U.S. 19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES

PINELLAS AND PASCO COUNTIES, FLORIDA

STATE PROJECT NO. 15150-1565

DESIGN ALTERNATIVES REPORT ADDENDUM

GANDY BOULEVARD (S.R.694) TO ALTERNATE U.S. 19 (S.R. 595)

Prepared For

THE FLORIDA DEPARTMENT OF TRANSPORTATION

Prepared By

GREINER ENGINEERING SCIENCES, INC.
Tampa, Florida

FEBRUARY 1988

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DESIGN ALTERNATIVES REPORT ADDENDUM

INTRODUCTION

This report is an addendum to the Design Alternatives Report published in April 1986 for U.S. 19 (S.R. 55) from Gandy Boulevard (S.R. 694) to north of Alternate U.S. 19 in Pasco County. The purpose of this Addendum is to update the Design Alternatives Report to reflect the Alternatives documented in the Draft Environmental Impact Statement (DEIS).

The alternatives have been revised between the publication of the Design Alternatives Report and the DEIS based on comment received during the public information and review process. The revisions are relatively minor and typically involve the relocation of interchanges, the extension of study segments, and the addition of new interchanges and/or overpasses. The specific changes result in the addition of alternatives to the original Design Alternatives Report. These alternatives include the preferred alternatives: Alternative A-1A, Alternative B-8D, Alternative C-2A, and Alternative D-2B.

This addendum provides the requisite text, tables and exhibits which have been revised to document the modified alternatives. The revisions involve the following portions of the original report.

1 - **Exhibit II 4 - Year 2010 U.S. 19 Corridor Design Hour Volumes**

2 - **Section IV** - Reasonable and Feasible Alternatives (text, Exhibits IV-1 through IV-6, Tables IV-1 through IV-8, Figures IV-1 through IV-4)

3 - **Exhibit V-1** - Year 2010 Peak Hour Volumes.

4 - **Exhibit V-2** - Year 2010 Operational Characteristics.

5 - **Table V-1** - Year 2010 Peak Hour Traffic Conditions.

6 - **Table V-3** - Year 2010 Interchange/Overpass At-Grad Intersection Operational Characteristics.

The replacement of these six portions in the original Design Alternatives report will update the report to reflect the preferred alternatives discussed in the environmental document.

REASONABLE AND FEASIBLE ALTERNATIVES

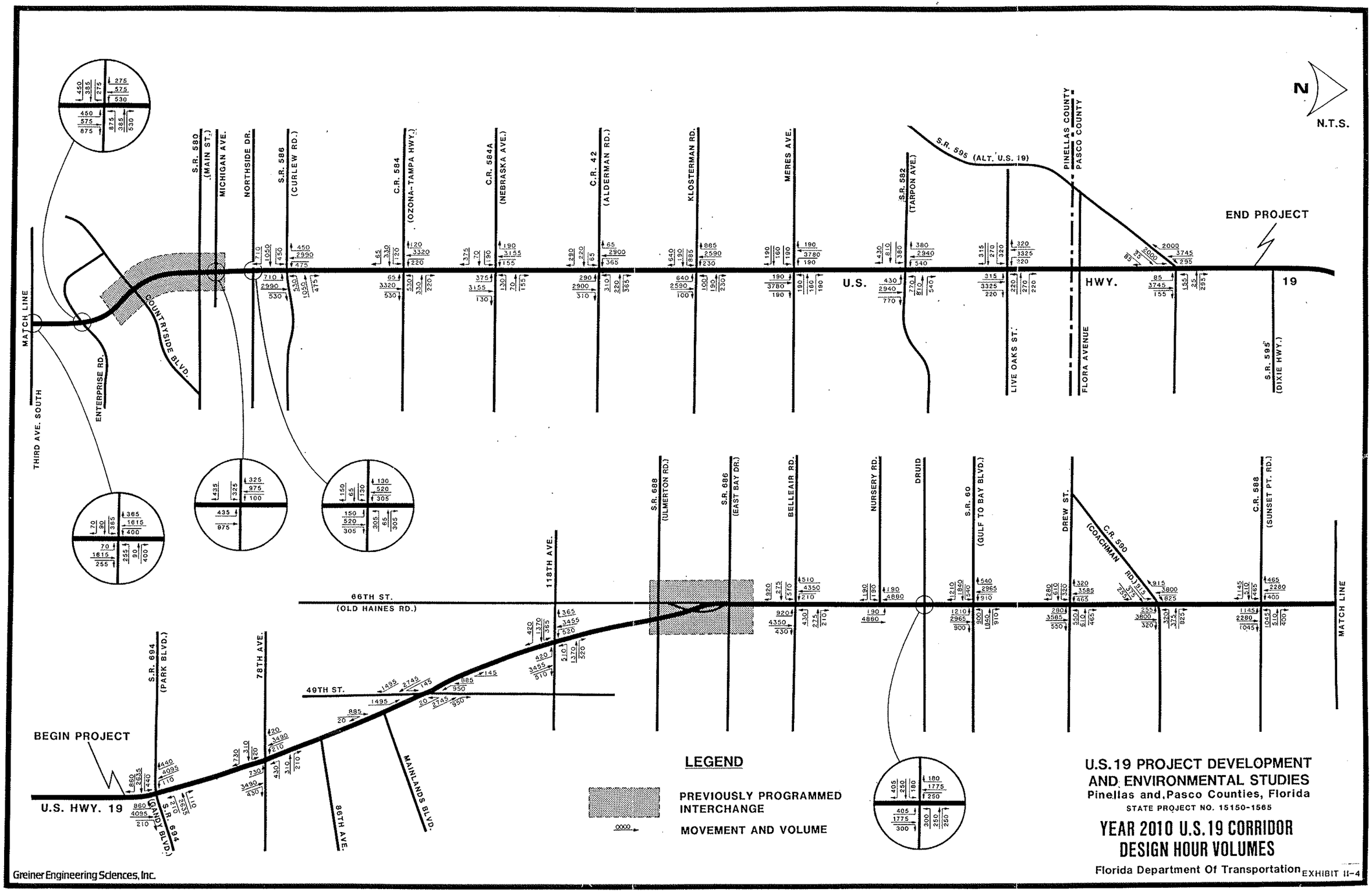
The alignment of the upgraded US 19 roadway will generally follow the alignment of existing US 19. The specific alignment alternates, along with alternate designs, are discussed in the following sections and evaluated based on selected factors to identify feasible alternates for more detailed analysis. This section presents the alternative design concepts which have

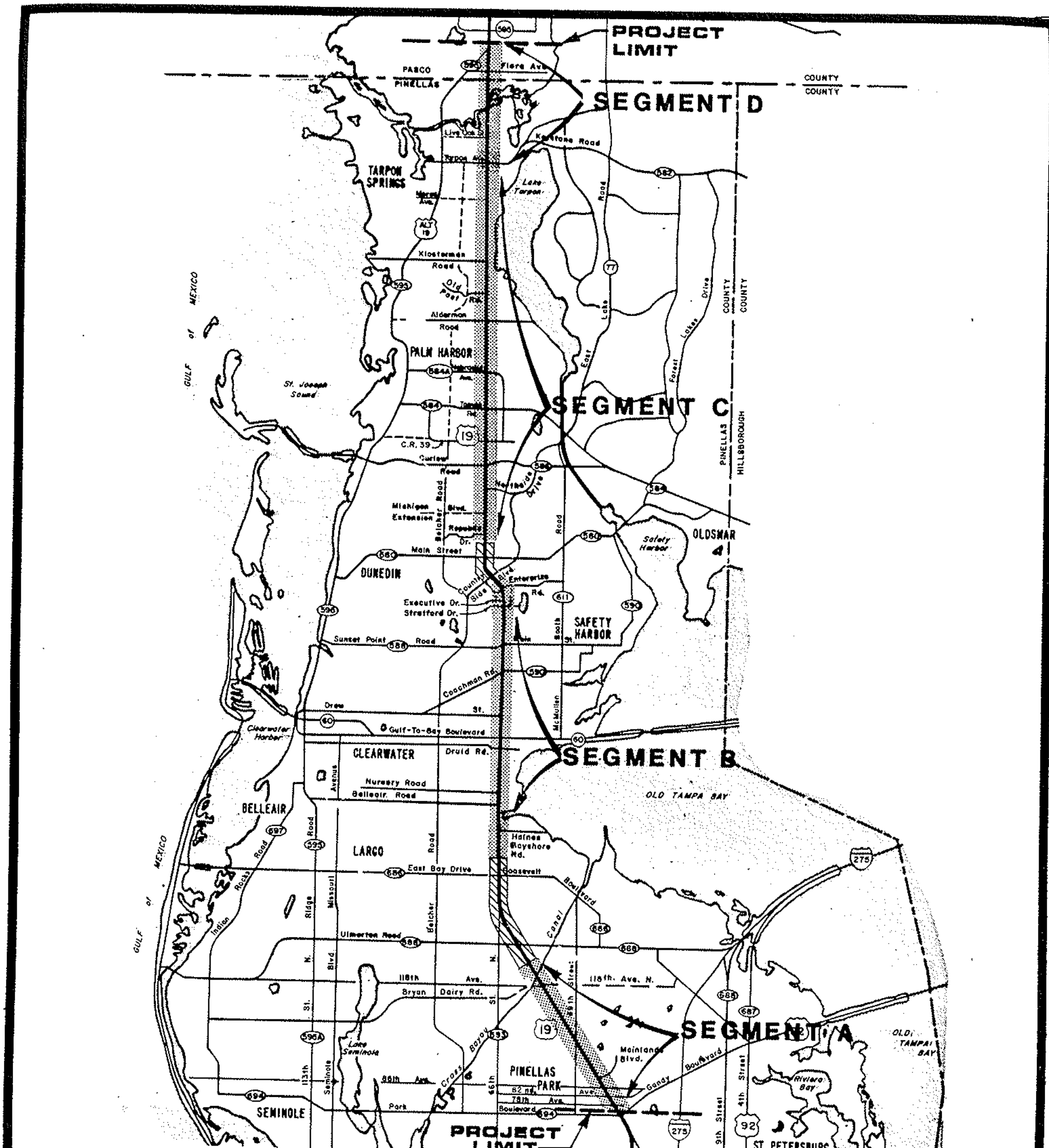
been developed as a result of evaluations of background data, traffic demand forecasts, and application of the design criteria (see Section II : Engineering and Planning Criteria) to the facility concepts. These alternative design concepts are considered reasonable and feasible; in that they satisfy the planning and engineering criteria, appear to be acceptable from a community impact viewpoint and are cost-efficient designs. All of these alternatives appear to be "permittable" from the standpoint of current environmental regulations.

Typical sections have previously been presented in this report; see Section II : Engineering and Planning Criteria. The lane geometry developed for all of the design alternatives was based on year 2010 traffic.

Some sections of this future six- and eight-lane corridor have previously been designed by the Department to reflect necessary roadway improvements. As a result, the current project has been divided into four design segments (A, B, C and D). The limits of these design segments are shown on Exhibit IV-1. Segment A extends from Gandy Boulevard to Cross Bayou Canal, Segment B is located between Whitney Road and Enterprise Road, Segment C extends from Evans Road to south of Tarpon Avenue, and Segment D begins at Tarpon Avenue and terminates at the northern limits of the project at SR 595 (Alternate US 19).

