's 5-year Schedule of Improvements (Table 15) and be reviewed on an annual basis. The 5-year Schedule of Improvements has been used to document the "economic feasibility" of the City's comprehensive plan, based upon the preceding sections of this element entitled "Inventory", "Analysis", and "Goals, Objectives, and Policies".

Concurrency Management

In addition to the CiP and the Capital Budget referred to in Policy 4.1, a "Concurrency Management System Ordinance" referred to in Policy 4.8 will be a key implementing mechanism of the C.I.E. It is possible that such an ordinance could be incorporated into the City's land development regulations or, possibly, could function instead as a separate ordinance. Nevertheless, such an ordinance would need to include provisions that would insure that public facilities are in place to accommodate development within a reasonable and workable period of time. This means that the ordinance would need to address such issues as definitions of "concurrency" and "reasonable time period" as they apply to each particular level of service standard as identified in the Comprehensive Plan, the establishment of a monitoring system to track levels of service for the various facility types in relation to land development activity, and monitoring the status of the Capital Improvement Program.

TABLE 15: 5-Year Schedule of Improvements, 1990-1995

Project Description	Schedule	Projected Cost (\$000)	Revenue Source	Consistency With Other Elements
TRAFFIC CIRCULATION FACILITIES				
1. Intersection improvement Pan American Blvd. and U.S. 41. ¹	1989-1990	100	North Port Road and Drainage District	Yes
2. Resurfacing program for urban infill area.	1989-1994	2,500		
3. Street Lights.	1989-1994	650		
4. Road Signs.	1989-1994	250		
5. Traffic Counters.	1989-1990	5		
6. Traffic Software.	1989-1990	5		
7. Bike Paths.	1990-1992	150		
8. Sidewalks.	1990-1992	150		
9. Highway Beautification. ²	1990-1991	75		
10. Intersection improvement (Panacea)	1991-1992	20		
11. Intersection improvement North Port Blvd. (South) and U.S. 41.	1993-1994	70		
<u>DRI TRAFFIC IMPROVEMENTS</u> (not the City's financial responsibility)				
12. Spring Haven, Extension from Pan American to Price Blvd.	1989-1994	220		
13. Extension Cranberry Blvd. from Creighton to Toledo Blade.	1989-1994	320		
14. Complete Haberland Blvd. to Hillsborough.	1989-1994	430		
15. Construct Bridge Cocoplum at Haberland Blvd.	1989-1994	350		
16. Complete Sunnybrook Blvd. S.R. 776 to County Line.	1989-1994	1,566		
17. Extension of Toledo Blade Blvd. North of I-75.	1989-1994	650		
18. Completion of Hillsborough Blvd. from Chamberlain Blvd. to Cranberry Blvd.	1989-1994	1,030		

¹ Apply for a 50% grand from FDOT

² Apply for grant from FDOT for landscaping and lighting.

TABLE 15: 5-Year Schedule of Improvements, 1990-1995 (Cont.)

Project Description	Schedule	Projected Cost (\$000)	Revenue Source	Consistency With Other Elements
SANITARY SEWER FACILITIES				
19. Utility accounting study for purposes of franchise renewal.	1989-1990	30	General Fund	Yes
20. Evaluation of reuse options for adoption.	1989-1990	10	Grants	
21. Extension of sewer collection system in urban infill area.	1989-1994	1,946	Franchised Sewer Utility	
22. Expansion of NPWTP from rated capacity of 0.957 mgd to 1.5 mgd.	ED	1,265		
23. Inflow infiltration analysis.	1989-1990	55		
24. Expansion of wastewater treatment facilities from rated capacity of 1.5 mgd to 2.3 mgd.	1991-1992	1,095		
25. Demonstration project for reuse of treated effluent. ³	1991-1992	60	Grants	
SOLID WASTE FACILITIES				
26. Dumpsters	1989-1990	10	General Fund	Yes
27. Recycling Equipment.	1989-1990	20		
28. Purchase collection vehicles.	1991-1994	110		
SPECIAL PROJECT				
29. Feasibility study for Building Space, Communications Ctr., and City Hall Complex ⁴	1990-1991	10	General Fund	

³ Project cost to be offset with grants.

