CENTRAL AND SOUTHERN FLORIDA PROJECT
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA

8.5 SQUARE MILE AREA

APPENDIX E
SOCIAL IMPACT ASSESSMENT

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

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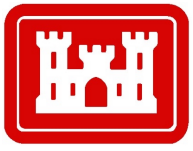

HDR Engineering, Inc.

Social Impact Assessment

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APPENDIX E
SOCIAL IMPACT ASSESSMENT OF 8.5 SMA

1.0 OVERVIEW

The area commonly known as the 8.5 Square Mile Area (SMA) is located in the western portion of Miami-Dade County, Florida along the eastern edge of the Everglades National Park (ENP). Miami-Dade County is the most urbanized county in the State. The City of Miami and its environs are located in Miami-Dade County. The 8.5 SMA is actually about 9.5 square miles in size. The area contains 1984 tracts of land of various sizes. The eastern boundary of the area is the canal identified as L-31 North. The area is bordered on the south by 168th Street and on the north by 104th Street. The western boundary is the ENP and stair steps north and east from 221 Avenue Figure 1 is a location map of the 8.5 SMA. The history of this area is filled with controversy and confrontation. At the heart of the controversy are the Federal and State Government efforts to restore natural water inflows into the Everglades. These efforts have increased the water table level and lengthened the time it takes for rainfall events to run off the land. This has increased the level of flooding and the retention of waters in the area. The Federal government, through the National Park Service and the U.S. Army Corps of Engineers, has developed a plan to mitigate the effects of the increased flows on the 8.5 SMA. This plan was authorized for construction by Congress in 1992. Even though the construction of the authorized project will be funded 100% by the Federal Government, a non-Federal sponsor will be required to cost share the operation and maintenance of the completed project. The non-Federal sponsor, the South Florida Water Management District (SFWMD), has, however, requested the further evaluation of other alternatives and this is the purpose of this General Reevaluation Report (GRR).

2.0 HISTORY

The 8.5 SMA (or approximately 6,400 acres) was part of about 70,000 acres purchased from the State of Florida in the early fifties by DAWAL Farms. The owners quit claimed the property to a development company known as ARVIDA. It appears that the land was purchased to speculate on a series of major projects planned for the area, including the Miami International Airport and a flood control project. These projects would have had major environmental impacts on the Everglades in the form of cutting off water flows into the Everglades.

Construction of the flood control project was stopped and the airport project de-authorized and the land lost its speculative value. The land was divided and sold to private interests. In the late sixties a developer acquired lands in the 8.5 SMA, subdivided the lands into 2.5 and 5 acre tracts, and constructed unpaved roads and drainage ditches. At the present time, Miami-Dade County does not provide

major services to the area, nor are county services to this area identified in their capital improvement plan.

Resident's report that the county and SFWMD have not constructed needed drainage canals and drainage outlets and as a result flooding occurs from both tropical and subtropical rainfall events. Because of the drainage problems in the area, the county and SFWMD have attempted to discourage development in the area. A study conducted by the Miami-Dade County Planning Department resulted in the Miami-Dade County Board of Commissioners in January 1981 declaring the 8.5 SMA an "Area of Environmental Concern", thereby changing the zoning density from 1 house per 5 acres to 1 house per 40 acres. This zoning change was designed to stop development on the remaining 1,000+/- undeveloped tracts. Owners of these tracts were left with land they could not develop. With the change in zoning, the county granted property owners in the area Severable Use Rights (SUR). These rights enable the landowner to sell 1 SUR for every 5 acres of land owned. Property owners of record with less than 5 acres of land prior to the zoning change were granted 1/2 SUR for every 2.5 acres, subject to certain conditions. The purpose of the SUR is to discourage future development within the 8.5 SMA by allowing property owners to sell development rights to developers outside the area. The selling of the SUR would preclude any additional development to the owners' property. At the time of this writing information on the number of SURs sold was not available. A survey by the Metro-Dade County Department of Environmental Resources Management (DERM) indicated that there exist numerous code violations within the area. These include the conversion of agricultural "outbuildings" to residences, un-permitted mobile homes, un-permitted commercial enterprises and un-permitted water and septic systems. Numerous gated walls and fences screen the illegal improvements. It is uncertain what type water and/or sewer services, if any, are provided to these improvements.

In 1998, the SFWMD Governing Board approved the acquisition of the entire 8.5 SMA "to facilitate implementation of the Modified Water Deliveries project (MWD) to ENP. The 8.5 SMA is an essential component of the restoration of the Everglades." (SFWMD letter, Dated December 9, 1998) The SFWMD has purchased a number of properties in the area from willing sellers only since the agency does not have condemnation authority. The position of the present Governing Board is uncertain; however, the current Board has requested this review of other alternatives.

The actions cited above have resulted in the filing of a Class Action suit (Bench vs. Dade Co. et al, #90-252 Hoevler) and residents and property owners of the area mistrusting State and local government entities that they feel don't have their best interests at heart, particularly when they feel the Federal Government has an authorized and implementable solution to their problem. Again, this has lead to the present situation of mistrust, controversy and confrontation.

3.0 PURPOSE

The purpose of this Social Impact Assessment is as follows:

- Conduct an unbiased and humanistic review of the issues associated with this project
- Develop existing and future social and economic profile of the 8.5 SMA
- Identify the social and economic impacts of constructing the authorized Federal project
- Identify the social and economic impacts of 9 alternatives and 2 variations (including the Authorized Project – Alternative 1), and
- Develop and present a comparative assessment of the social and economic impacts for inclusion in public review documents and for use in identifying the Recommended Plan by decision-makers.

4.0 EXISTING SOCIAL PROFILE

4.1 Demographics

4.1.1 General. Accurate demographic data specific to the 8.5 SMA is non-existent. The 1990 Census data disaggregated or collected by county census block or zip code cannot be extracted to accurately reflect the demographics of the 8.5 SMA. Complicating this effort is the presence of "uncounted migrant farm labor". Both published and unpublished data sources have been drawn upon to develop a reasonable "snapshot" of the demographics of the 8.5 SMA.

4.1.2 Population. The 1990 Census Block data that includes the 8.5 SMA shows a 1990 population of 828 persons living in 202 households or about 4.1 persons per household. Of this number, 246 are American Indians who live outside the 8.5 SMA. From this, it is estimated that about 582 persons in about 142 households lived in the 8.5 SMA in 1990. Independent surveys of the area provide other data. The "PEER Report" (prepared for the SFWMD by PEER Consultants, P.C.) estimated the population of the area at 640 persons living in 375 residences. An independent count by an area resident indicates a minimum of 432 residences with an estimated population of about 1728 persons. This latter estimate is reported to include migrant farm workers. A DERM study identified a total of 514 units consisting of 321 homes and 193 mobile homes or travel trailers. Of the 321 homes, 135 have claimed the States' homestead tax exemption. The remaining 186 homes appear to be second homes or weekend farming retreats. Of the 514 residential type units in the area, it is estimated that

208 units are owner occupied. For this assessment, a resident population estimate of 853 (208 x 4.1 persons per household) will be used since it represents the most supportable estimate of the population of the 8.5 SMA.

4.1.3 Age. Current data on the age distribution of the population in the 8.5 SMA is not available. However, age distribution data from the 1990 Census Data may be indicative of the current population. According to 1990 Census Data for the area, about 34.0 percent of the population are under 17 years of age. About 24.8 percent are school age between 5 years old and 17 years old. A very large percentage, 63.6 percent, is between the ages of 18 years old and 64 years old. Only 2.4 percent of the population is 65 years old or older. Again, this is assuming that the 1990 Census age distribution data is representative of the present population.

4.1.4 Sex. Current data on the distribution of the current area population by sex is not available. However, assuming that the 1990 Census data is representative of this distribution, it is estimated that about 51.1 percent of the existing population is male and the remaining 48.9 percent are female.

4.1.5 Ancestry. The 1990 Census Data indicate that almost 64.0 of the population in the area are white. No black persons were identified. The remaining 36.0 percent was identified as largely Hispanic. An independent survey indicates that the Hispanic population represents about 75 percent of the resident population. This estimate may be fairly accurate if the reported migrant workers are presently residing in the 8.5 SMA. The Hispanic population consists primarily of people of Cuban and Mexican ancestry. There are a few residents that trace their ancestry to Central America.

4.1.6 Education. The 1990 Census data for census track 250115, that includes the 8.5 SMA, indicates that 37.2 percent of the population has less than a high school education, while 27.4 percent are high school graduates. About 13.4 percent have an Associate Degree or higher. However, data in this census tract include the area of Homestead, Florida and are not considered representative of the 8.5 SMA. The 8.5 SMA is basically rural in nature. The area contains no schools and students are bussed to other areas of the county. The presence of migrant farm workers (as reported by DERM) would tend to increase the percentage of residents with less than a high school education and reduce the percentage of those with an Associate Degree or higher.

4.1.7 Family Size. There is conflicting data on family size in the 8.5 SMA. Census data indicate a household size of about 4.1 persons per household. The PEER Report (Peer, 1997) indicates a household size of only 1.7 persons per household. This latter estimate appears to be inaccurate. Family size for the white population is generally over 2.7 and minority and Hispanic family sizes are typically larger than that of the white population. For this assessment a family size of 4.1 will be used.

4.1.8 Head of Household. The Census Data indicate that there were 202 households in the Census tract in which the 8.5 SMA is located. The PEER Report indicates that the area contained 375 residences that were considered synonymous with households. However, these households represented a population estimate of only 640 persons resulting in a household size of 1.7 persons per household, which clearly seems low. (See Previous Paragraph) Based on 1990 Census data about 39.1 percent of the households in the area had children. Only 5.9 percent of the households were headed by a single parent either male or female. Due to the change in population mix in the area, the 1990 Census data may not represent an accurate assessment of the head of household data for the area.

5.0 EXISTING ECONOMIC PROFILE

5.1 Income and Earnings

5.1.1 General. As with the demographic data in the previous section of this report, disaggregated data on income and employment in the 8.5 SMA is non-existent. Complicating the problem is the presence of migrant farm workers in the area. Data from a variety of sources was reviewed and the best estimates of these investigations are presented.

5.1.2 Total Income. In 1996, total personal income in the area was estimated to range from $12.3 million to $17.7 million based on the estimated resident population and updated per-capita income data from Census tract 250115. The lower estimate within this range is probably indicative of the total income in the area, although it does not reflect the income derived from non-resident farming activities within the area. The $12.3 million are the estimated wages and salaries or earnings to residents of the area. The two largest sectors of the area economy are farming and wholesale and retail trade. A breakdown of income derived from these sectors is not available at this time.

5.1.3 Per Capita Income. Based on updated 1990 Census data for the tract in which the 8.5 SMA is located, per-capita income data is estimated to range from $14,371 to $20,782. The lower estimate probably reflects the per-capita income level within the 8.5 SMA

5.1.4 Family Income. The median family income in Miami-Dade County in 1996 is estimated at $40,136. However, about 46.5 percent of the households in Miami-Dade County have incomes less than $32,250. Family or household income within the 8.5 SMA is expected to be below the County median and is probably lower than the $32,250 cited.

5.1.5 Poverty. Within the Census tract in which the 8.5 SMA is located, about 8 percent of the population have incomes below the poverty level. In 1989, about 14.2 percent of the families in Miami-Dade County had incomes below the poverty level. Given the reported information that migrant farm workers reside in the 8.5 SMA, it may be safe to assume that the percentage of families with incomes below the poverty level is higher than those shown above.

5.2 Income and Wage Distribution

5.2.1 Income and Wages By Sector. Within the 8.5 SMA there are basically only two income sectors; namely agriculture and wholesale and retail trade. No specific statistical data on income and its distribution exist for the area. There are a large number of small tracts (2.5 – 5.0 acres in size) that are farmed. There are a few larger farming operations. It is estimated that about 2,642 acres are utilized in some sort of agricultural production. Many of the farms are owned by absentee owners who visit and work the farms on weekends. Either a family member or a hired hand manages the farm during the week. Field crops include sugar cane, winter vegetables, corn, herbs and malanga. Most of the acreage is planted in malanga. There are orchards of mangoes, bananas, coconuts, guava and mamee. Mamee is reported to be the most valuable crop in that it provides for the highest economic return. There are also a few nursery farms that provide plant material to the local market. Farm activities also include pastureland for horses and cattle. Agricultural production provides for some subsistence, but for the most part the production is sold within the local economy.

In terms of wholesale and retail trade, the area contains one large vegetable packing house that employs about 50 persons and a number of small retail stores that serve the immediate needs of area residents.

5.2.2 Wholesale and Retail Sector. There are no data related to income generated by this sector of the economy in the 8.5 SMA. Data on the sole vegetable processing plant would be proprietary information.

5.2.3 Farm Sector. Farm earnings as a percentage of total earnings in Miami-Dade County are about 6-tenths of 1 percent. It is estimated that in 1992 about 83,681 acres were considered farmland. In 1992, it was estimated that there were 1,891 farms with an average size of 44 acres. In 1996, it was estimated that there were 1,654 farm proprietors in the county with a total farm labor and proprietors income of $178.0 million or about $107,577 per proprietor. Income per acre averaged $2,445 ($107,577 income per proprietor/44 acres per farm). The 2,642 acres in the 8.5 SMA that is used in agricultural activities generates about $6.5 million in total farm labor and proprietors income. An undetermined portion of this income is generated by non-resident proprietors. The timing and persistence of impacts associated with the loss of this income as the result of

implementing the various alternatives will be addressed in the Impact Analysis section of this appendix.

5.2.4 Wages by Sector. (No area specific data has been identified)

5.3 Employment

5.3.1 Employment by Sector. Aside from the vegetable processing plant and a few small retail stores in the area, other than farming, there are no major employers in the 8.5 SMA. Commercial farms, nurseries and orchards provide full and part-time employment opportunities. The small retail stores employ no more than 20 people and the processing plant no more than 50 and it is uncertain as to whether or not the employees of the processing plant are residents of the area. Aside from an unknown number of residents who participate in full time farming activities, it is assumed that residents are employed outside of the area. Based on 1990 Census data for the Census tract containing the 8.5 SMA, about 51.0 percent or about 435 permanent residents are employed. Of those employed, 61.1 percent are male and the remaining 38.9 percent are female. No information is available as to which sector of the economy these people are employed.

5.3.2 Unemployment. In 1996, overall unemployment within the State of Florida was estimated at 5.1 percent. It was estimated that the white, black and Hispanic populations had unemployment rates of 4.3 percent, 9.7 percent and 7.5 percent, respectively. In Miami-Dade County the overall unemployment rate was estimated at 7.1 percent. The higher overall unemployment rate for the county can be attributed to the large Hispanic population within the county (about 56 percent). The 1990 Census tract data that includes the 8.5 SMA had a total unemployment rate of only 5.6 percent. However, this census tract includes employment data from the city of Homestead and therefore the unemployment rate is probably not representative of the 8.5 SMA. Given the rural nature of the area and the large Hispanic population, plus migrant farm workers and illegal immigrants, it is reasonable to assume that the unemployment rate is between 7.0 and 7.5 percent.

6.0 LAND USE

6.1 Existing Land Use. The existing land use of the 8.5 SMA is shown in Table 1. The land use shown is based on 1999 investigations by DERM and modified based on land acquisitions by SFWMD through February 2000. It should be noted that land acquisitions by the SFWMD for the mitigation project are continuing as well as acquisitions for the East Coast Buffer Project. As shown on Table 1, about 46.9 percent of land or 3,005 acres within the area is vacant. About 43.9 percent of the vacant land is presently in public ownership

with the remaining 56.1 percent in private ownership. About 41.2 percent of the land or 2,642 acres are involved in some type of agricultural type of activity. These activities include row crops, orchards, nurseries, pasture, etc. Of the 2,642 acres of agricultural land, 959 acres on 260 parcels contain residential units. Vacant land and agricultural land account for 88.1 percent of the total land use in the 8.5 SMA. The area classified exclusively as residential encompasses some 342 acres and is comprised of 74 parcels. As stated earlier, about 260 parcels are classified as agricultural/residential mix and this means that these parcels contain residential units. Within the area, there are 1,171 acres of land in 334 parcels that contain 321 houses and 193 trailers. For houses alone, these results in a residential density of 3.65 acres per house, which is very close to current, DERM density estimate. If trailers are considered, the residential density is reduced to 2.28 acres per residential unit. These densities are considerably below the 1:40 acre per residential unit density required for the area. In the Impact Analysis section of this appendix, a density of 3.65 acres per house is used to determine land carrying capacity under one of the impact scenarios considered. It should be noted that four (4) residences appear to be involved in commercial activities. As shown on Table 1, commercial activities are limited and constitute only two-tenths of 1-percent of the land use within the area. It should also be noted that some residential and agricultural parcels of land have multiple residential units on them. Therefore, residential and residential/ agricultural parcels do not equate to the number of residential units identified by DERM.

TABLE 1
LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74(1)	342	0	342
Commercial	4	16	0	16
Agriculture	713(2)	2,642	0	2,642
Communication	1	0	306	306
Easements	28(3)	102	0	102
Vacant	1,164(4)	1,686	1,319	3,005
Totals	1,984	4,788	1,625	6,413

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural land.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of powerline corridor.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

6.1.1 Housing. There is conflicting data on the number of housing units located within the 8.5 SMA. This is primarily due to the number of structures that have been converted to residential units without the benefit of permitting. For this assessment, a total of 514 residential units, consisting of 321 houses and 193 trailers, will be used. Of this, number, about 208 are considered to be full time permanent owner occupied residences. The DERM report identified only 135 of the 321 houses received the State homestead tax exemption. It appears that 306 residential units are not used as the primary domicile of the owners.

6.1.2 Public Services and Utilities. About 90 percent of the residents of Miami-Dade County are served by municipal type water and sewer services. However, Water and sewer services in the 8.5 SMA are provided by individual well and septic tank systems. Adequate storm water drainage and drainage outlets are also lacking. The drainage ditches and outlets provided by the original developer are not maintained and in some cases are blocked. Tropical and sub-tropical rainstorms flood roads and low-lying areas. Roads and these low-lying areas have retained waters for long periods of time. Of the 55 miles of roads in the area, only about 5.3 miles are paved. It has been reported that, because of the areas' isolation and bad roads, law enforcement patrols and other emergency services are rarely provided.

6.2 Existing Well Being Factors. In order to assess the social impacts of the various alternatives under consideration for the 8.5 SMA on area residents, it is necessary to determine how "attached" they are to the area and why they would prefer to stay in the area. Terms like "Community Cohesion" and "Sense of Place" are subjective concepts that need some quantification. Home ownership, land ownership, common heritage or ancestry and area aesthetics are also important factors. An assessment of these factors as they are presently perceived to exist in the area is provided in the following paragraphs.