Evaluations for each separate design segment (A, B, C, and D) are presented below:


N
N.T.S.
MATCH LINE
THIRD AVE. SOUTH
ENTERPRISE RD.
COUNTRYSIDE BLVD.
S.R. 580 (MAIN ST.)
MICHIGAN AVE.
NORTHSIDE DR.
S.R. 586 (CURLEW RD.)
C.R. 584 (OZONA-TAMPA HWY.)
C.R. 584A (NEBRASKA AVE.)
C.R. 42 (ALDERMAN RD.)
KLOSTERMAN RD.
MERES AVE.
S.R. 582 (TARPON AVE.)
S.R. 595 (ALT. U.S. 19)
PINELLAS COUNTY
PASCO COUNTY
END PROJECT
U.S. HWY. 19
LIVE OAKS ST.
FLORA AVENUE
S.R. 595 (DIXIE HWY.)
BEGIN PROJECT
U.S. HWY. 19
S.R. 694 (GANDY BLVD.)
S.R. 694 (PARK BLVD.)
78TH AVE.
86TH AVE.
MAINLANDS BLVD.
49TH ST.
66TH ST. (OLD HAINES RD.)
118TH AVE.
S.R. 688 (ULMERTON RD.)
S.R. 686 (EAST BAY DR.)
BELLEAIR RD.
NURSERY RD.
DRUID
S.R. 60 (GULF TO BAY BLVD.)
DREW ST.
C.R. 590 (COACHMAN RD.)
C.R. 588 (SUNSET PT. RD.)
MATCH LINE
LEGEND
PREVIOUSLY PROGRAMMED INTERCHANGE
MOVEMENT AND VOLUME
U.S.19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES
Pinellas and Pasco Counties, Florida
STATE PROJECT NO. 15150-1565
YEAR 2010 U.S.19 CORRIDOR DESIGN HOUR VOLUMES
Florida Department Of Transportation
EXHIBIT II-4
Greiner Engineering Sciences, Inc.



N

0 0.5 1 2 3 4 Miles
SCALE

LEGEND

Previously Planned and Programmed Interchange Areas

Current Study Area

U.S. 19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES

Pinellas and Pasco Counties, Florida

STATE PROJECT NO. 15150-1565

DESIGN SEGMENT LOCATION MAP

Florida Department of Transportation

Greiner Engineering Sciences, Inc.

EXHIBIT IV-1

DESIGN SEGEMENT A

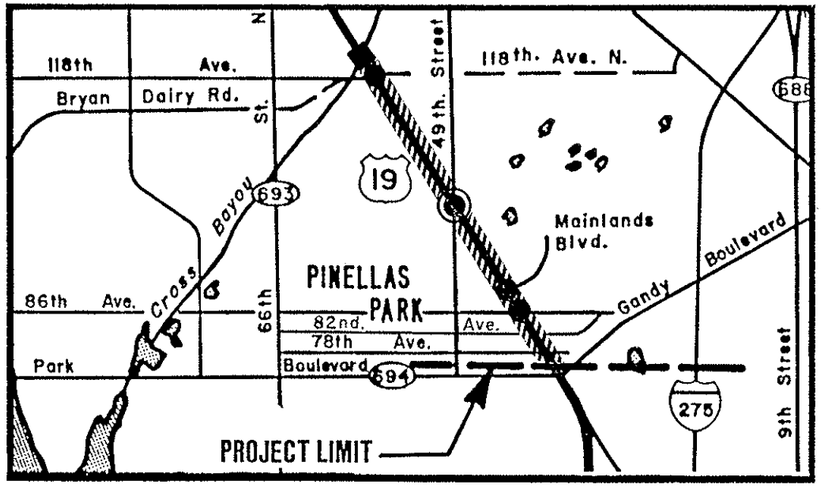
This design segment begins at Gandy Boulevard (SR 694) and ends near the Cross Bayou Canal south of Ulmerton Road (SR 688). Alternatives A-1, A-1A, A-2 and A-3 are briefly outlined below with descriptions of the major design features provided in each of the Design Segment A alternatives. Exhibit IV-2 provides a graphic summary of the various Segment A Concepts.

Alternative A-1:

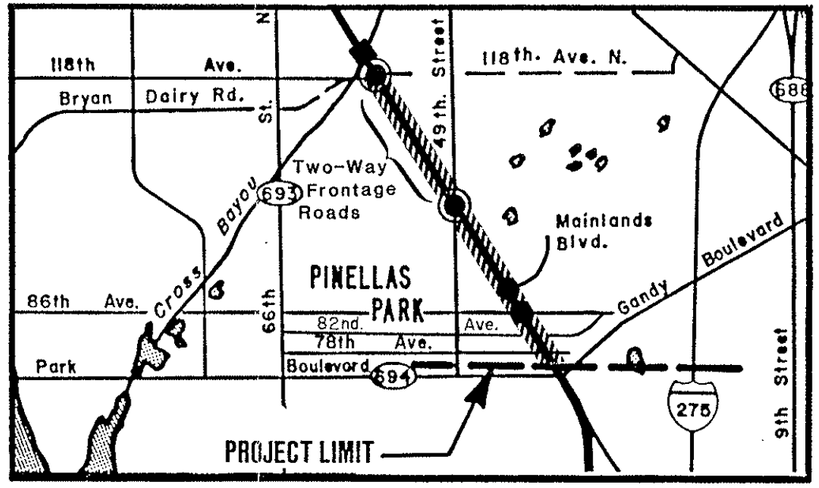
- 6-lane mainline with 2-lane one-way frontage roads
- Overpass at 82nd Avenue North
- Overpass at Mainlands Boulevard
- Improved 49th Street Interchange
- Overpass at 118th Avenue North
- Frontage road bridges at Cross Bayou Canal

Alternative A-1A:

- 8-lane mainline without frontage roads beginning north of Gandy Boulevard
- 6-lane mainline with 2-lane one-way frontage roads beginning north of 78th Avenue
- Overpass at 86th Avenue North
- Overpass at Mainlands Boulevard
- Improved 49th Street Interchange
- Overpass at 118th Avenue North
- Frontage road bridges at Cross Bayou Canal



ALT. A-1



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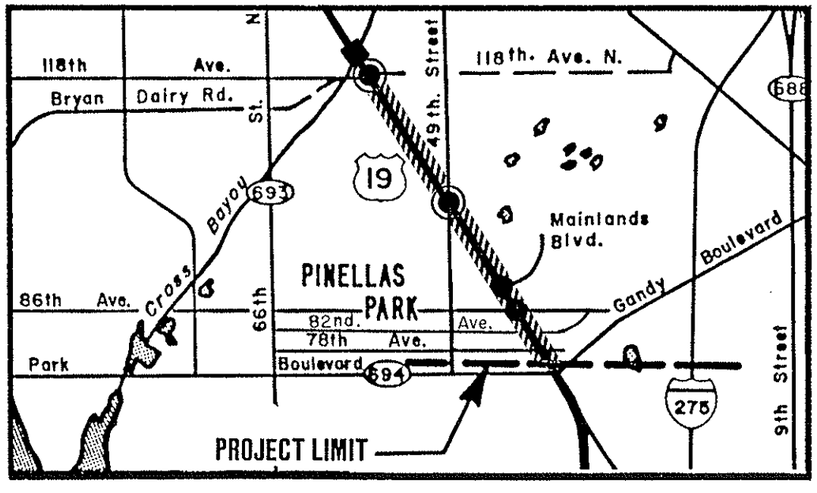

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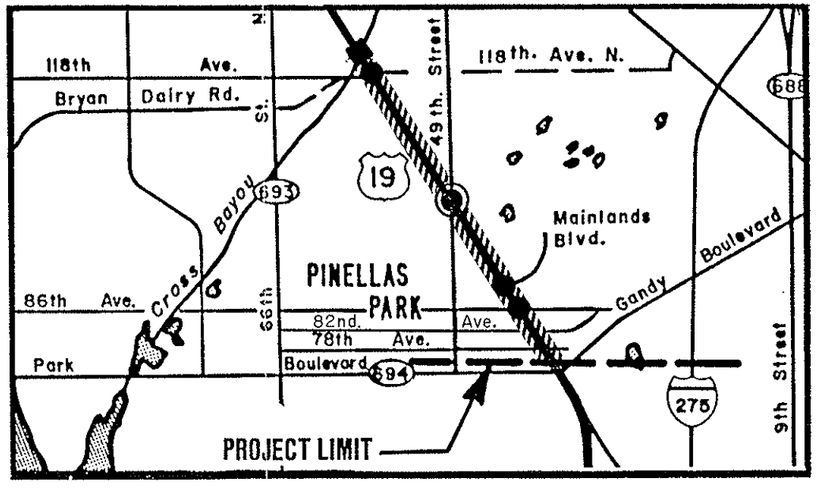

ALT. A-1A

LEGEND

- INTERCHANGE
- OVERPASS (MINOR INTERCHANGE)
- GRADE SEPARATION
- EXPRESSWAY AND FRONTAGE ROADS AT GRADE

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U.S. 19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES

Pinellas and Pasco Counties, Florida

STATE PROJECT NO. 15150-1565

SEGMENT A ALTERNATIVE DESIGN CONCEPTS

Florida Department of Transportation

EXHIBIT IV-2

Greiner Engineering Sciences, Inc.

Alternative A-2:

- 6-lane mainline with 2-lane one-way frontage roads from north of Gandy Boulevard to 118th Avenue North
- Overpass at 82nd Avenue North
- Overpass at Mainlands Boulevard
- Improved 49th Street Interchange
- Half-cloverleaf interchange at the southside of 118th Avenue North
- 8-lane mainline with 1-lane one-way frontage roads from 118th Avenue North to the Cross Bayou Canal
- Frontage road bridges at Cross Bayou Canal

Alternative A-3:

- 6-lane mainline with 2-lane one-way frontage roads from Gandy Boulevard north to 49th Street North
- Overpass at 82nd Avenue North
- Overpass at Mainlands Boulevard
- Improved 49th Street Interchange
- 6-lane mainline with 2-lane 2-way frontage roads between 49th Street North and 118th Avenue North
- Half-cloverleaf interchange at the southside of 118th Avenue North
- 8-lane mainline with 1-lane 1-way frontage roads from 118th Avenue North to Cross Bayou Canal
- Frontage road bridges at Cross Bayou Canal

RIGHT-OF-WAY AND RELOCATION ESTIMATES

Based upon the construction alternatives for Design Segment A, an evaluation of potential right-of-way requirements was undertaken. The results of field reviews were tabulated for each alternative and are summarized here.

Table IV-1 provides estimates of the number of relocations for each alternative, by specific category. The categories of relocations utilized in this study are:

- o Business Relocations
- o Residential Relocations
- o Non-Profit Organization
- o Other Reloation

Table VI-1 shows the largest number of relocations are assosicated with th "Other" category. The "Other" category represents personal property takings and signs. Sign relocations represent the vast majority of the total number of relocations.

Cost Estimates

Preliminary cost estimates for Design Segment A alternatives (A-1 through A-3) have been developed. These estimates are based upon the engineering design criteria previously presented in this report. Table IV-2 provides the preliminary cost estimates for the US 19 Alternatives. These cost estimates do not include major utility relocation costs since utilities located within the US 19 right-of-way will be relocated at the utility's expense.

TABLE IV-1

RELOCATION ESTIMATES

DESIGN SEGMENT A

Segment A

Design Alternatives	Business Relocation	Residential Relocation	Non-Profit Organization Relocation	Other Relocation[1]	Total Relocation
Alternative A1	2	1	0	20	25
Alternative A1-A	3	3	0	22	28
Alternative A2	8	2	0	14	24
Alternative A3	9	2	0	13	24

[1]Predominately signs and appurtenances

TABLE IV-2

PRELIMINARY COST ESTIMATES
DESIGN SEGMENT A

Design Alternative	6-Lane Section: Roadway Miles	6-Lane Section: Roadway Cost	6-Lane Section: Typ. Interchange Number	6-Lane Section: Typ. Interchange Cost	8-Lane Section: Roadway Miles	8-Lane Section: Roadway Cost	8-Lane Section: Typ. Interchange Number	8-Lane Section: Typ. Interchange Cost	Non-Typical Interchanges Number	Non-Typical Interchanges Cost	Overpasses Number	Overpasses Cost	Bridges Number	Bridges Cost	Misc. Costs	Total Construction Costs	Design Administrative Contingency	Right-of-Way Costs	Alternative Total Costs
A1	2.18	$10.259	0	$0.000	0	$0.000	0	$0.000	0	$0.000	3	$24.337	1	$0.616	$0.633	$35.845	$6.344	$7.573	$49.762
A1A	1.66	$7.812	0	$0.000	0.52	$3.298	0	$0.000	0	$0.000	3	$22.444	1	$0.616	$0.716	$34.886	$6.175	$8.652	$49.713
A2	2.04	$9.600	0	$0.000	0.14	$0.888	0	$0.000	1	$11.007	2	$16.225	1	$0.616	$0.633	$38.969	$6.897	$18.781	$64.647
A3	2.04	$9.600	0	$0.000	0.14	$0.888	0	$0.000	1	$11.007	2	$16.225	1	$0.616	$0.633	$38.969	$6.897	$22.583	$68.449

NOTE: Cost in Millions of January 1987 Dollars, No Inflation.

