2562431

ENGINEERING ALTERNATIVES REPORT

SR 52 from SR 55 (U.S. 19)
TO SR 93 (I-75) IN PASCO COUNTY
A DISTANCE OF APPROXIMATELY 23.3 MILES

State Project No. 14120-1518

Work Program Item No. 1115879

Federal Aid Project No. F-270-1(2)

Prepared for:
FLORIDA DEPARTMENT OF TRANSPORTATION

Prepared by:
REYNOLDS, SMITH AND HILLS, INC.
Tampa, Florida

June 1986

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

State Road (SR) 52 from U.S. 19 to I-75 in Pasco County covers a distance of approximately 23.3 miles in central Pasco County. This road connects the heavily built-up western end of the county, including the Cities of Port Richey and New Port Richey, with I-75, the primary north-south freeway on Florida's west coast. Pasco County classifies SR 52 as a minor arterial on their land use plan. Figure 1-1 provides a location map indicating the relationship of this roadway with the surrounding area. SR 52 is the only east-west state highway west of I-75 in Pasco County, and the importance of this route will continue to increase in the future as the county gains development. Land adjacent to the western portion of SR 52 is rapidly developing an urban character, while the eastern portion of the road travels through extensive open land and wetlands. The purpose of this report is to identify the alternative improvements considered for SR 52 and to document the decisions that have led to a preferred alternative that will be carried through the public hearing and final report process.

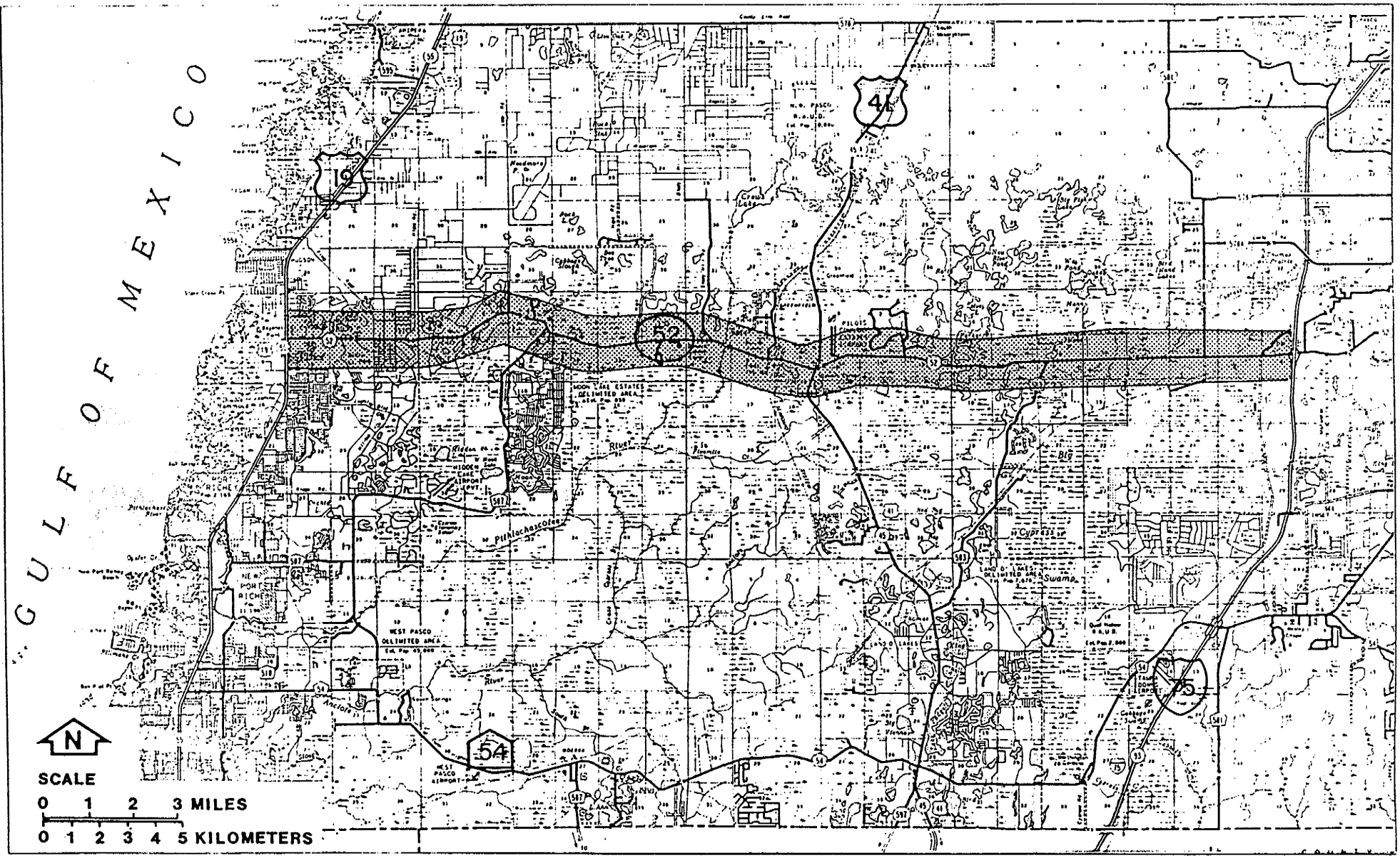


Figure 1-1
LOCATION MAP

SOURCE: FDOT HIGHWAY MAP, 1979, ESE, 1985.