6.2.1 Community Cohesion. This factor measures those elements that draw a community together. Majorities of the residents in the area share a strong Hispanic heritage. However, a large number of property owners are, in fact, absentee owners. That is, they live elsewhere during the week and spend weekends in the area. The area does not have any schools or churches that would tend to draw families together. There are no major employers in the area that would provide common employee interests. It has been reported that there are riding or "Social Clubs" that meet on weekends. Again, these activities appear to be those of absentee property owners and not those of permanent residents. One common interest among residents, however, appears to be a mistrust of governments at all levels. Efforts to purchase properties within the area have galvanized landowners into a cohesive group resisting the government buyout efforts. Some residents have indicated two main reasons for moving into the area. The first reason is to avoid the drugs and crime associated with metropolitan areas and the second reason is to live in the country and pursue

agricultural activities. There exists within the area a strong vocal group of residents who are actively resisting any government efforts to interfere with their lives. Whether this resistance is representative of the majority of residents has not been determined. If this resistance were found representative of a majority of the property owners, the sense of community cohesion among property owners in the area would be strong. If not representative of the property owners, community cohesion could best be characterized as moderate.

6.2.2 Sense of Place. This factor looks at those elements that provide residents a sense of well being, such as home ownership, working the land, rural atmosphere, and sense of security. It also includes an active concern and active participation in the decisions that may affect these elements. Within the 8.5 SMA there are strong feelings associated with property ownership. Many property owners look upon property ownership as “owning a piece of America”. The sense of property ownership is particularly strong among those families that have immigrated from other political environments. There are, however, conflicting data. A number of informal surveys were made of homeowners and landowners within the 8.5 SMA to determine their willingness to sell their properties for the implementation of the alternatives, particularly the buy-out alternatives. Informal surveys of landowner’s willingness to sell their land were conducted by the SFWMD, M. Fortin and form letters presented at various public meetings and workshops. These unscientific surveys have widely diverse results and are considered unreliable because of the uncontrolled nature of the survey instruments that would have eliminated or minimized any biased questions or responses. It is not sufficient to ask an individual about their willingness to sell their property without determining the threshold that would trigger their willingness to sell. This is to say that individuals may not be willing to sell their property at, for example, $1,000 per acre, but would be more than willing to sell their property at $5,000 per acre. A properly developed survey instrument would have helped identify these types of bias free data. Time constraints associated with the conduct of this study prevented the development of a statistically reliable survey instrument and sample survey. Further, of the owners of the 1984 parcels of land in the area, a relatively small percentage attended the public meetings held to discuss the various alternatives that could affect their lives and properties. Residents have claimed that that while they are on various public notice mailing lists, they have not been notified, in a timely manner, of scheduled public meetings and this fact may explain the low level of participation in the decision making process. Overall, the sense of ownership and place within the 8.5 SMA appears to be strong.

7.0 FUTURE SOCIAL PROFILE

7.1 Demographics

7.1.1 Projected Population. Using the baseline permanent resident population of the 8.5 SMA of 853 persons, as determined previously, future increases in population were determined for the fifty-year period 2000 to 2050. No specific projection factors have been developed for the 8.5 SMA. Therefore, population projection factors from various sources were reviewed and considered for use in the 8.5 SMA. The first projection factors considered were based on those developed for Miami-Dade County in Appendix E of the C&SF Project Comprehensive Review Study (Restudy Report), specifically Table 3.3.3.4-4 on page E-53. These factors were developed for a large metropolitan area and are not considered representative of the growth in rural areas. Miami-Dade County has, however, developed population projection factors for what the county terms Minor Statistical Areas (MSA). The county has developed population projections for a total of 32 MSAs. The 8.5 SMA is located in MSA 7.6. This MSA is relatively large and borders the eastern edge of the ENP. Its' development potential is relatively low. Five joining MSA's have significantly higher growth potential than MSA 7.6. Further, the county's 2010 Urban Expansion Area Boundary does not include any part of MSA 7.6. The closest identified area of expansion for the year 2010 is more than 2 miles away from the 8.5 SMA. The projection factors developed for MSA 7.6 were considered representative of the limited growth potential of the 8.5 SMA and were used to project future population growth within the area. Projection factors derived from the future population estimates shown were applied to the baseline estimate for the 8.5 SMA. These factors and the resulting projections are shown on Table 2. As shown, the population in the area is expected to increase by about 84 percent or 717 persons within the next 15 years and remain constant over the remainder of the projection period. County projections indicate that MSA 7.6 will reach its' development capacity by the year 2015. This is simply based on the availability and desirability of lands adjacent to the ENP and the county's desire to restrict growth in the environmentally sensitive areas bordering the everglades. This population growth within the 8.5 SMA can be accommodated if the county continues to ignore the 1:5 zoning density for the area. Enforcing the 1 residential unit per 40-acre density (1:40) density and limiting development to flood free areas would constrain future population growth in the 8.5 SMA.

TABLE 2
PROJECTED POPULATION

YEAR	PROJECTION FACTOR	POPULATION
2000	1.000	853
	1.512	
2010		1,290
	1.841	
2015		1,570
	1.841	
2020		1,570
	1.841	
2030		1,570
	1.841	
2040		1,570
	1.841	
2050		1,570

7.1.2 Population Characteristics. The distribution of the population characteristics, such as age, sex, ancestry, education, family size, etc are assumed to remain the same as those identified in the existing profile. Specific data sets for the 8.5 SMA are not available that would allow for the accurate projection of changes in these population characteristics.

8.0 FUTURE ECONOMIC PROFILE

8.1 Projected Income and Earnings. (No specific projections are available or applicable for use in projecting future income and earnings in the 8.5 SMA).

8.2 Projected Employment. The present estimate of employed permanent residents of the 8.5 SMA of 435 is expected to increase to about 800 by the year 2015. This increase is based on the assumption that the present relationship between resident population and employed population remains constant over the projection period. No data are available that would allow for a more accurate

estimate of future employment levels. Employment in the 8.5 SMA is projected to increase to 658 in the year 2010, to 800 in the year 2015, and remain constant thereafter.

9.0 FUTURE LAND USE

9.1 Future Land Use. Land use within the 8.5 SMA is, for the most part, governed by zoning ordinances. However, within this area there are numerous examples where zoning restrictions have been totally ignored. In developing the "without" condition for future land use, two conditions were considered. In the first case, it was assumed that zoning ordinances would not be enforced, as is presently the case. In the second case, it was assumed that the ordinances would be followed and/or enforced. Land use ordinances for the 8.5 SMA restrict residential development to one residential unit per 40 acres. This ordinance is based on the premise of restricting development within the 10-year flood plain. The ten-year flood elevation within the area has been determined to be the 7.7-foot elevation or contour within the area. Of the 6,413 acres within the area, about 663 acres have been acquired for the construction of the authorized GDM mitigation plan. Of the remaining 5,750 acres, about 574 acres are located above the 7.7-foot elevation and therefore are not constrained by the land use ordinance. This is to say that property owners can request a variance and develop their property to a density of 1 residential unit per 5 acres. The without project condition assumes that the authorized mitigation plan has been constructed and is being operated. The purpose of the authorized GDM plan is not to provide flood protection. It simply mitigates the effects of the MWD to the Everglades. Flooding will still occur from tropical and sub-tropical rainfall events. Some incidental additional lands may experience a reduced incidence of flooding. Therefore, development in the remaining 5,176 acres will be evaluated for the two cases cited above. Further, if there is no reduction in flooding below elevation 7.7 feet, there should be no change in the economic and social impacts from current conditions (GDM plan not constructed and the baseline condition that considers the project in place). Each of the alternatives will be evaluated for the two cases cited above in a subsequent section of this report.

9.2 Projected Households. With the authorized plan in place, there will be little if any flood stage reduction benefits. This is to say that most of the area will still be subject to flooding from the 10-year flood event. As such, present zoning restrictions in the area will not be relaxed. Since there are very few vacant 40-acre tracts available, legal area growth will be limited to the 574 acres located above elevation 7.7 feet. Of the 574 acres above 7.7 feet, 555 acres are eligible for a county variance allowing a housing density of 1 house per 5 acres. Given the anticipated growth in permanent population in the area a total of about 174 houses would have to be built in this upland area over the fifty-year planning period. These houses would require a total of 875 acres of land to comply with

zoning regulations. Obviously, there are insufficient flood free lands available to accommodate future population growth if the 1:5 zoning ordinance is enforced. It is estimated that the flood free area could accommodate a maximum of 111 houses. If development is allowed to occur illegally, as has occurred in the past, the development of houses to accommodate the anticipated population growth could occur virtually anywhere within the 8.5 SMA.

10.0 IMPACT ANALYSIS

General. In determining the social and economic impacts of the nine alternatives and two variations for the two cases cited above, a number of assumptions were made. These assumptions are listed below.

- The mix of residents vs. non-residents remains constant at 40.5% and 59.5%, respectively over the projection period.
- Household size remains constant at 4.1 persons per household.
- The baseline population for projections was adjusted for those alternatives (other than Buy-Out) that dislocate a significant number of the resident population.
- All vacant and agricultural lands in the flood free zone will be converted to residential use over the projection period. (This assumption provides for the maximum induced growth and maximum local cost as it is considered a worst-case scenario.) It is believed that not all agricultural lands in the flood free area would be converted to residential since many residents and non-residents of the 8.5 SMA depend upon agricultural production for personal income.
- For the "No Density Constraints (current practice)" case, wetlands may be developed.
- Vacant lands would be converted to residential use before agricultural lands.
- Since site specific data on agricultural production, yields, acreage per crop or value are not available for the 8.5 SMA; an average annual gross income value per acre for Miami-Dade County was used. This value was estimated at $2,445 per acre. Based on information from the Miami-Dade County Agricultural Extension Service this value may be high based on the marginal productivity of the agricultural lands within the 8.5 SMA. However, since no other data are available at this time and the fact that all of the alternatives will be evaluated using this value, the order of magnitude and the relative differences between the various alternatives can be ascertained.

10.1 Alternative 1 – Authorized GDM Plan. Congress authorized the Original GDM Plan for implementation per the General Design Memorandum prepared by the USACE Jacksonville, District in 1992. It includes a major levee along the 8.5 SMA perimeter starting at the L-31 N on the north side of the area, and moving west and south to high ground on SW 168th Street. A seepage canal will be constructed adjacent to and just inside of the major levee to collect groundwater underflow. A minor levee will be constructed adjacent to and just inside the seepage canal to prevent surface water flow from running into the canal from the 8.5 SMA. There is concern that runoff from the 8.5 SMA could possibly be polluted, and the minor levee will keep potentially contaminated water from mixing with the cleaner seepage water from ENP. This alternative offers flood mitigation for all residents of 8.5 SMA. A new pump structure (proposed S-357) will be located in the canal at the northeastern edge of 8.5 SMA near the L-31 N canal. This pump will discharge water from the seepage canal into L-31 N. Another pump structure (S-356 not included in this project) will pump from L-31 N canal into L-29 canal. This pump facility (S-356) will be constructed to facilitate seepage and conveyance and is considered not to be a part of any alternative. This will re-circulate cleaner seepage water back to NESRS and ENP. Surface water runoff from within the 8.5 SMA will be contained by the minor levee, and eventually infiltrate into the ground.

10.1.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative an additional 60 acres of land will be protected from the 1 in 10 year flood event. Of the total 634 acres, about 592 acres would be available for future residential development. Within these 592 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would not be any project induced growth within the 8.5 SMA, since vacant or agricultural lands are available to accommodate future population increases. Using the current density of 3.65 acres per residential unit, vacant lands within the 8.5 SMA could accommodate about 462 new residential units. This is considerably more than the projected demand for 174 residential units over the projection period. Further, since there are sufficient vacant lands to accommodate future growth for this scenario, no loss of agricultural production is anticipated. The acquisition of 663 acres of lands required to construct this alternative cost $4,078,200 and $32,000 for one residential relocation.

10.1.2 Socio-Economic Impacts – Density Ordinances Enforced. Assuming that Miami-Dade County will enforce the existing density ordinance, future development within the 8.5 SMA will be limited to the existing 574 acres located

above the present 10-year flood line and to the additional 60 acres of land protected from the 10-year flood with this alternative in place and operating. Of this 634 acres of land, about 592 acres would be available to accommodate future residential development. These lands would accommodate only a portion of the anticipated population growth within the area over the next fifteen years (118 of the 174 houses needed during the projection period). No additional development is expected to be induced into the area with the implementation and operation of the project. Of the 592 acres of lands available for residential development, 547 acres are classified as agricultural lands, that is, involved in some sort of agricultural production. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average gross income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.3 million. Of this amount, about $0.5 million is the estimated annual income lost to residents of the area with the remainder being lost to non-residents. The extent of these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report", all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices. See Figure 3, Table 3 and Table 14 for details.

10.2 Alternative 2B – Modified GDM Plan. The development of this alternative was a direct result of the completion of the C&SF Restudy plan sent to Congress in July 1999. Many of the scoping comments received requested that the Authorized Plan be modified to accommodate higher flows and stages expected after the Restudy is implemented. Alternative 2B was developed by the 8.5 SMA technical team to address this issue. This alternative has the same basic layout of Alternative 1, and provides flood mitigation for all residents of 8.5 SMA. It includes the same basic major levee, seepage canal, and minor levee system along the 8.5 SMA boundary southwest from L-31 N to high ground on SW 168th Street. A single pump (proposed S-357) will be installed at the southwest corner of the 8.5 SMA and will discharge seepage water into a treatment area in the C-111 buffer area. As in Alternative 1, surface water runoff from within the 8.5 SMA will be contained by the minor levee, and will infiltrate into the ground.

10.2.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the

implementation of this alternative, an additional 79 acres of land will be protected from the 1 in 10 year flood event. Of the total 653 acres, about 608 acres would be available for future residential development. Within these 608 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would not be any project induced growth within the 8.5 SMA, since vacant or agricultural lands are available to accommodate future population increases. Using the current density of 3.65 acres per residential unit, vacant lands within the 8.5 SMA could accommodate about 462 new residential units. This is considerably in excess of the projected demand for 174 residential units over the projection period. Further, since there are sufficient vacant lands to accommodate future growth for this scenario, no loss of agricultural production is anticipated. The acquisition of 663 acres of lands required to construct this alternative cost $4,078,200 and $32,000 for one residential relocation.

10.2.2 Socio-Economic Impacts – Density Ordinances Enforced. Assuming that Miami-Dade County will enforce the existing density ordinance, future development within the 8.5 SMA will be limited to the existing 574 acres located above the present 10-year flood line and to the additional 79 acres of land protected from the 10-year flood with this alternative in place and operating. Of this 653 acres of land about 608 acres would be available to accommodate future residential development. These lands would accommodate only a portion of the anticipated population growth within the area over the next fifteen years (122 of the 174 houses needed during the projection period). No additional development is expected to be induced into the area with the implementation and operation of the project. Of the 608 acres of lands available for residential development, 563 acres are classified as agricultural lands, that is, involved in some sort of agricultural production. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average annual income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.4 million. Of this amount, about $0.6 million is the estimated annual income lost to residents of the area with the remainder being lost to non-residents. These losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the “Restudy Report”, all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors’ income, however, is expected to take longer but should recover within 3 years. Further, lost production could be made up

elsewhere within the county or by applying more intense farming practices. See Figure 4, Table 4 and Table 14 for details.

10.3 Alternative 3 – Deep Seepage Barrier Plan. Previous studies developed a plan that considered constructing a deep seepage barrier around the protected area to reduce or eliminate groundwater underflow from ENP expansion area to the 8.5 SMA. Under this plan, the outer perimeter levee follows the same alignment as the Authorized Plan, along the 8.5 SMA boundary southwest from L-31 N to high ground on SW 168th Street. A seepage barrier, possibly located within the levee, extends down to an undetermined elevation. The seepage barrier will be made of an engineered barrier or curtain wall such as slurry wall, sheet piles, etc. The barrier must be installed at an elevation below the aquifer (estimated 45 to 70 feet). This will eliminate the need for the seepage canal and interior levee. Surface water runoff from within the 8.5 SMA will be contained by the levee, and infiltrate into the ground. The alternative provides very little flood protection within the 8.5 SMA for a 1 in I0-year event (14 acres).

10.3.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative, an additional 14 acres of land will be protected from the 1 in 10 year flood event. Of the total 588 acres, about 547 acres would be available for future residential development. Within this area, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would not be any project induced growth within the 8.5 SMA, since vacant or agricultural lands are available to accommodate future population increases. Using the current density of 3.65 acres per residential unit, vacant lands within the 8.5 SMA could accommodate about 462 new residential units. This is considerably in excess of the projected demand for 174 residential units over the projection period. Further, since there are sufficient vacant lands to accommodate future growth for this scenario, no loss of agricultural production is anticipated. Of the 5,825 acres of land required to construct this alternative, 1,132 acres have been acquired by the Federal Government and the SFWMD at a cost of $13.4 million. These acquisitions required the relocation of one household at a cost of $32,000. A flowage easement will be required on the remaining 4,693 acres. It should be noted that the cost of flowage easements would be limited to the fee simple value of the property. In some cases, the cost of modifying the property (modifying water and sewage systems) may exceed the fee simple value of the property. In this case, the property will be purchased in fee simple. For cost estimating purposes, it was assumed that 50 such properties would be purchased, affecting

both resident and non-resident property owners and tenants. In general, the cost of flowage easements is estimated at 95% of the fee simple cost. However, it should be noted that the cost of flowage easements will be limited to the estimated fair market value of the fee simple (the cost of the easement along with the modification of water and sewage systems may exceed the fee value of the property). Appendix D estimates the per acre value of flowage easements at $9,190 per acre for 4,387 acres and $5,500 for 306 acres owned by the FAA or a total of approximately $42 million which is considered compensation fo land owners for the impacts associated with the periodic flooding of their lands.