Additionally, utility coordination provided by the Department with local utilities has indicated that the issue of utility impacts are essentially ubiquitous; the relative impacts are the same for all alternative designs and should not play a major role in the selection of one alternative design over another.

Conclusion

Figure IV-1 shows a comparison matrix of alternatives for Design Segment A. Based upon the various engineering, traffic analysis, planning, community impacts, local access and circulation, and system continuity factors existing within the US 19 corridor study area, Alternative A-1 was selected as the preferred alternative for presentation to the public at the Public Workshop in July, 1986.

As a result of public comments received at the July, 1986 Public Workshop and Information Center, and discussions with Pinellas County and City of Pinellas Park staff and officials, Alternative A-1 was refined; Alternative A-1A incorporates those refinements. The refinements involve providing an at-grade intersection at 78th Avenue and an overpass at proposed 86th Avenue instead of at 82nd Avenue. An additional southbound off ramp was also added south of 118th Avenue North to provide better access to the development within the area and Horizon Mental Hospital. As a result of the public comments and subsequent refinements to Alternative A-1; Alternative A-1A was identified as the preferred alternative for design segment A.

FIGURE IV-1

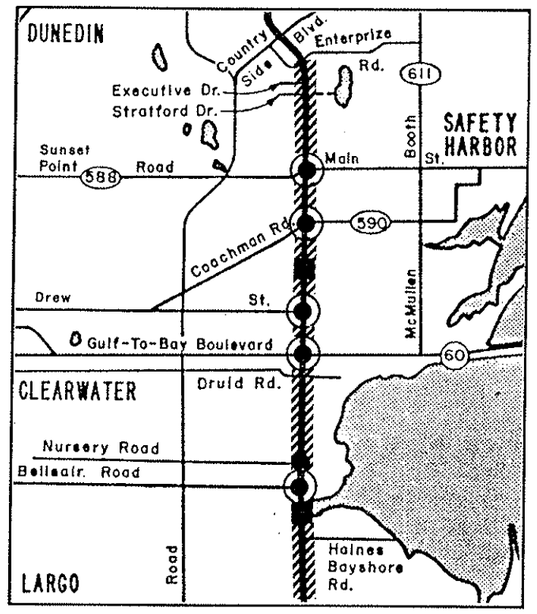
DESIGN SEGMENT A
ALTERNATIVES COMPARISON

Factor \ Alternative	A1	A1A	A2	A3	Best Alternative
Right-of-Way Costs1	$7.573	$8.652	$18.781	$22.583	A1
Construction & Contingency Costs1	$42.189	$41.061	$45.866	$45.866	A1A
Total Costs1	$49.762	$49.713	$64.647	$68.449	A1A
Relocations2	5	13	16	17	A1
Right-of-Way Takings	36	35	53	57	A1A
Average Cost of Right-of-Way/Relocation	1.514	.665	1.173	1.328	A1A
Average Interchange/ Overpass Spacing	0.69 mi	0.66 mi	0.68 mi	0.68 mi	A1A
Accessibility Rating3	1.22	0.55	1.16	1.16	A1A

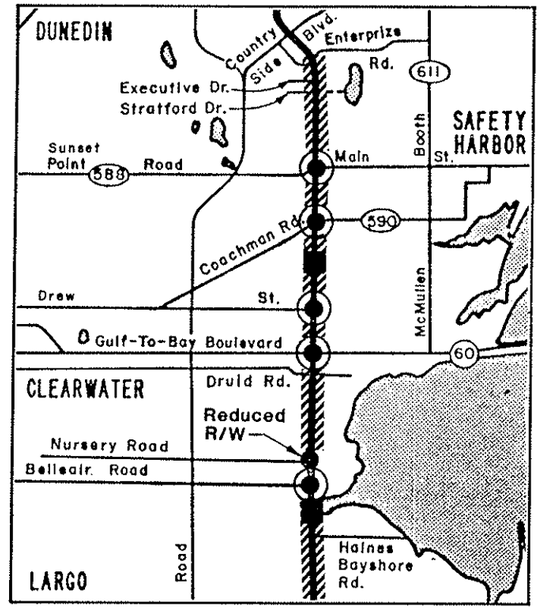
1 Costs in millions of 1987 dollars; no inflation.

2 Major right-of-way and relocation only; i.e., business, residential and personal property

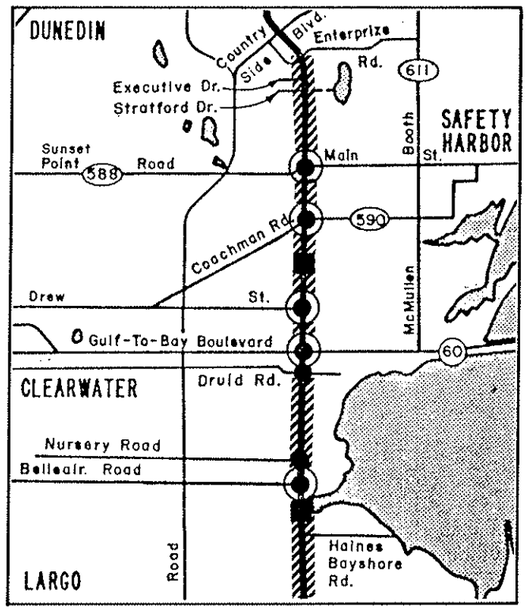
3 Accessibility Rating = $\frac{\text{Design Segment Length}}{[(\#\text{ of full interchanges} \times 1.50) + (\#\text{ of half interchanges} \times 1.25) + (\#\text{ of overpasses} \times 1.0)]}$



ALT. B-1



ALT. B-2



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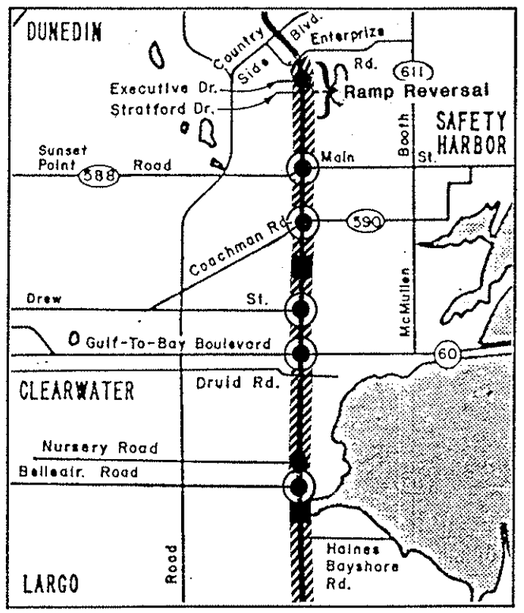

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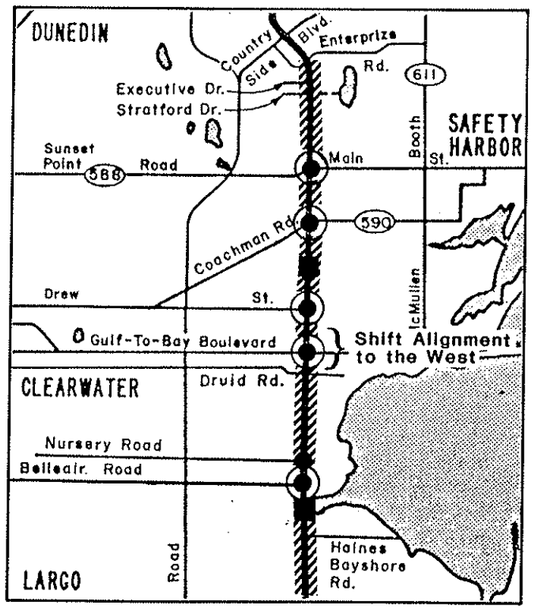

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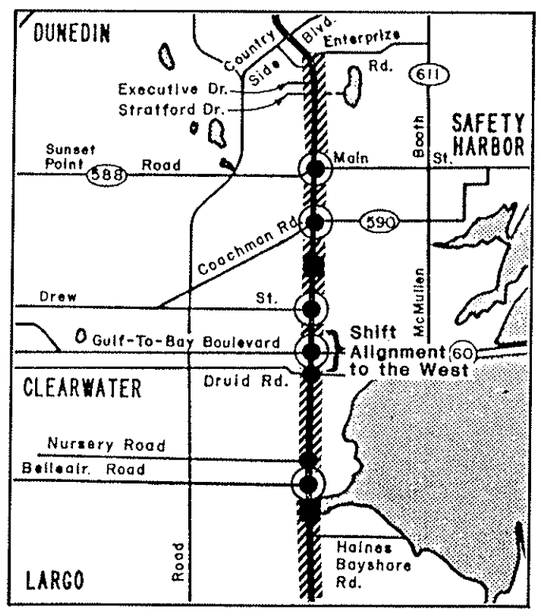

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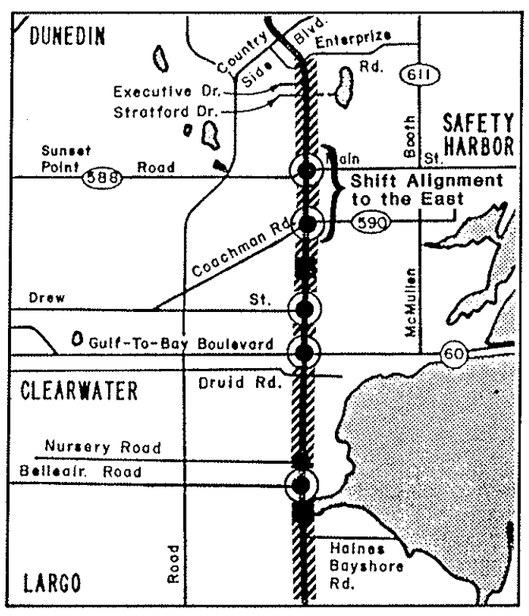

ALT. B-6

LEGEND

- INTERCHANGE
- OVERPASS (MINOR INTERCHANGE)
- GRADE SEPARATION
- EXPRESSWAY AND FRONTAGE ROADS AT GRADE

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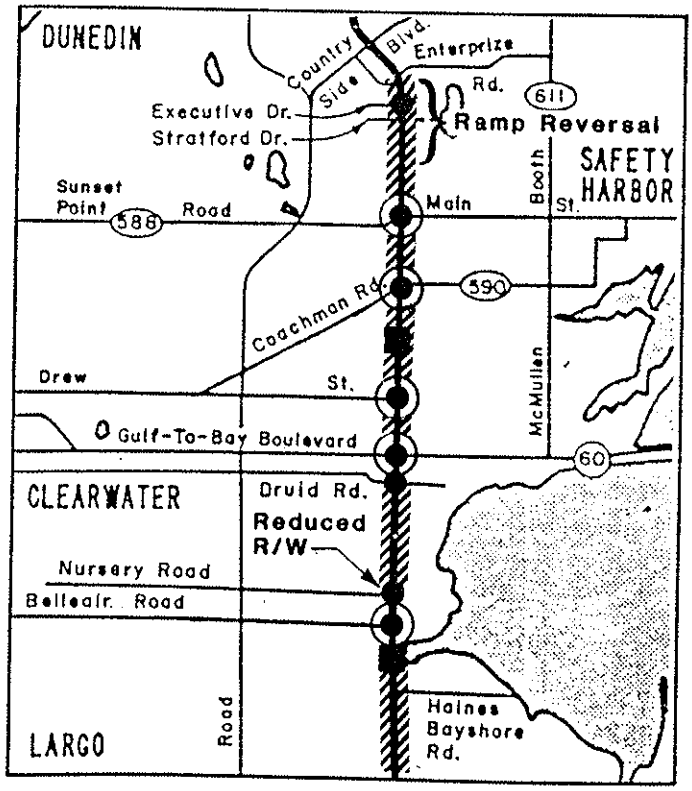
Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

U.S.19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES
Pinellas and Pasco Counties, Florida
STATE PROJECT NO. 15150-1565