LEGEND
PROJECT LOCATION

SR52 FROM SR55(U.S.19) TO SR93(I-75) IN PASCO COUNTY

2.0 CORRIDOR CONSIDERATIONS

As can be seen in Figure 1-1, SR 52 roughly bisects Pasco County in an east-west direction and provides the most direct connection between U.S. 19 and I-75. County Road (CR) 578, County Line Road, runs along the northern border of the county and connects U.S. 19 with U.S. 41. CR 578 is located approximately 7 miles north of SR 52 and does not provide a direct connection of I-75. CR 54, located approximately 9 miles south of SR 52, provides the only other east-west continuous connection between U.S. 19 and I-75 in Pasco County. This route is considerably more circuitous than SR 52 and is spaced far enough away to constitute its own corridor. Purchase of all the right-of-way necessary to create an entirely new corridor would be prohibitively expensive. In addition, a new corridor would have to pass through existing built-up areas. This would result in a considerable amount of business and residential relocations and would disrupt existing neighborhoods. Based on the above review, it has been concluded that there are no viable corridors other than SR 52 to carry the projected traffic.

3.0 NO PROJECT ALTERNATIVES

A number of no project alternatives were considered. These alternatives are discussed below.

3.1 NO BUILD ALTERNATIVE

This alternative would allow the existing facility to remain without substantial improvement. The existing roadway on SR 52 has 2 lanes for through traffic, one in each direction, with widenings for turn lanes at a number of intersections. Traffic volumes on the section between U.S. 19 and CR 1 already exceed 20,000 vehicles per day and are projected to exceed 60,000 vehicles per day by the 2010 design year. Figure 3-1 indicates the existing and projected traffic growth on SR 52 through year 2010. This figure indicates that considerable growth in traffic is expected throughout the SR 52 corridor. With this level of traffic demand and the lack of alternate routes for use by the motoring public, SR 52 will become extremely congested. This will create long delays and increase the potential for accidents. For these reasons, this alternative was rejected.

3.2 POSTPONING IMPROVEMENTS

Another potential alternative is to postpone any improvements to SR 52. Portions of the existing roadway are already extremely congested. The extent of congestion will continue to expand as the area surrounding SR 52 develops. Delaying improvement of SR 52 would result in increased construction and right-of-way costs and would result in increased fuel consumption due to increased delays. Postponing improvements would, therefore, not be in the best interest of the motoring public.

3.3 TRAFFIC OPERATIONS IMPROVEMENTS

Upgrading of the existing 2-lane roadway by providing wide shoulders and increasing the number of turn lanes at the major intersections would provide a minor capacity increase. This would not meet the projected traffic demand for this facility. For this reason upgrading the existing facility is not considered a viable alternative.

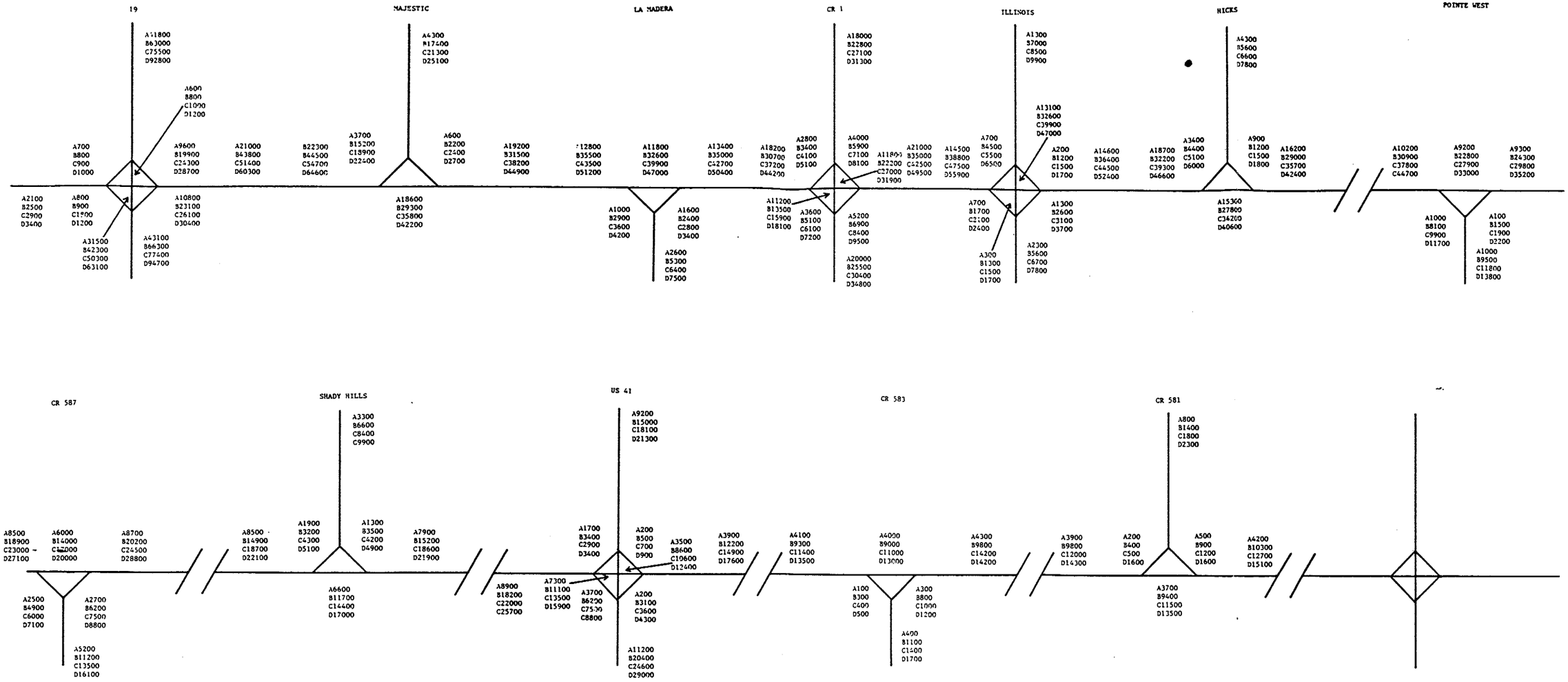


Figure 3-1

TWO-WAY AVERAGE DAILY THROUGH AND TURNING TRAFFIC

K = 8.5%
D = 55%
T = 6% (DESIGN HOUR)