10.3.2 Socio-Economic Impacts – Density Ordinances Enforced. Assuming that Miami-Dade County will enforce the existing density ordinance, future development within the 8.5 SMA will be limited to the existing 574 acres located above the present 10-year flood line and to the additional 14 acres of land protected from the 10-year flood with this alternative in place and operating. Of the total 588 acres, about 547 acres would be available for future residential development. These lands would accommodate only a portion of the anticipated population growth within the area over the next fifteen years (109 of the 174 houses needed during the projection period). No additional development is expected to be induced into the area with the implementation and operation of the project. Of the 547 acres of lands available for residential development, 512 acres are classified as agricultural lands, that is, involved in some sort of agricultural production. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average annual income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.3 million. Of this amount, about $0.5 million is the estimated annual income lost to residents of the area with the remainder being lost to non-residents. These losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the “Restudy Report”, all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors’ income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices. Of the 5,825 acres of land required to construct this alternative, 1,132 acres have been acquired by the Federal Government and the SFWMD at a cost of $13.4 million. These acquisitions required the relocation of one household at a cost of $32,000. A flowage easement will be required on the remaining 4,693 acres. It should be noted that the cost of flowage easements would be limited to the fee simple value of the property. In some cases, the cost of modifying the property (modifying water and sewage systems) may exceed the fee simple value of the property. In this case, the property will be purchased in fee simple. For cost estimating purposes, it was

assumed that 50 such properties would be purchased, affecting both resident and non-resident property owners and tenants. In general, the cost of flowage easements is estimated at 95% of the fee simple cost. However, it should be noted that the cost of flowage easements will be limited to the estimated fair market value of the fee simple (the cost of the easement along with the modification of water and sewage systems may exceed the fee value of the property). Appendix D estimates the per acre value of flowage easements at $9,190 per acre for 4,387 acres and $5,500 for 306 acres owned by the FAA or a total of approximately $42 million which is considered compensation fo land owners for the impacts associated with the periodic flooding of their lands.

10.4 Alternative 4 – Landowner's Choice Land Acquisition. Many of the comments received in the scoping process suggested that the landowners might respond more favorably to a voluntary land acquisition alternative. Many landowners indicated that they would be willing to stay and, endure the increased flooding if they were shown the extent of the impact. Therefore, an alternative was developed by the study team that provided for acquisition of land in 8.5 SMA through three different means. Current owners have a choice:

- Buy – Out: Government purchase (fee simple)
- Flowage Easements: Pay property owners cash as mitigation for periodic flooding. Owner retains ownership rights to property.
- Life Estates Owners retain ownership and full use of property for duration of current owner's life. Then the property goes to ownership of the Government.

Modeling would be performed to graphically demonstrate to the owners the elevations and extent of flooding. This will assist the owners in making their choice. Under this alternative, no structural improvements are proposed, and no significant changes in operation of existing structures or system features would occur.

10.4.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Under this scenario, property owners would be given a choice of a Government Buy-Out of their property, the Government purchase of flowage easements, or the Government purchase of Life Estates with flowage easements. This is somewhat different than that described above. It was determined that the purchase of Life Estates without flowage easements would render this alternative un-implementable, therefore the selling of a Life Estate by itself is not an option. Since it is impossible to determine which parcels or which property owners would opt for any of the three Land Acquisition Options, the following assumptions were made for this specific alternative. The first assumption is that existing resident and non-resident landowners of agricultural

lands would opt for a flowage easement in order to maintain the income associated with farming activities. Thus, flowage easements would be obtained on 2,772 acres of agricultural land. A flowage easement would also be obtained on the 306-acre FAA parcel. It should be noted that 1,132 acres of land are presently owned by the Federal Government and the SFWMD. Of the remaining owners, it was assumed that 1/8th would opt for a Life Estate with flowage easement, 3/8th would accept the Government Buy-Out, and ½ would opt for flowage easements. These assumptions result in the Buy – Out of 1,514 acres of which 1,132 acres is already owned, selling flowage easements on 4,654 acres and selling life estates with flowage easements on 245 acres. It is estimated that 45 permanent residents or 12 households would be immediately displaced from the area. Non-resident property owners who accept the Government Buy-Out would not be physically impacted by the Buy-Out and could purchase replacement upland tracts in other areas of the region, if lands are available. They may also sell their Severable Use Rights (SUR) prior to selling their property to the Government. Another 16 persons or 4 households would be displaced over the 50-year period until the Government assumes ownership upon the death of the current owner upon which time surviving family members would be displaced. Non-resident owners who sell Life Estates with flowage easements to the Government would not be immediately physically impacted and could maintain their current activities until the death of the owner at which time the Government would obtain ownership. These owners may also sell their SUR during the period of their ownership. The final group of property owners are those that sell flowage easements to the Government. It is assumed that the permanent resident property owners and the non-resident property owners would continue to develop their lands in violation of the existing density ordinance. This means that unauthorized residential development will continue on undeveloped parcels of land. Using the current density of 3.65 acres per residential unit, vacant lands within the 8.5 SMA could accommodate about 402 new residential units. This is considerably in excess of the projected demand for 174 residential units over the projection period. Further, since there are sufficient vacant lands to accommodate future growth for this scenario, no loss of agricultural production is anticipated. It is estimated that the total cost of the buy-out of 1,514 acres of land, including the 1,132 acres already acquired is estimated at $26.6 million. The relocation of 20 households would cost about $560,000. It should be noted that the cost of Flowage Easements would be limited to the Fee Simple Value of the property. In some cases, the cost of modifying the property (modifying water and sewage systems) may exceed the Fee Simple value of the property. In this case, the property will be purchased in Fee Simple. For cost estimating purposes, it was assumed that 50 such properties would be purchased affecting both resident and non-resident property owners and tenants. The purchase of Life Estates with flowage easements on 245 acres and the future relocation of residents are estimated at about $5.8 million. The purchase of Flowage Easements on 4,654 acres is estimated to cost about $9,910 per acre or $46.0 million. The $46.0 million is compensation to remaining residents and non-residents for the impacts, including agricultural impacts, associated with the

periodic flooding of their lands. Since all of the agricultural land is expected to remain in production under a Flowage Easement and the owners compensated for their impacts, no additional agricultural losses are anticipated.

The cost associated with these assumptions include $122,789,272 for land acquisition and relocations, which would include the purchase of flowage easements, the purchase of life estate with flowage easements, ad fee simple acquisition and which includes $4,078,200 spent by USACE (663 acres in fee) and $9,342,510 spent by the SFWMD (469 acres in fee). Appendix D estimates the per acre value of the flowage easements and for life estates with flowage easements at $9,190 per acre and $5,500 for 306 acres owned by the FAA. Fee simple is estimated at $9,690 per acre.

10.4.2 Socio-Economic Impacts – Density Ordinances Enforced. The impacts to both resident and non-resident landowners under this scenario are the same as those discussed above except for those property owners who sell Flowage Easements to the Government. Under this scenario, the density ordinance would be enforced and no additional residential development would be allowed. See Figure 6, Table 6 and Table 12 for details.

10.5 Alternative 5 – Total Buy-Out Plan. Total buyout was originally developed and evaluated as an alternative in the 1992 GDM. The Governor's East Everglades 8.5 SMA Study Committee also considered total buyout as an alternative. Under this plan, all land in the 8.5 SMA will be obtained either from willing sellers or by condemnation. No structural improvements are proposed, and no significant changes in operation of existing structures and system will be required.

10.5.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres in the 8.5 SMA all but 306 acres (FAA Facility) is or would be owned in Fee Simple. Of the remaining 6,107 acres, 1,132 acres have been purchased by the Federal Government or the SFWMD at a total cost of about $13.4 million. It is estimated that a Government Buy-Out of the remaining 4,975 acres and the relocation of 208 households would cost about $164.8 million. An additional 306 non-resident households with about 1,253 persons would be affected by the Buy-Out. Of the 4,975 acres to be purchased, about 2,642 acres are classified as agricultural lands, that is, involved in some sort of agricultural production. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about

$6.5 million. Of this amount, about $2.6 million in annual income is the estimated income lost to residents of the area with the remaining $3.9 million in annual income lost to non-residents. This lost annual income to both residents and non-residents could increase demands for public assistance from the county and other government agencies. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income, however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

10.5.2 Socio-Economic Impacts – Density Ordinances Enforced. The impacts from implementing this alternative under this scenario are the same as those discussed above in the preceding paragraph. See Figure 7, Table 7 and Table 14 for details.

10.6 Alternative 6B – Western Portion of 8.5 SMA as Buffer. The Governor's East Everglades 8.5 SMA Study Committee developed and evaluated several alternatives that utilized the western portion of the 8.5 SMA as a flow-way or buffer area. This concept was further studied in the PEER Report and the analysis confirmed that it was a feasible concept. Therefore, the technical team developed an alternative that would convert the western portion of the 8.5 SMA to a shallow impoundment to be used as a buffer between the developed area and ENP. This alternative uses a similar concept to the original GDM authorized plan, but was modified to be more compatible with Restudy. Part of the 8.5 SMA has a flood protection levee and drainage system. The perimeter levee runs approximately along 202nd Avenue down to 168th Street. A seepage canal is located just inside the new levee and is designed to collect groundwater underflow. A second levee located just inside the seepage canal will prevent surface water from running into the seepage canal and mixing with seepage water. A new proposed pumping structure (S-357) located at the southern terminus of the levee/canal system will discharge seepage water south into a treatment system in the C-111 barrier area. There will be no major changes to operations of existing structures in the system.

10.6.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres located in the 8.5 SMA, 4,346 acres or about 68 percent of the land will be required to implement this alternative. Of the 4,346 acres required, about 1,132 acres or 26 percent are presently in public ownership. Of the 4,346 acres required, to implement Alternative 4,196 would be acquired in fee simple with flowage easements acquired on the remaining 150 acres. It is estimated that about 586 permanent residents in 143 households will be displaced with the implementation of this alternative. In addition, about 1,136 acres of agricultural lands and its' annual income producing potential will be

acquired. The relocation of 143 households is estimated to cost $28,000 per household or about $4.7 million. Further, it is estimated that the annual agricultural income lost to both residents and non-residents would be about $2.8 million. Of the $2.8 million, permanent residents would lose an estimated $1.1 million in annual income with non-residents losing the remaining $1.7 million. The loss of this income to property owners within the 8.5 SMA could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income, however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative, an additional 1,643 acres of land will be protected from the 1 in 10 year flood event. Of the total 2,217 acres, about 1,711 acres would be available for future residential development. Within these 1,711 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would be sufficient vacant or agricultural lands to accommodate the displaced 143 households discussed above and also the 15 year projected increase in households, presently estimated at 174 additional households. As stated earlier, under the current practice of not enforcing the density ordinance, residential units presently occupy about 3.65 acres per residential unit. Using this density, the 1,711 acres would have the capacity to accommodate 469 new households that is in excess of the projected demand of 317 (143 + 174) households discussed above.

About 1,157 acres (317 x 3.65) are needed to accommodate the 303 new residences needed over the projection period. Of the 1,157 acres, 205 acres of vacant land would be available for development. The remaining 952 acres would be agricultural lands. These lands would be converted to residential use under this scenario. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $2.2 million.

Of this amount, about $0.9 million is the estimated annual income lost to residents of the area with the remaining $1.3 million being lost to non-residents. Again, the loss of this income to property owners within the 8.5 SMA is in addition to that discussed above and could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

10.6.2 Socio-Economic Impacts – Density Ordinances Enforced. Of the 6,413 acres located in the 8.5 SMA, 4,346 acres or about 68 percent of the land will be required to implement this alternative. Of the 4,346 acres required, about 1,132 acres or 26 percent are presently in public ownership. Of the 4,346 acres, 4,196 will be acquired in fee simple while flowage easements will be required on the remaining 150 acres. It is estimated that about 529 permanent residents in 143 households will be displaced with the implementation of this alternative. In addition, about 1,136 acres of agricultural lands and its' annual income producing potential will be acquired. The relocation of 143 households is estimated to cost $28,000 per household or about $4.7 million. Further, it is estimated that the annual agricultural income lost to both residents and non-residents would be about $2.8 million. Of the $2.8 million, permanent residents would lose an estimated $1.1 million in annual income with non-residents losing the remaining $1.7 million. The loss of this income to property owners within the 8.5 SMA could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report" all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative, an additional 1,643 acres of land will be protected from the 1 in 10 year flood event. Of the total 2,217 acres, about 1,711 acres would be available for future residential development. Within these 1,711 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. This acreage could accommodate a maximum of 342 new residential units. This capacity is slightly greater than the demand created by the 143 households displaced with the construction of the project and the 174 new households projected. About 1,515 acres are needed to accommodate the 317 residences needed over the projection period under this scenario. Of the 1,585

acres needed, 205 acres of vacant land would be available for development. The remaining 1,380 acres would be agricultural lands. These lands would be converted to residential use under this scenario. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $3.2 million. Of this amount, about $1.3 million is the estimated annual income lost to residents of the area with the remaining $1.9 million being lost to non-residents. Again, the loss of this income to property owners within the 8.5 SMA is in addition to that discussed above and could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report" all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices. See Figure 8, Table 8 and Table 14 for additional details.

10.7 Alternative 6C – Modified Western Portion of 8.5 SMA as Buffer (SOR Boundary). Alternative 6C is similar in nature and design to Alternative 6B. This alternative consists of an exterior and interior levee as well as a seepage canal generally constructed as shown on the attached Figure 9. The location of the levee and canal system generally follows the eastern boundary of the area designated by SFWMD as the Phase 1 - Save Our Rivers boundary. This area has been the subject of willing seller property acquisition by SFWMD as part of the Save our Rivers program.

A seepage collection canal will be located between the levees designed to keep the groundwater levels within the eastern portion of the area at the same levels as existed prior to the implementation of the MWD project. The interior levee is positioned to prevent surface water from entering the seepage canal. A new proposed pumping structure (S-357) located at the southern terminus of the levee/canal system will discharge seepage through a pipe to be released south into a treatment system in the C-111 buffer area. There will be no major changes to operations of existing structures in the C&SF system.

The canal and levee system on the western boundary of this alternative is located approximately 1.3 miles west of the boundary of Alternative 6B. It is located approximately 0.6 miles east of the westernmost boundary of the 8.5

SMA. This alternative includes approximately 7.3 square miles within its boundaries, which is 3.8 square miles more than Alternative 6B.

10.7.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres located in the 8.5 SMA, 1,743 acres or about 27 percent of the land will be required to implement this alternative. Of the 1,743 acres required, about 1,132 acres or 65 percent are presently in public ownership. It is estimated that about 70 permanent residents in 17 owner occupied households will be displaced with the implementation of this alternative. In addition, about 51 acres of agricultural lands and its' annual income producing potential will be acquired. The relocation of 17 owner occupied households is estimated to cost $28,000 per household or about $0.56 million. Further, it is estimated that the annual agricultural income lost to both residents and non-residents would be about $125,000. Of the $125,000, permanent residents would lose an estimated $53,000 in annual income with non-residents losing the remaining $72,000. The loss of this income to property owners within the 8.5 SMA could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. Of the total acres, about 534 acres would be available for future residential development. Within these 534 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would be sufficient vacant or agricultural lands to accommodate the displaced 17 households discussed above and also the 15 year projected increase in households, presently estimated at 174 additional households. As stated earlier, under the current practice of not enforcing the density ordinance, residential units presently occupy about 3.65 acres per residential unit. Under this scenario, about 1,184 acres of vacant land would be available to accommodate this growth. Using the 3.65 density, the 1,184 acres would have the capacity to accommodate 324 new households. That is in excess of the projected demand of 191 (17+174) households discussed above. About 697 acres (191 x 3.65) are needed to accommodate the 191 new residences needed over the projection period. The 697 acres needed could be accommodated by the 1,184 acres of vacant land available for development.

10.7.2 Socio-Economic Impacts – Density Ordinances Enforced. Of the 6,413 acres located in the 8.5 SMA, 1,743 acres or about 27 percent of the land will be required to implement this alternative. Of the 1,743 acres required about 1,132 acres or 65 percent are presently in public ownership. It is estimated that about 70 permanent residents in 17 owner occupied households will be displaced with the implementation of this alternative. In addition, about 51 acres of agricultural lands and its' annual income producing potential will be acquired. The relocation of 17 households is estimated to cost $28,000 per household or about $0.48 million. Further, it is estimated that the annual agricultural income lost to both residents and non-residents would be about $125,000. Of the $125,000, permanent residents would lose an estimated $53,000 in annual income with non-residents losing the remaining $72,000. The loss of this income to property owners within the 8.5 SMA could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. Of the total acres, about 534 acres would be available for future residential development. Within these 534 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. This acreage could accommodate a maximum of 107 new residential units. This capacity is less than the demand created by the 17 households displaced with the construction of the project and the 174 new households projected. About 955 acres are needed to accommodate the 191 residences over the projection period under this scenario. Of the 534 acres available, 35 acres of vacant land would be available for development. The remaining 499 acres would be agricultural lands. These lands would be converted to residential use under this scenario. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.22 million. Of this amount, about $0.49 million is the estimated annual income lost to residents of the area with the remaining $0.73 million being lost to non-residents. Again, the loss of this income to property owners within the 8.5 SMA is in addition to that discussed above and could result in the increased demand for public assistance from the

county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices. See Figure 9, Table 9 and Table 14 for additional details.

10.8 Alternative 6D – Modified Western Portion of 8.5 SMA as Buffer.

Alternative 6D is similar in nature and design to Alternative 6C. This alternative consists of an exterior and interior levee as well as a seepage canal generally constructed as shown on Figure 10. The location of the exterior levee is generally inside the Phase 1 - Save Our Rivers boundary line that the outer levee for Alternative 6C follows. The seepage canal system runs along 205th Avenue north from 168th Street to 132nd Street, then east along 132nd Street to the L-31N canal. The seepage collection canal is designed to keep the groundwater levels within the area interior of the outer levee at the same levels as existed prior to the implementation of the MWD project. Two interior levees, one on either side of the seepage canal, are positioned to prevent surface water from entering the seepage canal. A new proposed pumping structure (S-357) located at the southern terminus of the levee/canal system will discharge seepage through a pipe to be released south into a treatment system in the C-111 buffer area. There will be no major changes to operations of existing structures in the C&SF system resulting from implementation of this alternative.

The canal and levee system on the western boundary of this alternative ranges from approximately 0.22 to 1.1 miles west of the boundary of Alternative 6B, depending on the location along the boundary. Similarly, it is located approximately .10 to 1.05 miles east of the westernmost boundary of the 8.5 SMA. This alternative includes approximately 5.5 square miles within its boundaries, which is 2.1 square miles more than Alternative 6B.