DESIGN SEGMENT B ALTERNATIVE DESIGN CONCEPTS

Florida Department of Transportation



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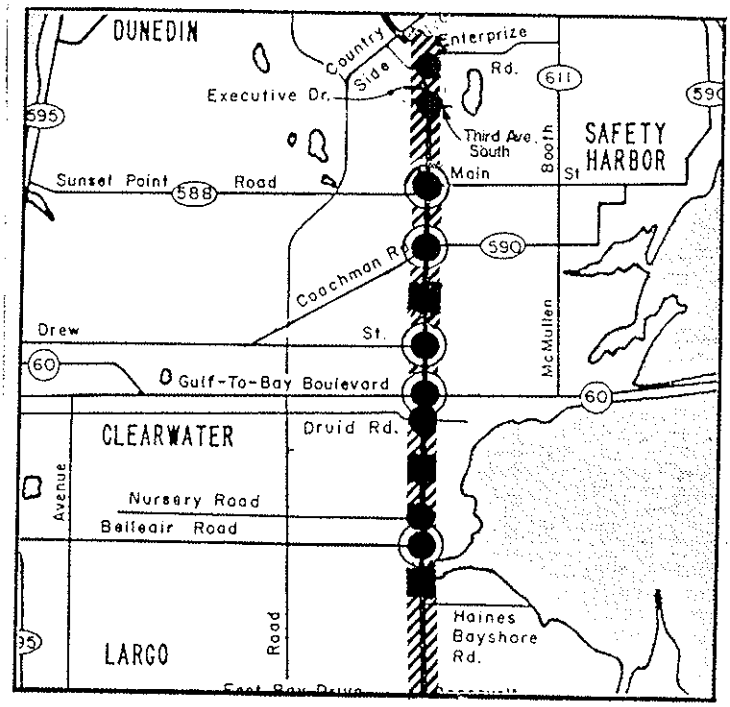
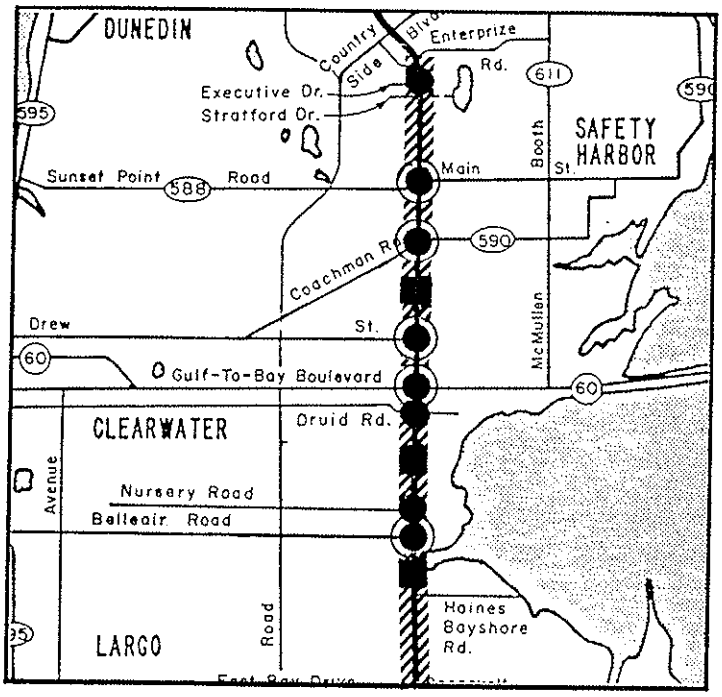


ALT. B-8D



ALT. B-8C

LEGEND

- INTERCHANGE
- OVERPASS (MINOR INTERCHANGE)
- GRADE SEPARATION
- EXPRESSWAY AND FRONTAGE ROADS AT GRADE

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U.S.19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES

Pinellas and Pasco Counties, Florida

STATE PROJECT NO. 15150-1565

SEGMENT B ALTERNATIVE DESIGN CONCEPTS

Florida Department of Transportation

Greiner Engineering Sciences, Inc.
CONSULTING ENGINEERS TAMPA, FLORIDA

DESIGN SEGMENT B

The limits of Design Segment B extend from Whitney Road north to Enterprise Road. There are nine different alternatives (B-1 through B-8C) for Design Segment B. Provided below in outline format are brief descriptions of the major design features of each alternative. Exhibit IV-3 provides a graphic summary of the Design Segment B alternatives.

Alternative B-1:

- 6-and 8-lane mainline with 2-lane one way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road and Sunset Point Road
- Overpasses at the CSX Transportation Railroads and Nursery Road
- Bridges over Allen's Creek

Alternative B-2:

- 6 and 8 lane mainline with 2 lane one-way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road and Sunset Point Road
- Overpass at the CSX Transportation Railroad
- Condensed overpass section at Nursery Road
- Bridges over Allen's Creek

Alternative B-3:

- 6 and 8 lane mainline with 2 lane one-way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road and Sunset Point Road

- Overpasses at the CSX Transportation Railroad, Nursery Road and Druid/Seville Road
- Bridges over Allen's Creek

Alternative B-4:

- 6 and 8 lane mainline with 2 lane one-way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road and Sunset Point Road
- Overpasses at the CSX Transportation Railroad and Nursery Road
- Shift segment south of SR 60 to the west
- Bridges over Allen's Creek

Alternative B-5:

- 6 and 8 lane mainline with 2 lane one-way frontage roads
- Interchanges at Belleaire Road, SR 60, Drew Street, Coachman Road and Sunset Point Road
- Overpasses at the CSX Transportation Railroad, Nursery Road and Druid/Seville Road
- Shift segment north and south of SR 60 to the west
- Bridges over Allen's Creek

Alternative B-6:

- 6 and 8 lane mainline with 2 lane one-way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road and Sunset Point Road
- Overpasses at the CSX Transportation Railroad and Nursery Road
- Shift segment north and south of Coachman Road to the east
- Bridges over Allen's Creek

Alternative B-7:

- 6 and 8 lane mainline with 2 lane-one way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road and Sunset Point Road

- Overpasses at the CSX Transportation Railroad, Nursery Road and Executive Center Drive
- Ramp reversal north and south of Executive Center Drive
- Bridges over Allen's Creek

Alternative B-8:

- 6 and 8 lane mainline with 2 lane one-way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road and Sunset Point Road
- Overpasses at the CSX Transportation Railroad, Druid/Seville Road and Executive Center Drive
- Condensed overpass at Nursery Road
- Ramp reversal north and south of Executive Center Drive
- Shift segment south of SR 60 to the west
- Shift segment north of SR 60 to the centerline
- Bridges over Allen's creek

Alternative B-8C:

- 6 and 8 lane mainline with 2 lane one-way frontage roads
- Interchanges at Belleair Road, SR 60, Drew Street, Coachman Road, and Sunset Point Road
- Overpasses at CSX Transportation Railroad, Nursery Road, Druid/Seville Road, and Executive Center Drive
- Ramp reversal north and south of Executive Center Drive
- Shift segment north of SR 60 to the centerline
- Shift segment south of SR 60 to the west
- Parallel north-south local access road north of Drew Street and east of US 19
- Bridges over Allen's Creek

Alternative B-8D:

- 6 and 8 lane mainline with 2 lane one-way frontage roads.
- Interchanges at Bellair Road, SR 60, Drew Street, Coachman Road, and Sunset Point Road.
- Overpasses at CSX Transportation Railroad, Nursery Road, Druid/Seville Road, Enterprise Road, and proposed 3rd Avenue South.
- Ramp reversal north and south of proposed 3rd Avenue South.
- Shift segment north of SR 60 to the centerline
- Shift segment south of SR 60 to the west
- Parallel north-south local access road north of Drew Street and east of US 19
- Bridges over Allen's Creek

RIGHT-OF-WAY AND RELOCATION ESTIMATES

Based upon the construction alternatives developed for Design Segment B, an evaluation of potential right-of-way requirements was undertaken. The results of these field reviews were tabulated for each alternative and are summarized here.

Table IV-3 provides estimates of the number of relocations for each alternative, by specific category. The categories of relocations utilized in this study are:

- Business Relocations
- Residential Relocations
- Non-Profit Organization Relocations
- Other Relocations

Table IV-3 shows that the largest number of relocations are associated with the "Other" category. The "Other" category represents personal property takings and signs. Sign relocations represent the vast majority of the total number of relocations.

Cost Estimate

Preliminary cost estimates for Design Segment B alternatives (B-1 through B-8D) have been developed. These estimates are based upon the engineering design criteria previously presented in this report. Table IV-4 provides the preliminary cost estimates for the US 19 Alternatives. These cost estimates do not include major utility relocation costs since utilities located within the US 19 right-of-way will be relocated at the utility's expense.

Additionally, utility coordination provided by the Department with local utilities has indicated that the issue of utility impacts are essentially ubiquitous; the relative impacts are the same for all alternative designs and should not play a major role in the selection of one alternative design over another.

TABLE IV-3

RELOCATION ESTIMATES
DESIGN SEGMENT B

Segment B

Design Alternatives	Business Relocation	Residential Relocation	Non-Profit Organization Relocation	Other Relocation[1]	Total Relocation
Alternative B1	5	26	0	271	302
Alternative B2	5	26	0	268	299
Alternative B3	5	26	0	270	301
Alternative B4	9	9	0	278	296
Alternative B5	9	9	0	309	327
Alternative B6	9	29	0	299	337
Alternative B7	1	28	0	290	319
Alternative B8	9	11	0	325	345
Alternative B8-C	9	11	0	325	345
Alternative B8-D	15	8	0	230	253

[1]Predominately signs and appurtenances

TABLE IV-4

PRELIMINARY COST ESTIMATES
DESIGN SEGMENT B

Design Alternative	6-Lane Section: Roadway Miles	6-Lane Section: Roadway Cost	6-Lane Section: Typ. Interchange Number	6-Lane Section: Typ. Interchange Cost	8-Lane Section: Roadway Miles	8-Lane Section: Roadway Cost	8-Lane Section: Typ. Interchange Number	8-Lane Section: Typ. Interchange Cost	Non-Typical: Interchanges Number	Non-Typical: Interchanges Cost	Non-Typical: Overpasses Number	Non-Typical: Overpasses Cost	Bridges Number	Bridges Cost	Misc. Costs	Total Construction Costs	Design Administrative Contingency	Right-of-Way Costs	Alternative Total Costs
B1	1.57	$7.386	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	1	$8.112	1	$2.127	$0.142	$64.364	$11.393	$45.278	$121.038
B2	1.57	$7.386	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	1	$8.112	1	$2.127	$0.142	$64.364	$11.393	$42.516	$118.276
B3	1.00	$4.706	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	2	$16.225	1	$2.127	$0.142	$69.797	$12.354	$45.938	$128.089
B4	1.57	$7.386	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	1	$8.112	1	$2.127	$0.142	$64.364	$11.393	$43.384	$119.144
B5	1.00	$4.706	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	2	$16.225	1	$2.127	$0.142	$69.797	$12.354	$44.684	$126.835
B6	1.57	$7.386	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	1	$8.112	1	$2.127	$0.142	$64.364	$11.393	$47.647	$123.835
B7	1.00	$4.706	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	2	$16.225	1	$2.127	$0.142	$69.797	$12.354	$45.159	$127.310
B8	0.43	$2.023	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	3	$24.337	1	$2.127	$0.142	$75.226	$13.315	$44.025	$132.567
B8C	0.43	$2.023	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	3	$24.337	1	$2.127	$0.299	$75.384	$13.343	$44.890	$133.617
B8D	0.43	2.023	4	$31.590	0.85	$5.391	1	$9.616	0	$0.000	4	$32.449	1	$2.127	$0.299	$83.495	$14.779	$45.906	$144.180

NOTE: Cost in Millions of 1987 Dollars, No Inflation.

Conclusion

Figure IV-2 shows a comparison matrix of alternatives for Design Segment B. Based upon the various engineering, traffic analysis, planning, community impacts, local access and circulation, and system continuity factors existing within the US 19 corridor study area Alternative B-8 was selected as the preferred alternative for presentation to the public at the Public Workshop held in July, 1986. Although Alternative B-8 was not the "cheapest" from a design and construction perspective, it did, however, provide the most overall effective solution to the area's deficiencies. The high degree of cross-corridor circulation and accessibility combined with the relatively low right-of-way and relocation costs provided superior design qualities.

