RESPONSE TO U.S. CORP OF ENGINEERS DRAFT SURVEY REVIEW REPORT ON THE HILLSBORO CANAL BASIN

Prepared by
Central and Southern Florida Flood Control District

August 1974

TABLE OF CONTENTS

FIGURES

MAPS

HISTORY OF DEVELOPMENT IN THE BASIN

Areas of the Hillsboro Basin were among the earliest settlements in Palm Beach County. The natural inlet at Boca Raton provided access to the ocean, and a substantial specialized (pineapple) agricultural Community was established on the sand ridge before 1900.

By 1920, Hillsboro Canal had been constructed by the Everglades Drainage District. Connecting Lake Okeechobee with the ocean, the project provided for expansion of agricultural activities in the western portions of the basin. The Florida boom stimulated development of the Boca Raton Hotel and Club, which helped establish the Gold Coast as the most exclusive winter resort area in the country. An Air Force Training facility was established in Boca Raton During World War II, providing a large tract of publicly owned land in the basin.

Between 1950 and 1960 West Palm Beach and Fort Lauderdale experienced substantial growth. The locations of these metropolitan areas are roughly equidistant north and south of the Hillsboro Canal. By 1960, urbanization was still thinly concentrated along the sand ridge. Large agricultural holdings remained intact, not yet subdivided into small tracts as in other areas of the lower east coast.

Since 1960, numerous forces in the Hillsboro Basin have stimulated population growth unequaled in the state, and even the nation. The abandoned Air Force Training Field was made the site of Florida Atlantic University, bolstering the prestigious image of Boca Raton. IBM Corporation located a major research and development facility north of F.A.U., adding to the housing and service demands of the area. Large tracts of land in single ownership, conducive to the planned unit development concept, were available and ripe for development. Ironically, recent action by the City of Boca Raton, establishing a population cap, has created

a demand in this area for exclusive developments that capitalize on conservative land use policy.

In response to the U.S. Corps of Engineers Survey Review Report of the Hillsboro Canal Project, submitted to the Flood Control District June, 1974, the following report projects continued development in the basin, which even under stringent land use controls will inevitably overextend the capabilities of the Hillsboro Canal.

LAND VALUES IN THE BASIN

Information collected from Broward and Palm Beach Counties Tax Assessors indicates that land values are high throughout most of the Hillsboro Basin, and continue to rise sharply, especially in the western portions of the Basin. Rapidly rising values are clear indications of increased acquisition and development pressures on the land, that ultimately results in population growth.

Compatible data was not available from the two counties, therefore, the format of information on land values differs. Broward County assessed evaluations for most of the area under study were available for 1973 and 1974, so that percentage increases over the year could be compared. These land values are considered close approximations of full, fair market value. In Palm Beach County, actual prices of land sales were available for only a small portion of the Basin. Figures 1 and 2 summarize the findings; Map 1 shows their distribution.

FIGURE 1

PALM BEACH COUNTY LAND SALES PRICES

Township/ Range	Sections	Year	Acreage	Dollars/ Acre
West of SR7 - Records not available				
West of turnpike				
47S/41E	32	1972	4.38	5,900
		1973	Same	13,700
47S/42E	29	1973	3	15,000
		1973	10	7,900
47S/42E	19	1973	Small	5,000
		1973	"	6,500
		1973	"	6,500
		1973	55	15,000
		1973	180	13,700
47S/42E	18	1970	93	5,000
		1973	90	14,900
		1973	9	11,400
		1973	38	28,500
		1973	5	20,200
47S/42E	7	1973	4	43,700
		1973	506	11,800
East of Turnpike - Records not available				

Source: Palm Beach County Tax Assessor's Office

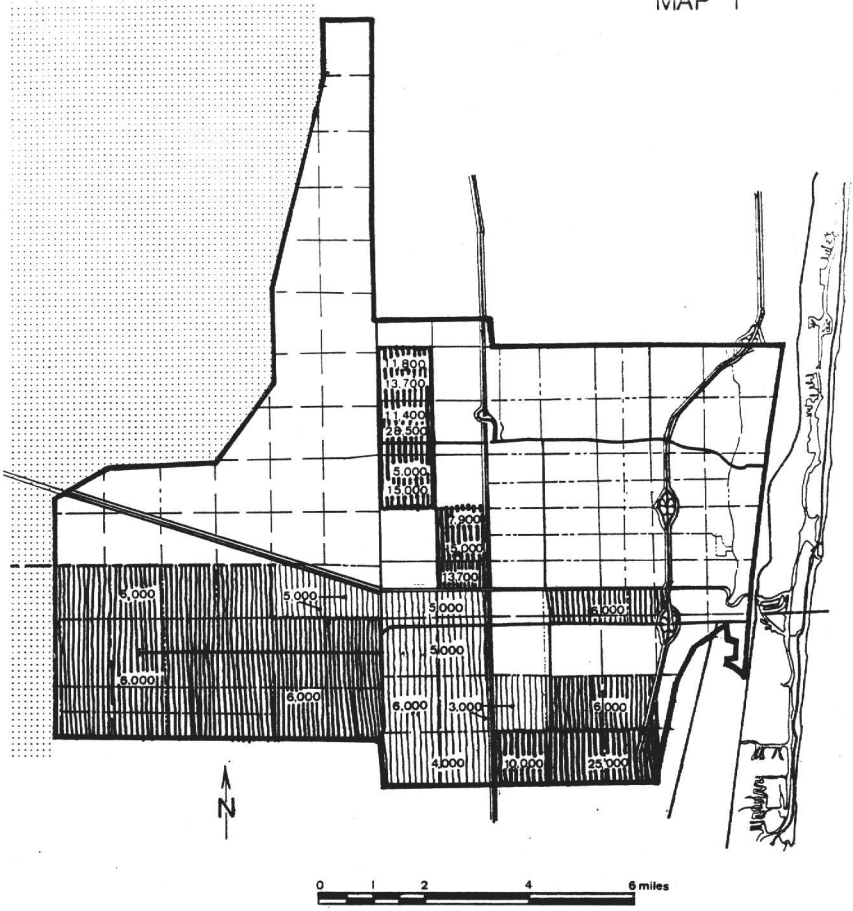
FIGURE 2

ASSESSED LAND VALUES - BROWARD COUNTY

Township/ Range	Sections	1973 Assessments (Dollars)	1974 Assessments (Dollars)	Percentage Increase
West of SR7				
48S/41E	1-12	2000 - 2500	6000	140
47S/41E	31-34	2000 - 2500	6000	140
47S/41E	35-36	2500	5000	100
West of turnpike				
48S/42E	5-6	4000	5000	100
48S/42E	7	3000	5000	167
48S/42E	8	1500	3000	100
48S/42E	17-18	2500 - 3000	4000	45
47S/42E	31-32	2500	5000	100
East of turnpike				
48S/42E	9	1500	3000	100
48S/42E	10	5000	6000	20
48S/42E	11	4000	6000	50
48S/42E	14-16	4000	10,000 - 25,000	150 - 525
47S/42E	34-35	5000	6000	20