10.8.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres located in the 8.5 SMA, 2,881 acres or about 45 percent of the land will be required to implement this alternative. Of the 2,881 acres required about 1,132 acres or 39 percent are presently in public ownership. Of the 2,881 acres, 2,335 will be acquired in fee simple and flowage easements will be acquired on the remaining 546 acres. It is estimated that about 144 permanent residents in 35 households will be displaced with the implementation of this alternative. In addition, about 215 acres of agricultural lands and its' annual income producing potential will be acquired. The relocation of 35 households is estimated to cost $28,000 per household or about $1.2 million. Further, it is estimated that the annual agricultural income lost to both residents and non-residents would be about $526,000. Of the $526,000, permanent

residents would lose an estimated $221,000 in annual income with non-residents losing the remaining $305,000. The loss of this income to property owners within the 8.5 SMA could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income, however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. Of the total acres, about 534 acres would be available for future residential development. Within these 534 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would be sufficient vacant or agricultural lands to accommodate the displaced 35 households discussed above and also the 15 year projected increase in households, presently estimated at 174 additional households. As stated earlier, under the current practice of not enforcing the density ordinance, residential units presently occupy about 3.65 acres per residential unit. Under this scenario, about 3,278 acres of land would be available and could accommodate a maximum of 898 residential units which is greater than the projected demand of 209 (35 + 174) households discussed above. About 763 acres (209 x 3.65) are needed to accommodate the 209 new residences needed over the projection period. The 3,278 acres available consists of 851 acres of vacant land and 2,427 acres of agricultural land. The available vacant lands can accommodate the projected demand discussed above with no impact on agricultural lands.

10.8.2 Socio-Economic Impacts – Density Ordinances Enforced. Of the 6,413 acres located in the 8.5 SMA, 2,881 acres or about 45 percent of the land will be required to implement this alternative. Of the 2,881 acres required about 1,132 acres or 39 percent are presently in public ownership. Of the 2,881 acres, 2,335 will be acquired in fee simple and flowage easements will be acquired on the remaining 546 acres. It is estimated that about 144 permanent residents in 35 households will be displaced with the implementation of this alternative. In addition, about 215 acres of agricultural lands and its' annual income producing potential will be acquired. The relocation of 35 households is estimated to cost $28,000 per household or about $0.98 million. Further, it is estimated that the annual agricultural income lost to both residents and non-residents would be about $526,000. Of the $526,000, permanent residents would lose an estimated $221,000 in annual income with non-residents losing the remaining $305,000.

The loss of this income to property owners within the 8.5 SMA could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. Of the total acres, about 534 acres would be available for future residential development. Within these 534 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will enforce the density ordinance, there would be insufficient vacant or agricultural lands to accommodate the displaced 35 households discussed above and also the 15 year projected increase in households, presently estimated at 174 additional households. Using a density of 1 unit per 5 acres, the 534 acres would have the capacity to accommodate 107 new households. That is less than the projected demand of 209 (35 + 174) households discussed above. About 1,045 acres (209 x 5.0) are needed to accommodate the 209 new residences needed over the projection period. The 534 acres available consists of 35 acres of vacant land plus 499 acres of agricultural land. Total annual agricultural income losses from this acreage would amount to $1.22 million. Of this amount, permanent residents would lose an estimated $0.49 million in annual income with non-residents losing the remaining $0.73 million. See Figure 10, Table 10 and Table 14 for additional details.

10.9 Alternative 7 – Raise All Roads Plan. As mentioned in the discussion of Alternative 4, public comments indicated the desire to allow use of the land within the 8.5 SMA after the implementation of MWD project, even without flood mitigation or protection measures. An alternative was developed that would improve roadway features within the area. This would be accomplished by raising all access roads and restoring them in-kind. The roads will be raised so that they will not be flooded as a result of the MWD Project. All areas within the roads will remain unimproved. Roads will be improved only to the condition in which they currently exist (paved will be paved, dirt will be dirt). Internal drainage could be handled by placing culverts and obtaining flowage easements. Due to the nature of the subsurface in the area, much of the surface water is expected to infiltrate. There is no allowance for relocation or buy-out of residents currently proposed under this plan.

10.9.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative, no additional land will be protected from the 1 in 10 year flood event. Of the total 574 acres, about 534 acres would be available for future residential development. Within this area, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would not be any project induced growth within the 8.5 SMA, since vacant or agricultural lands are available to accommodate future population increases. Using the current density of 3.65 acres per residential unit, vacant lands within the 8.5 SMA could accommodate about 462 new residential units. This is considerably in excess of the projected demand for 174 residential units over the projection period. Further, since there are sufficient vacant lands to accommodate future growth for this scenario, no loss of agricultural production is anticipated. In order to implement this alternative the following lands will be required. Of the remaining 5,839 acres below the 1 in 10 year flood zone, 1,132 acres have been acquired by the Federal Government and the SFWMD for about $13.4 million. Of the remaining 4,707 acres, 303 acres will be acquired in Fee Simple to accommodate road construction and maintenance at a cost of $2.9 million. Flowage Easements will be required on the remaining 4,404 acres. It should be noted that the cost of Flowage Easements would be limited to the Fee Simple Value of the property. In some cases, the cost of modifying the property (modifying water and sewage systems) may exceed the Fee Simple value of the property. In this case, the property will be purchased in Fee Simple. For cost estimating purposes, it was assumed that 50 such properties would be purchased affecting both resident and non-resident property owners and tenants. The purchase of flowage easements on 4,404 acres of land at a total cost of $39.3 million is considered compensation to land owners for the impacts associated with the periodic flooding of their lands.

10.9.2 Socio-Economic Impacts – Density Ordinances Enforced. Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative, no additional land will be protected from the 1 in 10 year flood event. Of the total 574 acres, about 534 acres would be available for future residential development. Within this area, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. These lands could accommodate only a portion of the anticipated growth over the next fifteen years (107 of the 174 houses needed during the projection period). No additional development is expected to be induced into the area with the implementation and

operation of this alternative. Of the 574 acres of lands available for residential development, 499 acres are classified as agricultural lands, that is, involved in some sort of agricultural production. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.2 million. Of this amount, about $0.5 million is the estimated annual income lost to residents of the area with the remainder being lost to non-residents. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income, however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices. In order to implement this alternative, the following lands will be required. Of the remaining 5,839 acres below the 1 in 10 year flood zone, 1,132 acres have been acquired by the Federal Government and the SFWMD for about $13.4 million. Of the remaining 4,707 acres, 303 acres will be acquired in Fee Simple to accommodate road construction and maintenance at a cost of $2.9 million. Flowage Easements will be required on the remaining 4,404 acres. It should be noted that the cost of Flowage Easements would be limited to the Fee Simple Value of the property. In some cases, the cost of modifying the property (modifying water and sewage systems) may exceed the Fee Simple value of the property. In this case, the property will be purchased in Fee Simple. For cost estimating purposes, it was assumed that 50 such properties would be purchased affecting both resident and non-resident property owners and tenants. The purchase of flowage easements on 4,404 acres of land at a total cost of $39.3 million is considered compensation to land owners for the impacts associated with the periodic flooding of their lands.

10.10 Alternative 8A – Western Portion of 8.5 SMA as Flow-Way. This alternative evolved as a modification of the flow-way concept originally evaluated by the Governor's Study Committee. It uses a similar concept to Alternative 6B to mitigate for increased stages at the eastern most inhabited portion of the area, and keep the western area as a more natural, undeveloped area. This western area will serve as a buffer zone to ENP west of the mitigation levee and as a natural flow-way for diverting flow from ENP to the C-111 area. An interior perimeter levee will start just north of 120th Street, run south and west around the FAA tract, along 202nd Avenue down to 168th Street. An exterior diversion levee will run approximately parallel to the interior levee and serve as a containment barrier for a natural swale flow-way. The containment levee will be

small enough to allow surface water flow from ENP, but big enough to divert flow contained within the flow-way. A new proposed structure (S-357) located at 168th Street levee/canal system will discharge seepage water into a treatment system in the C-111 buffer area. There are no major changes to operations of existing structures proposed under this plan.

10.10.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres located in the 8.5 SMA, 5,803 acres or about 90 percent of the land will be required to implement this alternative. Of the 5,803 acres required, about 3,790 acres or 65 percent are or will be purchased in Fee Simple. In addition, flowage easements on an additional 2,013 acres will be required. It is estimated that about 529 permanent residents in 129 households will be displaced with the implementation of this alternative. In addition, about 901 acres of agricultural lands and its' annual income producing potential will be acquired. Of the 3,790 acres to be purchased, about 1,132 acres have been acquired by the Federal Government and the SFWMD at a cost of $13.4 million. It is estimated that acquisition of the remaining 2,658 acres of Fee Simple land will cost about $25.8 million. The purchase of flowage easements on 2,013 acres is estimated to cost about $18.5 million. It should be noted that the cost of flowage easements would be limited to the Fee Simple Value of the property. In some cases, the cost of modifying the property (modifying water and sewage systems) may exceed the Fee Simple value of the property. In this case, the property will be purchased in Fee Simple. For cost estimating purposes, it was assumed that 50 such properties would be purchased affecting both resident and non-resident property owners and tenants. The relocation of 129 households is estimated to cost $28,000 per household or about $4.3 million. Further, it is estimated that the annual agricultural income lost to both residents and non-residents would be about $2.2 million. Of the $2.2 million, permanent residents would lose an estimated $0.9 million in annual income with non-residents losing the remaining $1.3 million. The loss of this income to property owners within the 8.5 SMA could result in the increased demand for public assistance from the county, state and Federal governments. However, these losses would be relatively short lived. According to the U.S. Department of Labor, Bureau of Labor Statistics data as presented in the "Restudy Report"; all displaced farm laborers would be reemployed within one year of losing their job. The loss of proprietors' income however, is expected to take longer but should recover within 3 years. Further, lost production could be made up elsewhere within the county or by applying more intense farming practices.

Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative an additional 36 acres of land will be protected from the 1 in 10 year flood event. Of the total 610 acres, about 569 acres would be available for future residential development. Within these 569 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. In addition to the flood free lands, about 1,464 acres of the remaining agricultural

and vacant land with flowage easements could be developed under this scenario. The county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would be a total of 2,033 acres (569 acres + 1,464 acres) to accommodate the 129 displaced and the 174 projected households. Using a density of 3.65 acres per residential unit results in a development capacity of 557 residential units. This is considerably in excess of the projected demand and replacement of 303 residential units (104 + 174). The development of 303 residential units would require about 1,105 acres of land (303 x 3.65). About 261 acres of vacant land would be available for this development with the remaining 754 acres classified as agricultural lands, that is, involved in some sort of agricultural production and it is assumed would be converted to residential use under this scenario. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.8 million. Of this amount, about $0.7 million is the estimated annual income lost to residents of the area with the remaining $1.1 million being lost to non-residents. The loss of this income to property owners could result in the increased demand for public assistance from the county, state and Federal governments. As stated previously, this loss is considered temporary and income levels could be fully restored within a three-year period.

10.10.2 Socio-Economic Impacts – Density Ordinances Enforced. The direct impacts associated with implementing this alternative under this scenario are the same as those discussed above. Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative, an additional 36 acres of land will be protected from the 1 in 10 year flood event. Of the total 610 acres, about 569 acres would be available for future residential development. Within these 569 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. This acreage could accommodate a maximum of 114 new residential units. A total of 303 new residential units are needed to accommodate the 129 displaced households and 174 households projected over the next fifteen years. Of the 569 acres of land available for residential development, about 529 acres are classified as agricultural lands, that is, involved in some sort of agricultural production. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered

appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.3 million. Of this amount about $0.5 million is the estimated annual income lost to residents of the area with the remaining $0.8 million being lost to non-residents. The loss of this income to property owners could result in the increased demand for public assistance from the county, state and Federal governments. As stated previously, this loss is considered temporary and income levels could be fully restored within a three-year period. See Figure 12, Table 12 and Table 14 for additional details.

10.11 Alternative 9 – Adaptive Refinement of GDM Plan. Numerous comments were received during the public comment period referencing the need to develop a plan that would be compatible with the Restudy. This alternative evolved as a plan that is capable of integrating immediately with the system operation for implementation of the MWD Project, but constructed in a manner that can be modified to comply with the Restudy flows. In other words, build something that meets the needs for now, but will not need to be demolished and reconstructed to meet the needs of future conditions. The result is basically a combination of Alternative 1 (Authorized GDM Plan) and Alternative 2B (Modified GDM Plan). It has the same layout of levees and seepage canals as Alternative Nos. 1 and No. 2. It includes on initial pumping structure at the northeastern corner of the 8.5 SMA, as proposed in Alternative 1. It also includes a future pumping structure located at the southern terminus of the seepage canal at the southwestern corner of the 8.5 SMA for construction after the Restudy is implemented.

10.11.1 Socio-Economic Impacts – No Density Constraints (Current Practice). Of the 6,413 acres of land located in the 8.5 SMA, about 574 acres are located above the 10-year flood line, an elevation of 7.7 feet. With the implementation of this alternative, an additional 78 acres of land will be rendered flood free. Of the total 652 acres, about 606 acres would be available for future residential development. Within these 606 acres, a residential density of 1 unit per 5 acres would be allowed with a variance from Miami-Dade County. However, the county has not enforced residential density of the whole 8.5 SMA to the point where the average size parcel of land for a residence is less than 4 acres rather than the 40 acres specified in the ordinance. Assuming that Miami-Dade County will not enforce the density ordinance, there would not be any project induced growth within the 8.5 SMA, since vacant or agricultural lands are available to accommodate future population increases. Using the current density of 3.65 acres per residential unit, vacant lands within the 8.5 SMA could accommodate about 462 new residential units. This is considerably in excess of the projected demand for 174 residential units over the projection period. Further, since there are sufficient vacant lands to accommodate future growth for

this scenario, no loss of agricultural production is anticipated. The acquisition of 633 acres of lands required to construct this alternative cost $4,078,200 and $32,000 for one residential relocation.

10.11.2 Socio-Economic Impacts – Density Ordinances Enforced. Assuming that Miami-Dade County will enforce the existing density ordinance, future development within the 8.5 SMA will be limited to the existing 574 acres located above the present 10-year flood line and to the additional 78 acres of land protected from the 10-year flood with this alternative in place and operating. Of the 652 acres of flood free land, about 606 acres would be available to accommodate future residential development. These lands would accommodate only a portion of the anticipated population growth within the area over the next fifteen years (121 of the 174 houses needed during the projection period). No additional development is expected to be induced into the area with the implementation and operation of the project. Of the 606 acres of lands available for residential development, 561 acres are classified as agricultural lands, that is, involved in some sort of agricultural production. There are no specific data on crop yields and value in the 8.5 SMA. Therefore, the county average annual income per acre for agricultural activities was used to approximate the real value of agricultural production. This is considered appropriate since all alternatives will be evaluated in the same manner and the order of magnitude of agricultural impacts between the various alternatives can be measured. As stated earlier, the average income per acre in Miami-Dade County is $2,445. Therefore, the value of annual agricultural income lost from implementing this alternative is estimated at about $1.4 million. Of this amount, about $0.6 million is the estimated annual income lost to residents of the area with the remainder being lost to non-residents. Again, these impacts are expected to be temporary. See Figure 13, Table 13 and Table 14 for details.

11.0 COMPARATIVE IMPACT ANALYSIS

Table 14 provides, for comparative purposes, a summary of the impacts associated with the implementation of each of the nine alternatives and two variations. The assumptions used in this analysis were applied uniformly to all of the alternatives considered. Therefore, the values shown in Table 14 represent a fair estimate of the magnitude of differences between the impacts of each alternative. Two comparative analyses were developed for each of the nine alternatives and two variations. All the alternatives were ranked based on their social impact on households and the community and then ranked on their economic cost and impact on agricultural income. The two rankings were combined to determine which alternative had the least socio-economic impact and which alternative had the most socio-economic impact. In comparing the alternatives, the following ranking was obtained that portrays the least to most impacts: Alternatives 1, 2, 9, 6C, 7, 6D, 4, 3, 6B, 8, and 5.

The Recommended Plan, Alternative 6D, falls exactly in the middle of the list of alternatives in the ranking of impacts. This alternative, while having more socio-economic impacts than Alternative Nos. 1, 2, and 9, has significantly fewer impacts than other partial or total buy-out alternatives namely, 4, 3, 6B, 8, and 5. This plan represents an economic, social environmental and political compromise in order to move forward toward the implementation of the MWD for the Everglades. The environmental benefits of Alternative 6D out-weigh the social and economic impacts.

CENTRAL AND SOUTHERN FLORIDA PROJECT
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA

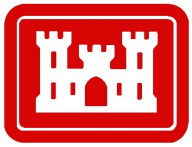
8.5 SQUARE MILE AREA

APPENDIX E
SOCIAL IMPACT ASSESSMENT

TABLES

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

July 2000



HDR Engineering, Inc.

TABLE 3
ALTERNATIVE 1
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total
Residential	74[1]	342	0	342
Commercial	4	16	0	16
Agriculture	713[2]	2,642	0	2,642
Communications	1	0	306	306
Easements	28[3]	102	0	102
Vacant	1,164[4]	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:

(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of "rural land in transition".

ALTERNATIVE 1 - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0	0	0	0
Commercial	0	0	0	0
Agriculture	0	0	0	0
Communications	0	0	0	0
Easements	0	0	0	0
Vacant	259	0	663	663
Total	259	0	663	663

TABLE 3
(Continued)

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1(1)	17	0	17
Commercial	1	2	0	2
Agriculture	97(2)	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20(3)	35	21	56
Total	120	553	21	574

Notes:
(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

ADDITIONAL AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0(1)	2	0	2
Commercial	0	0	0	0
Agriculture	21(2)	48	0	48
Communication	0	0	0	0
Easements	0	0	0	0
Vacant	4(3)	10	<1	10
Total	25	60	<1	60

Notes:
(1) Does not include 4 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 4 residential units on agricultural land.
(3) Includes 1 parcel of public lands.

TABLE 4
ALTERNATIVE 2B
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74(1)	342	0	342
Commercial	4	16	0	16
Agriculture	713(2)	2,642	0	2,642
Communication	1	0	306	306
Easements	28(3)	102	0	102
Vacant	1,164(4)	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of "rural land in transition".

ALTERNATIVE 2B - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0	0	0	0
Commercial	0	0	0	0
Agriculture	0	0	0	0
Communications	0	0	0	0
Easements	0	0	0	0
Vacant	259	0	663	663
Total	259	0	663	663

TABLE 4
(Continued)

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1[(1)]	17	0	17
Commercial	1	2	0	2
Agriculture	97[(2)]	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20[(3)]	35	21	56
Total	120	553	21	574

Notes:
(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

ADDITIONAL AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0[(1)]	3	0	3
Commercial	0	0	0	0
Agriculture	28[(2)]	64	0	64
Communications	0	0	0	0
Easements	0	0	0	0
Vacant	6[(3)]	10	2	12
Total	34	77	2	79

Notes:
(1) Does not include 6 residential units on agricultural lands. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 6 residential units on agricultural lands.
(3) Includes 3 parcels of public lands.