As the result of comments received during the Information Center and discussions with staff of Pinellas County Alternative B-8 was refined to B-8C to reflect improved access for the County highway maintenance facility located on the east side of US 19 north of Drew Street. The refinement changed the location of the maintenance facility access road to allow for additional left turn storage for maintenance heavy equipment and vehicles entering US 19 at Drew Street.

After the development of Alternative of Alternative B-8C, additional comments were received from the City of Clearwater regarding the access to the large scale office and retail development which has occurred along Enterprise Road. This resulted in an enlarging design Segment B to north of Enterprise Road and a supplemental study of this area.

FIGURE IV-2

DESIGN SEGMENT B
ALTERNATIVE COMPARISON

Factor \ Alternative	B1	B2	B3	B4	B5	B6	B7	B8	B8C	B8D	Best Alternative
Right-of-Way Costs[1]	$45.278	$42.516	$45.938	$43.384	$44.6840	$47.647	$45.159	$44.025	$44.890	$45.906	B2
Construction & Contingency Costs[1]	$75.760	$75.760	$82.151	$75.760	$82.151	$75.760	$82.151	$88.542	$88.727	$98.274	B1,2,4,6
Total Costs[1]	$121.038	$118.276	$128.089	$119.144	$126.835	$123.407	$127.310	$132.567	$133.617	$144.180	B2
Relocation[2]	38	38	38	22	22	47	36	25	26	26	B4,5
Right-of-Way Takings[2]	42	42	43	41	42	36	49	48	49	49	B6
Average Cost of Right-of-Way/Relocation	1.191	1.118	1.209	1.972	2.031	1.014	1.254	1.761	1.727	1.766	B6
Average Interchange/ Overpass Spacing	0.60 mi	0.60 mi	0.52 mi	0.60 mi	0.52 mi	0.60 mi	0.75 mi	0.64 mi	0.64 mi	.57	B3,5
Accessibility Rating[3]	0.80	0.80	0.72	0.80	0.72	0.80	0.72	0.65	0.65	.47	B8D

[1] Costs in millions of 1987 dollars; no inflation.

[2] Major right-of-way and relocation only; i.e., business, resident and personal property

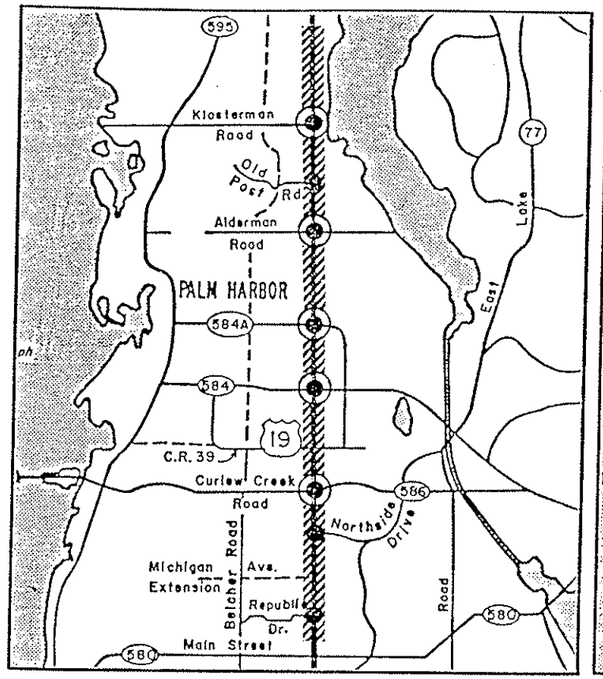
[3] Accessibility Rating = $\frac{\text{Design Segment Length}}{[(\#\text{of full interchanges} \times 1.50) + (\#\text{ of half interchanges} \times 1.25) + (\#\text{ of overpasses} \times 1.0)]}$

A separate report entitled, Enterprise Road Access Study, October 1987, was prepared[1]. The report is appended by reference. The report evaluates an additional overpass at Enterprise Road and the impacts of the overpass on the proposed major interchanges at S.R. 588 (Sunset Point Road/Main Street) and at Countryside Boulevard. These interchanges had been previously approved through a Final Environmental Impact Statement approved in April, 1980. The report also included an evaluation of an Enterprise Road overpass impacts on the proposed overpass at Executive Center Drive.

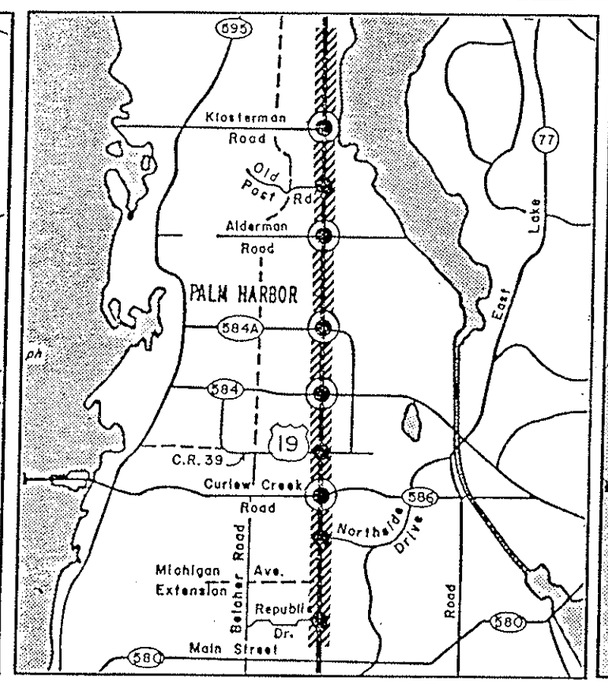
The report concludes the Alternative shown here as B-8D is the preferred Alternative. This Alternative provides for an additional overpass at Enterprise Road and moves the Executive Center Drive 530 feet south to the public right of way at the proposed 3rd Avenue South. This Alternative results in better traffic operation at S.R. 588 (Sunset Point Road/Main Street) and at Countryside Boulevard; and better interchange spacing between S.R. 588 (Sunset Point Road/Main Street) and Enterprise Road.

DESIGN SEGMENT C

The limits of Design Segment C extend from Evans Road to south of Tarpon Avenue (SR 582). Provided below in outline format are brief descriptions of the major design features of each alternative. Exhibit IV-4 provides a graphic summary of the Design Segment C alternatives. It should be noted as a result of supplemental studies beginning in October, 1986 Segment C boundaries were extended north of Klosterman Road. This allowed for the evaluation of



ALT C-1



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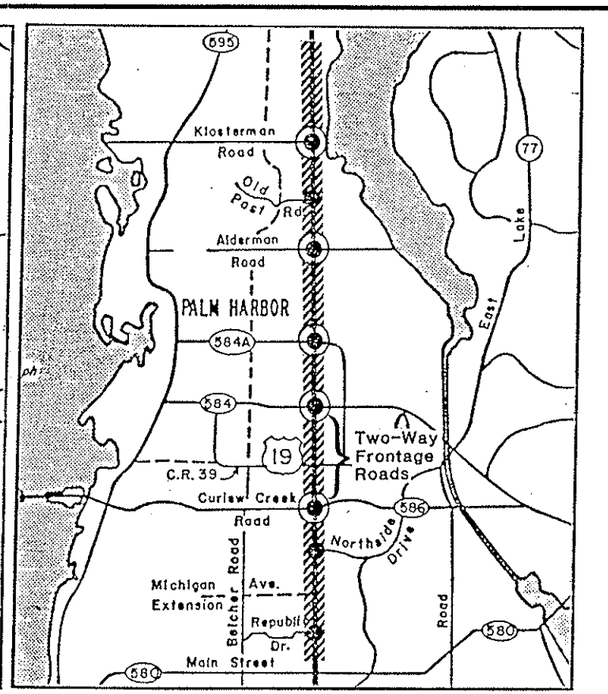

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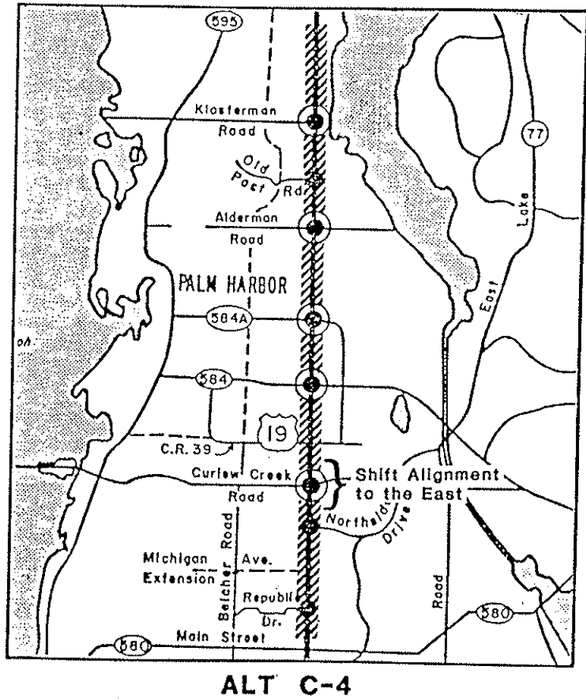

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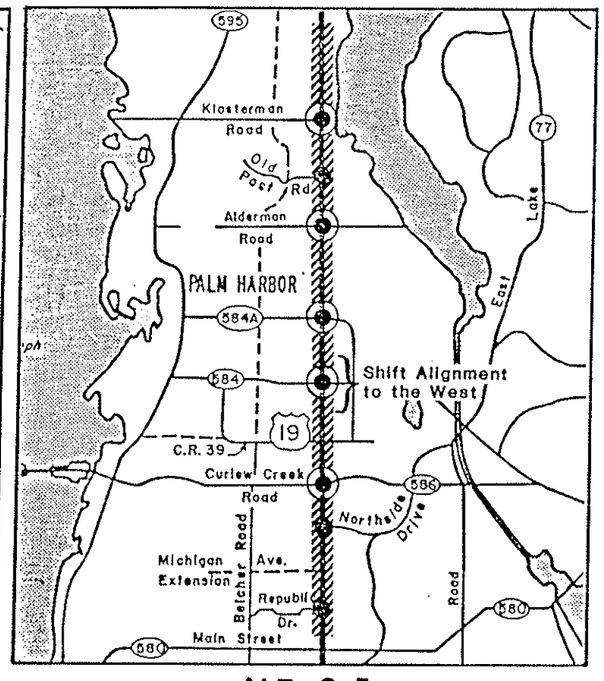

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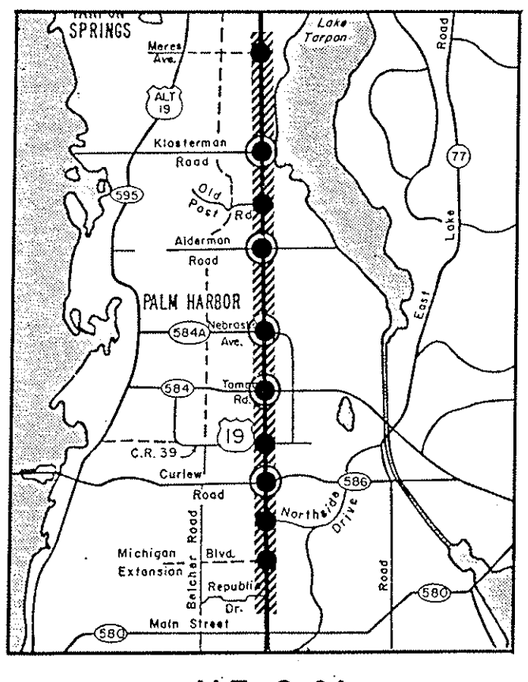


ALT. C-2A

LEGEND

- INTERCHANGE
- OVERPASS (MINOR INTERCHANGE)
- EXPRESSWAY AND FRONTAGE ROADS AT GRADE

N

U.S. 19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES
Pinellas and Pasco Counties, Florida
STATE PROJECT NO. 15150-1565

DESIGN SEGMENT C-ALTERNATIVE DESIGN CONCEPTS

Florida Department of Transportation

EXHIBIT IV-4

Greiner Engineering Sciences, Inc.

additional access to the Tarpon Springs area. As a result of the study limits extension, alternative C-2A extends beyond the original project limits.