SOURCE: RS&H, 1984

LEGEND

A - 1983 - EXISTING TRAFFIC
B - 1990 - DEMAND TRAFFIC
C - 2000 - DEMAND TRAFFIC
D - 2010 - DEMAND TRAFFIC

STATE ROAD 52
(U.S. 19 TO I-75)

3.4 TRANSIT AS AN ALTERNATIVE MODE

Mass transit has the potential to serve some of the transportation demand along SR 52. The SR 52 corridor has low land use densities and as a result has widely scattered origins and destinations for the trips being made. This lack of concentration, would make it very difficult for mass transit to capture more than 4 percent of the trips being made along SR 52.

There is no regularly scheduled transit service in the SR 52 corridor. Additionally, Pasco County has no plans to add transit service within this corridor. Mass transit will therefore not serve the transportation demand and was dropped from further consideration.

4.0 PROJECT ALTERNATIVES

The project alternatives were developed to provide an acceptable level of service for the expected traffic demand on SR 52 through the 2010 design year. The projection of traffic demand within the project limits was the subject of a separate traffic report prepared earlier. This report estimated traffic demand based upon land use data supplied by Pasco County to determine future growth in the area and extensive 24-hour machine counts and manual turning movement counts to establish baseline traffic data. This information was input to a computer program called the Quick Response System which developed traffic projections for SR 52. The program was calibrated to closely match existing travel patterns and the projections were checked against the Florida Department of Transportation (FDOT) supplied systems traffic for reasonableness. The demand traffic for SR 52 is indicated in Figure 3-1. The 2010 traffic projections were fairly consistent with the exception of the western end in the vicinity of U.S. 41. The FDOT estimate was 79,000 vehicles per day, while the computer assisted estimate was a more moderate 64,600 vehicles per day. The lower traffic estimate was used for this study. The traffic projections are significantly higher in the western, urbanizing portion of Pasco County and gradually drop as you move east toward I-75. To account for the difference in traffic demand and the fact that the western urbanizing section has significantly higher land costs than the eastern end, the following urban and rural alternatives were considered.

4.1 URBAN ALTERNATIVES

SR 52 from U.S. 19 to Moon Lake Road has a rapidly developing urban character with a considerable amount of commercial land use. This intense development results in high land values and correspondingly high right-of-way acquisition costs. Thus, an urban cross section will be considerably less expensive than a rural cross section and will, therefore, be used within these limits.

Several pavement cross sections were considered for this segment of SR 52. In order to handle projected traffic demands, 6 lanes for through traffic (3 in each direction), are required. Each of the alternatives

therefore provide 3 through lanes in each direction. The difference in the alternatives is that the first would provide a 14-foot wide painted median for left-turning vehicles, the second would provide a 22-foot wide raised median, and the third would provide a 28-foot wide raised median.

4.2 RURAL ALTERNATIVES

SR 52 from Moon Lake Road to I-75 is sparsely developed at this time. The land costs are considerably lower than in the section to the west, therefore, rural cross sections become more economical to build than urban cross sections. The projected traffic demand declines east of Moon Lake Road. Four lanes for through traffic are required on SR 52 by the 2010 design year to accommodate the projected traffic.

The alternatives considered for uncontrolled access provide 2 lanes in each direction for through traffic. The differences in the two alternatives considered are the width of the median. The first alternative uses a 40-foot wide median, while the second uses a 52-foot wide median.

The possibility of a controlled access road in the rural section was also considered. The projected traffic demand was not sufficient to justify the added expense of constructing separate access roads beside the limited access route. This alternative was therefore dropped from further consideration.

4.3 DESIGN CONSIDERATIONS

4.3.1 Design Speeds and Degree of Curvature

The design speeds used in this study are 50 miles per hour (mph) for the urban section and 65 miles per hour for the rural section. A 50 mph design speed is recommended in the urban section because it meets the Recommended Minimum Design Speed for urban minor arterials, the Pasco County designation for SR 52, without speed restrictions as indicated in the Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways prepared by Florida Department of Transportation, Tallahassee, Florida. A 65 mph design speed is used for the rural cross section because this is 10 mph over the expected 55 mph posted limit.

The maximum degree of horizontal curvature allowed for the urban section is 5° using a 0.05 foot/foot superelevation rate, while the maximum allowed for the rural section is 4° 30' using a maximum superelevation rate of 0.10 foot/foot.

4.3.2 Accident Analysis

A review of accident data contained in the FDOT computer for the years 1978 through 1983 for SR 52 within the project boundaries has been made. Table 4-1 shows the number of accidents by type, accident rate, number of fatalities and injuries, and estimated economic loss for each of left turning years over the 23.3 mile length of the project.

Over 50 percent of the accidents occurred in the 3-mile segment at the western end of the project running from U.S. 19 to Hicks Road. The majority of these accidents consisted of left-turn and rear-end collisions. These types of accidents can be reduced by increasing the capacity of the roadway and by providing left-turn lanes to remove left-turning vehicles from the through-travel lanes.