TABLE 5
ALTERNATIVE 3
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74[1]	342	0	342
Commercial	4	16	0	16
Agriculture	713[2]	2,642	0	2,642
Communications	1	0	306	306
Easements	28[3]	102	0	102
Vacant	1,164[4]	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:

(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

ALTERNATIVE 3 - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	73[1]	324	0	324
Commercial	3	14	0	14
Agriculture	610[2]	2,130	0	2,130
Communications	1	0	306	306
Easements	27[3]	102	0	102
Vacant	1,144[4]	1,651	1,298	2,949
Total	1,858	4,221	1,604	5,825

Notes:

(1) Does not include 238 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 238 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 7 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 7 parcels, totaling 15 private acres, of “rural land in transition”.

TABLE 5 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1[(1)]	17	0	17
Commercial	1	2	0	2
Agriculture	97[(2)]	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20[(3)]	35	21	56
Total	120	553	21	574

Notes:
(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

ADDITIONAL AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0	1	0	1
Commercial	0	0	0	0
Agriculture	6	13	0	13
Communications	0	0	0	0
Easements	0	0	0	0
Vacant	0	0	0	0
Total	6	14	0	14

Notes:
(1) Does not include 1 residential units on agricultural lands. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 1 residential units on agricultural lands.

TABLE 6
ALTERNATIVE 4
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	**74[1]**	**342**	**0**	**342**
Commercial	**4**	**16**	**0**	**16**
Agriculture	**713[2]**	**2,642**	**0**	**2,642**
Communications	**1**	**0**	**306**	**306**
Easements	**28[3]**	**102**	**0**	**102**
Vacant	**1,164[4]**	**1,686**	**1,319**	**3005**
Total	**1,984**	**4,788**	**1,625**	**6,413**

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

ALTERNATIVE 4 - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	**74[1]**	**342**	**0**	**342**
Commercial	**4**	**16**	**0**	**16**
Agriculture	**713[2]**	**2,642**	**0**	**2,642**
Communications	**1**	**0**	**306**	**306**
Easements	**28[3]**	**102**	**0**	**102**
Vacant	**1,164[4]**	**1,686**	**1,319**	**3,005**
Total	**1,984**	**4,788**	**1,625**	**6,413**

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

TABLE 6 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1(1)	17	0	17
Commercial	1	2	0	2
Agriculture	97(2)	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20(3)	35	21	56
Total	120	553	21	574

Notes:

(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

TABLE 7
ALTERNATIVE 5
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	**74[1]**	**342**	**0**	**342**
Commercial	**4**	**16**	**0**	**16**
Agriculture	**713[2]**	**2,642**	**0**	**2,642**
Communications	**1**	**0**	**306**	**306**
Easements	**28[3]**	**102**	**0**	**102**
Vacant	**1,164[4]**	**1,686**	**1,319**	**3,005**
Total	**1,984**	**4,788**	**1,625**	**6,413**

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

ALTERNATIVE 5 - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	**74[1]**	**342**	**0**	**342**
Commercial	**4**	**16**	**0**	**16**
Agriculture	**713[2]**	**2,642**	**0**	**2,642**
Communications	**1**	**0**	**306**	**306**
Easements	**28[3]**	**102**	**0**	**102**
Vacant	**1,164[4]**	**1,686**	**1,319**	**3,005**
Total	**1,984**	**4,788**	**1,625**	**6,413**

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

TABLE 7 – continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1(1)	17	0	17
Commercial	1	2	0	2
Agriculture	97(2)	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20(3)	35	21	56
Total	120	553	21	574

Notes:

(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

TABLE 8
ALTERNATIVE 6B
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74[1]	342	0	342
Commercial	4	16	0	16
Agriculture	713[2]	2,642	0	2,642
Communications	1	0	306	306
Easements	28[3]	102	0	102
Vacant	1,164[4]	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:

(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of "rural land in transition".

ALTERNATIVE 6B - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	62[1]	233	0	233
Commercial	0	0	0	0
Agriculture	496[2]	1,263	0	1,263
Communications	0	0	0	0
Easements	27[3]	102	0	102
Vacant	1,094[4]	1,498	1,250	2,748
Total	1,679	3,096	1,250	4,346

Notes:

(1) Does not include 187 residential units on agricultural lands. Each unit assumed to occupy 0.5 acres of agricultural lands.
(2) Includes 187 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 24 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 560 parcels of public lands and 5 parcels totaling 8 acres of "rural land in transition".

TABLE 8 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1[(1)]	17	0	17
Commercial	1	2	0	2
Agriculture	97[(2)]	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20[(3)]	35	21	56
Total	120	553	21	574

Notes:
(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

ADDITIONAL AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	11[(1)]	98	0	98
Commercial	3	14	0	14
Agriculture	162[(2)]	1,007	0	1,007
Communications	1	0	306	306
Easements	0	0	0	0
Vacant	55[(3)]	170	48	218
Total	232	1,289	354	1,643

Notes:
(1) Does not include 68 residential units on agricultural lands. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 68 parcels that have residential units on agricultural lands.
(3) Includes 22 parcels of public lands and 1 parcel of rural land in transition.

TABLE 9
ALTERNATIVE 6C
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74(1)	342	0	342
Commercial	4	16	0	16
Agriculture	713(2)	2,642	0	2,642
Communications	1	0	306	306
Easements	28(3)	102	0	102
Vacant	1,164(4)	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of "rural land in transition".

ALTERNATIVE 6C - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	13(1)	49	0	49
Commercial	0	0	0	0
Agriculture	24(2)	51	0	51
Communications	0	0	0	0
Easements	19	11	0	11
Vacant	607	502	1,130	1,632
Total	663	613	1,130	1,743

Notes:
(1) Does not include 17 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 17 parcels that have residential units on them.

TABLE 9 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	**1(1)**	**17**	**0**	**17**
Commercial	**1**	**2**	**0**	**2**
Agriculture	**97(2)**	**499**	**0**	**499**
Communications	**0**	**0**	**0**	**0**
Easements	**1**	**<1**	**0**	**<1**
Vacant	**20(3)**	**35**	**21**	**56**
Total	**120**	**553**	**21**	**574**

Notes:

(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

TABLE 10
ALTERNATIVE 6D
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74[1]	342	0	342
Commercial	4	16	0	16
Agriculture	713[2]	2,642	0	2,642
Communications	1	0	306	306
Easements	28[3]	102	0	102
Vacant	1,164[4]	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of "rural land in transition".

ALTERNATIVE 6D - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	20[1]	100	0	100
Commercial	0	0	0	0
Agriculture	186[2]	609	0	609
Communications	0	0	0	0
Easements	21	56	0	56
Vacant	771	969	1,147	2,116
Total	998	1,734	1,147	2,881

Notes:
(1) Does not include 64 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 64 parcels that have residential units on them.

TABLE 10 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1(1)	17	0	17
Commercial	1	2	0	2
Agriculture	97(2)	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20(3)	35	21	56
Total	120	553	21	574

Notes:

(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

TABLE 11
ALTERNATIVE 7
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74[1]	342	0	342
Commercial	4	16	0	16
Agriculture	713[2]	2,642	0	2,642
Communications	1	0	306	306
Easements	28[3]	102	0	102
Vacant	1,164[4]	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:

(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

ALTERNATIVE 7 - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	73[1]	325	0	325
Commercial	3	14	0	14
Agriculture	616[2]	2,143	0	2,143
Communications	0	0	306	306
Easements	27[3]	102	0	102
Vacant	1,144	1,651	1,298	2,949
Total	1,864	4,235	1,604	5,839

Notes:

(1) Does not include 239 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 239 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 17 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

TABLE 11 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	**1**[(1)]	**17**	**0**	**17**
Commercial	**1**	**2**	**0**	**2**
Agriculture	**97**[(2)]	**499**	**0**	**499**
Communications	**0**	**0**	**0**	**0**
Easements	**1**	**<1**	**0**	**<1**
Vacant	**20**[(3)]	**35**	**21**	**56**
Total	**120**	**553**	**21**	**574**

Notes:

(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

TABLE 12
ALTERNATIVE 8A
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74[1]	342	0	342
Commercial	4	16	0	16
Agriculture	713[2]	2,642	0	2,642
Communications	1	0	306	306
Easements	28[3]	102	0	102
Vacant	1,164[4]	2,686	1,319	3,005
Total	1,984	5,788	1,625	6,413

Notes:
(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of "rural land in transition".

ALTERNATIVE 8A - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	73[1]	324	0	324
Commercial	3	14	0	14
Agriculture	603[2]	2,113	0	2,113
Communications	1	0	306	306
Easements	27[3]	102	0	102
Vacant	1,142[4]	1,646	1,298	2,944
Total	1,849	4,199	1,604	5,803

Notes:
(1) Does not include 119 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 119 parcels that have residential units on them.
(3) Includes 17 parcels of undedicated ROW.
(4) Includes 7 parcels of "rural land in transition" and 417 parcels in public ownership.

TABLE 12 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1(1)	17	0	17
Commercial	1	2	0	2
Agriculture	97(2)	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20(3)	35	21	56
Total	120	553	21	574

Notes:
(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

ADDITIONAL FLOOD AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0(1)	1	0	1
Commercial	0	0	0	0
Agriculture	13(2)	30	0	30
Communications	0	0	0	0
Easements	0	0	0	0
Vacant	2(3)	5	<1	5
Total	15	36	<1	36

Notes:
(1) Does not include 2 residential units on agricultural lands. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 2 parcels that have residential units on them.
(3) Includes 1 public parcel.

TABLE 13
ALTERNATIVE 9
BASELINE LAND USE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	74[1]	342	0	342
Commercial	4	16	0	16
Agriculture	713[2]	2,642	0	2,642
Communications	1	0	306	306
Easements	28[3]	102	0	102
Vacant	1,164[4]	1,686	1,319	3,005
Total	1,984	4,788	1,625	6,413

Notes:

(1) Does not include 260 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 260 parcels that have residential units on them, also one 40 acre utility parcel that is actively farmed.
(3) Includes 26 parcels of undedicated ROW and 2 - 40 acre parcels of utility easements.
(4) Includes 8 parcels, totaling 17 private acres, of “rural land in transition”.

ALTERNATIVE 9 - LAND REQUIREMENTS

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0	0	0	0
Commercial	0	0	0	0
Agriculture	0	0	0	0
Communications	0	0	0	0
Easements	0	0	0	0
Vacant	259	0	663	663
Total	259	0	663	663

TABLE 13 - continued

LAND USE – EXISTING AREA ABOVE 1 IN 10 YEAR FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	1(1)	17	0	17
Commercial	1	2	0	2
Agriculture	97(2)	499	0	499
Communications	0	0	0	0
Easements	1	<1	0	<1
Vacant	20(3)	35	21	56
Total	120	553	21	574

Notes:

(1) Does not include 25 residential units on agricultural land. Each unit assumed to occupy 0.5 acres on agricultural lands.
(2) Includes 25 parcels that have residential units on them.
(3) Includes 8 public parcels and one undedicated ROW.

ADDITIONAL AREA ABOVE 1 IN 10 FLOOD ZONE

Item	No. of Parcels	Private (acres)	Public (acres)	Total (acres)
Residential	0(1)	4	0	4
Commercial	0	0	0	0
Agriculture	28(2)	62	0	62
Communications	0	0	0	0
Easements	0	0	0	0
Vacant	6(3)	10	2	12
Total	34	76	2	78

Notes:

(1) Does not include 7 residential units on agricultural lands. Each unit assumed to occupy 0.5 acres on agricultural land.
(2) Includes 7 parcels that have residential units on agricultural lands.
(3) Includes 3 parcels of public lands.

Table 14
Social Impact Assessment
Analysis of Alternative

ITEM	ALTERNATIVE 1	ALTERNATIVE 2B	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5	ALTERNATIVE 6B	ALTERNATIVE 6C	Alternative 6D	ALTERNATIVE 7	ALTERNATIVE 8	ALTERNATIVE 9
PHYSICAL IMPACTS PROJECT IMPLEMENTATION											
Total Acreage Required	**663**	**663**	**5,825**	**6,413**	**6,413**	**4,346**	**1,743**	**2,881**	**5,839**	**5,803**	**663**
Fee Simple	663	663	663	1,514	6,107	4,196	1,743	2,335	1,435	3,790	663
Acquired(1)	(1,132)	(1,132)	(1,132)	(1,132)	(1,132)	(1,132)	(1,132)	(1,132)	(1,132)	(1,132)	(1,132)
To Be Acquired	(0)	(0)	(0)	(382)	(4,975)	(3.064)	(611)	(1,203)	(303)	(2,658)	(0)
Life Est. With Flow. Easements	0	0	0	245	0	0	0	0	0	0	0
Flowage Easements	0	0	4,693	4,654	306	150	0	546	4,404	2,013	0
Total Residential Units Affected	**1**	**1**	**1**	**44**	**514**	**354**	**41**	**87**	**1**	**319**	**1**
Resident Occupied Units	(1)	(1)	(1)	(20)	(208)	(144)	(17)	(35)	(1)	(129)	(1)
Non-Resident Units	(0)	(0)	(0)	(24)	(306)	(210)	(24)	(52)	(0)	(190)	(0)
Commercial Activities Affected	**0**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**0**
Agricultural Acreage Affected	**0**	**0**	**0**	**0**	**2,642**	**1,136**	**51**	**215**	**0**	**2,013**	**0**
Acres Above 1 In 10 Yr. Flood Zone	574	574	574	574	574	574	574	574	574	574	574
Additional Acres Above 1 In 10 Yr. Flood Zone	60	79	14	0	0	1,643	0	0	0	36	78
Total Acres Above 1 In 10 Yr. Flood Zone	**634**	**653**	**588**	**574**	**574**	**2,217**	**574**	**574**	**574**	**610**	**652**

Note: (1) For some alternatives lands acquired to date exceed actual needs

Table 14 - Continued
Social Impact Assessment
Analysis of Alternative

ITEM	ALTERNATIVE 1	ALTERNATIVE 2B	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5	ALTERNATIVE 6B	ALTERNATIVE 6C	Alternative 6D	ALTERNATIVE 7	ALTERNATIVE 8	ALTERNATIVE 9
LAND USE											
Total Flood Free Land (in acres)											
Residential	19	20	18	17	17	115	17	17	17	18	21
Commercial	2	2	2	2	2	16	2	2	2	2	2
Agricultural	547	563	512	499	499	1,506	499	499	499	529	561
Communications	0	0	0	0	0	306	0	0	0	0	0
Easements	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vacant	66	68	56	56	56	274	56	56	56	61	68
Totals	**634**	**653**	**588**	**574**	**574**	**2,217**	**574**	**574**	**574**	**610**	**652**
SOCIAL IMPACTS											
Total Owner-Occupied Population	853	853	853	853	853	853	853	853	853	853	853
Total Absentee Owner Pop. (Est.)	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253	1,253
Total Population (Est.)	**2,106**	**2,106**	**2,106**	**2,106**	**2,106**	**2,106**	**2,106**	**2,106**	**2,106**	**2,106**	**2,106**
Total Owner-Occupied Households	208	208	208	208	208	208	208	208	208	208	208
Total Absentee Owner Households (Est.)	306	306	306	306	306	306	306	306	306	306	306
Total Households (Est.)	**514**	**514**	**514**	**514**	**514**	**514**	**514**	**514**	**514**	**514**	**514**
Resident Population Displaced	**4**	**4**	**4**	**82**	**853**	**590**	**70**	**144**	**4**	**529**	**4**
Resident Households Displaced	**1**	**1**	**1**	**20**	**208**	**144**	**17**	**35**	**1**	**129**	**1**
Affected Absentee Owners	**0**	**0**	**0**	**98**	**1,253**	**861**	**98**	**213**	**0**	**779**	**0**
Affected Absentee Owner Households	**0**	**0**	**0**	**24**	**306**	**210**	**24**	**52**	**0**	**190**	**0**

TABLE 14 - continued
SOCIAL IMPACT ANALYSIS - continued
ANALYSIS OF ALTERNATIVES
FUTURE AND LONG TERM IMPACTS

ITEM	ALTERNATIVE 1	ALTERNATIVE 2B	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5	ALTERNATIVE 6B	ALTERNATIVE 6C	Alternative 6D	ALTERNATIVE 7	ALTERNATIVE 8	ALTERNATIVE 9
SCENARIO 1: NO DENSITY CONSTRAINTS											
LAND USE CHANGES											
Land Use Conversions											
Vacant to Residential	635 acres(1)	635 acres(1)	635 acres(1)	635 acres(1)	0	205 acres	697 acres(1)	763 acres(1)	635 acres(1)	261 acres	635 acres(1)
Agricultural to Residential	0	0	0	0	0	901 acres**	0	0	0	754 acres**	0
SOCIAL IMPACTS											
Impacted Residential Households	1	1	1	20	208	144	17	35	1	129	1
Impacted non- res. Households	0	0	0	24	306	210	24	52	0	190	0
ECONOMIC IMPACTS											
Project "Footprint" Area											
Residential Agriculture Annual Income Lost	$0	$0	$0	$0	$2,620,000	$1,130,000	$53,000	$221,000	$0	$890,000	$0
Non-Residential Agriculture Annual Income Lost	$0	$0	$0	$0	$3,840,000	$1,650,000	$72,000	$305,000	$0	$1,310,000	$0
Resident Relocation Costs	$28,000	$28,000	$28,000	$480,000	$5,820,000	$3,612,000	$476,000	$980,000	$28,000	$2,912,000	$28,000
Area Above 1 in 10 yr. Flood Zone											
Residential Agriculture Annual Income Lost	$0	$0	$0	N/A	N/A	$892,000	$0	$0	$0	$747,000	$0
Non- Residential Agriculture Annual Income Lost	$0	$0	$0	N/A	N/A	$1,311,000	$0	$0	$0	$1,097,000	$0
Resident Relocation Costs	$0	$0	$0	N/A	N/A	$0	$0	$0	$0	$0	$0

NOTES: (1) Based on a density of 3.65 acres / residential unit, ** Agricultural acreage removed from production

TABLE 14 - continued
SOCIAL IMPACT ANALYSIS - continued
ANALYSIS OF ALTERNATIVES
FUTURE AND LONG TERM IMPACTS