⁴ Siting of facilities and construction costs shall be determined based on feasibility study results.

TABLE 15: 5-Year Schedule of Improvements, 1990-1995 (Cont.)

Project Description	Schedule	Projected Cost (\$000)	Revenue Source	Consistency With Other Elements
DRAINAGE FACILITIES				
30. Aerial and topo mapping of Big Slough Watershed.	1989-1990	100	SWFWMD	Yes
31. Big Slough Watershed Study.	1989-1991	200	Big Slough Watershed Committee	
32. Plan of water management modeling and analysis ³ .	1990-1991	100	General Fund	
33. Reconstruction of the R-36 Channel.	1989-1990	To be determined	NPWCD/GDC	
34. Completion of construction of the plan of water management.	1989-1994	To be determined		
35. Retrofit storm water system for treatment for pollution control.	1990-1992	525		
RECREATION FACILITIES				
36. Neighborhood Parks: Acquisition Improvements	1989-1994	500	General Fund	Yes
	1989-1994	150		
37. Community Park: Multi-purpose Civic Center.	1989-1994	375		
38. Special Interest Park.	1989-1994	300		
POLICE				
39. 23 New Cars.	1989-1994	322	General Fund	
40. Firing Range.				
ROAD & DRAINAGE (BLDG., EQUIP., ETC.)				
41. One Tractor/Mower.	1989-1994	100	North Port Road and Drainage District	
42. One Backhoe, Front End Loader (1/2 yd).	1989-1990	50		
43. One Tractor Trailer Lowboy.	1989-1990	70		

³ If the Big Slough Study is not capable of providing analysis needed.

TABLE 15: 5-Year Schedule of Improvements, 1990-1995 (Cont.)

Project Description	Schedule	Projected Cost (\$000)	Revenue Source	Consistency With Other Elements
44. One Street Repair Vehicle.	1989-1990	60		
45. One Dump Truck (7.5 yd.).	1989-1990	60		
46. Two Pick-up Trucks.	1990-1991	28		
47. Two Pick-up Trucks	1991-1992	28		
48. Roads & Drainage building facility for sign shop, chemical storage, mechanic, vehicle storage, etc., 5,000 sq. ft.	1989-1990	165		
49. Fence for 10 acre site.	1989-1990	30		
50. Two Hydraulic Lifts.	1990-1991	10		
51. One Hydraulic Excavator.	1990-1991	135		
52. Sidewalk Handicapped Ramps.	1989-1994	300		
53. Eager St. and Alley drainage project.	1990-1991	50		
NORTH PORT FIRE AND RESCUE DISTRICT				
54. Remodel Fire Station.	1989-1990	100	North Port	
55. Type III, Diesel Rescue Unit.	1989-1990	27	Fire and	
56. Replace Life Pack Five.	1989-1990	8	Rescue	
57. Class A, Diesel Pumper.	1990-1991	100	District	
58. Replace Logging Recorder.	1990-1991	7		
59. Replace Life Pack Five.	1991-1992	8		
60. New Car.	1991-1992	15		
61. Computer Upgrade.	1991-1992	10		
62. Rechasis Type III Rescue Unit.	1992-1993	30		
63. New Pick-up or Car.	1991-1993	15		
64. Rechasis Type III Rescue Unit.	1993-1994	30		
65. 2 New Cars.	1993-1994	30		
66. New 4 wheel drive unit.	1993-1994	17		
67. Replace Life Pack Five.	1993-1994	8		

Monitoring And Evaluation

The role of monitoring and evaluation is vital to the effectiveness of any planning program, and particularly for the Capital Improvements Element. This is largely because the City's revenue and expenditure streams are subject to fluctuations in the market and economy. It is the behavior of these streams which will be used to predict fiscal trends in order to maintain the City's adopted level of service standards for public facilities. Therefore, the Capital Improvements Element requires a continuous program for monitoring and evaluation, and pursuant to Chapter 163, F.S., this element will be reviewed on an annual basis to ensure that required fiscal resources are available to provide public facilities needed to support adopted LOS standards.