A comparison of the accident rates for SR 52 with the statewide average was made. The rate for the entire length of the project was below the statewide average for each year (1978 to 1983) reviewed. Accident rates at the following intersections, however, did exceed the statewide average: SR 52 with U.S. 19, CR-1, Moon Lake Road, and U.S. 41. Proposed improvements will help reduce the potential for accidents at these locations.

The remainder of SR 52 within the project limits has experienced a relatively low number of accidents. This is due to low traffic volumes, few intersections, and a generally straight alignment. No significant accident pattern was identified in this review. The recommended improvements will enhance the flow of traffic on SR 52 and should mitigate some of the rear-end and left-turn accidents previously experienced on this road.

Table 4-1. Accident History for SR 52 from U.S. 19 to I-75 (23.3 Miles)

Year	Number of Accidents			Rate Per Million Vehicle Miles	Number of Fatalities	Number of Injuries	Economic Loss*
	Left Turn	Rear End	Other Types				
1978	46	33	71	1.14	7	90	$2,212,000
1979	45	33	97	1.25	3	113	1,611,000
1980	51	52	81	1.21	2	135	1,580,000
1981	31	50	76	1.10	2	87	1,197,000
1982	44	50	95	1.22	3	124	1,706,000
1983	22	48	99	1.09	6	70	1,885,000

* Values for Economic Loss: Fatality = $200,000; Injury = $8,000; Property Damage = $1,000. (National Safety Council, 1982).

Sources: Florida Department of Transportation Accident Records, 1978-1983.
RS&H, 1985.

4.3.3 Highway Grade Separation

The only location where a highway over highway grade separation may be needed in the future along SR 52 is at the U.S. 19 intersection. Another study is currently being conducted for needed improvements to U.S. 19. The need for a grade separation at the U.S. 19 - SR 52 intersection is being considered as part of that study and is therefore outside the scope of the SR 52 study.

Since needed improvements at the U.S. 19 - SR 52 intersection are currently under study, the western terminus of this project has been established as the existing east right-of-way line for U.S. 19. The U.S. 19 study is not to a point where specific recommendations and construction limits can be identified. Traffic volumes projected by the consultants completing the U.S. 19 study reflect demand volumes and their peak- hour projections closely approximate the peak-hour projections made earlier for SR 52.

4.3.4 Railroad Grade Crossing

There is one railroad grade crossing of SR 52 within the project limits. The Seaboard Coast Line Railroad crosses SR 52 west of U.S. 41. FDOT considers constructing railroad grade crossings when train/motor vehicle conflicts exceed 20 trains per day and 5,000 vehicles per lane per day. There are currently two train crossings per day on Tuesdays, Thursdays, and Saturdays as a train crosses from Brooksville to Tampa and returns. This section of SR 52 is expected to carry 25,700 vehicles per day by 2010. Since there is an average of less than one train per day, this amount of train/motor vehicle conflict is not sufficient to warrant construction of a railroad grade separation. Therefore, an improved at grade crossing will be included with the rural design cross section at this location.

4.3.5 Potential to Save the Existing Pavement

The ability to save the existing pavement for use with the improved roadway has been reviewed. An urban cross section is recommended from U.S. 19 to Moon Lake Road. The existing pavement is constructed with a rural cross section, providing open drainage and very little grade. As a

result, the existing pavement would not drain properly if it were to be converted to an urban cross section. The rural portions of SR 52 have been reviewed for possible resurfacing and use in the rural cross section. The FDOT District Pavement Design Engineer has evaluated the existing base and surface. Due to low soil support of the existing embankment, the existing limerock base of 6 inches, the District Pavement Design Engineer has recommended that the roadway be reconstructed. Therefore, new pavement will have to be constructed on the entire length of SR 52.

4.4 RECOMMENDED ALTERNATIVES

The urban and rural alternatives have been reviewed with respect to their traffic carrying capability and design considerations. The traffic projected for the west end of the project is a high volume of traffic for a 6-lane road ranging from 35,200 to 64,600 vehicles per day in the 2010 design year. As a result, dual left-turn lanes will be needed at a number of signalized intersections to maintain acceptable levels of service in the future. The painted median alternative would be difficult to modify to safely incorporate dual left-turn lanes. This cross section would also not be in character with the importance of this route for east-west movement through Pasco County and the 50 mph design speed. For these reasons this alternative was dropped from consideration.

The 22-foot wide raised median concept has room in the median to provide a single left-turn lane. At locations where dual left-turn lanes would be required, additional right-of-way would have to be acquired and the through lanes would have to be shifted over to allow the dual left-turn lanes to be constructed. The number of locations within the urban section that will require dual left-turn lanes in the future cannot be determined at this time because there is a significant amount of land yet to be developed and much of it could have a concentration of turning movements that would require dual left-turn lanes. This will result in the through traffic lanes moving in and out from the centerline throughout the urban section.

The 28-foot wide median has sufficient room to allow dual left-turn lanes to be constructed without moving the through travel lanes. This is accomplished through acquisition of 6 feet more right-of-way than the 22-foot wide median. The 28-foot wide median is also closer to the 30 foot wide desirable minimum for median widths on urban streets with a 45 to 50 mph design speed indicated in the FDOT Manual of Uniform Minimum Standards for Design, Construction and Maintenance For Streets and Highways. As was previously indicated, the design speed on this section is 50 mph. Due to the important nature of SR 52 for east-west movement through Pasco County, the need to provide a safe, efficient highway, and the fact that this will probably be the last time additional right-of-way is purchased on this road, it is recommended that a 28-foot wide median be constructed in the urban section.