Source: Broward County Tax Assessor's Office

MAP 1



Land Values

Dollars Per Acre

- <5,000
- 5,000 - 8,000
- 8,000 - 10,000
- 10,000>

Information Not Available From Tax Assessors For Unshaded Areas

HILLSBORO CANAL BASIN

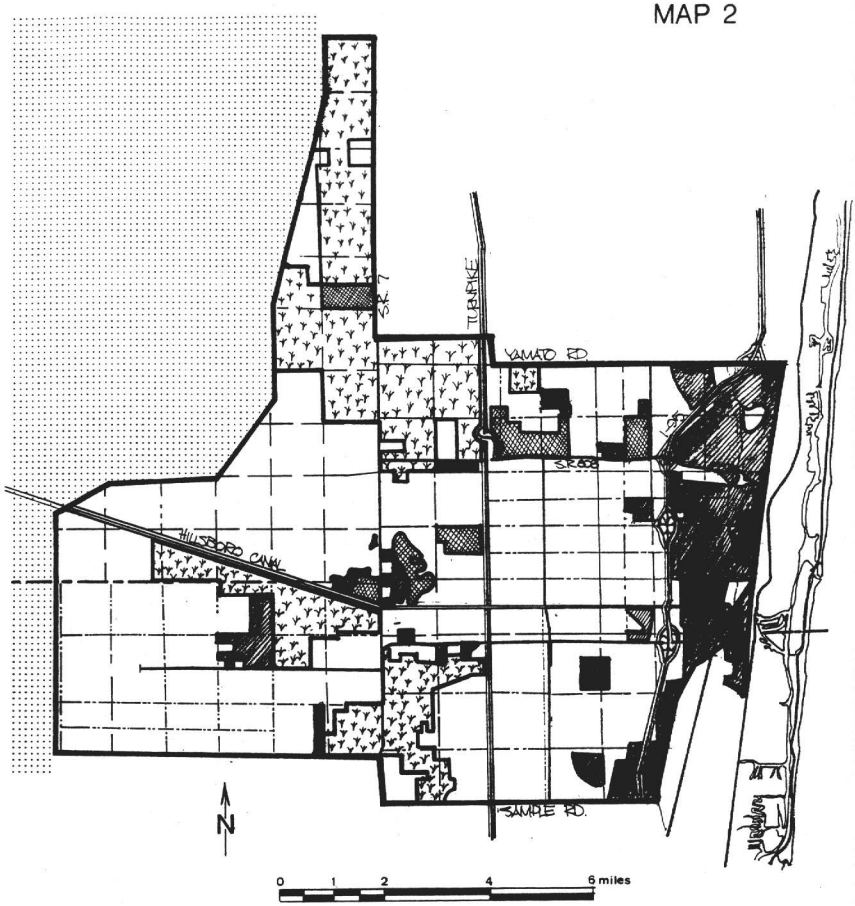
Source: Broward County, Tax Assessor, 1974 Assessments
Palm Beach County Tax Assessor, 1973 Recorded Land Sales

Map 2, Existing Land Use, has been generalized to show large vacant tracts of once active agricultural alnd, awaiting urbanization. Remaining agriculture in the area is marginal, due to rising land costs and taxing policies of both Palm Beach and Broward Counties. Recreation areas are almost exclusively golf courses, the focal point of most developments in South Florida.

Map 3 indicates those units of government that have regulatory powers within the basin. Fragmentation of responsibility for setting density limits has created unusual political events in the basin. The City of Boca Raton has annexed a reserve area to the west of the city to guard against zoning changes by Palm Beach County. In Broward County, several municipalities have annexed areas as shown on Map 3 for the purpose of controlling growth on a local basis. Due to tremendous development pressures, and this fragmentation of governmental units, the South Florida Regional Planning Council recommended to the State of Florida that this basin be declared an Area of Critical State Concern (ACSC). Assuming that the ACSC designation were applied to this area, the existing commitments for development would far exceed projections envisioned by the Corps of Engineers' Survey Review Report of the basin. Figures 3 and 4 tabulate maximum densities permitted by the county plans.

Map 4 is a synthesis of plans from pertinent governmental units representing a minimum intensity of future land use. Map 5 represents major developments commited, zoned or near approval. Oriole Oakland (a Development of Regional Impact) was withdrawn from County Commission consideration without prejudice; however, planning for the tract continues and it will probably be resubmitted. Map 6 shows the conflicts between Maps 4 and 5 which are documented in Figures 8 and 9.

MAP 2

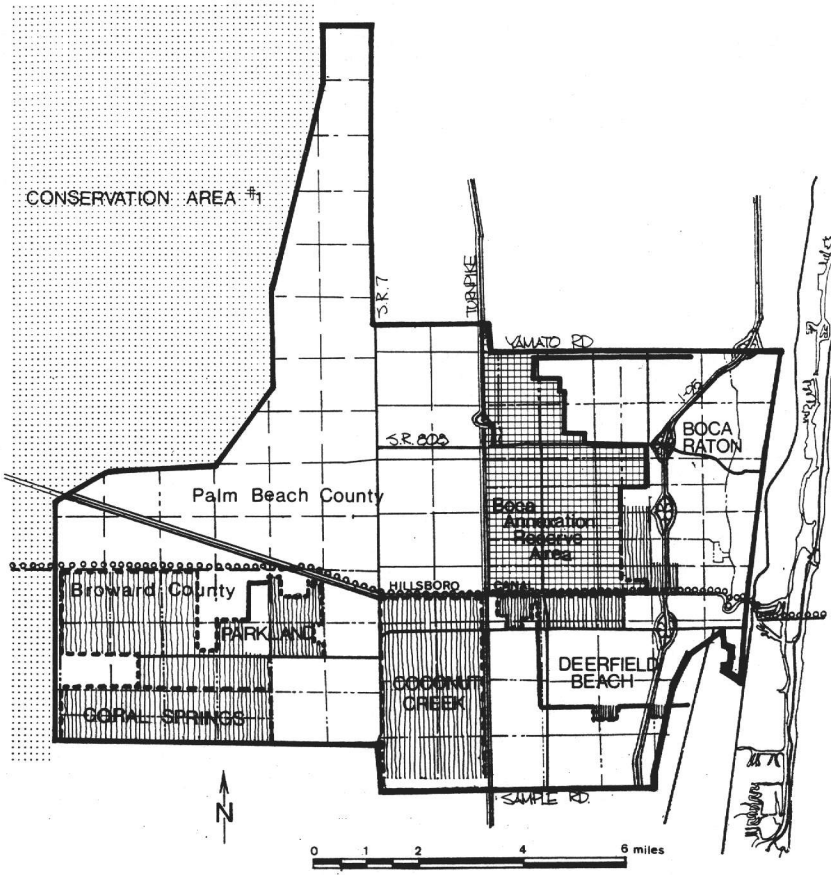


Existing Land Use, 1974

URBAN BUILDUP
AGRICULTURE
RECREATION

HILLSBORO CANAL BASIN

Source: Palm Beach and Broward County Planning Depts.



Jurisdiction

- MUNICIPAL BOUNDARY (NEW OR FUTURE)
- EXISTING MUNICIPAL BOUNDARY
- COUNTY BOUNDARY
- NEW/ FUTURE ANNEXED AREA

HILLSBORO CANAL BASIN

Source: Palm Beach and Broward County Planning Departments, Broward County Area Planning Board, Boca Raton, Deerfield Beach, Coconut Creek

Palm Beach County: Based on natural resources, public facilities, utilities, and transportation parameters, a Master Land Use Plan for Palm Beach County was prepared by the Planning, Building and Zoning Department and adopted by the Board of County Commissioners on December 6, 1972. The plan is intended as a flexible guide for the future development of unincorporated areas of the county. The eastern portion of the basin is under the jurisdiction of Boca Raton, which presently holds a conservative approach toward further growth that is well within the limits of the County Master Land Use Plan.

MAXIMUM DENSITIES ALLOWED BY
PALM BEACH COUNTY LAND USE PLAN

	Standard Subdivision	P.U.D.
Estate	1 unit/2½ acres	1 unit/acre
Low	4 units/acre	6 units/acre
Medium	7 units/acre	12 units/acre
High	15 units/acre	18 units/acre

Broward County: For the past four years, the staff of the Broward County Area Planning Board has been preparing a county Land Use Plan. The plan was adopted by the Board on June 26, 1974, but has yet to receive the approval of the County Commissioners. Although the plan is as yet uninforcible, it is used in this study as the most credible indication of future land use policy in Broward County. The municipalities of Deerfield

Beach, Parkland, Coral Springs, and Coconut Creek are partially or wholely within the basin, and exempt from the County Land Use Plan.