The City Manager shall submit to the Board of City Commissioners the recommendation for the members of a proposed Capital Improvement Budget Advisory Committee. The Committee shall serve as advisory at all formal deliberations related to capital improvement monitoring and evaluation. The Committee's findings and recommendations will be presented to the Board of City Commissioners at a public meeting. The Board of City Commissioners will direct staff to take action deemed appropriate based upon the Committee's findings and recommendations.

The review will include the following considerations, and will include an examination of these considerations in order to determine their continued appropriateness:

- any corrections, updates, and modifications concerning costs; revenue sources; acceptance of facilities pursuant to dedications which are consistent with the element; or the date of construction of any facility enumerated in the element;
- the Capital Improvements Element's consistency with the other elements and its support of the Future Land Use Element;
- the City's ability to provide public facilities and services within the urban infill area in order to determine any need for boundary modification or adjustment;
- the priority assignment of existing public facility deficiencies;
- the City's progress in meeting those needs determined to be existing deficiencies;
- the criteria used to evaluate capital improvement projects in order to insure that projects are being ranked in their appropriate order of priority;
- the City's effectiveness in maintaining the adopted LOS standards;
- the City's effectiveness in reviewing the impacts of plans and programs of state agencies, other entities, and water management districts that provide public facilities within the City's jurisdiction;
- assessing new developments' pro rata share of the improvement costs which they generate;
- the impacts of special districts and any regional facility and service provision upon the City's ability to maintain its adopted LOS standards;
- the ratio of outstanding indebtedness to the property tax base;
- efforts made to secure grants or private funds, whenever available, to finance the provision of capital improvements;
- the criteria used to evaluate proposed plan amendments and requests for new development or redevelopment; and

- capital improvements needed for the latter part of the planning period, for inclusion in the 5-year Schedule of Improvements.

APPENDIX A

Level of Service Methodologies for Fire/Emergency Medical and Police Services

The North Port Fire and Rescue District (NPFRD) provided detailed information on level of service and capital improvement needs. Table A1 summarizes the personnel and equipment needed by year. Total personnel were estimated by the NPFRD.

City Police level of service was calculated by taking the number of patrol officers and dividing by the peak population in thousands. The resulting number is 1.55 patrol officers per 1,000 peak population. This ratio was multiplied by peak population in thousands to determine the number of patrol officers by year through 1994. Executive and support personnel were assumed to remain constant at 17 over the planning horizon. Table A2 reports the personnel projections for police service.

In 1987 it was an estimated 349,531 miles were driven in department vehicles. Maximum mileage on emergency vehicles is 85,000 per a City Commission agreement in 1987. It was assumed that the number of miles would increase with population increases (4.94%). Dividing departmental mileage projections by 85,000 miles per vehicle estimates the number of vehicles needed per year. This information is reported in Table A2.

Table A1: North Port Fire and Rescue District Line Personnel and Company Needs for 1989-94.

Fiscal Year	1989-90	1990-91	1991-92	1992-93	1993-94
Peak Population	12772	13361	14024	14752	15547
Alarms ¹	1650	1725	1825	1925	2025
Total Personnel ²	33	36	36	39	39
Pumpers	2	2	2	3	3
Ladders	1	1	1	1	1
Rescue	2+	2+	2+	3	3

1 Alarm projections by NPFDR.

2 Manpower projections made by NPFDR using alarm data as demand for service

Source: NPFDR
Florida Environmental, Inc.
Date: August, 1988

Table A2: North Port Police Department Personnel and Equipment Needs Projections for 1989-1994

Fiscal Year	1989-90	1990-91	1991-92	1992-93	1993-94
Peak Population	12,772	13,361	14,024	14,752	15,547
Calls	5,256	5,516	5,788	6,074	6,374
Arrests	553	580	609	639	670
Miles ¹	366,798	384,918	403,933	423,887	444,827
Personnel ²	37	38	39	40	41
Vehicles ³	4	4	5	5	5