The rural section of SR 52 from Moon Lake Road to I-75 will require a 4-lane divided roadway to meet the projected traffic demand which ranges from 13,500 to 28,800 vehicles per day through the 2010 design year. Median widths of 40 feet and 52 feet were considered. The 52-foot width is slightly higher than the 50-foot wide desirable minimum for median widths on rural highways with design speeds over 55 mph. As was previously indicated, the design speed for this section of SR 52 is 65 mph. The 52-foot wide median would allow construction of an additional through lane in each direction, as well as median turn lanes, should they be required beyond the 2010 design year due to large developments that may be constructed. Considering the importance of SR 52 for east-west movement in Pasco County and since it is likely that this will be the last time additional right-of-way will be acquired for the forseeable future, it is essential that right-of-way be acquired to meet potential traffic demands beyond the 2010 design year. For these reasons the 52-foot wide median has been recommended.

4.4.1 6-Lane Divided Urban Roadway (127' R/W)

The urban typical provides a 6-lane divided pavement with two 12-foot wide lanes on the inside and a 14-foot wide outer lane in each direction. The 14-foot wide outer lane is provided to accommodate bicycle traffic. The center median dividing strip will be 28-feet wide to allow room for

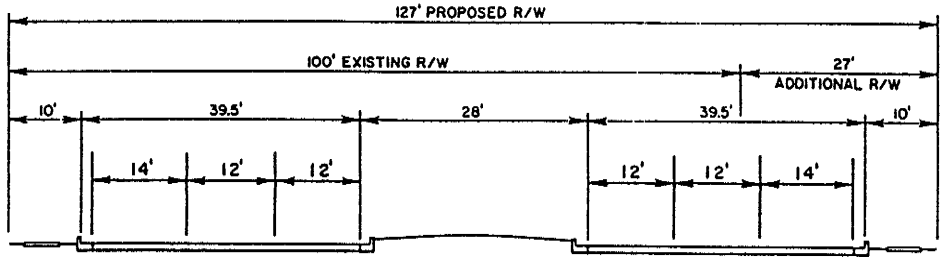
dual left-turn lanes at intersections with high turning volumes. The total right-of-way required for the urban cross section is 127 feet in width. The urban pavement would be constructed using curbs and gutters, with provision of underground drainage to handle stormwater runoff. This cross section would be used in the urbanized and urbanizing section from U.S. 19 to Moon Lake Road, a distance of approximately 6 miles.

4.4.2 4-Lane Divided Rural Roadway (212' R/W)

The rural typical cross section provides a 4-lane divided pavement with two 12-foot wide lanes for each direction of traffic. A 52-foot wide median is used for this cross section. The rural section will extend from CR 587, Moon Lake Road, to I-75, a distance of approximately 17 miles. A 56-foot wide margin from the edge of pavement to the right-of-way line on each side of the roadway is provided to allow room for surface drainage swales. The total right-of-way needed for this cross section is 212 feet in width.

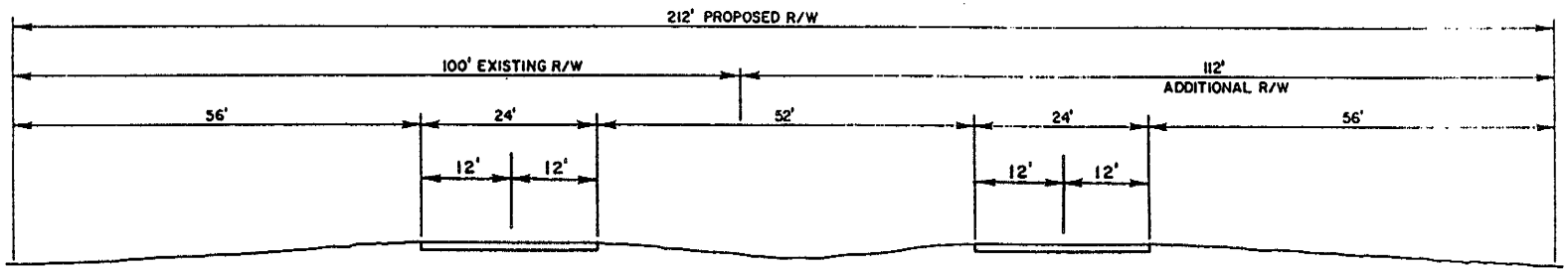
The typical cross sections for the recommeded alternatives are shown in Figure 4-1.

TYPICAL CROSS SECTIONS



TYPICAL URBAN SECTION

(U.S. 19 TO MOON LAKE ROAD)



TYPICAL RURAL SECTION

(MOON LAKE ROAD TO I-75)

Figure 4-1
TYPICAL CROSS SECTIONS

SOURCE: RS&H, 1986

SR52 FROM SR55(U.S.19) TO SR93(I-75) IN PASCO COUNTY

5.0 ALTERNATE ALIGNMENTS

The existing right-of-way on most of SR 52 is 100 feet in width, generally centered on the existing roadway. A few locations have more than 100 feet total right-of-way and a few locations have less than 100 feet. The urban cross section requires a basic right-of-way width of 127 feet, with additional right-of-way needed at specific high volume intersections. The rural cross section requires a total right-of-way width of 212 feet. Additional right-of-way will, therefore, be required along the entire length of the project. The following alternate alignments were considered for both the urban or rural cross sections along SR 52.

5.1 NORTH ALIGNMENT

With this alignment, all of the additional right-of-way required would be obtained along the north side of the road. This would be an additional 27 feet in the case of the urban section and 112 feet in the case of the rural section.