Alternative C-1:

- 6-lane mainline with 2-lane one way frontage roads
- Interchanges at Curlew Road, Tampa Road (depressed section), Nebraska Avenue, Alderman Road (depressed section) and Klosterman Road
- Overpasses at Republic Drive, Northside Drive and Old Post Road
- New two way secondary frontage road connector between Highland Lakes Entrance and Nebraska Avenue

Alternative C-2:

- 6 lane mainline with 2 lane one way frontage roads
- Interchanges at Curlew Road, Tampa Road (depressed section), Nebraska Avenue, Alderman Road (depressed section) and Klosterman Road
- Overpasses at Republic Drive, Northside Drive, CR 39/95 and Old Post Road
- New two way secondary frontage road connector between Highland Lakes Entrance and Nebraska Avenue

Alternative C-2A:

- 6 lane mainline with 2 lane one-way frontage roads
- Interchanges at Curlew Road, Tampa Road (depressed section), Nebraska Avenue, Alderman Road (depressed section), and Klosterman Road
- Overpass at Michigan Boulevard Extension, Northside Drive, CR 39/95, Old Post Road, and Meres Avenue
- New two-way secondary frontage road connector between Highland Lakes entrance, and Nebraska Avenue

Alternative C-3:

- 6 lane mainline with 2 lane one-way and two way frontage roads
- Interchanges at Curlew Road, Tampa Road (depressed section), Nebraska Avenue, Alderman Road (depressed section) and Klosterman Road
- Overpasses at Republic Drive, Northside Drive and Old Post Road
- New two way secondary frontage road connector between Highland Lakes Entrance and Nebraska Avenue
- Two way frontage road system from Curlew Road to Tampa Road

Alternative C-4:

- 6 lane mainline with 2 lane one way frontage roads
- Interchanges at Curlew Road, Tampa Road (depressed section), Nebraska Avenue, Alderman Road (depressed section) and Klosterman Road
- Overpasses at Republic Drive, Northside Drive and Old Post Road
- New two way secondary frontage road connector between Highland Lakes Entrance and Nebraska Avenue
- Shift mainline alignment at Curlew Road interchange to the east

Alternative C-5:

- 6 lane mainline with 2 lane one-way frontage roads
- Interchanges at Curlew Road, Tampa Road (depressed section), Nebraska Avenue, Alderman Road (depressed section) and Klosterman Road
- Overpasses at Republic Drive, Northside Drive and Old Post Road
- New two way secondary frontage road connector between Highland Lakes Entrance and Nebraska Avenue
- Shift mainline at Nebraska Avenue to the west

RIGHT-OF-WAY AND RELOCATION ESTIMATES

Based upon the construction alternatives developed for Design Segment C, an evaluation of potential right-of-way requirements was undertaken. The results of these field reviews were tabulated for each alternative and are summarized here.

Table IV-5 provides estimates of the number of relocations for each alternative, be specific category. The categories of relocations utilized in this study are:

- o Business Relocations
- o Residential Relocations
- o Non-Profit Organization Relocations
- o Other Relocations

Table IV-5 provides estimates of number of relocations "Other" category. The "Other" category represents personal property takings and signs. Sign relocations represent the vast majority of the total number of relocations.

Cost Estimates

Preliminary cost estimates for Design Segment C alternatives (C-1 through C-5) have been developed. These estimates are based upon the engineering design criteria previously presented in this report. Table IV-6 provides the preliminary cost estimates for the US 19 Alternatives. These cost estimates

TABLE IV-5

RELOCATION ESTIMATES
DESIGN SEGMENT C

Segment C

Design Alternatives	Business Relocation	Residential Relocation	Non-Profit Organization Relocation	Other Relocation[1]	Total Relocation
Alternative C1	16	5	0	218	239
Alternative C2	16	5	0	218	239
Alternative C2-A	6	5	0	203	214
Alternative C3	16	8	0	287	311
Alternative C4	16	5	0	205	226
Alternative C5	16	5	0	200	221

[1]Predominately signs and appurtenances

TABLE IV-6

PRELIMINARY COST ESTIMATES
DESIGN SEGMENT C

Design Alternative	6-Lane Section				8-Lane Section				Non-Typical Interchanges		Overpasses		Bridges		Misc. Costs	Total Construction Costs	Design Administrative Contingency	Right-of-Way Costs	Alternative Total Costs
	Roadway		Typ. Interchange		Roadway		Typ. Interchange												
	Miles	Cost	Number	Cost	Miles	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost					
C1	3.26	$15.341	3	$23.693	0	$0.000	0	$0.000	2	$7.723	3	$24.337	0	$0.000	$0.000	$71.094	$12.584	$44.474	$128.152
C2	2.69	$12.659	3	$23.693	0	$0.000	0	$0.000	2	$7.723	4	$32.450	0	$0.000	$0.000	$76.525	$13.545	$44.675	$134.742
C2A	2.40	$11.294	3	$23.693	0	$0.000	0	$0.000	2	$7.723	5	$36.586	0	$0.000	$0.000	$79.296	$14.036	$44.890	$138.223
C3	3.26	$15.341	3	$23.693	0	$0.000	0	$0.000	2	$7.723	3	$24.337	0	$0.000	$0.000	$71.094	$12.584	$56.100	$139.778
C4	3.26	$15.341	3	$23.693	0	$0.000	0	$0.000	2	$7.723	3	$24.337	0	$0.000	$0.000	$71.094	$12.584	$48.847	$132.525
C5	3.26	$15.341	3	$23.693	0	$0.000	0	$0.000	2	$7.723	3	$24.337	0	$0.000	$0.000	$71.094	$12.584	$51.200	$134.878

NOTE: Cost in Millions of 1987 Dollars, No Inflation.

do not include major utility relocation costs since utilities located within the US 19 right-of-way will be relocated at the utility's expense. Additionally, utility coordination provided by the Department with local utilities has indicated that the issue of utility impacts are essentially ubiquitous. The relative impacts are the same for all alternative designs and should not play a major role in the selection of one alternative design over another.

Conclusion

Figure IV-3 shows a comparison matrix of alternatives for Design Segment C. Based upon the various engineering, traffic planning, community impacts, local access and circulation, and system continuity factors existing within the US 19 corridor study area Alternative C2 was selected as the preferred alignment for presentation to the public at the Public Workshop held in July, 1986.

As a result of public comments received at the Public Workshop and Information Center and discussions with the cities of Clearwater and Dunedin refinements were made to Alternative C-2. This Alternative C-2A is selected as the preferred alternative and meets the access and long range planning objectives for both municipalities.

Alternative C-2A substitutes an overpass at Republic Drive with an overpass at the proposed extension of Michigan Boulevard. This alternative provides better future system linkage between US 19 and Belcher Road without increasing neighborhood through traffic.

FIGURE IV-3

DESIGN SEGMENT C
ALTERNATIVES COMPARISON

Factor	Alternative C1	C2	C2A	C3	C4	C5	Best Alternatives
Right-of-Way Costs1	$44.474	$44.675	$44.890	$56.100	$48.847	$51.200	C1
Construction & Contingency Costs1	$83.678	$90.067	$93.333	$83.678	$83.678	$83.678	C1,3,4,5
Total Costs1	$128.152	$134.742	$138.223	$139.778	$132.525	$134.878	C1
Relocations2	24	24	26	27	24	24	C1,2,4,5
Right-of-Way Takings	209	214	218	203	210	201	C5
Average Cost of Right-of-Way/Relocations	1.85	1.86	1.73	2.070	2.04	2.13	C2A
Average Interchange/ Overpass Spacing	0.94 mi	0.82 mi	1.01 mi4	0.94 mi	0.94 mi	0.94 mi	C2
Accessibility Rating3	1.00	0.91	0.90	1.00	1.00	1.00	C2A

1 Costs in millions of 1987 dollars; no inflation.

2 Major right-of-way and relocation only; i.e., business, residential, personal property

3 Accessibility Rating = $\dfrac{\text{Design Segment Length}}{[(\#\text{ of full interchanges} \times 1.50) + (\#\text{ of half interchanges} \times 1.25) + (\#\text{ of overpasses} \times 1.0)]}$

4 Study segment limits changed

Prior to the Public Workshop and Information Center the project limits of Segment C were extended north of Klosterman Road and a re-evaluation of access to the Tarpon Springs area was made. This resulted in a report entitled, Tarpon Avenue Concept Report, (January, 1987)[25] which is appended by reference. As the result of this analysis and discussions with the City of Tarpon Springs staff and officials Alternative C-2A, the preferred alternative, includes an additional overpass at the proposed intersection of Meres Avenue and US 19.

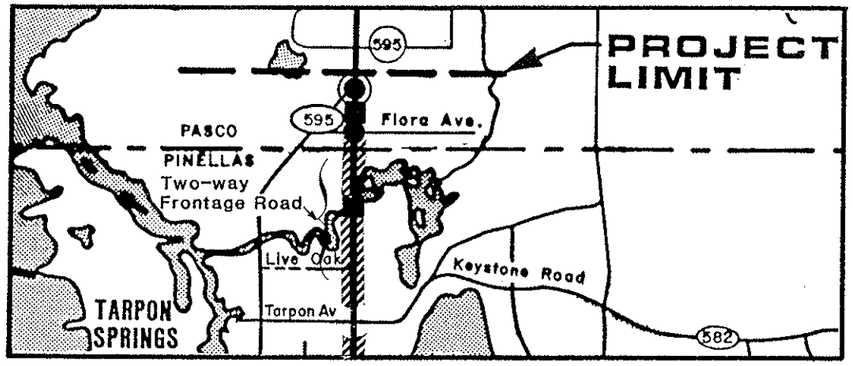
DESIGN SEGMENT D

The limits of Design Segment D extend from south of Tarpon Avenue to north of Alternate US 19 (SR 595). Provided below in outline format are brief descriptions of the major design features of each alternative. Exhibit IV-5 provides a graphic summary of the Design Segment D alternatives.

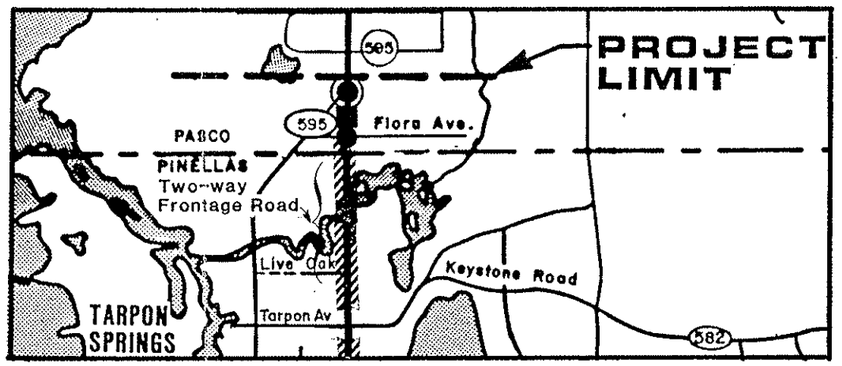
It should be noted that the project limits were extended to south of Tarpon Avenue in order to re-evaluate access to the Tarpon Springs area. As a result of the study limits extension, Alternative D-2B extends beyond the original project limits.