1 Projections made using population growth rate (4.94%).

2 Projections are based on maintaining the current level of service through 1994.

3 Life of vehicle estimated at 85,000 miles.

Source: North Port Police Department
Florida Environmental, Inc.
Date: August, 1988

APPENDIX

Monitoring & Evaluation Procedures .....	.399
List of Non-Applicable Requirements of 9J-5, FAC .....	.406
List of Acronyms Contained in the Plan .....	.408

Procedures for Monitoring and Evaluating the Comprehensive Plan

Table of Contents

I.	Creation of Baseline Data	400
	1. Future Land Use Element	401
	2. Traffic Circulation Element	401
	3. Housing Element	402
	4. Sanitary Sewer Element	402
	5. Solid Waste Element	402
	6. Drainage Element	403
	7. Potable Water Element	403
	8. Natural Groundwater and Aquifer Recharge Element	403
	9. Conservation and Coastal Zone Management Element	404
	10. Recreation and Open Space Element	404
	11. Capital Improvements Element	404
II.	Achievement of Goals, Objectives, and Policies	405
III.	Roles and Responsibilities	405
	A. City Staff	405
	B. Citizen Participation	405

Table

Table 1 -	Data Base Creation & Update Requirements	401
-----------	--	-----

Note:

The City intends to implement the following monitoring, updating, and evaluation procedures in order to assess the degree to which the goals, objectives, and policies set forth in the City's revised and updated Comprehensive Plan have been achieved; and to facilitate completion of the City's Evaluation and Appraisal Report in late 1993.

I. Creation and Update of Baseline Data

A number of data bases will have to be either created or updated in order to perform the technical analyses required under Chapter 9J-5, FAC to monitor both level of service standards and certain measurable objectives and policies that the City has adopted in its revised and updated Comprehensive Plan. The major data base that needs to be updated is the City's projected population. These population projections drive in one fashion or another practically all of the different analyses called for under 9J-5 to establish and monitor level of service standards. The City intends to use the number of new building permits issued each year combined with updated estimates of average household size and the prevailing vacancy rate to verify on an annual basis the accuracy of its population projections. Population projections prepared by BEBR will also be used as a cross check. At the end of the first five-year planning period, it is hoped that the results of the 1990 census will be available to perform a comprehensive update and, if necessary, revision of the City's population projections.

In addition to the need to update the City's population projections, for nearly each Element of the City's Comprehensive Plan, one or more data bases need to be created or updated in order to monitor adopted level of service standards and measure attainment of certain measurable objectives and policies. The following table lists for each element of the Plan the major data bases and related analyses that need to be updated, how they will be updated, and when the update will be performed.

TABLE I

DATA BASE CREATION AND UPDATE REQUIREMENTS1. Future Land Use Element

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Percent of households served by central infra.	Monitor LOS standards	GDU Records City permits issued	Annual
2. Review GDC's Master Land Use Map	Analyze for consistency with City's Future Land Use Map	GDC Records DCA Records	Annual
3. City site and space facility needs	Siting and design of future expansion of City offices	Study	by 1994
4. Inventory of designated historic resources	For possible inclusion on National Register of Historic Places	Survey	by 1994

2. Traffic Circulation Element

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Inventory quality of existing roads	Determine need for and feasibility of improving roadway quality	Survey	1989-1994 on-going
2. Level of traffic on major and minor collectors	Monitor LOS peak hour C standard Functional Classification of roadways Need for right-of-way acquisition	Road and Drainage Department traffic counts	annual
3. Bikepath usage	Demand for bikepaths	Sample Survey	by 1994
4. Inventory of existing sidewalk facilities	Demand for Sidewalks	Survey	by 1994
5. Mass transit ridership	Demand for private mini-van shuttle	Study	by 1994

3. Housing Element

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Inventory available grant funds for low-income housing assistance	Determine availability and appropriateness of low-income housing grant funds	Grants Planner	1989-1994
2. Inventory available Federal and State subsidized housing programs	Determine availability and appropriateness of subsidized housing programs	Grants Planner	1989-1994
3. Inventory number of sub-standard houses	Determine rehabilitation needs	Windshield Survey	annual