5.2 SOUTH ALIGNMENT

This alignment would acquire additional right-of-way from the south side only using the same additional right-of-way requirements as discussed for the north alignment.

5.3 CENTERED ALIGNMENT

This alignment would acquire equal amounts of right-of-way on each side of the existing roadway. The urban section would require 13.5 feet from each side, while the rural section would take an additional 56 feet from each side of the road.

5.4 COMBINED ALIGNMENT

None of these alignments provide the best solution for the entire length of the project. A combined alignment that would shift from north to centered to south as needed was therefore considered.

6.0 SELECTION CRITERIA FOR A PREFERRED ALIGNMENT

To select a preferred alignment the following goals were established:

1. Minimize road construction costs,
2. Minimize right-of-way acquisition costs,
3. Minimize the number of relocations,
4. Minimize environmental impacts,
5. Improve roadway geometrics, and
6. Minimize utility relocation costs.

6.1 ROAD CONSTRUCTION COSTS

The urban section will require reconstruction of the existing roadway and placement of new pavement with curb and gutter sections and underground drainage. This will be required for each alternative, therefore, there is no difference in construction cost for any of the alternatives in the urban section. Similarly, the rural cross section will require entirely new pavement regardless of the alternative selected. Road construction costs, therefore, are not a determining factor in the selection of the preferred alignment.

Cost estimates have been prepared for this new road construction using FDOT long-range estimates which were prepared on May 1, 1986. The urban cross section would be constructed for a distance of 6.11 miles of 6-lane pavement at an estimated cost of $13,148,400. The rural 4-lane cross section would be used for 17.23 miles and would cost $26,185,300.

6.2 RIGHT-OF-WAY COSTS

Right-of-way cost estimates were obtained for the three alignments using the recommended right-of-way widths discussed earlier. The alignments included acquisition of all of the needed right-of-way north of the existing right-of-way, total acquisition to the south of existing, and centered on the existing centerline. The right-of-way cost estimates obtained from FDOT include costs for the purchase of the right-of-way including severance, support costs, administrative settlement, court award and legal settlements, and relocation costs, including costs for signs.

6.3 NUMBER OF RELOCATIONS

The number of relocations, both for business and residential use, were obtained for the three right-of-way acquisition alternatives and are discussed in detail in the following section.

6.4 ENVIRONMENTAL IMPACTS

The rural section of SR 52 passes through a number of cypress and wetland areas. Determination of the preferred alignment considered the impact of the recommended right-of-way on the adjacent environmentally sensitive areas.

6.5 ROADWAY GEOMETRICS

At a number of locations, improvements in roadway geometrics were a factor in the selection of the preferred alignment. The maximum degree of curvature used in the preferred alignment is 3° 30' for both the urban and rural sections.

6.6 UTILITIES

A number of utilities are located within the SR 52 right-of-way, with the greatest number located in the urbanized western end of the project. The Withlacoochee River Electric Company (WREA) has overhead electric lines running the entire length of the project. Poles for this utility vary from the north side of the road to the south side at a number of locations. Florida Power has an overhead line that runs from U.S. 19 to east of Plaza Drive. Storer Cable Television has a cable on the WREA poles that follow a south-side alignment for most of the length from U.S. 19 to 0.5 mile east of Moon Lake Road, CR 587. The Pasco County Water Department has a water line that is located between 38 and 42 feet south of the centerline of SR 52 from U.S. 19 to Moon Lake Road. General Telephone Company has an overhead line running from U.S. 19 to 0.3 mile west of Hicks Road on the north side of SR 52. The telephone company also has a number of buried cables within the road right-of-way. SR 52 from U.S. 19 to Moon Lake Road has between one and eleven buried cables spread within the right-of-way north of the existing pavement. From approximately 0.4 mile east of U.S. 19 to Moon Lake Road there are

one to two buried cables located south of the road. All of the utilities are located within the road right-of-way with the exception of five WREA poles located just outside the south right-of-way line in the vicinity of CR 1. The utilities located within the right-of-way are scattered north and south of the existing pavement. Most of the buried utilities will require relocation or adjustment no matter which alignment is selected, and no significant differences in costs for relocating of utilities following the north, south, or centered alignments were identified.

7.0 PREFERRED ALIGNMENT

No one alignment was able to provide the lowest right-of-way cost, least number of relocations, minimum environmental impact, and best roadway geometrics. In addition, there is often conflict between these goals. Providing the best roadway geometrics, for instance, likely will have higher right-of-way costs and may have greater impact on environmentally sensitive areas. A route has been selected along a combined alignment that optimizes the goals indicated in Section 6.0. This route is called the preferred alignment.

7.1 U.S. 19 TO CR 587, MOON LAKE ROAD--URBAN CROSS SECTION

This section of SR 52 contains the highest densities of urban development. Much of the road frontage has been developed into commercial, office, and residential uses. As a result, there are very few environmentally sensitive areas within the urban limits. Selection of the preferred route, therefore, centered on minimizing right-of-way costs and relocations. Because there are a number of curves in the alignment of this road, the logical place to transition from a north to centered or south alignment is in one of these curves. Efforts have also been made to flatten these curves, where possible, to improve roadway geometrics.