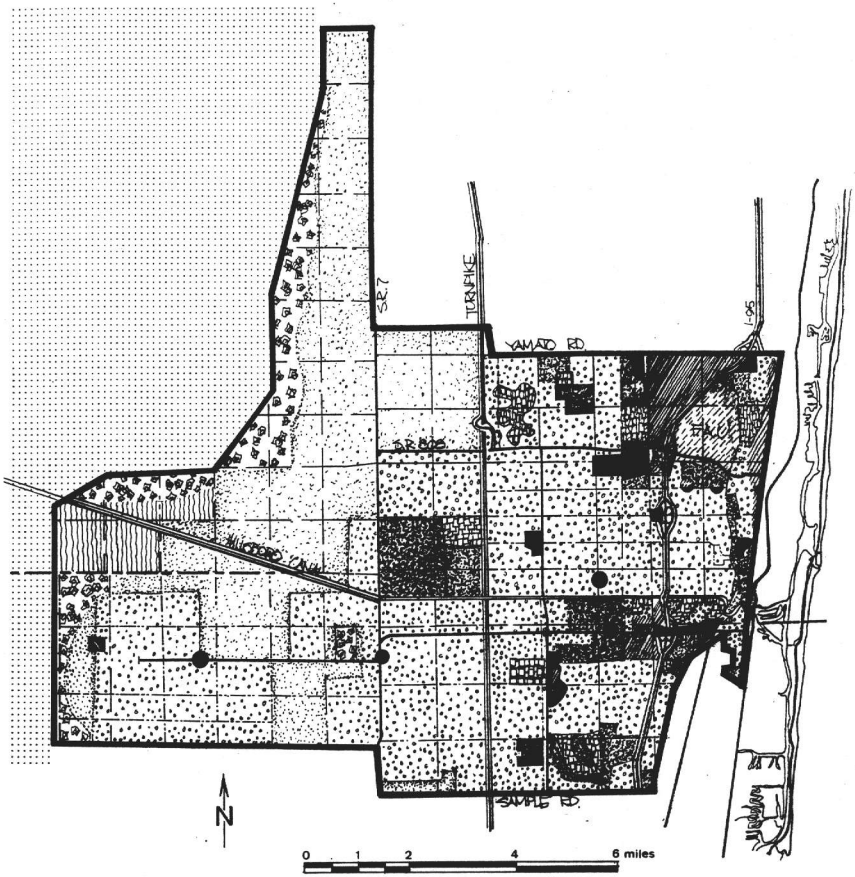
MAXIMUM DENSITIES ALLOWED BY
(PROPOSED) BROWARD COUNTY LAND USE PLAN

	Conventional Zoning *	P.U.D.**
Estate	1 unit/1.875 acres	1 unit/1.875 acres
Low	1 unit/acre	1-3 units/acre
Medium	3.6-6 units/acre	3.1-5 units/acre
High	6.1-10 units/acre	5.1-8 units/acre

* Applicable only in built-up area
** Gross densities permitted in Flood Prone areas within canal basins with Primary Drainage of 1¼ inches of runoff per day or less.

MAXIMUM POPULATION OF HILLSBORO BASIN
ALLOWED BY
PROPOSED COUNTY LAND-USE PLANS

Location	Residential Density Zone	Maximum Units per Acre	Acreage	Maximum Units	Maximum Population
PALM BCH. CO.					
WEST	Estate	1	14,165	14,165	
	Low	5	2,048	10,240	
	Medium	10	427	4,270	
	High	16	1,280	20,480	
			17,920	49,155	127,803
EAST	Estate	1	0	0	
	Low	5	10,666	53,330	
	Medium	10	939	9,390	
	High	16	0	0	
			11,605	62,720	163,072
	TOTAL		29,525	111,875	290,875
BROWARD CO.					
WEST	Estate	.53	4,608	2,442	
	Low	3	11,264	33,792	
	Medium	5	0	0	
	High	8	0	0	
			15,872	36,234	94,208
EAST	Estate	.53	0	0	
	Low	3	7,851	23,553	
	Medium	5	512	2,560	
	High	8	1,195	9,560	
			9,558	35,673	92,749
	TOTAL		25,430	71,907	186,957
TOTAL (PALM BEACH AND BROWARD COUNTIES)			54,955	183,782	477,832
West of Turnpike			33,792	85,389	222,011
East of Turnpike			21,163	98,393	255,821



Land Use Plans

- Broward County APB Recommended Plan
- Palm Beach County Plan Applicable To Unincorporated Areas Only

ESTATE RESIDENTIAL
LOW RESIDENTIAL
MEDIUM RESIDENTIAL
HIGH RESIDENTIAL
COMMERCIAL
INSTITUTIONAL
RECREATIONAL
AGRICULTURAL
INDUSTRIAL
PRESERVATION
CONSERVATION

HILLSBORO CANAL BASIN

Source: Palm Beach County Planning Dept.

FIGURE 4

MAJOR DEVELOPMENTS IN THE BASIN
(Committed Zoned or Near Approval)

	Development	Tot Acr.	Density	Total DU	Population
(A)	La Estancia (Arvida)	75	1.8	135	352
	Los Paseos (Arvida)	82	4.5	370	962
	Boca Verde	640	5.9	3,773	10,300
	Boca Lago	536	6.0	3,216	8,361
	Boca Raton West	1,392	5.7	8,011	20,828
	Boca Entrada	58	16.0	928	2,412
	Hillsboro Heights	78	4.9	383	997
	Holiday City	322	2.8	929	2,415
	Boca-Cen Club	983	7.0	6,890	17,914
	Millers Riviera	477	6.0	2,863	7,443
	Sandalfoot Cove	985	6.6	6,531	16,480
	Starling Lakes	1,050	6.9	7,316	19,021
	The Groves	308	5.8	1,794	4,664
	Watergate	400	16.0	6,400	16,640
	Boca Lakes North	77	5.9	456	1,185
	West Lakes	159	6.2	988	2,568
	Boca Del Mar	3,434	5.4	18,832	48,962
	West Lakes at Boc.R.	39	4.6	180	468
	Toney Development	17	11.5	196	509
	Paseo De Boca	77	11.0	852	2,215
	Oak Hill	219	2.6	585	1,521
	Appleton Development	323	5.1	1,674	4,352
	Total	11,731		73,302	191,069
	*Oriole Oakland (withdrawn DRI)	4,292	3.9	16,738	52,700

	City of Boca Raton	Total Acr.	Density	Total DU	Population
(B)	Planning Unit 4	598	3.6	2,201	5,723
	" " 7	791	4.9	3,888	10,108
	" " 8	466	5.9	2,755	7,163
	" " 11	1,598	2.9	4,732	12,303
	" " 14	1,983	2.5	4,998	12,994
	Total	5,436		18,574	48,292
	Total A+B	17,173		35,312	239,361

(C) Hillsboro Basin South (Broward Co.)

Deerfield Bch.	Total Acr.	Density	Total DU	Population
Hills Club	237	8.1	1,931	5,020
Deer Creek	566	9.3	5,300	13,780
Century Village	775	11.2	8,700	22,620
Natura	230	10.9	2,400	6,240
Total	1,808			47,660
			Others	1,000
				48,660