<u>Alternative D-1:</u>

- 6 lane mainline with 2 lane two-way frontage roads north and south of the Anclote River (no frontage roads cross river)
- Railroad overpass south of SR 595
- Mainline Overpass at Anclote River



ALT. D-1



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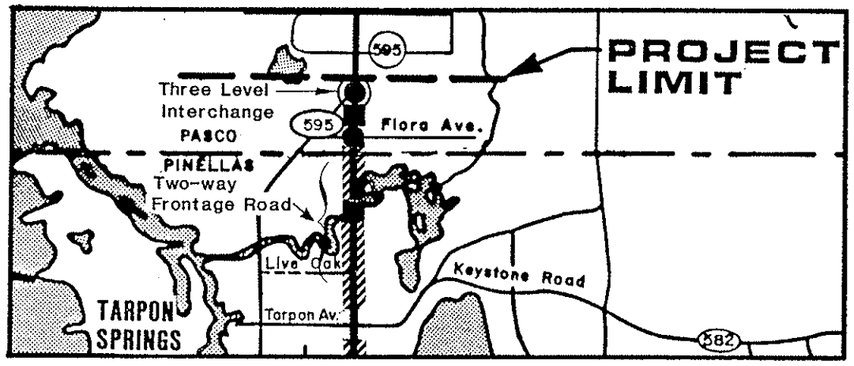

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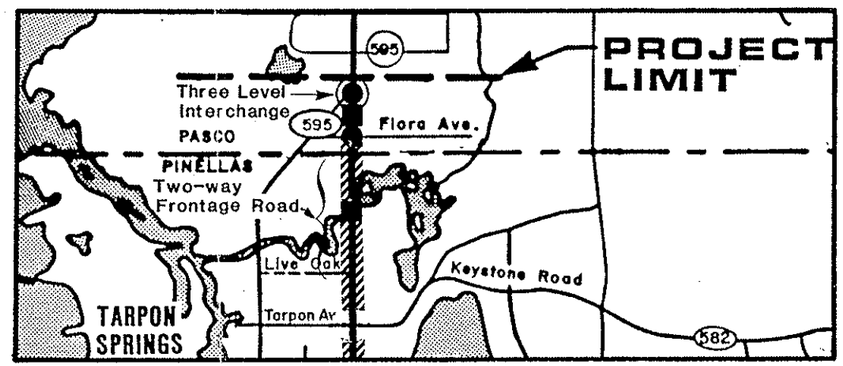
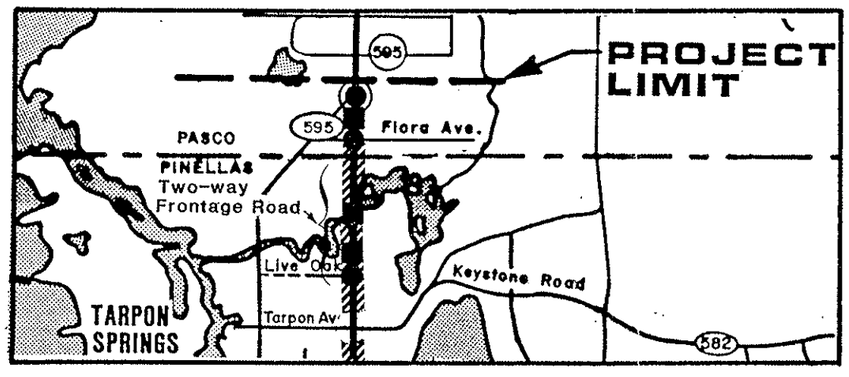


ALT. D-4



ALT. D-2B

LEGEND

- INTERCHANGE
- OVERPASS (MINOR INTERCHANGE)
- GRADE SEPARATION
- EXPRESSWAY AND FRONTAGE ROADS AT GRADE

N

U.S. 19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES
Pinellas and Pasco Counties, Florida
STATE PROJECT NO. 15150-1565

DESIGN SEGMENT D-ALTERNATIVE DESIGN CONCEPTS

Florida Department of Transportation

EXHIBIT IV-5

Greiner Engineering Sciences, Inc.

- Overpass at Flora Avenue
- Interchange at SR 595

Alternative D-2:

- 6-lane mainline with 2-lane one-way frontage roads north and south of the Anclote River
- Railroad overpass south of SR 595
- Overpass at Anclote River
- Overpass at Flora Avenue
- Interchange at SR 595

Alternative D-2B:

- 6 lane mainline with 2 lane one-way frontage roads north and south of the Anclote River
- Interchanges at Tarpon Avenue and SR 595 (Alt. 19)
- Railroad overpass south of SR 595 (Alt. 19)
- U-turns for northbound and southbound frontage road circulation north and south of railroad overpass
- Bridges at Anclote River
- Overpasses at Live Oak Street and Flora Avenue

Alternative D-3:

- 6 lane mainline with 2 lane two-way frontage roads north and south of the Anclote River (no frontage road bridges over river)
- Railroad overpass south of SR 595
- Mainline Overpass at Anclote River
- Overpass at Flora Avenue
- Three level interchange at SR 595

Alternative D-4:

- 6 lane mainline with 2 lane one-way frontage roads north and south of the Anclote River

- Railroad overpass south of S.R. 595
- Overpass at Anclote River
- Overpass at Flora Avenue
- Three level interchange at S.R. 595

RIGHT-OF-WAY AND RELOCATION ESTIMATES

Based upon the construction alternatives developed for Design Segment D, an evaluation of potential right-of-way requirements was undertaken. The results of these field reviews were tabulated for each alternative and are summarized here.

Table IV-7 provides estimates of the number of relocations for each alternative, by specific category. The categories of relocations utilized in this study are:

- Business Relocations
- Residential Relocations
- Non-Profit Organization Relocations
- Other Relocations

Table IV-7 shows that the largest number of relocations are associated with the "Other" category. The "Other" category represents personal property takings and signs. Sign relocations represent the vast majority of the total number of relocations

TABLE IV-7

RELOCATION ESTIMATES

DESIGN SEGMENT D

Segment D

Design Alternatives	Business Relocation	Residential Relocation	Non-Profit Organization Relocation	Other Relocation[1]	Total Relocation
Alternative D1	0	0	0	64	64
Alternative D2	0	0	0	61	61
Alternative D2-B	2	0	0	65	68
Alternative D3	20	0	0	78	98
Alternative D4	9	0	0	79	88

[1]Predominately signs and appurtenances

Cost Estimates

Preliminary cost estimates for Design Segment D alternatives (D-1 through D-4) have been developed. These estimates are based upon the engineering design criteria previously presented in this report. Table IV-8 provides the preliminary cost estimates for the U.S. 19 Alternatives. These cost estimates do not include major utility relocation costs since utilities located within the U.S. 19 right-of-way will be relocated at the utility's expense. Additionally, utility coordination provided by the Department with local utilities has indicated that the issue of utility impacts are essentially ubiquitous. The relative impacts are the same for all alternative designs and should not play a major role in the selection of one alternative design over another.

Conclusions

Figure IV-4 shows a comparison matrix of alternatives for Design Segment D. Based upon the various engineering, traffic planning, community impacts, local access and circulation, and system continuity factors existing within the U.S. 19 corridor study area, Alternative D-2 was selected as the preferred alternative.

Alternative D-2 was presented to the public at the July, 1986 Public Workshop as the preferred alternative.

TABLE IV-8

PRELIMINARY COST ESTIMATES
DESIGN SEGMENT D

Design Alternative	6-Lane Section: Roadway Miles	6-Lane Section: Roadway Cost	6-Lane Section: Typ. Interchange Number	6-Lane Section: Typ. Interchange Cost	8-Lane Section: Roadway Miles	8-Lane Section: Roadway Cost	8-Lane Section: Typ. Interchange Number	8-Lane Section: Typ. Interchange Cost	Non-Typical Interchanges Number	Non-Typical Interchanges Cost	Overpasses Number	Overpasses Cost	Bridges Number	Bridges Cost	Misc. Costs	Total Construction Costs	Design Administrative Contingency	Right-of-Way Costs	Alternative Total Costs
D1	1.06	$4.988	0	$0.000	0	$0.000	0	$0.000	1	$11.672	1	$8.112	2	$1.404	$0.000	$26.176	$4.633	$11.985	$42.794
D2	1.06	$4.988	0	$0.000	0	$0.000	0	$0.000	1	$11.672	1	$8.112	2	$3.785	$0.000	$28.558	$5.055	$9.101	$42.714
D2B	1.07	$5.035	1	$7.898	0	$0.000	0	$0.000	1	$11.672	2	$13.404	4	$8.048	$0.975	$47.032	$8.325	$9.289	$64.646
D3	1.06	$4.988	0	$0.000	0	$0.000	0	$0.000	1	$14.808	1	$8.112	2	$1.404	$0.000	$29.312	$5.188	$13.808	$48.308
D4	1.06	$4.988	0	$0.000	0	$0.000	0	$0.000	1	$14.808	1	$8.112	2	$3.785	$0.000	$31.694	$5.610	$11.512	$48.816

NOTE: Cost in Millions of 1987 Dollars, No Inflation.

FIGURE IV-4

DESIGN SEGMENT D
ALTERNATIVES COMPARISON

Factor	Alternative D1	D2	D2B[4]	D3	D4	Best Alternative
Right-of-Way Costs[1]	$11.985	$9.101	$9.289	$13.808	$11.512	D2
Construction & Contingency Costs[1]	$30.809	$33.613	$55.357	$34.500	$37.304	D1
Total Costs[1]	$42.794	$42.714	$64.646	$48.308	$48.816	D2
Relocations[2]	2	2	2	20	9	D1,2,D2B
Right-of-Way Takings[2]	81	65	67	95	80	D2
Average Cost of Right-of-Way/Relocations	5.976	4.55	4.64	.690	1.279	D3
Average Interchange/ Overpass Spacing	1.21 mi	1.21 mi	1.06 mi	1.21 mi	1.21 mi	D2B
Accessibility Rating[3]	1.25	1.25	0.90	1.25	1.25	D2B

[1] Costs in millions of 1987 dollars; no inflation

[2] Major right-of-way and relocation only; i.e., business, residential, personal property

[3] Accessibility Rating = $\frac{\text{Design Segment Length}}{[\#\text{ of full interchanges} \times 1.50) + (\#\text{ of half interchanges} \times 1.25) + (\#\text{ of overpasses} \times 1.0)]}$

[4] Study segment limits change

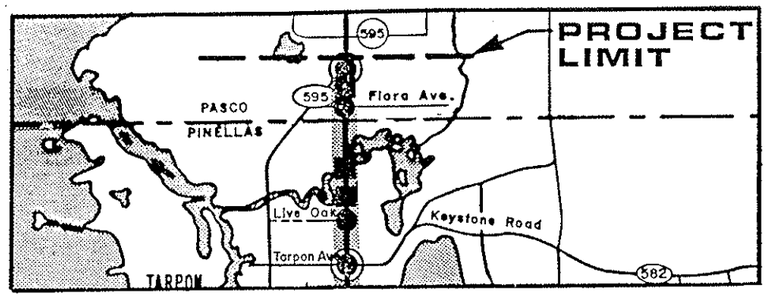
After the July Public Workshop the Segment D project limits were extended. A re-evaluation of access to the Tarpon Springs urban area was made. This resulted in a report entitled, Tarpon Avenue Concept Report, January, 1987, which is appended by reference. As a result of this analysis and discussions with City of Tarpon Springs staff and officials, Alternative D-2 was refined to Alternative D-2B. Alternative D-2B, the preferred alternative, includes an overpass at Live Oak Street, at grade frontage roads at the crossing of the CSX Transportation Railroad, and revised frontage road access northbound near the Anclote River.