Table 7-1 provides a comparison of right-of-way costs, number of relocations, relative environmental impacts by alignment, and indicates the preferred alignment. The preferred alignment for SR 52 from U.S. 19 to La Madera Boulevard is to acquire additional right-of-way needed along the south side. This alignment is less expensive than either of the other alternatives and requires relocation of only one business. From La Madera Boulevard to Illinois Road the south alignment has been selected. An eagle's nest is located approximately 350 feet north of the centerline of SR 52 in the vicinity of La Madera Boulevard. In order to reduce impacts on this eagle's nest, a south alignment at this location is preferred. The alignment is kept to the south for the segment leading to Illinois Road because there is no suitable place to transition to the north in this segment. This alignment will require

Table 7-1. Evaluation of Alignments for SR 52

Location	Segment Length	North R/W ($)	North Bus/Res Reloc.	North Env. (Acres)	Centered R/W ($)	Centered Bus/Res Reloc.	Centered Env. (Acres)	South R/W ($)	South Bus/Res Reloc.	South Env. (Acres)	Preferred R/W ($)	Preferred Bus/Res Reloc.	Preferred Env. (Acres)
U.S. 19 to LaMadera Blvd.	1.29	2,439,900	1/1	N/A*	3,068,600	1/0	N/A	2,219,000	2/0	N/A	2,219,000	2/0	N/A
LaMadera Blvd. to Illinois	1.19	2,084,900	2/0	N/A	3,014,200	2/0	N/A	2,287,000	0/0	N/A	2,287,000**	0/0	N/A
Illinois to Bear Creek Drive	1.48	2,158,500	0/0	N/A	2,559,400	0/0	N/A	1,806,200	0/0	N/A	1,806,200	0/0	N/A
Bear Creek Dr. to 0.2 Mile East of Choctaw Ridge	0.4	1,130,300†	0/0	N/A	1,362,800	0/0	N/A	1,003,700	0/0	N/A	1,003,700	0/0	N/A
0.2 Mile East of Choctaw Ridge to 0.2 Mile West of Sugar Creek	1.19	1,754,500	0/0	N/A	1,616,400	0/0	N/A	804,500	0/0	N/A	804,500	0/0	N/A
0.2 Mile West of Sugar Creek to Moon Lake Road	0.56	171,000	0/0	0.12	196,400	0/0	0.16	132,000	0/0	0.2	132,000	0/0	0.2
TOTAL URBAN SECTION	6.11	9,739,100	3/1	0.12	11,817,800	3/0	0.16	8,252,400	2/0	0.2	8,252,400	2/0	0.2
Moon Lake Road to 0.3 Mile East of Hayes Road	2.42	1,278,000	0/0	N/A	1,593,800	0/0	N/A	1,266,000	0/0	N/A	1,266,000	0/0	N/A
0.3 Mile East of Hayes Road to 0.5 Mile East of Murcott Way	0.74	269,000	0/0	1.07	373,300	0/0	0.84	340,500	0/0	0.46	269,000	0/0	1.07
0.5 Mile East of Murcott Way to 0.3 Mile East of SCL Railroad	2.47	1,885,800	3/5	N/A	3,145,800	5/12	N/A	2,690,900	2/17	N/A	1,885,800	3/5	N/A
0.3 Mile East of SCL Railroad to 0.2 Mile West of U.S. 41	0.41	821,600	6/6	N/A	555,600	1/3	N/A	325,600	0/0	N/A	325,600	0/0	N/A
0.2 Mile West of U.S. 41 to 0.35 Mile East of U.S. 41	0.55	499,500	4/0	N/A	549,600	2/0	N/A	600,500	6/0	N/A	600,500	6/0	N/A
0.35 Mile East of U.S. 41 to 1.15 Miles East of U.S. 41	0.8	998,300	0/0	N/A	849,300	0/0	N/A	519,000	0/0	N/A	519,000	0/0	N/A

Table 7-1. Evaluation of Alignments for SR 52 (Continued, Page 2 of 2)

Location	Segment Length	North R/W ($)	North Bus/Res Reloc.	North Env. (Acres)	Centered R/W ($)	Centered Bus/Res Reloc.	Centered Env. (Acres)	South R/W ($)	South Bus/Res Reloc.	South Env. (Acres)	Preferred R/W ($)	Preferred Bus/Res Reloc.	Preferred Env. (Acres)
1.15 Miles East of U.S. 41 to 0.4 Mile East of Pasco Trails Blvd.	1.34	511,000	0/0	5.8	613,700	0/0	7.16	470,000	0/0	9.58	511,000	0/0	5.80
0.4 Mile East of Pasco Trails Blvd. to 2 Miles East of Pasco Trails Blvd.	1.6	580,000	0/0	3.63	726,400	0/0	3.03	552,000	0/0	2.43	552,000	0/0	2.43
2 Miles East of Pasco Trails Blvd. to 2.5 Miles East of Pasco Trails Blvd.	0.5	263,000	0/0	3.15	316,600	0/0	2.85	246,000	0/0	2.54	246,000	0/0	2.54
2.5 Miles East of Pasco Trails Blvd. to I-75	6.4	4,167,500	2/14	N/A	5,269,400	1/14	N/A	2,828,000	0/1	N/A	2,828,000	0/1	N/A
TOTAL RURAL SECTION	17.23	11,273,700	15/25	13.65	13,993,500	9/29	13.88	9,838,500	8/18	15.01	9,002,900	9/6	11.84
PROJECT TOTAL	23.24	21,012,800	18/26	13.77	25,811,300	12/29	14.04	18,090,900	10/18	15.21	17,255,300	11/6	12.04

* NA = Environmentally Sensitive Areas are not present or did not affect determination of Preferred Alternative.
† Includes transition cost for acquisition on both sides of R/W (see text).
** South Alignment preferred due to eagle's nest on north side of SR 52 at La Madera Boulevard.