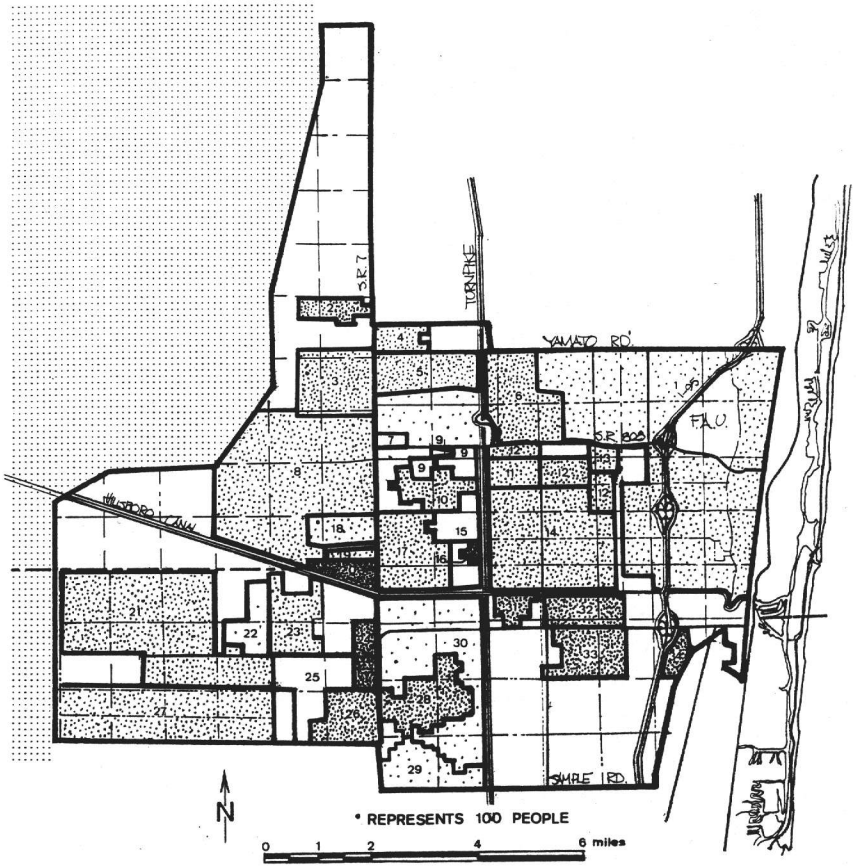
Existing Population of Deerfield Beach 24,500

Projected Population 70,000

City of Parkland

Parkland Lakes	666	5.8	3,893	9,551
Leadership	3,958	5.3	21,000	52,500
Total	4,624			62,051

	Development	Total Acr.	Density	Total DU	Population
Coconut Creek					
	Bates	857	12.4	10,625	26,220
	Grahms	120	7.1	852	2,215
	Total	977			28,435
	Proposed Pop. (Under the New Plan)	3,972	3.8	14,008	38,985
Broward Co.					
	Butler Farms	635	8.9	5,644	16,850
	Vadia (Plan)	297	16.1	4,770	12,000
	Total	932			28,850
	Estates	600	1DU/∿2	300	780
					29,630
Coral Springs					
	Northern Annex	2,560	4.5	11,520	29,952
	Total	2,560			29,952
	Total (C)	15,473		90,873	237,713
	Grand Total A+B+C	32,646		126,185	477,074



Potential Development

1. City of Boca Raton
2. Millers Riviera
3. Starling Lakes
4. Appleton Development
5. Boca-Cen Club
6. Boca Raton West
7. Richter (Commercial)
8. *Oriole Oakland (withdrawn DRI)
9. West Lakes
10. Boca Lago
11. The Groves
12. Boca Verde
13. La Estancia/Los Paseos
14. Boca Del Mar
15. Boca Rio (Golf Course)
16. Paseo Be Boca
17. Sandlefoot Cove
18. Holiday City
19. Hillsborough Heights
20. Watergate
21. Leadership
22. City of Parkland
23. Parkland Lakes
24. Vadia
25. Estates
26. Butler Farms
27. Coral Springs (Northern Annex)
28. Bates
29. Grahms
30. Coconut Creek
31. Hills Club
32. Deer Creek
33. Century Village
34. Natura

HILLSBORO CANAL BASIN

Source: Palm Beach and Broward County Planning Departments, Broward County Area Planning Board, Boca Raton, Deerfield Beach, Coconut Creek

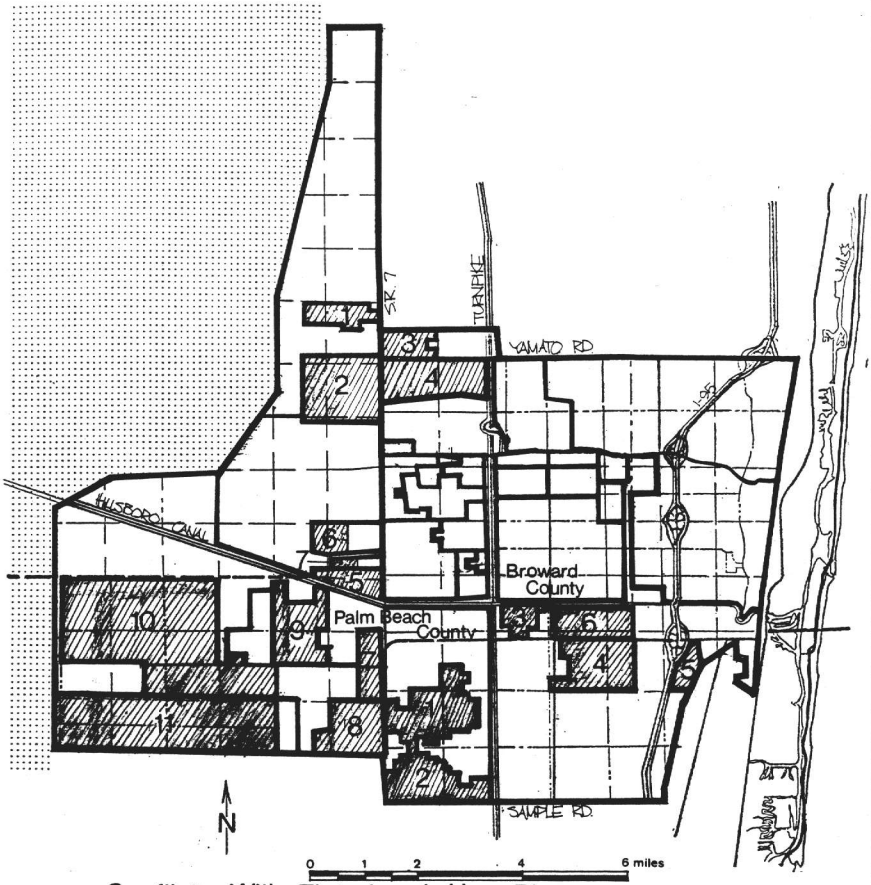
FIGURE 5

A. CONFLICTS BETWEEN PALM BEACH CO. LAND USE PLAN AND POTENTIAL DEVELOPMENT

Development	Area In Acres	Dwelling Units Committed or Near Approval	Dwelling Units As per Land Use Plan
1. Millers Riviera	477	2,863	477.1
2. Starling Lakes	1,050	7,316	1,050.0
3. Appleton	323	1,674	323.5
4. Boca-Cen club	983	6,890	983.4
5. Watergate	400	6,400	400.0
6. Holiday city (½ area)	161	464.5	161.0
7. Hillsboro Heights (½ area)	39	191.5	39.0
Municipal S. Total	x	x	x
Unincorporated S. Total	3,433	25,799	3,433
East of Turnpike			
West of Turnpike	3,433	25,799	3,433
TOTAL	3,433	25,799	3,433

B. CONFLICTS BETWEEN BROWARD CO. (APB) LAND USE PLAN AND POTENTIAL DEVELOPMENT

Development	Area in Acres	Dwelling Units Approved or Near Approval	Dwelling Units As per Land Use Plan
1. Bates	857	10,625	2,571
2. Grahms	120	852	360
3. Hillsclub	237	1,931	1,896
4. Century Village	775	8,700	6,200
5. Natura	230	2,400	1,840
6. Deercreek	566	5,300	4,528
7. Vadia	273	4,770	619
8. Butler Farms	635	5,644	1,095
9. Parkland Lakes	666	3,893	1,998
10. Leadership	3,958	21,000	11,874
11. Coral Springs No.	2,560	11,520	7,680
Municipal S. Total	9,969	66,221	38,947
Unincorporated S. Total	908	10,414	2,524
East of Turnpike	1,808	18,331	14,464
West of Turnpike	9,069	58,304	27,007
TOTAL	10,877	76,635	41,471
GRAND TOTAL			
Hillsboro Canal Basin (A+B)			
	3,433	25,799	3,433
	10,877	76,635	41,471
	14,310	102,434	44,904



Conflicts With The Land Use Plans

AREA OF CONFLICT

Palm Beach County

1. Bates
2. Grahms
3. Hillsclub
4. Century Village
5. Natura
6. Deercreek
7. Vadia
8. Butler Farms
9. Parkland Lakes
10. Leadership
11. Coral Springs No.