4. Sanitary Sewer

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Average daily per capita treatment and disposal	Monitor LOS standard Determine need for plant expansion	GDU Records	annual
2. Percent of households served by central sewer	Monitor LOS standard	GDU Records City permits issued	annual
3. Inventory and analyze alternatives for sewer line extension in Urban Infill Area	Develop sewer line extension plan	Public Utility Committee study	1989-1994
4. Inventory and analyze wastewater reuse alternatives	Develop wastewater reuse plan	Public Utility Committee study	1989-1994
5. Assess extent of infiltration	Analyze infiltration reduction options	GDU study	By 1994

5. Solid Waste

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Amount of daily per capita waste generation	Monitor LOS standard	Sarasota County Landfill records	annual
2. Solid waste collection frequency	Monitor LOS standard	City records	annual
3. Inventory and analyze solid waste management options	Develop and implement solid waste management plan	Consultant study	1988-1990

6. Drainage

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Determine required improvements to primary drainage system	Monitor LOS standard	Modelling Study Big Slough Committee Aerial photography	1989-1994
2. Determine need for stormwater treatment retro-fitting	Pollution control plan	Economic feasibility study Big Slough Committee	by 1998
3. Inventory completed water control structures	Determine compliance with Plan of Reclamation	Water Control District records	annual
4. 1988 level of maintenance performed by Water Control and Road and Drainage Districts	Serve as baseline to measure proposed service improvements	Water Control and Road and Drainage District records	1989

7. Potable Water

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Average daily per capita water use	Monitor LOS standard Determine need for plant expansion	GDU records	annual
2. Percent of households served by central water	Monitor LOS standard	GDU records City permits issued	annual
3. Determine quality and reliability of Myakkahatchee Creek water supply	Evaluate consultants recommendation to phase out NPWTP	Water quality samples GDU data SWFWMD/DER records	annual

8. Natural Groundwater and Aquifer Recharge

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Inventory free-flowing artesian wells	Prevent mineralized water from flowing into surficial aquifer and surface water	Survey/SWFWMD	1989-1994
2. Quality of water in water table at landfill	Ascertain scope of any leachate contamination	Monitoring wells	1989-1994

9. Conservation and Coastal Zone Management

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Inventory of flora and fauna habitats	Determine extent and range of flora and fauna habitats	Survey FGFWFC data	By 1994
2. Inventory of lands along Myakaahatchee Creek most prone to flooding	Determine priority lands for protection and/or acquisition	Aerial mapping	By 1994
3. Water quality and structural state of fresh water and direct access canals	Establishment of on-going water quality and maintenance program	Survey, water quality samples	by 1994
4. Inventory of public and private hurricane evacuation shelters	Determine space availability for hurricane evacuees	City, County, SWFRPC records	annual
5. Number of structures located in FEMA "A" zones	Identification of potential structures for relocation	City records	annual
6. Inventory of hazardous materials waste generators	Compliance with City regulations	Survey(s) County/DER records	annual

10. Recreation and Open Space

<u>Data Base</u>	<u>Analysis Required</u>	<u>Collection Method</u>	<u>Timing</u>
1. Inventory of public recreation and open space acreage	Monitor LOS standard monitor special criteria for neighborhood park provision Park acquisition demand study	City records	annual
2. Inventory of park improvements	Park facility demand	sample survey	by 1994
3. Inventory of public access facilities at public park sites	Need for public access improvements	on-site inventory	by 1994

11. Capital Improvements Element

See pages 379-380 of the Comprehensive Plan.

II. Achievement of Goals, Objectives, and Policies

The creation and update of the data bases listed in the table above should provide the City with much of the information it needs to measure the degree to which it has achieved the goals, objectives, and policies set forth in the Comprehensive Plan. To help organize this evaluation process, the City intends to establish a master planning schedule or checklist consisting of all of the objectives and policies contained in the Comprehensive Plan and their scheduled date of completion which will be used on an annual basis to measure progress achieved towards meeting their attainment. If it appears that certain objectives and policies are not going to be completed on schedule, the City will perform an assessment of what factors (obstacles, problems, etc.) are involved and what needs to be done to insure their attainment (including the creation of new or modified objectives and policies).