Source: RS&H, 1986.

no business or residential relocations, while a north alignment would have required two business relocations. From Illinois Road to Bear Creek Drive, the south alignment is the favored route due to lower costs.

The potential to move the alignment to the north from Bear Creek Drive to 0.2 mile east of Choctaw Ridge was investigated. There are no relocations for either the south or north alignment and no significant environmental impacts. The north alignment would cost $1,130,300, while the south would cost $1,003,700. The north alignment cost includes the right-of-way cost for a north-only alignment and a transition from the south alignment. This would require purchase of right-of-way from both sides of the existing right-of-way thereby increasing the number of parcels that would be acquired. It is estimated that the eight additional parcels would add $152,000 in support cost, administrative settlement, court award, legal settlement, and appraisal fees to the $978,300 cost for the north-only alignment. The total cost for the north alignment would then be approximately $1,130,300, considerably more than the south alignment. The south alignment is therefore preferred.

From the 0.2 mile east of Choctaw Ridge to 0.2 mile west of Sugar Creek the south alignment is preferred due to significantly lower right-of-way costs. From 0.2 mile west of Sugar Creek to CR 587, Moon Lake Road, the south alignment has again been selected due to lower right-of-way costs. There is a minor amount of environmentally sensitive land within this section. There is 0.2 acre of swamp affected by the south alignment and 0.12 acre affected by the north alignment. The minor difference was not considered a significant enough factor to shift the road to the north.

7.2 CR 587 TO I-75--RURAL CROSS SECTION

The rural cross section begins at Moon Lake Road and extends to the eastern project terminus at I-75. From Moon Lake Road to 0.3 mile east of Hayes Road, the south alignment has been recommended due to lower right-of-way costs and less environmental impact than the other

alternatives. A subalternate considered straightening the alignment between two reverse curves located 0.15 mile and 0.77 mile east of Moon Lake Road. The straightened alignment would impact 2.67 acres of cypress instead of the 1.84 acres impacted by the south alignment. The straightened alignment is also estimated to cost an additional $97,000 more than the south alignment. Since the curves on the south alignment are within the design parameters for the rural cross section and there would be greater environmental impacts and higher costs to straighten the road, it has been recommended that the south alignment be followed.

From 0.3 mile east of Hayes Road to 0.5 mile east of Murcott Way consideration was given to determining the best location to shift the alignment to the north in order to connect with the best alignment to the east. It was determined that a shift to the north in this segment would be the best alignment since it would only impact one wetland system, while a centered or south alignment would have impacted wetland systems on both sides of the road.

From 0.5 mile east of Murcott Way to 0.3 mile east of the Seaboard Coast Line Railroad (SCLRR), the north alignment has been recommended due to significantly lower right-of-way acquisition costs and fewer relocations of businesses and residents. The preferred alignment shifts back to the south from 0.3 mile east of the SCLRR to 0.2 mile west of U.S. 41 to minimize right-of-way costs and eliminate the need to relocate any businesses or residences.

The alignment at U.S. 41 and SR 52 is included in the segment from 0.2 mile west to 0.35 mile east of U.S. 41. This alignment has some special considerations. The existing curve on SR 52 at this location is 6°. This is sharper than the 4° 30' maximum allowed for the 65 mph design speed. In addition, studies are currently underway to determine needed improvements to U.S. 41 north and south of SR 52. The study to the north uses a basic right-of-way width of 206 feet which will provide two 12-foot-wide travel lanes in each direction separated by a 46-foot-wide

median. The study to the south uses a basic right-of-way width of 200 feet which will provide two 12-foot wide travel lanes in each direction separated by a 40-foot-wide median. There is a new shopping center in the southeast quadrant of this intersection. In order to minimize right-of-way acquisition costs and to improve geometrics for SR 52, the curve on SR 52 has been flattened to 1° 15'. Additional right-of-way reuqired for U.S. 41 is recommended to be acquired to the west of the centerline. A 206-foot-wide right-of-way is recommended through the SR 52 intersection for U.S. 41. This will match the right-of-way to the north and can be transitioned to 200 feet south of SR 52. From 0.35 mile to 1.15 miles east of U.S. 41 the preferred alignment is along the south side due to lower right-of-way costs.

The section of SR 52 from 1.15 miles east of U.S. 41 to 0.4 mile east of Pasco Trails Boulevard has extensive wetland involvement. The cypress swamp system along the southern alignment of SR 52 was avoided due to the system's expansive and somewhat pristine nature. Cypress swamps function as recharge, stormwater retention, and water purification systems. Cypress swamps also provide a prime habitat for a diverse assemblage of wildlife species, including state and federally listed endangered and threatened animals. Therefore, since a smaller area of the overall wetland system will be altered through improvements along the northern alternative, this alterantive is preferred.

From 0.4 mile to 2 miles east of Pasco Trails Boulevard the preferred alignment begins in the center and transitions to the south to minimize environmental impact. The section from 2.0 to 2.5 miles east of Pasco Trails Boulevard crosses between two wetlands on either side of the existing right-of-way. The south alignment was selected due to lower wetland impact and to keep the impacts that do result confined to one side of the road. From 2.5 miles east of Pasco Trails Boulevard to I-75 the preferred alignment follows the south alignment due to lower right-of-way costs and a lower number of relocations.

8.0 CONCLUSIONS AND RECOMMENDATIONS

None of the three alignments originally considered provided the optimum alignment to best serve the motoring public and minimize right-of-way costs, relocations, and environmental impacts. The preferred alignment is the "best fit" to optimize these goals. It is therefore recommended that this alignment be carried through the remainder of the environmental process and be used for the ultimate improvement of this roadway.