Broward County

1. Millers Riviera
2. Starling Lakes
3. Appleton
4. Boca-Cen Club
5. Watergate
6. Holiday City (½ area)
7. Hillsboro Heights

HILLSBORO CANAL BASIN

Source: Palm Beach and Broward County Planning Departments, Broward County Area Planning Board, Boca Raton, Deerfield Beach, Coconut Creek

HILLSBORO BASIN POPULATION PROJECTIONS

The Corps of Engineers Report bases its population projections on figures released by the Office of Business Economics, Bureau of the Census; and the Florida Social Science Advisory Committee, University of Florida. These series greatly underestimate the growth that has occurred since 1970, and is likely to occur for the next several decades. Between 1970 and 1973, the populations of Broward County and Palm Beach County grew by 22.73% and 21.69%, respectively, while the Corps of Engineers Report predicted an average population growth of 30% between 1970 and 1980. In three years, the actual growth was two thirds of that predicted for a decade. The Urban Land Institute projects an average growth rate of 40% per decade through the year 2000 for Broward and Palm Beach Counties, nearly double the average rate of growth predicted by the Corps. Even if the Hillsboro Basin were to grow at the same rate as the two counties, the Corps Report underestimates that growth by nearly one half.

However, population growth in the Hillsboro Basin can be more directly projected by analysis of the area itself, rather than interpolating from county figures. A direct reliable method is to evaluate committed development projects and municipal land-use plans. Most of these developments and land use plans will be realized by the year 2000, giving a far more reasonable projection of population in the Basin at the turn of the century. Although it is possible that some of these developments and land use plans will be modified, it is equally likely that new developments will be planned and approved in the next several years. Therefore, the population of the Basin would be approximately 477,000 in the year 2000. This figure represents a 1305% increase by the year 2000, or an average rate of 141% per decade.

Whereas only 4% of the residents of the Basin lived west of the turnpike in 1970, 61% will live west of it by 2000.

For the next several decades, the Hillsboro Basin will grow at a rate far in excess of the average rates of growth for Broward and Palm Beach Counties. Even if county growth projections are corrected, they are not accurate indicators of the growth that would occur in the Basin, particularly its western portions. Population projections for the Hillsboro Basin based on studies by the Palm Beach County Area Planning Board, and Ross Saarinen, Bolton & Wilder, consultants to Broward County, reinforce these projections. The two studies predict a Basin population of at least 269,343, by 1990. However, both studies are based on county projections now considered to be underestimated. Figure 6 is a tabulation of that growth, by area. Although the most accurate indications are that by 2000 nearly a half million people will live in the Hillsboro Basin, other factors will certainly affect its actual growth. One set of these factors, characterized as economic, include future levels of demand for housing, the state of the national economy, housing costs and interest rates. Another important set of factors classified as governmental, include local zoning and land-use ordinances, State & Federal regulations, and other legislation. In any event, the Hillsboro Basin will experience tremendous growth, particularly west of the turnpike.

HILLSBORO BASIN POPULATION 1970-2000

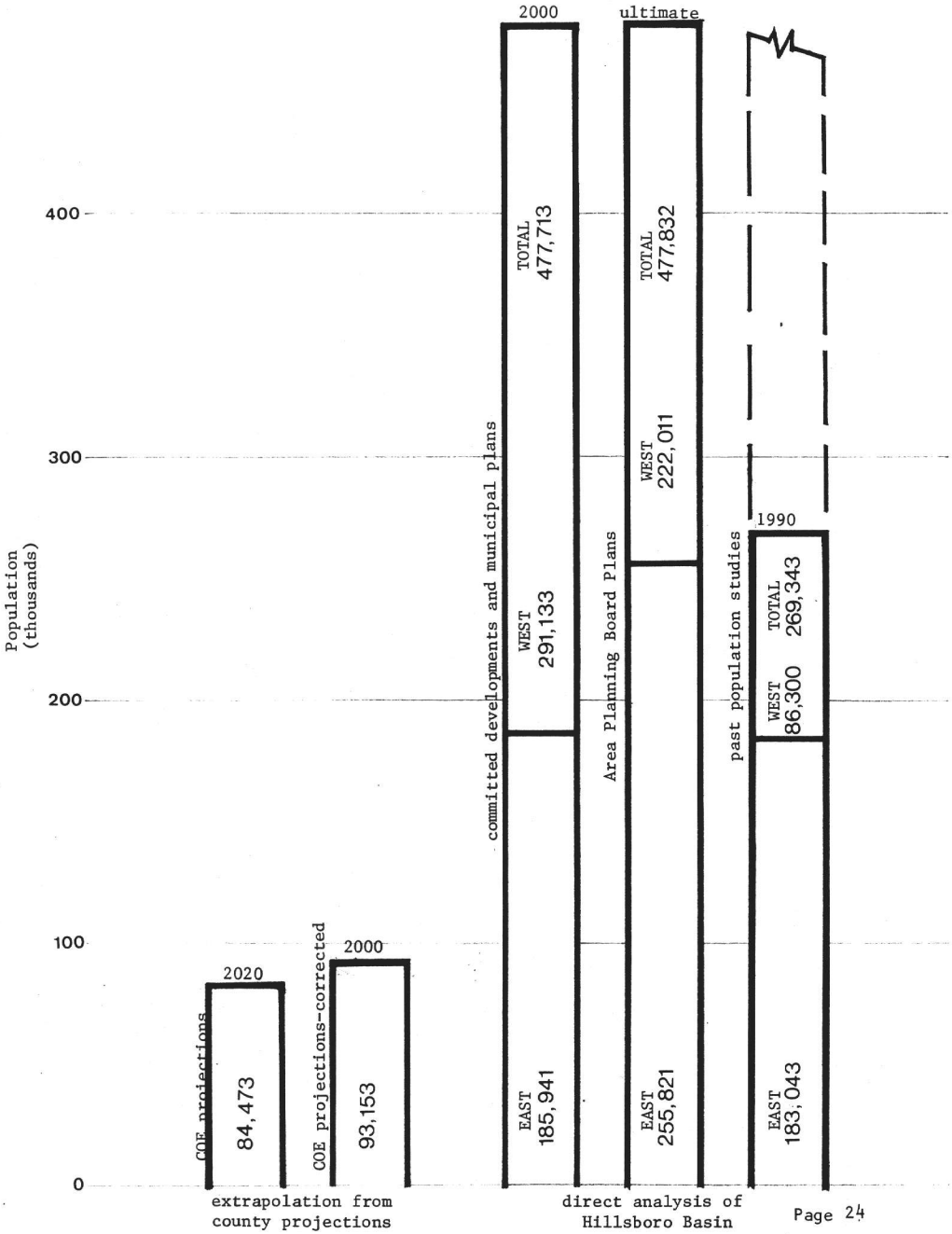
	1970		1990		2000	
	POPULATION	PERCENT	POPULATION	PERCENT	POPULATION	PERCENT
Broward						
EAST OF TURNPIKE	16,780	49%	76,300	28%	48,660	10%
WEST OF TURNPIKE	680	2%	50,000	19%	189,053	40%
TOTAL	17,460	51%	126,300	47%	237,713	50%
Palm Beach						
EAST OF TURNPIKE	15,947	47%	106,743	40%	137,281	29%
WEST OF TURNPIKE	541	2%	36,300	13%	102,080	21%
TOTAL	16,488	49%	143,043	53%	239,361	50%
TOTAL	33,948	100%	269,343	100%	477,074	100%
EAST OF TURNPIKE	32,727	96%	183,043	68%	185,941	39%
WEST OF TURNPIKE	1,221	4%	86,300	32%	291,133	61%

Sources: 1970 U.S. Census, Palm Beach County Area Planning Board, Statistical Data, 1973.
Ross, Saarinen, Bolton & Wilder, Inc., 201 Plan Update: Broward County North District. 1974.
Municipal Plans & Development Site Plans.