ITEM	ALTERNATIVE 1	ALTERNATIVE 2B	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5	ALTERNATIVE 6B	ALTERNATIVE 6C	Alternative 6D	ALTERNATIVE 7	ALTERNATIVE 8	ALTERNATIVE 9
SCENARIO 2 - DENSITY ORDINANCES ENFORCED											
LAND USE CHANGES											
Land Use Conversions											
Vacant to Residential	45 acres	45 acres	35 acres	0	0	205 acres	35 acres	35 acres	35 acres	40 acres	45 acres
Agricultural to Residential	547 acres**	563 acres**	512 acres**	0	0	1,310 acres**	499 acres**	499 acres**	499 acres**	529 acres**	561 acres**
SOCIAL IMPACTS											
Impacted Residential Households	1	1	1	20	208	144	17	35	1	129	1
Impacted non- res. Households	0	0	0	24	306	210	24	52	0	190	0
ECONOMIC IMPACTS											
Project "Footprint" Area											
Residential Agriculture Annual Income Lost	$0	$0	$0	$0	$2,620,000	$1,130,000	$53,000	$221,000	$0	$890,000	$0
Non- Residential Agriculture Annual Income Lost	$0	$0	$0	$0	$3,840,000	$1,650,000	$72,000	$305,000	$0	$1,310,000	$0
Resident Relocation Costs	$28,000	$28,000	$28,000	$480,000	$5,820,000	$3,612,000	$448,000	$980,000	$28,000	$3,610,000	$28,000
Area Above 1 in 10 yr. Flood Zone											
Residential Agriculture Annual Income Lost	$540,000	$560,000	$510,000	N/A	N/A	$1,297,000	$490,000	$490,000	$490,000	$520,000	$550,000
Non- Residential Agriculture Annual Income Lost	$800,000	$820,000	$740,000	N/A	N/A	$1,906,000	$730,000	$730,000	$730,000	$770,000	$820,000
Resident Relocation Costs	$0	$0	$0	N/A	N/A	$0	$0	$0	$0	$0	$0

NOTES: (1) Based on a density of 3.65 acres / unit ** Agricultural acreage removed from production

CENTRAL AND SOUTHERN FLORIDA PROJECT
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA

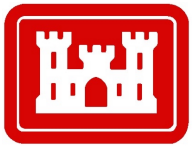
8.5 SQUARE MILE AREA

APPENDIX E
SOCIAL IMPACT ASSESSMENT

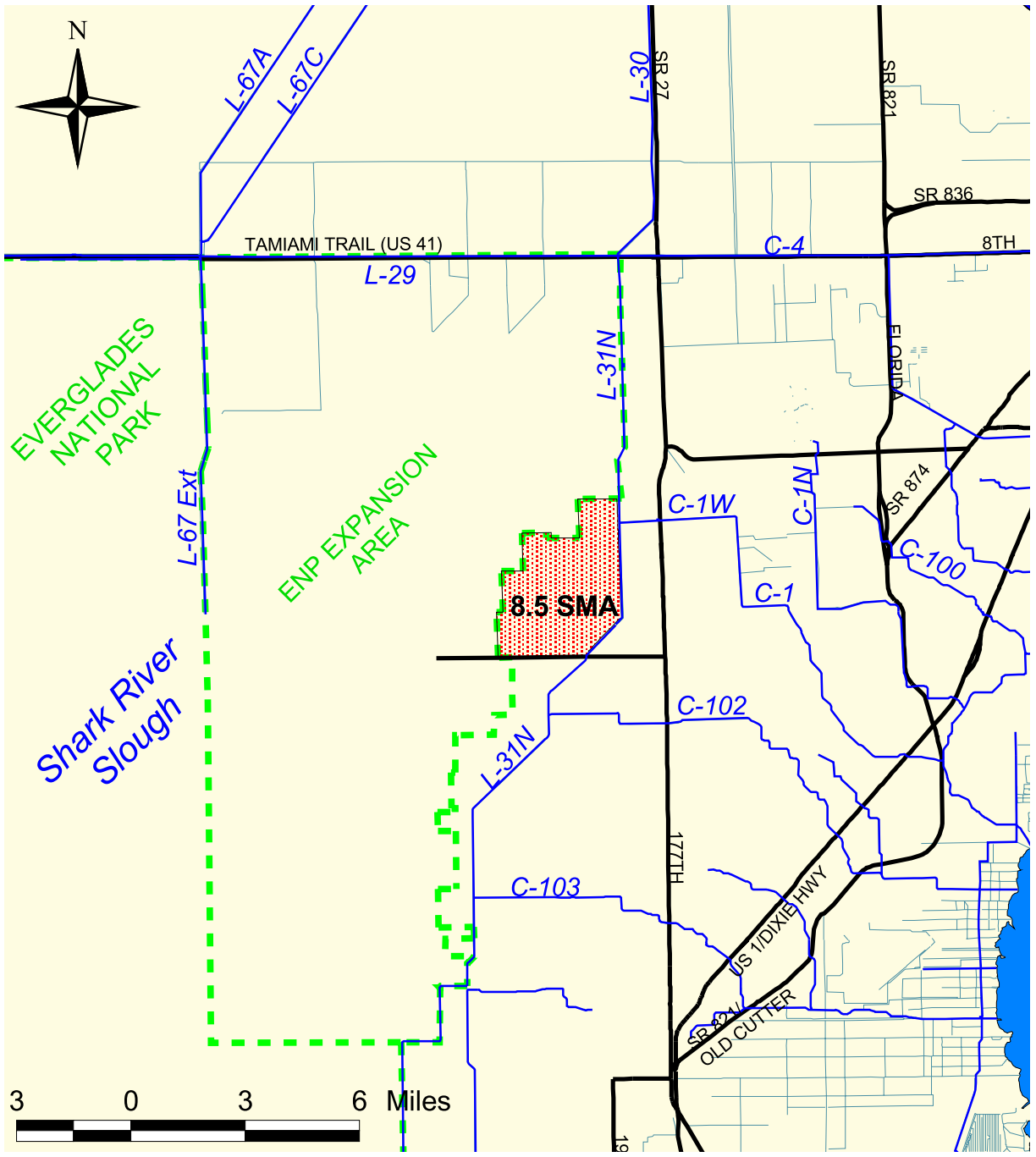
FIGURES

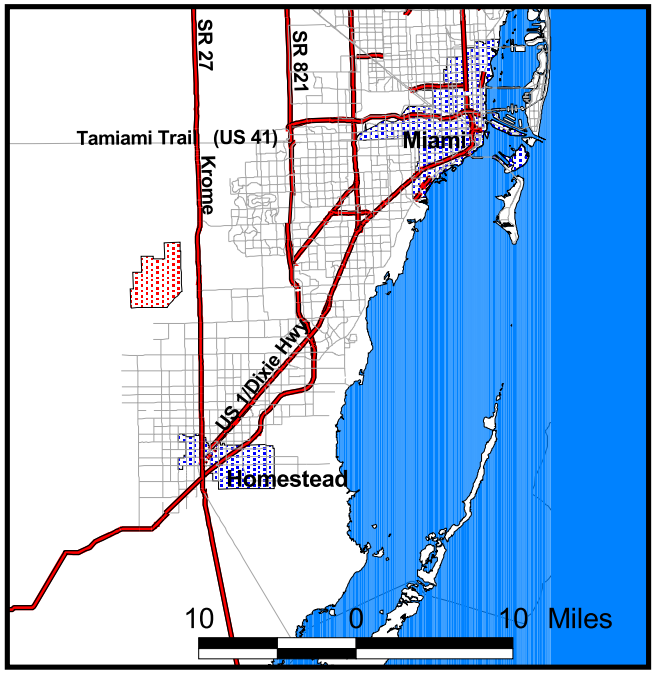
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

July 2000



HDR Engineering, Inc.



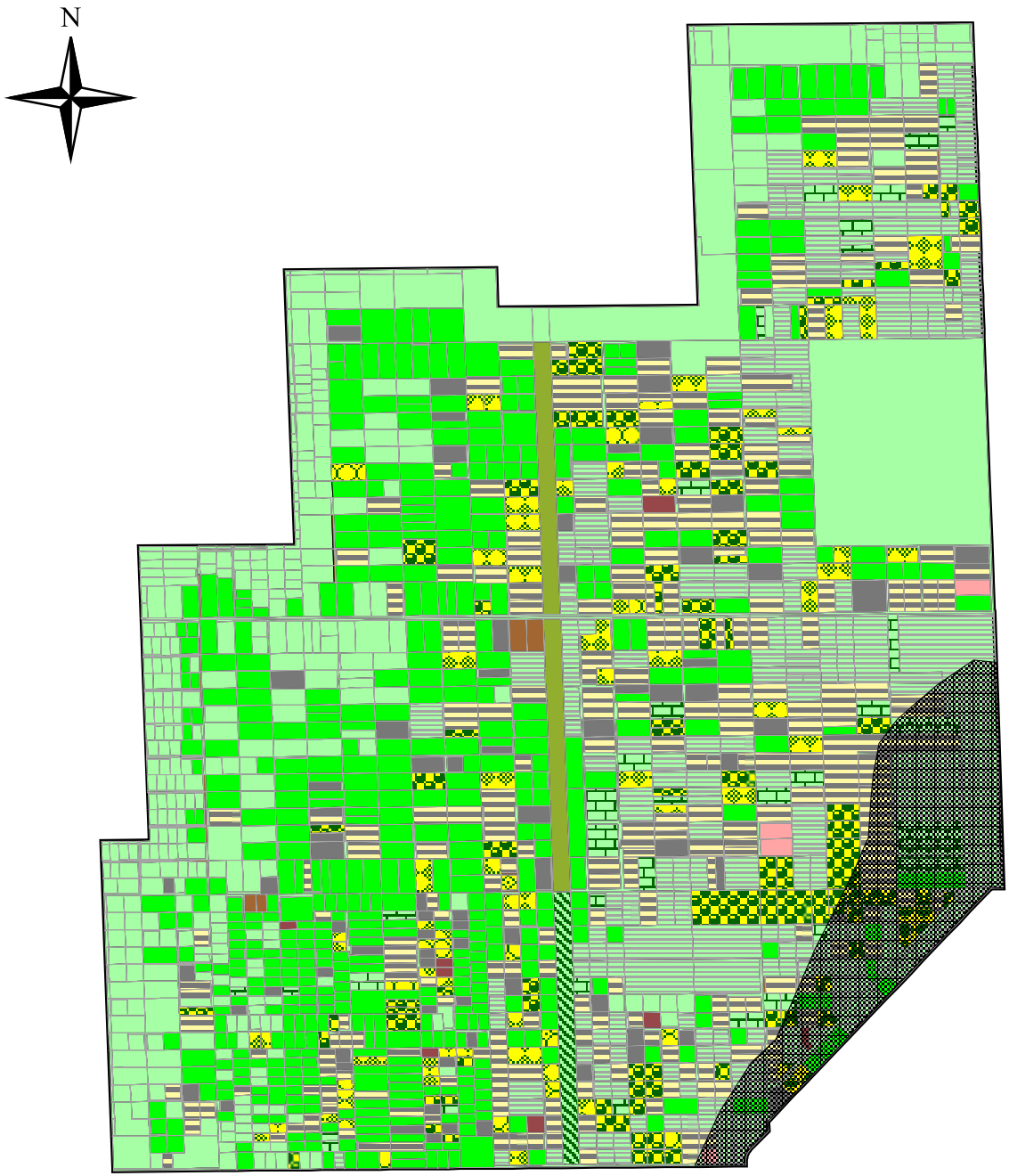


CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 1
PROJECT LOCATION MAP

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
FILE NO:



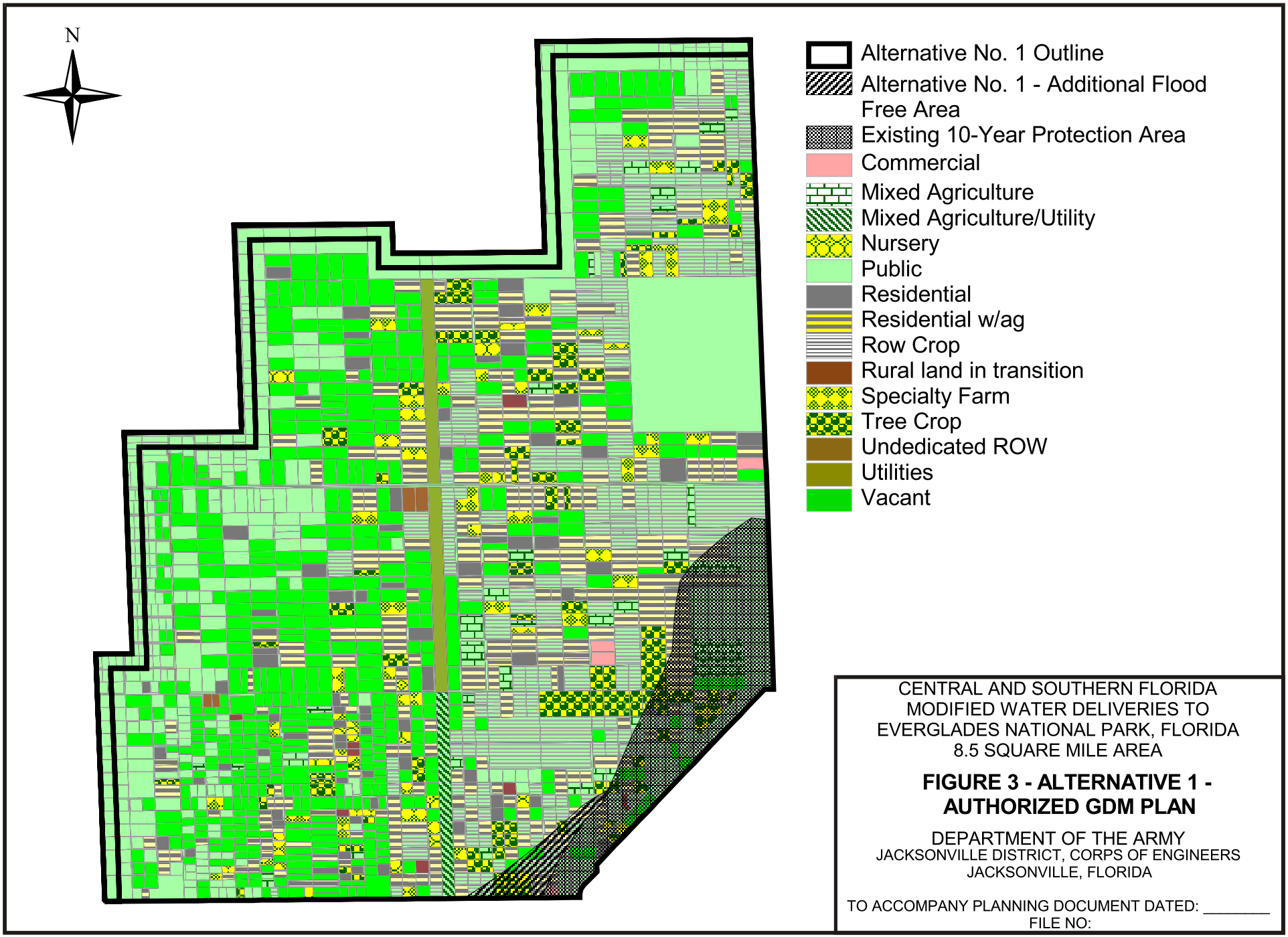
- Existing 10-Year Protection Area
- Commercial
- Mixed Agriculture
- Mixed Agriculture/Utility
- Nursery
- Public
- Residential
- Residential w/ag
- Row Crop
- Rural land in transition
- Specialty Farm
- Tree Crop
- Undedicated ROW
- Utilities
- Vacant

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 2
EXISTING LAND USE

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
FILE NO:

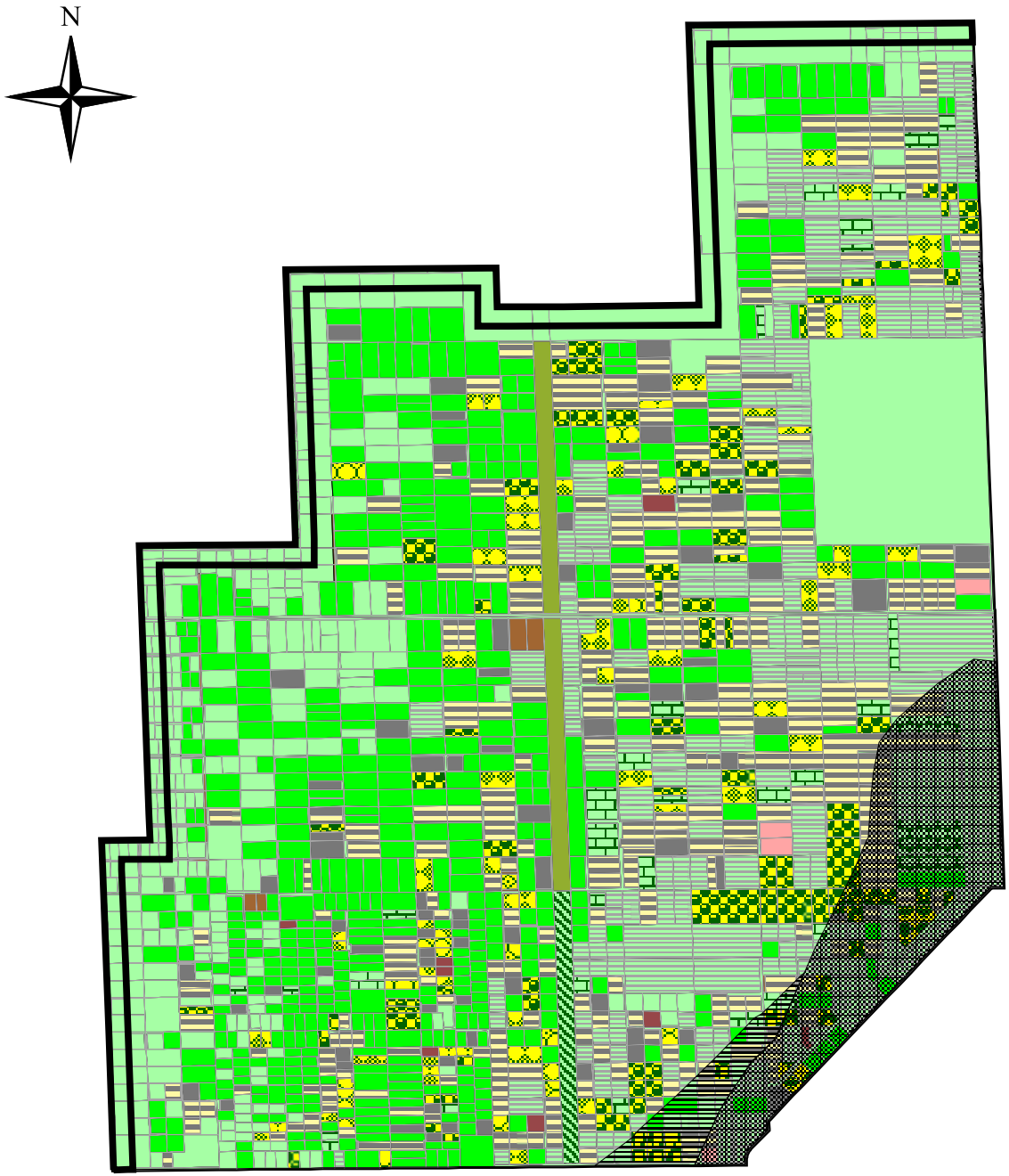


CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 3 - ALTERNATIVE 1 - AUTHORIZED GDM PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
FILE NO:



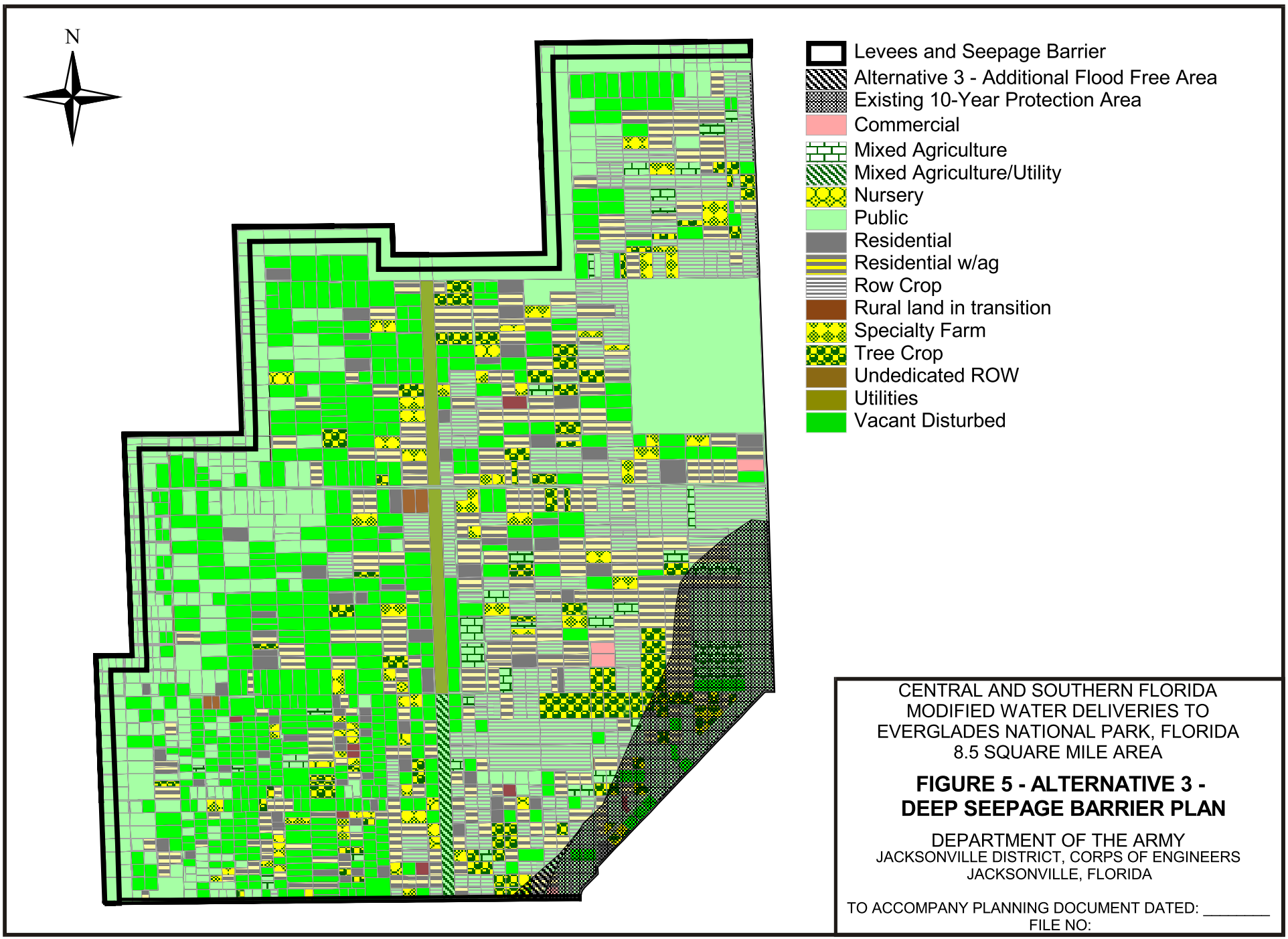
Alternative No. 2 Outline
Alternative No. 2 - Additional Flood Free Area
Existing 10-Year Protection Area
Commercial
Mixed Agriculture
Mixed Agriculture/Utility
Nursery
Public
Residential
Residential w/ag
Row Crop
Rural land in transition
Specialty Farm
Tree Crop
Undedicated ROW
Utilities
Vacant

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 4 - ALTERNATIVE 2 - MODIFIED GDM PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
FILE NO:

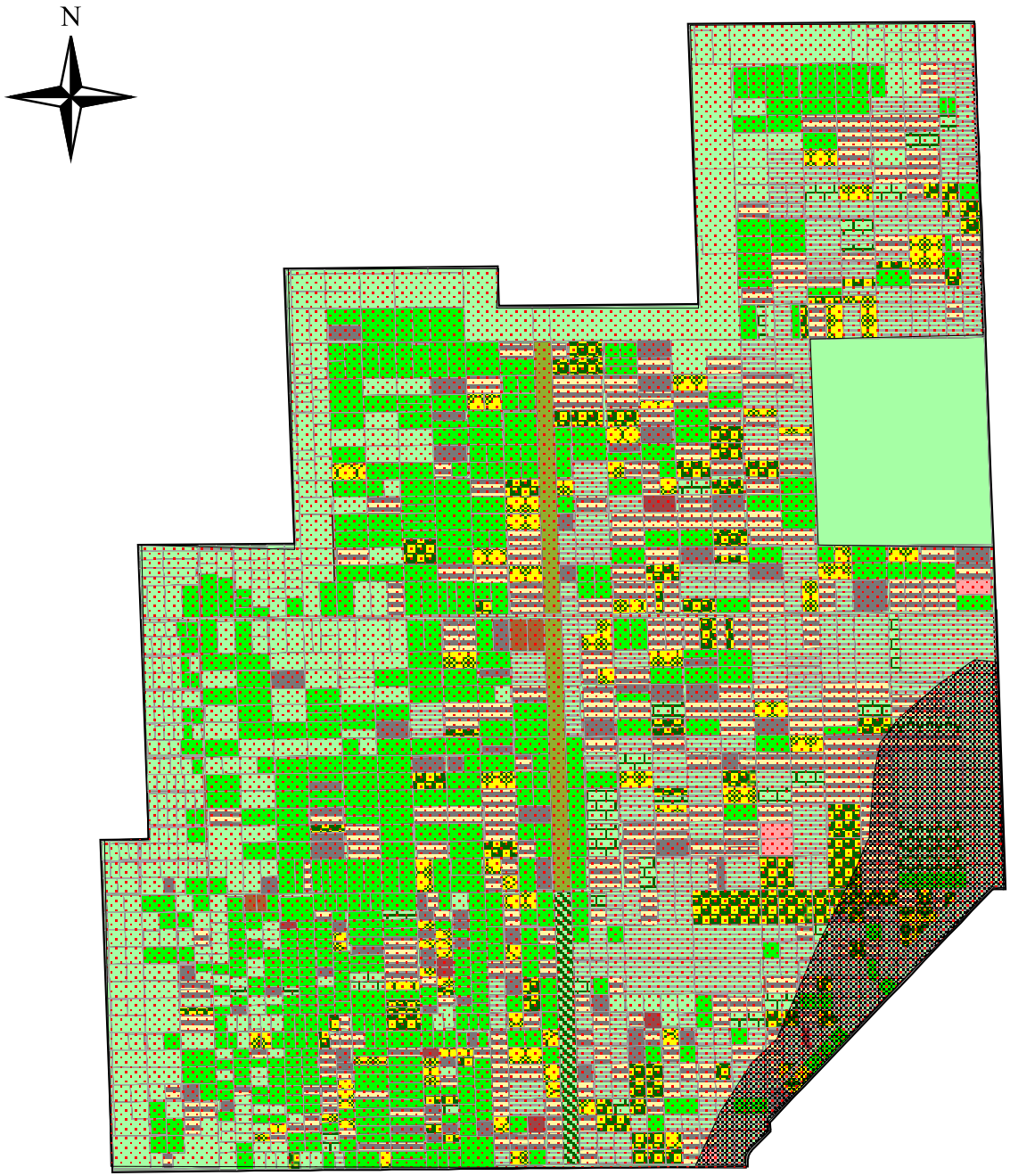


CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 5 - ALTERNATIVE 3 -
DEEP SEEPAGE BARRIER PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
FILE NO:



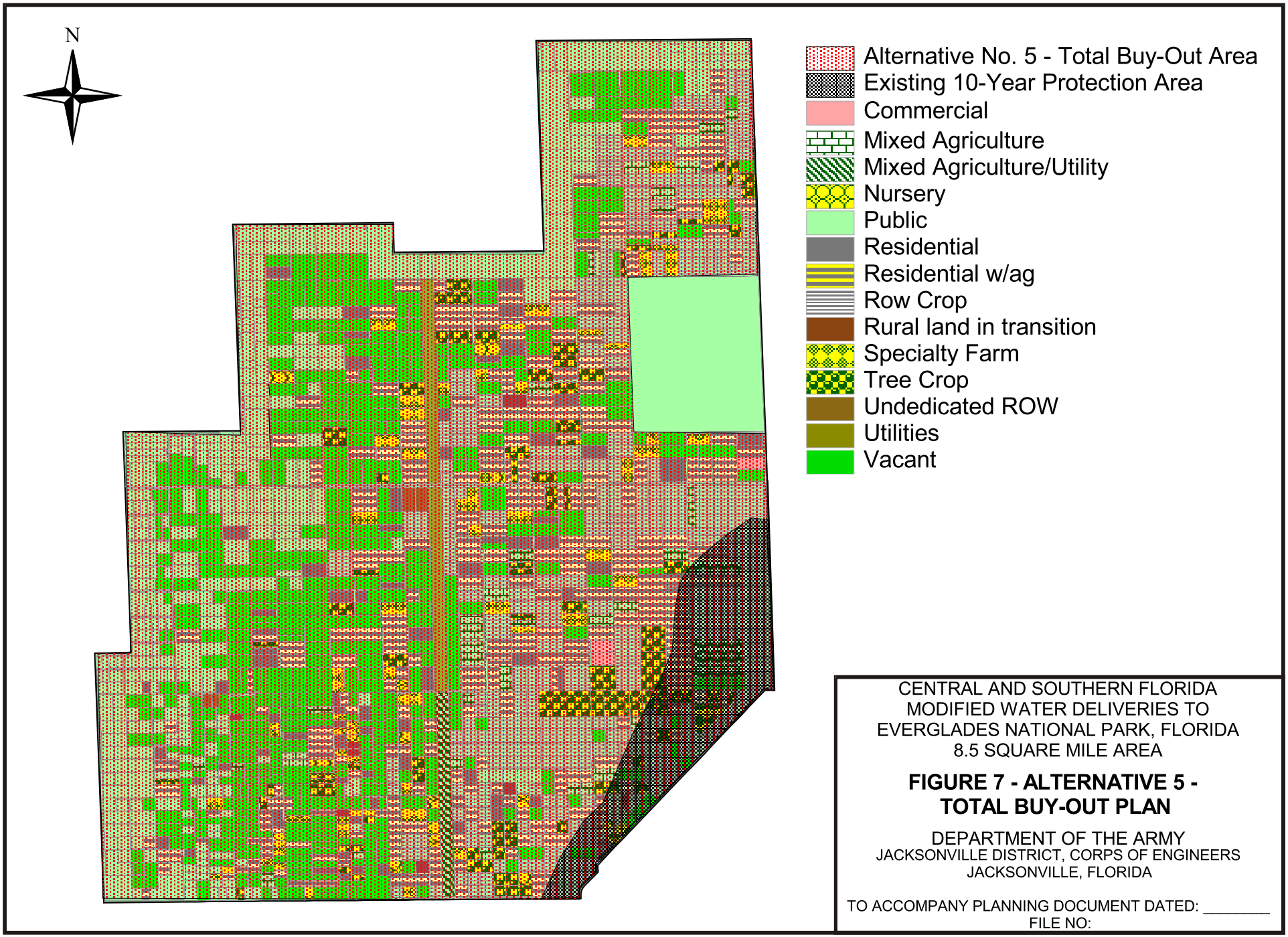
- Alternative No. 4 -Multiple Choice Aquisition Area
- Existing 10-Year Protection Area
- Commercial
- Mixed Agriculture
- Mixed Agriculture/Utility
- Nursery
- Public
- Residential
- Residential w/ag
- Row Crop
- Rural land in transition
- Specialty Farm
- Tree Crop
- Undedicated ROW
- Utilities
- Vacant

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 6 - ALTERNATIVE 4 - LANDOWNER'S CHOICE LAND ACQUISITION PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
FILE NO:

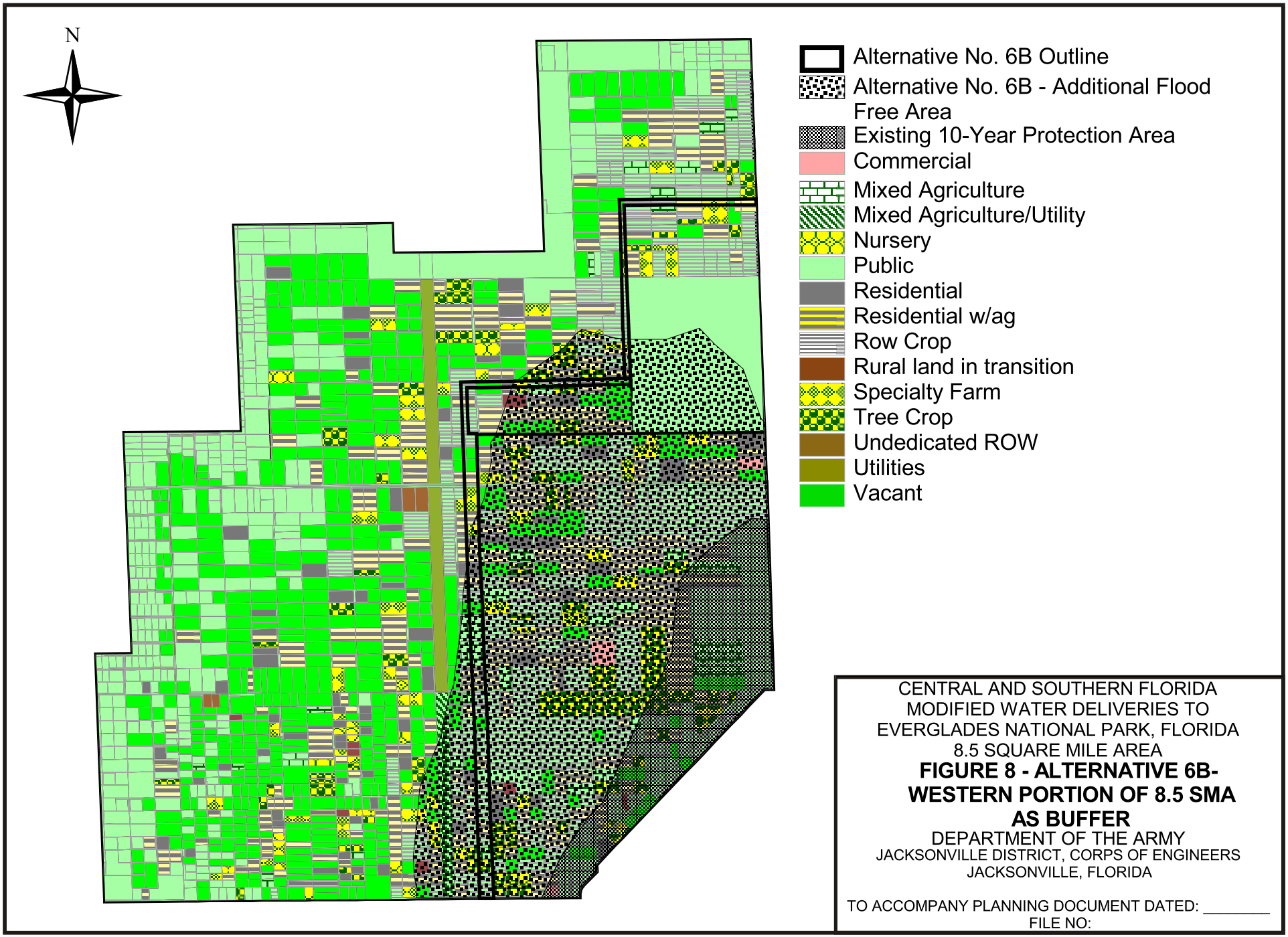


CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 7 - ALTERNATIVE 5 -
TOTAL BUY-OUT PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
FILE NO:



CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 8 - ALTERNATIVE 6B-WESTERN PORTION OF 8.5 SMA AS BUFFER

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
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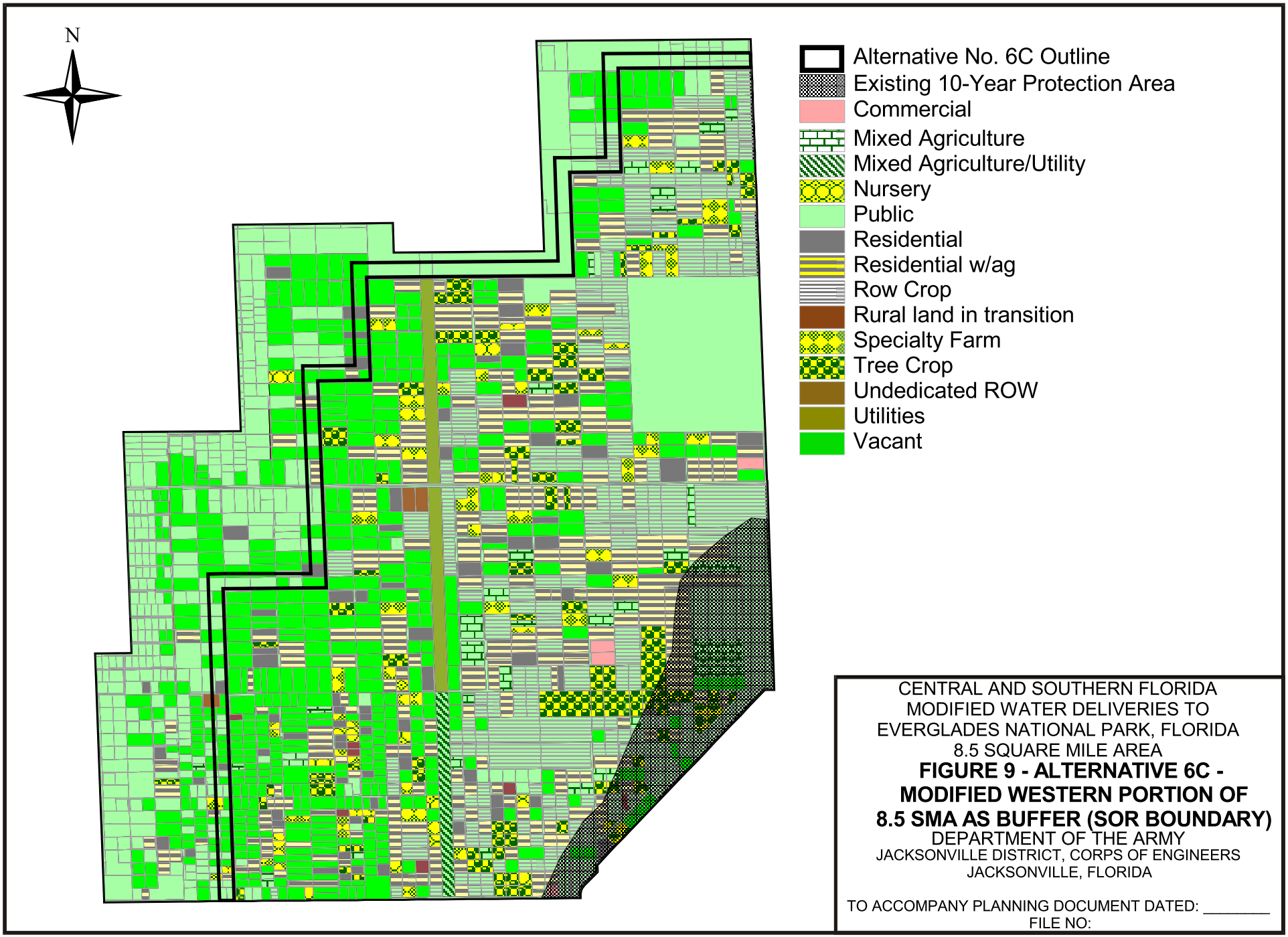

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 9 - ALTERNATIVE 6C -
MODIFIED WESTERN PORTION OF
8.5 SMA AS BUFFER (SOR BOUNDARY)

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

TO ACCOMPANY PLANNING DOCUMENT DATED: _____
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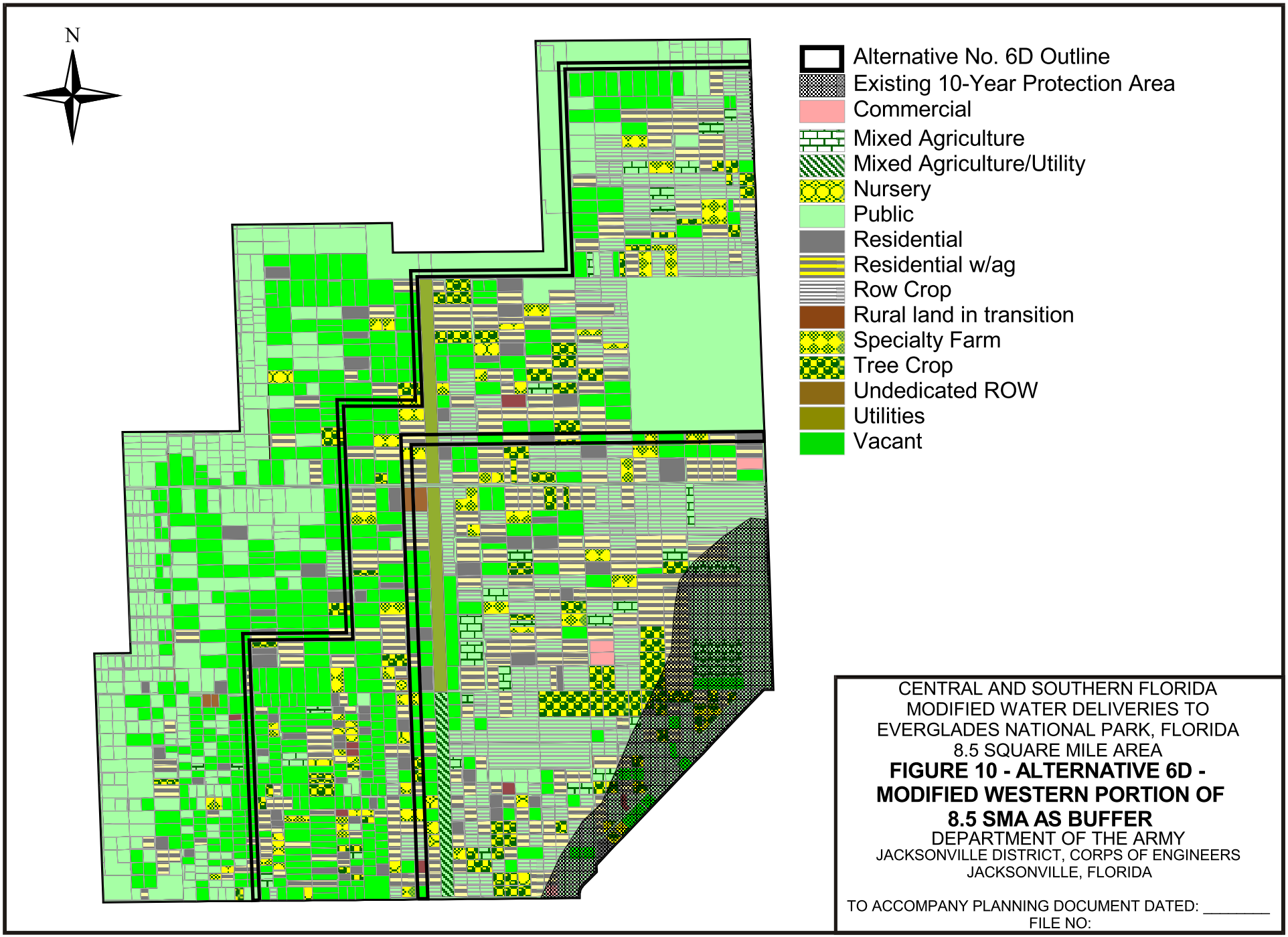

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 10 - ALTERNATIVE 6D - MODIFIED WESTERN PORTION OF 8.5 SMA AS BUFFER

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

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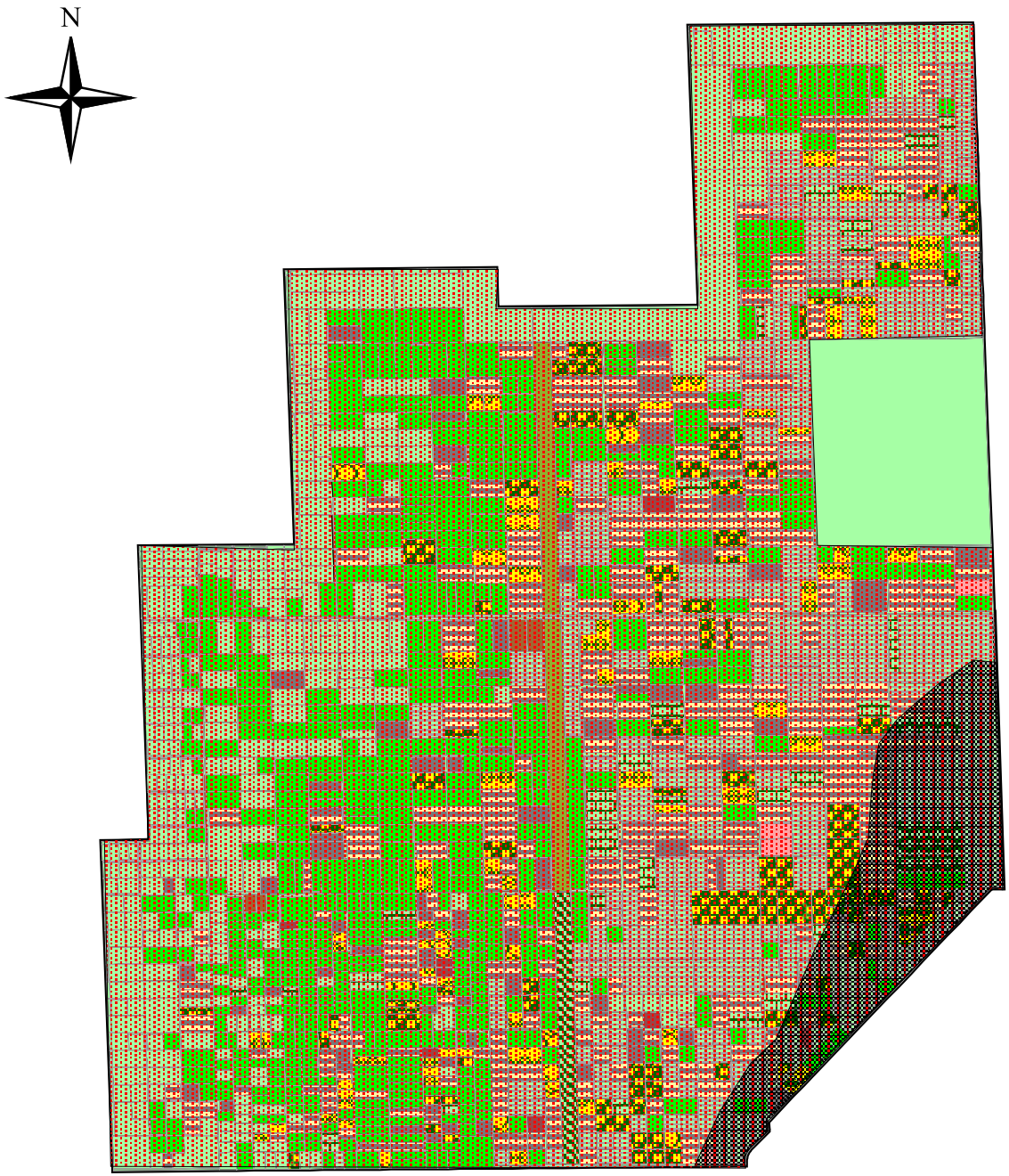

- Alternative No. 7 - Area of Raised - Flood Free Roads
- Existing 10-Year Protection Area
- Commercial
- Mixed Agriculture
- Mixed Agriculture/Utility
- Nursery
- Public
- Residential
- Residential w/ag
- Row Crop
- Rural land in transition
- Specialty Farm
- Tree Crop
- Undedicated ROW
- Utilities
- Vacant

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 11 - ALTERNATIVE 7 - RAISE ALL ROADS PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

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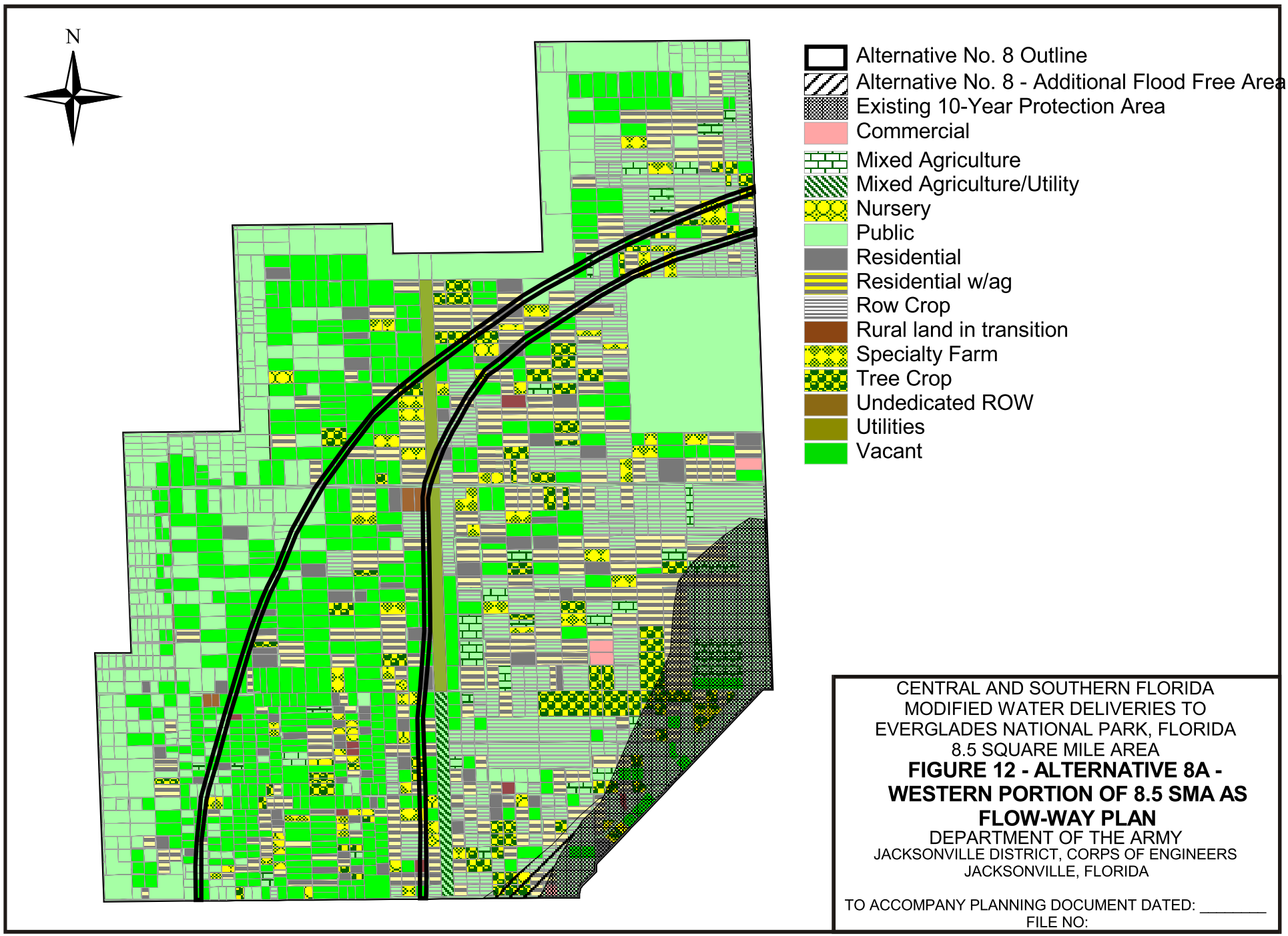

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 12 - ALTERNATIVE 8A - WESTERN PORTION OF 8.5 SMA AS FLOW-WAY PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

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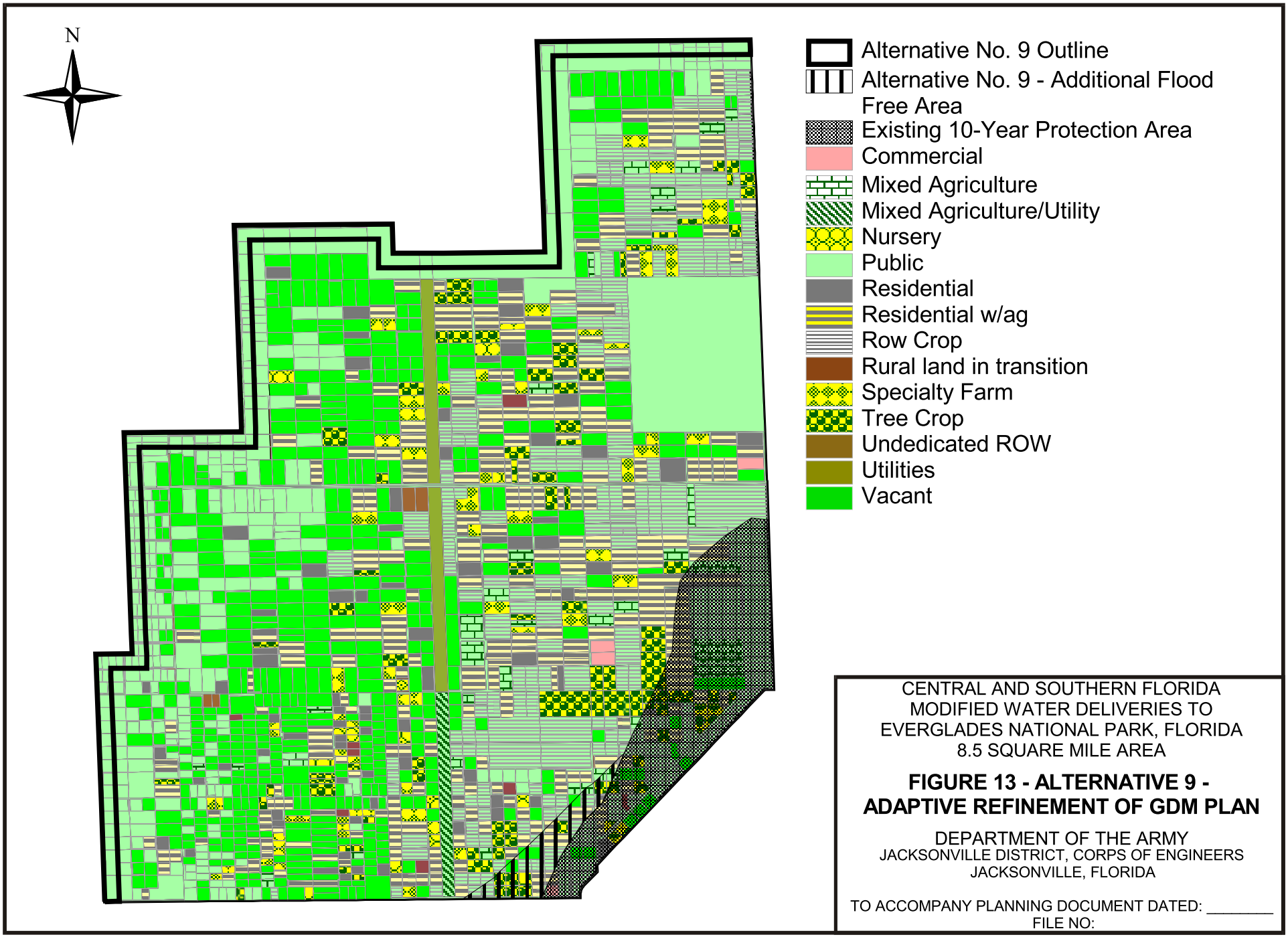

CENTRAL AND SOUTHERN FLORIDA
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA
8.5 SQUARE MILE AREA

FIGURE 13 - ALTERNATIVE 9 - ADAPTIVE REFINEMENT OF GDM PLAN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

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