For the Capital Improvements Element, a separate monitoring and evaluation plan has been set forth on pages 394-395 of that Element.

III. Roles and Responsibilities

A. City Staff

The City's Planning and Zoning Department will be primarily responsible for coordinating the monitoring and evaluation of the City's Comprehensive Plan under the direction of the City Manager. All of the City's Departments will be fully involved, however, in providing the necessary data and analyses required to evaluate the success of the City's Plan. Increased inter-departmental and inter-governmental coordination will be established for this effort.

B. Citizen Participation

The citizens of North Port will have a major role to play in monitoring the City's revised and updated Comprehensive Plan. The Planning and Zoning Advisory Board, as the City's Local Planning Agency, will be the citizens' group involved on the most regular basis in monitoring and evaluating the Plan. It is expected that the Board will advise the City Commission as appropriate if and when any major obstacles or problems arise in achieving the goals, objectives, and policies set forth in the Plan.

The Citizens Advisory Committees (CACs) which were established to assist in the preparation of each Element of the Plan will also be called upon to review on a regular basis the progress made in implementing the policies and realizing the objectives of the plan, consistent with City Ordinance No. 87-252, Public Participation in the Comprehensive Planning Process.

As noted in the Sanitary Sewer and Potable Water Elements of the plan, the Public Utility Advisory Committee will be playing a major role in helping to insure attainment of the objectives and policies outlined in those Elements. For Capital Improvements, a special citizens advisory committee has been established to assist in drafting an impact fee ordinance for consideration by the City Commission.

LIST OF NON-APPLICABLE REQUIREMENTS OF 9J-5, FAC

I. Future Land Use Element

1. Requirement 9J-5.006(1)(f)2 concerning identification of areas that fall within a designated area of critical state concern is not applicable since there are no such areas within the City.
2. Requirement 9J-5.006(3)(b)2 concerning inclusion of an objective addressing blighted areas is not applicable since the City has no substandard housing and hence no blighted areas.

II. Housing Element

1. Requirement 9J-5.010(2)(f)2 concerning means for eliminating substandard housing conditions is not applicable since there is no substandard housing in the City.
2. Requirement 9J-5.010(2)(f)5 concerning identification of conservation, rehabilitation or demolition activities and historically significant housing is not applicable since there is neither any substandard or historically significant housing in the City.
3. Requirements 9J-5.010(3)(b)2, 6, and 7 concerning inclusion of objectives addressing the structural/aesthetic condition of the housing stock, relocation housing and implementation programs are not applicable since the City does not have any substandard housing and does not intend to operate any public housing programs.
4. Requirement 9J-5.010(3)(c)4 concerning inclusion of a policy addressing adoption of housing stock conservation, rehabilitation and demolition implementation programs is not applicable since there is no substandard housing in the City.
5. Requirement 9J-5.010(3)(c)8 concerning inclusion of a policy addressing relocation housing is not applicable since there is no substandard housing in the City.

III. Potable Water Sub-Element

1. Requirement 9J-5.011(1)(b) concerning inclusion of information on areas outside of the City serviced by the North Port and Peace River Wastewater Treatment Plants is not applicable since the City is not responsible for the provision of central water to these areas. Central water is provided by General Development Utilities (GDU).
2. Requirement 9J-5.011(1)(e) concerning inclusion of data and analysis of the water requirements of areas outside the City serviced by the two water treatment facilities is not applicable since the City is not responsible itself for the provision of central water to these areas. Central water service is provided by GDU.
3. Requirement 9J-5.011(1)(e)2 concerning inclusion of information on the predominant types of land uses in areas outside the City serviced by the two water treatment facilities is not applicable since the City is not responsible itself for the provision of central water to these areas. Central water service is provided by GDU.
4. Requirement 9J-5.011(1)(e)4 concerning inclusion of information on the current demand on facility capacity from areas outside of North Port is not applicable since the city is not responsible itself for the provision of central water to these areas. Central water service is provided by GDU.