FIGURE 6

FUTURE POPULATION OF HILLSBORO BASIN

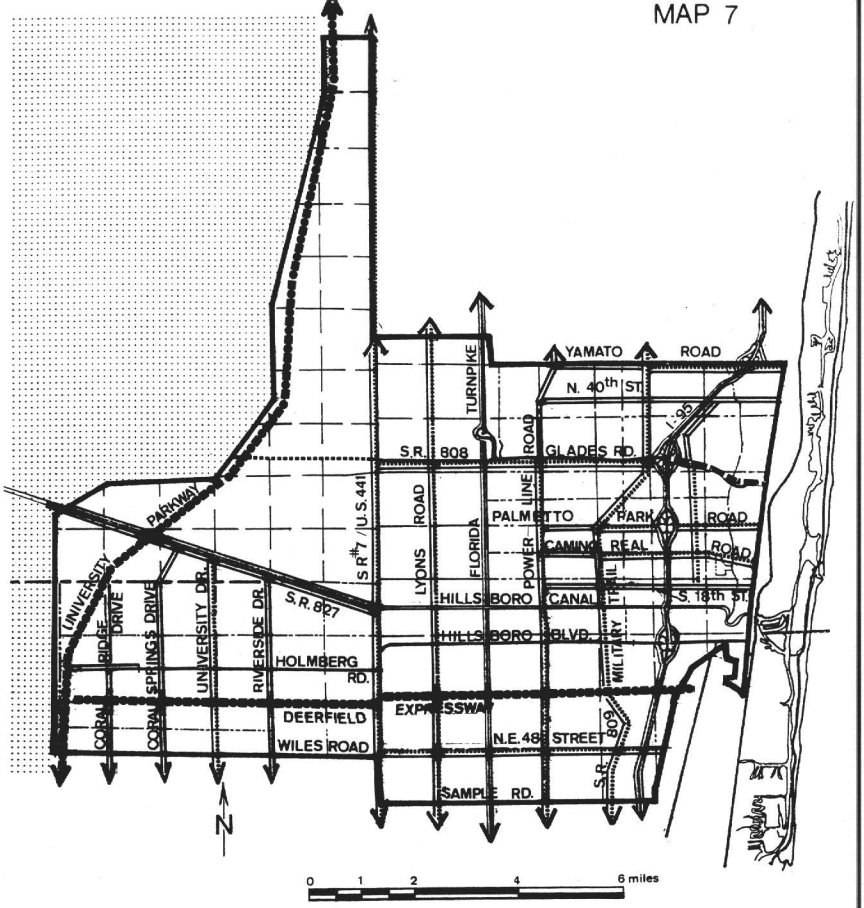
FIGURE 7



TRANSPORTATION

Map 7 shows existing and proposed principal streets and highways Urban transportation studies for Broward and Palm Beach Counties have projected needs for the next twenty years. However, with the development pressures that exists in this basin, it is not unusual for developers to press for premature construction and in some cases build roads themselves. The premise that development will follow road construction is invalid. The process frequently works in reverse.

MAP 7



Recommended Principal
Streets & Highway Plan

EXPRESSWAY / PARKWAY
SIX LANES
FOUR LANES
TWO LANES

HILLSBORO CANAL BASIN

Source: Palm Beach County Area Planning Board
Broward County Engineering and Planning Depts.

WASTEWATER TREATMENT FACILITIES

Palm Beach County

Currently, the portion of the Hillsboro Canal Drainage Area within Palm Beach County is served by four (4) wastewater treatment facilities. The total combined design capacity of the systems is 10.678 MGD. The facilities' average daily flow (for 1973) and design capacities are shown below:

Facility	Av. Daily Flow (MGD)	Design Capacity (MGD)
City of Boca Raton	2.607	10.0
West Lakes	0.150	0.175
Sandalfoot Cove	0.250	0.500
Hillsboro Country Club	0.003	0.003
Total	3.010 MGD	10.678 MGD

The total population served in 1973 was approximatly 31,038, exclusive of those served by septic tanks. In order to adequately serve the un-served areas and the projected population growth, the Palm Beach Area Planning Board has developed a Water Quality Management Plan that has been approved for implementation and funding by the Environmental Protection Agency (EPA). The plan, as illustrated, calls for the phasing out of existing facilities (except the Boca Raton plant) and the collection and transmission of the sewage to the regional 10.0 MGD secondary type sewage treatment plant, with disposal via a 36-inch ocean outfall. The plan recommends modular expansion of the treatment plant to 20 MGD about 1979, and 30 MGD about 1968, to serve urban expansion. It is anticipated that regional service will be extended to the area west of the turnpike about 1979, since population projections indicate that by that time, sufficient

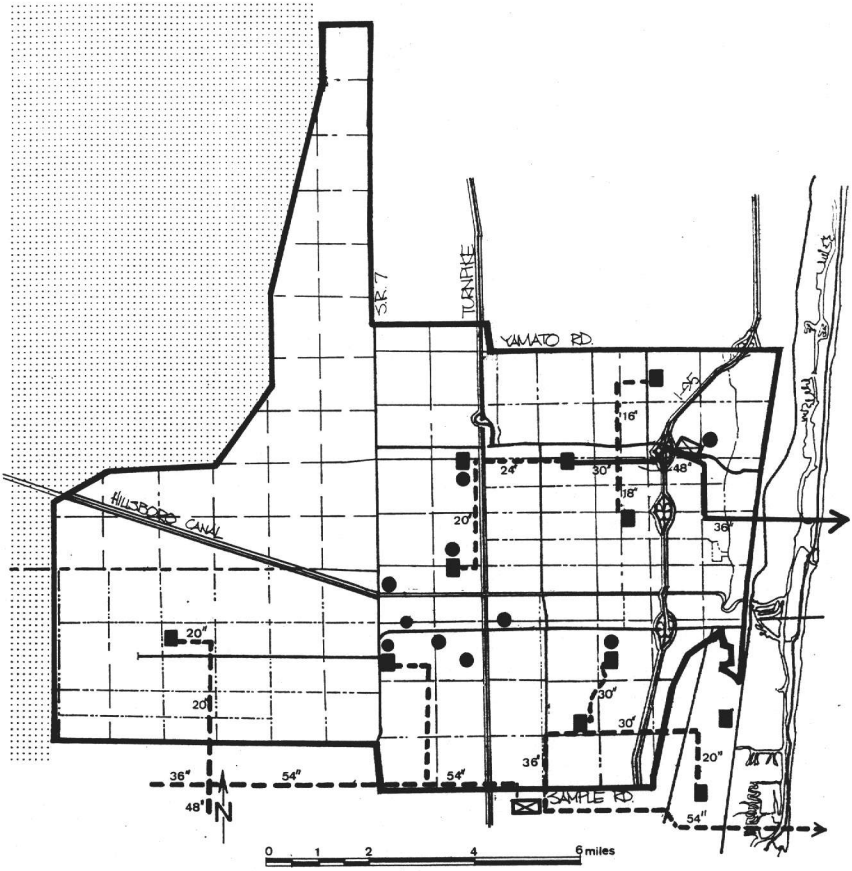
wastewater flows will be generated to justify the extension. Due to anticipated rapid growth west of Boca Raton, a yearly update of the Water Quality Management Plan and a five year capital improvements program for construction and /or modification of facilities was recommended.

Broward County

Currently, that portion of the Hillsboro Canal Basin that lies within Broward County is served by six wastewater treatment facilities. The combined capacity of the system is 4.485 MGD. A list of existing facilities, design capacities, and the average daily flows is given below:

Facility	Av. Daily Flow	Design Capacity
City of Deerfield	1.2	4.0
Deerfield Lakes MHP	.015	.070
Darlington MHP	0	.300
Hillsboro MHP	.004	.025
New Mark Glenn MHP	0	.075
El Rancho 7	.015	.015
Total	1.234 MGD	4.485 MGD

The population now being served is approximately 12,000. This figure represents the residents that live in sewered areas, excluding the use of septic tanks. In accordance with the projected population growth, the Broward County Area Planning Board has developed an Interim Plan which proposes to phase out existing facilities and to collect and transmit the sewage to a regional wastewater treatment facility, with disposal via a 54-inch outfall. The implementation of the proposed plan will be phased accordingly: 20 MGD by late 1974, 60 MGD by 1976, and 100 MGD by 1979. Construction is well underway



Existing & Proposed Wastewater
Transmission, Treatment & Disposal Facilities

- LIFT STATION (proposed)
- EXISTING TREATMENT PLANTS
- REGIONAL TREATMENT PLANTS
- PROPOSED LINES
- EXISTING LINES

HILLSBORO CANAL BASIN

Source: Palm Beach Water Quality Management Plan, APB 201 Plan Update

on the 20 MGD treatment plant and Phase I of the transmission system, serving the portion of the Hillsboro Basin east of the turnpike. The western portion of the basin is projected to receive service from the regional system as part of the Phase II transmission system, anticipated to be operational in late 1976 concurrently with the expansion of the regional plant. The largest percentage of wastewater flow is projected to originate from the Phase II service area.

WATER SUPPLY FACILITIES AND PLANS

Palm Beach County

Boca Raton is currently operating two (2) water treatment plants. These two facilities have combined capacity of 37 MGD to serve approximatley 38,000 people (1974 estimate). Raw water supply is presently obtained from 35 wells penetrating the Biscayne Aquifer. Rated well yields range from one to two MGD, with a combined rated capacity of existing wells of 47 MGD.

Population projections reflect a growth east of the turnpike from 17,000 dwelling units in 1974, to 46,000 units in 1984. There would be 85,000 dwelling units in the Boca Raton service area east of the turnpike if fully developed.

Projected water demands are based on average daily requirements of 740 MGD/ dwelling unit. This figure is normalized for condominiums, apartments, and single-family dwellings.

Past records show that maximum daily and peak pumping rates used as design criteria for future expansion, are 170% and 250% of the average daily demands. Required well field capacity over the next 10 years is projected 20% above

maximum daily water requirements to allow for maintenance.

Additional transmission facilities, shown in Map 8, are recommended to meet the projected water demands for residential developments expected within the next 10 years.

South Palm Beach Utilities is now operating a 1.0 MGD water treatment plant, and on February 1974, received approval for expansion to 4.0 MGD capacity. Information as to specific service areas and other pertinent data has not been made available at this time. However, the franchise area granted by the Public Service Commission of the utility is illustrated in Map 9.

Broward County

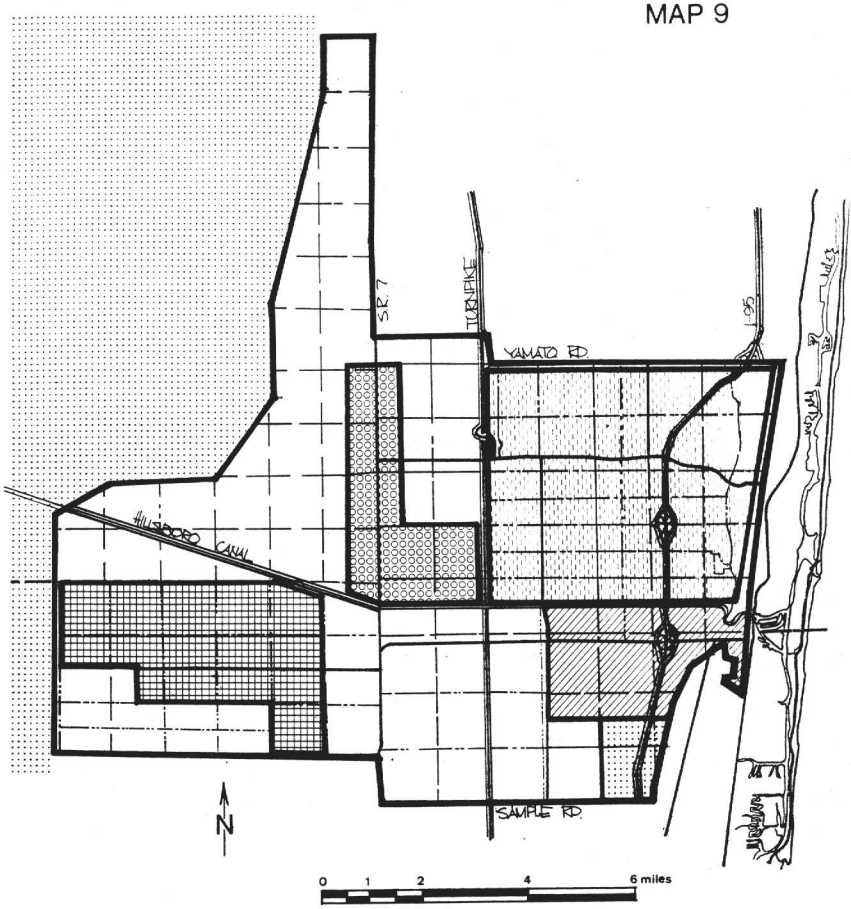
The major water suppliers in the Broward half of the Hillsboro Basin, are the City of Deerfield Beach and the Broward County Utilities Department. Data submitted to FCD indicates that raw water pumped from the Deerfield Beach well field in June 1974 was approximately 4.0 MGD. The Broward County Utilities Department pumpage, which includes System #2 and the Collier Manor Plant, was approximately 6.6 MGD in June 1974. Smaller privately-owned water utilites or private wells satisfy water needs for the remainder of the existing residents in the basin.

Concerning future plans, proposals for extension of regional water service to the western portion of the Hillsboro Basin are not as definite as regional wastewater plans for the area. Broward County Utilities Department has indicated its intent to provide water service on a regionalized basis to northern Broward County sometime in the future.

South Canal Utilities, Inc. recently received a franchise to service approximately 7,000 acres in northwest Broward County. No facilities are currently in

existence, but water supply facilities are proposed for construction in modules: (a) 8 MGD treatment plant in 1974, (b) 8 MGD expansion in 1980, and (c) another 8 MGD expansion in 1984. Average daily demand for the franchise area is estimated to be 2.25 MGD by 1979, 7.94 MGD by 1984, and 10.32 MGD by 1989.

MAP 9



Water Supply Service Area

- SOUTH CANAL UTILITIES, INC. - CERTIFICATE AREA
- SOUTH PALM BEACH UTILITIES, INC. - CERTIFICATE AREA
- BOCA RATON
- DEERFIELD BEACH
- BROWARD COUNTY UTILITIES

HILLSBORO CANAL BASIN

Source: Florida Public Service Commission, City of Boca Raton

CONCLUSIONS AND RECOMMENDATIONS

The information in the foregoing sections of this report has been presented in order to:

1. Provide an overview of the existing land use activity and status in the Hillsboro Canal Basin;
2. Provide a reasonable projection of land use and population in the basin, based on present status and known activity; and
3. Provide a summary of local governmental activity in land use and land use related planning which both forms and is formed by the long-term projections.

It is believed that the information assembled herein gives a coherent picture of the dynamic character of this basin which differs substantially from that presented in the Corps of Engineers draft Survey Review Report. It is a pciture which shows:

1. Based on the U.S. Census, 33,948 persons resided in the Hillsboro Basin in 1970, evenly divided between Broward County and Palm Beach County. Only 1,221 person, 4% of the Basin's population, lived west of the turnpike.
2. Based on an average growth rate of 20% per decade, the Corps of Engineers Report projects a population in the Hillsboro Basin of 84,473 by the year 2020. This is only 18% of the population that will most likely be residing in the Hillsboro Basin at the turn of the century, let alone in the year 2020. The Corps' report also underestimates potential for growth in the western part of the basin, which will be its fastest growing section for the next several decades.
3. Based on committed development projects and municipal land use plans, the population of the Hillsboro Basin will have approached its saturation

level by the year 2000; 477,074 persons are projected. This is a 1305% increase over the 1970 population, an average growth rate of 141% per decade. Sixty-one per cent of the Basin's projected 2000 population, 291,133 persons, will live west of the turnpike.