IV. Coastal Management Element

1. Requirement 9J-5.012(2)(a) concerning inclusion of data and analysis to identify areas in need of redevelopment is not applicable since there are no areas in need of redevelopment in the City.
2. Requirement 9J-5.012(2)(f) concerning inclusion of a beach and dune system inventory and information on erosion and shoreline protection structures is not applicable since there are no beaches and dunes within the City, nor are there any erosion and shoreline protection structures.

V. Conservation Element

1. Requirement 9J-5.013(1)(a)1 concerning identification and analysis of the air quality in North Port is not applicable since due to the limited development of the City, no air pollution problems exist.
2. Requirement 9J-5.013(1)(a)3 concerning identification and analysis of mining activities in the City is not applicable since there are no known mining activities underway in the City.

List of Acronyms Contained in the City of North Port's Comprehensive Plan

1. AADTAverage Annual Daily Traffic
2. ACLFAdult Congregate Living Facility
3. ADAApplication for Development Approval
4. ADTAverage Daily Traffic
5. ASRAquifer Storage Recovery
6. AWTAdvanced Wastewater Treatment
7. BEBRBureau of Economic and Business Research (University of Florida)
8. BSWACBig Slough Watershed Advisory Committee
9. CCZMEConservation and Coastal Zone Management Element
10. CIECapital Improvements Element
11. CIPCapital Improvement Program
12. COCTFCapital Outlay Construction Trust Fund
13. COECorps of Engineers (U.S. Army)
14. CSCounty of Sarasota
15. CUPConsumptive Use Permit
16. DCADepartment of Community Affairs
17. DHRSDepartment of Health and Rehabilitative Services
18. DNRDepartment of Natural Resources
19. DRIDevelopment of Regional Impact
20. ECOSWFEnvironmental Confederation of Southwest Florida
21. EPAEnvironmental Protection Agency
22. F.A.C.Florida Administrative Code
23. (F)DERFlorida Department of Environmental Regulation
24. FDOTFlorida Department of Transportation
25. FEMAFederal Emergency Management Agency
26. FIRMFlood Insurance Rate Map
27. FGFWFCFlorida Game and Freshwater Fish Commission

28. FmHAFarmers Home Administration
29. F.S.Florida Statutes
30. FYFiscal Year
31. GDCGeneral Development Corporation
32. GDUGeneral Development Utilities
33. GWBRAI ...Groundwater Basin Resource Availability Inventory
34. HUDHousing and Urban Development (U.S. Department of)
35. LOSLevel of Service
36. MGDMillions of Gallons per Day
37. MOUMemorandum of Understanding
38. MPOMetropolitan Planning Organization
39. MSTDMunicipal Service Taxing District
40. MSTUMunicipal Service Taxing Unit
41. NHCNational Hurricane Center
42. NPF RDNorth Port Fire and Rescue District
43. NPWCD ...North Port Water Control District
44. NPWTPNorth Port Water Treatment Plant
45. OFWOutstanding Florida Water
46. PACPowdered Activated Charcoal
47. PCDPlanned Commerce District
.....Planned Community Development
48. PDPlanning District
49. PIPrincipal and Interest
50. PITIPrincipal, Interest, Taxes and Insurance
51. PLPublic Law
52. PRRWTF ...Peace River Regional Water Treatment Facility
53. PSWTPeak Season Weekday Traffic
54. PUCPublic Utility Committee
55. PUDPlanned Unit Development
56. P&ZPlanning and Zoning (Department, North Port)
57. SBSCSchool Board of Sarasota County

58. SCAT Sarasota County Area Transit
59. SLOSH Sea, Lake and Overland Surges from Hurricane
60. SMATS Sarasota Manatee Area Transportation Study
61. SR State Route
62. SWFRPC Southwest Florida Regional Planning Council
63. SWFWMD Southwest Florida Water Management District
64. SWIM Surface Water Improvement and Management (Act)
65. TBRPC Tampa Bay Regional Planning Council
66. TDR Transfer of Development Rights
67. TDS Total Dissolved Solids
68. THMs Trihalomethanes
69. TZ Traffic Zone
70. USDA United States Department of Agriculture
71. ZLL Zero Lot Line