4. Municipal and County governments within the Basin are attempting to establish reasonable growth levels within their jurisdictions. However, the multiplicity of jurisdictions prohibits comprehensive planning of the Basin as a whole.

5. Other government agencies having planning and implementation responibilities for providing public services, i.e., transportation, water supply, wastewater treatment and disposal are also hard pressed to keep pace with the rapid growth in the Basin.

Adequate water control facilities in terms of primary oulet capacility, is a public service just as is the provision of adequate transportation, water supply and wastewater treatment facilities. It is of concern to this District that this public service element may not have been given proper consideration due to incomplete information or an imperfect understanding of the nature and character of the land use dynamics in this basin.

The facts of this dynamic situation cannot be ignored. They cannot be reversed by local governmental action, although they have been modified affirmatively, They will not be affected in either direction by any action, or lack of action, on the part of the Corps of Engineers. They should, however, be recognized and the public service obligations of the Corps of Engineers in the area of flood and water control should be discharged in cognizance of those facts.

Our major concern in the Hillsboro Canal Basin is with that portion which lies west of the Turnpike and, most specifically, with the area west of S.R. #7.

This is an area which, due to its peculiar topography and limited primary outlet capability, we have characterized as a flood hazard area. It floods comparatively frequently; most recently in January, 1974. Aerial photographs 1 through 4 were taken during that flooding occurrence. Flooding is widespread, to comparatively shallow depths and for durations of one to two weeks. The Corps of Engineers report characterizes this as "nominal" flooding. This is possibly an acceptable finding if land use remained agricultural as projected by the Corps. However, it requires re-examination in the light of the land use information presented herein; a projection which indicates that 60% of the year 2000 population residing in this basin will be located west of the Turnpike.

Residential developments now being planned and designed in this portion of the basin are required to meet this District's criterion for maximum peak daily discharge to the Hillsboro Canal of 1 1/4 inches per day. This criterion is being met by the development of on-site storage of rainfall excess; primary storage being in excavated lakes and secondary storage (for more severe occurrences) in open-space/recreational areas (folf courses, etc.). Some of these systems become somewhat complex, involving interconnected lakes regulated at differing elevations.

All of these systems are temporary storm water detention systems. Their proper functioning is dependent upon the capability to re-create the required system storage capacity subsequent to the storm event. This is important when two storm events occur with a short time interval, a not infrequent occurrence in this area.

Another peculiarity of this basin is also to be noted. Under certain storm events the entire basin acts as a temporary ponding area with no outlet. This occurred for approximately four days in October 1965, and again in January 1974

for about two days. As more of the area becomes developed, even with on-site retention of much of the rainfall excess, the net affect is to reduce area storage capacity. This water then is retained on an ever smaller area of undeveloped lands at consequent increased depths. The ultimate result will be to increase the flood stage in Hillsboro Canal throughout its length and thus increase the flooding hazard downstream.

In view of these two circumstances: (a) the need to provide for the effective functioning and the viability of on-site retention systems, and (b) the need to counteract the tendency toward increased flood stage in the Hillsboro Canal, we believe some improvement in primary system capability is mandatory.

The improvement sought is not one which requires a substantial increase in peak runoff removal capability. We believe that maximum reasonable on-site retention capability should be developed by the landowner to relieve a portion of the cost burden formerly assumed by the public sector and to provide a degree of storm runoff quality control. A uniform rate of 40 csm for this basin is satisfactory.

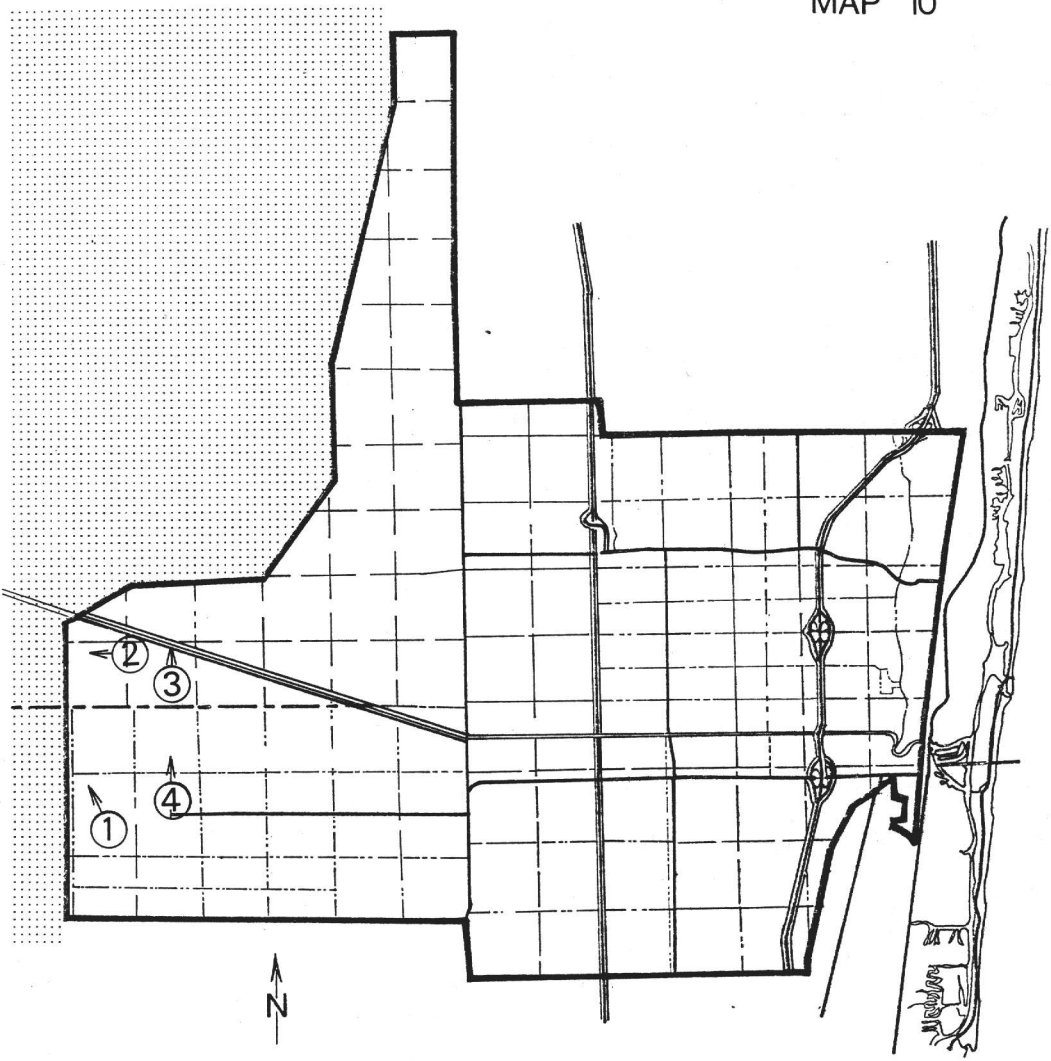
Rather, the type of improvement to be considered is one which will make the primary system more responsive to the needs of an urban watershed in which an ultimate population in excess of 400,000 will reside by the year 2000. Such a responsive system will involve:

1. Replacement of the Deerfield Lock with a modern, automatic water level control structure; and
2. Channel improvement sufficient to carry the design discharge (40 csm over the entire basin plus seepage) at a stage not to exceed 9.5 ft. msl. at S-39.

An equivalent back-pumping plan would be acceptable but only if justifiable in terms of lesser cost.

It is requested that the material presented in this report be reviewed and that the District's recommendations, based on this information, be reconsidered in the context of that information.

MAP 10



AERIAL PHOTOGRAPH LOCATION MAP

HILLSBORO CANAL BASIN

(January – 1974)

0 1 2 4 6 8 miles


1
Con Area #2
Leadership
North Springs


2
Con. Area 1
Con. Area 2


3


R-5-39
Con. Area 1
Hillsboro Canal
±1.8 Miles East S-39