SUMMARY

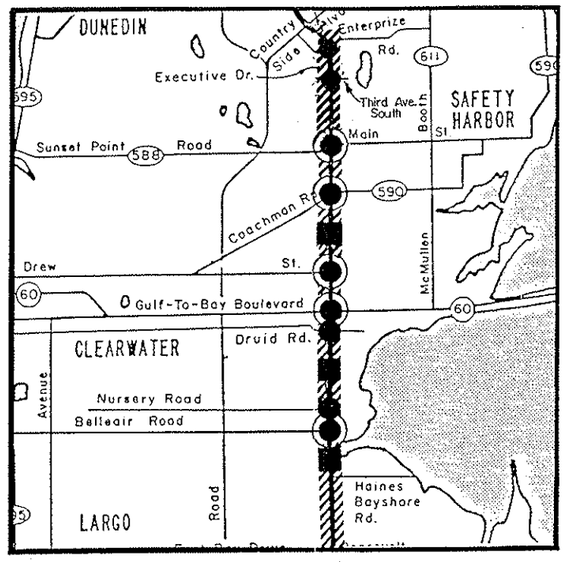
The analyses of the Construction Alternatives presented in this section provided for the selection of a preferred freeway concept for each of the four corridor design segments. The preferred alternatives are:

- Concept A-1A
- Concept B-8D
- Concept C-2A
- Concept D-2B

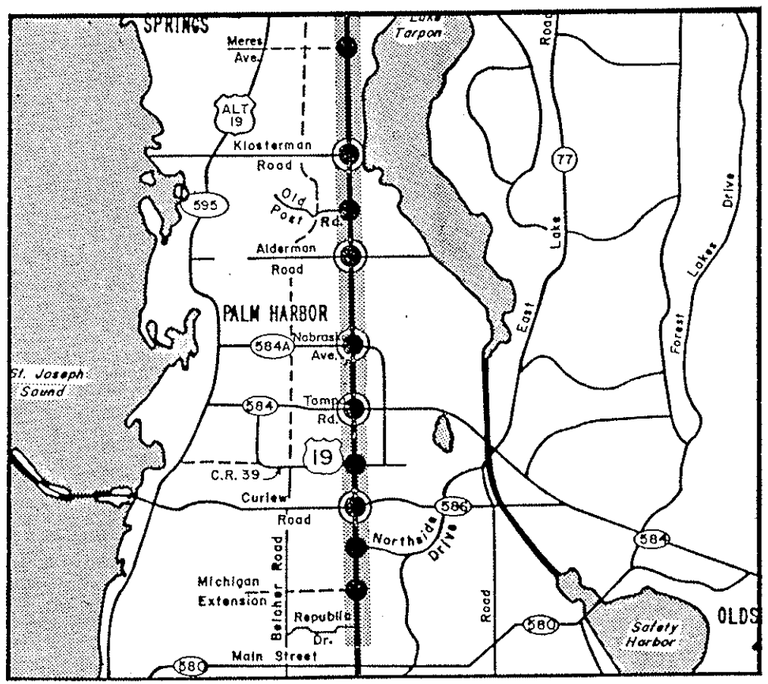
Exhibit IV-6 presents graphically the design concepts preferred for the U.S. 19 study corridor. Figure IV-V presents a summary of the key factors associated with the preferred concept. The preferred freeway concept is estimated to cost $396,762,000 to construct in 1987 dollars. This estimated price includes construction, design, administration, contingency, right-of-way, and relocation. This design concept complies with the **Pinellas County Year 2010 Long-Range Highway Plan** and County's **US 19 Ultimate Design Concept.**



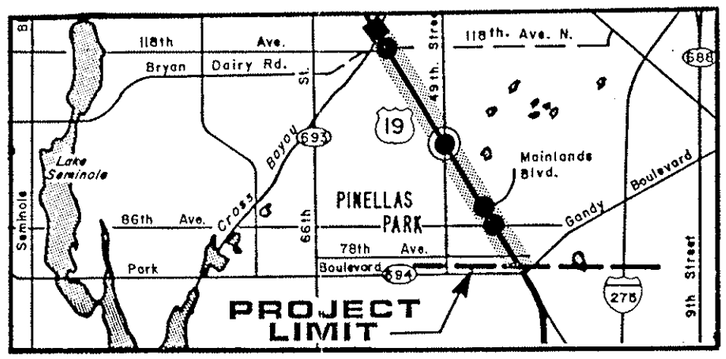
ALT. D-2B



ALT. B-8D



ALT. C-2A

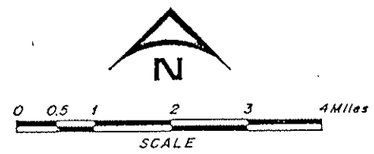


ALT. A-1A

LEGEND

- INTERCHANGE
- OVERPASS (MINOR INTERCHANGE)
- GRADE SEPARATION
- EXPRESSWAY AND FRONTAGE ROADS AT GRADE

NOTE:
Previously Programed Interchange Areas Are Not Shown



U.S. 19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES

Pinellas and Pasco Counties, Florida
STATE PROJECT NO. 15150-1565

PREFERRED U.S. 19 DESIGN CONCEPTS

Florida Department of Transportation

EXHIBIT IV-6

Greiner Engineering Sciences, Inc.

FIGURE IV-V

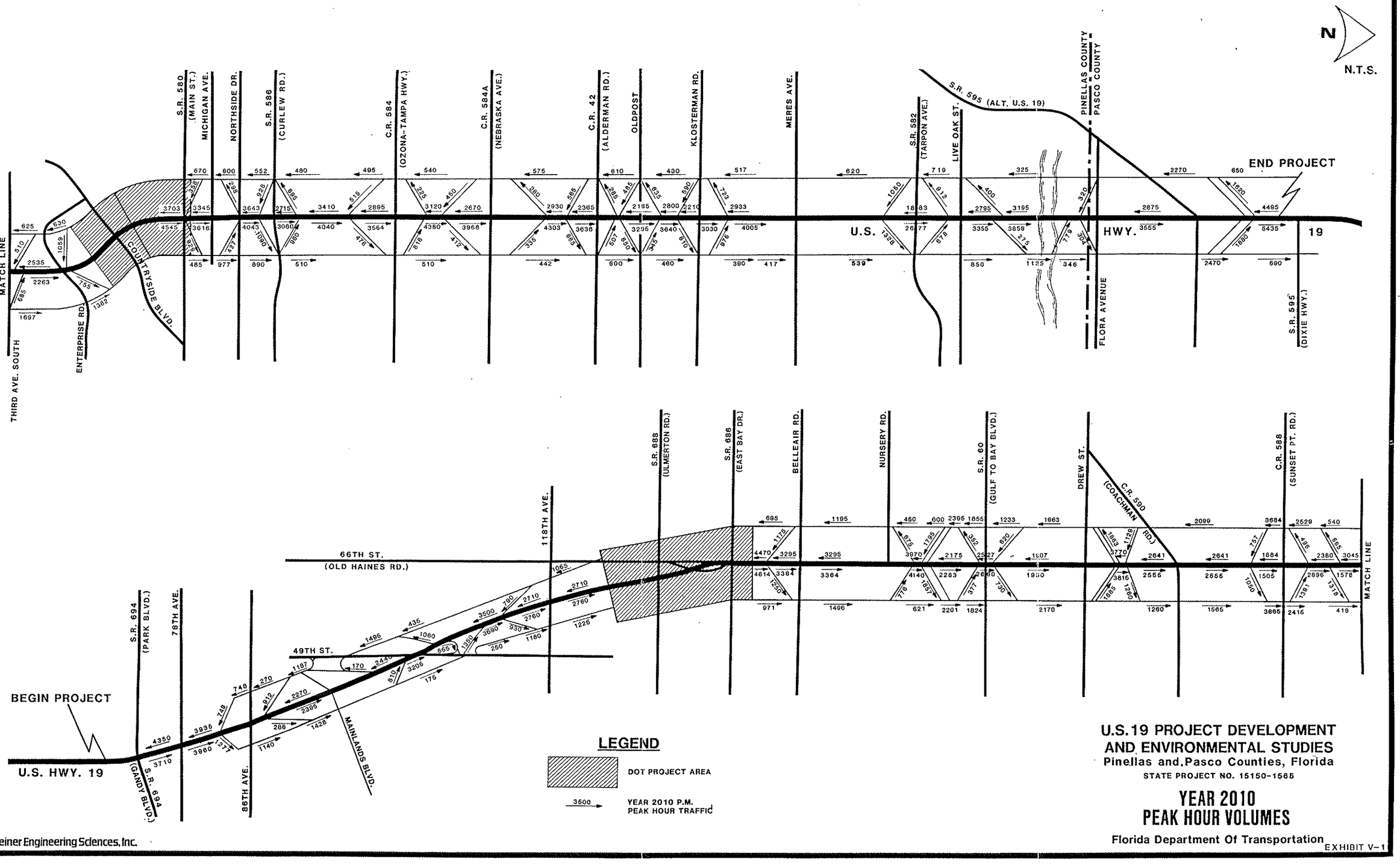
PREFERRED CONCEPT SUMMARY

Factor \ Alternative	A1A	B8D	C2A	D2B	Total for Preferred Alternative
Right-of-Way Costs[1]	$ 8.652	$45.906	$44.890	$ 9.289	$108.737
Construction & Contingency Costs[1]	$41.061	$98.274	$93.333	$55.357	$288.025
Total Costs[1]	$49.713	$144.180	$138.223	$64.646	$396.762
Relocations[2]	13	26	26	2	67
Right-of-Way Takings[2]	35	49	218	67	369
Average Cost of Right-of-Way/Relocation[1,2]	.665	1.76	1.73	4.64	8.795
Average Interchange/ Overpass Spacing	0.66 mi	.57 mi	0.65 mi	1.06 mi	.73 mi
Accessibility Rating[3]	0.55	.47	.90	.90	.71

[1] Costs in millions of 1987 dollars; no inflation.

[2] Major right-of-way and relocation only; i.e., business, residential and personal property

[3] Accessibility Rating = $\frac{\text{Design Segment Length}}{[(\#\text{ of full interchanges} \times 1.50) + (\#\text{ of half interchanges} \times 1.25) + (\#\text{ of overpasses} \times 1.0)]}$



U.S.19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES

Pinellas and Pasco Counties, Florida

STATE PROJECT NO. 15150-1565

YEAR 2010 PEAK HOUR VOLUMES

Florida Department Of Transportation

Greiner Engineering Sciences, Inc.

EXHIBIT V-1

TABLE V-1

YEAR 2010 PEAK HOUR TRAFFIC CONDITIONS

LINK		PROPOSED	MAINLINE PEAK DIRECTION				FRONTAGE ROAD PEAK DIRECTION			
FROM	TO	LANES	VOLUME	CAPACITY[3]	V/C	LOS[4]	VOLUME	CAPACITY[1]	V/C	LOS[4]
Segment A										
78th Avenue	86th Avenue	6	3182	5700	0.56	B	1277	1800	0.71	C
86th Avenue	49th Street	6	2395	5700	0.42	B	1428	1800	0.79	C
49th Street	118th Avenue	7	3690	7600	0.49	C[7]	1180	1800	0.66	B
Segment B										
SR 686 (East Bay Dr)	Belleair Road	6	4614	5700	0.81	D	671	1800	0.83	D
Belleair Road	Nursery Road	6	3364	5700	0.59	C	1496	1800	0.83	D
Nursery Road	Druid/Seville	8	4140	7600	0.54	C[7]	621	1800	0.35	A
Druid/Seville	SR 60 (Gulf to Bay Blvd)	6	2283	5700	0.38	A	2395	2700[2]	0.89	D
SR 60 (Gulf to Bay Blvd)	Drew Street	6	1930	5700	0.34	B	2170	2700[2]	0.80	C
Drew Street	CR 590 (Coachman Road)	8	3815	7600	0.50	D[7]	1260	1800	0.70	B
CR 590 (Coachman Road)	CR 588 (Sunset Point Rd)	6	2641	5700	0.46	B	1271	2700	0.47	A
CR 588 (Sunset Point Rd)	Enterprise Road	6	2896	5700	0.51	D[7]	1205	1800	0.67	B

TABLE V-1

YEAR 2010 PEAK HOUR TRAFFIC CONDITIONS
(Continued)

LINK		PROPOSED	MAINLINE PEAK DIRECTION				FRONTAGE ROAD PEAK DIRECTION				
FROM	TO	LANES	VOLUME	CAPACITY	V/C	LOS[4]	LOS[4]	VOLUME	CAPACITY[1]	V/C	
Segment C											
SR 580 (Main Street)	SR 586 (Curlew Road)	6	4170	5700	0.73	D[7]	690	1800	0.38	A	
SR 586 (Curlew Road)	CR 584 (Ozona-Tampa Hwy)	6	4040	5700	0.71	C	510	1800	0.28	A	
CR 584 (Ozona-Tampa Hwy)	CR 584A (Nebraska Ave)	6	4380	5700	0.77	D	540	1800	0.30	A	
CR 584A (Nebraska Ave)	CR 42 (Alderman Road)	6	4303	5700	0.75	D	575	1800	0.32	A	
CR 42 (Alderman Rd)	Old Post Road	6	4145	5700	0.73	D[7]	600	1800	0.33	A	
Old Post Road	Klosterman Road	6	3640	5700	0.64	C	460	1800	0.26	A	
Klosterman Road	SR 582 (Tarpon Ave)	6	4005	5700	0.70	C	517	1800	0.29	A	
Segment D											
Pinellas/Pasco County Line	SR 595 (Alt. US 19)	6	3859	5700	0.68	C	346	1800	0.19	A	
SR 595 (Alt. US 19)	End of Project	8	5435	7600	0.72	C	650	1800	0.36	A	

TABLE V-1

YEAR 2010 PEAK HOUR TRAFFIC CONDITIONS
(Continued)

[1]Two Lane Frontage Road.

[2]Three Lane Frontage Road.

[3]Capacity at LOS E from Task C Report by COMSIS Corporation for FDOT.

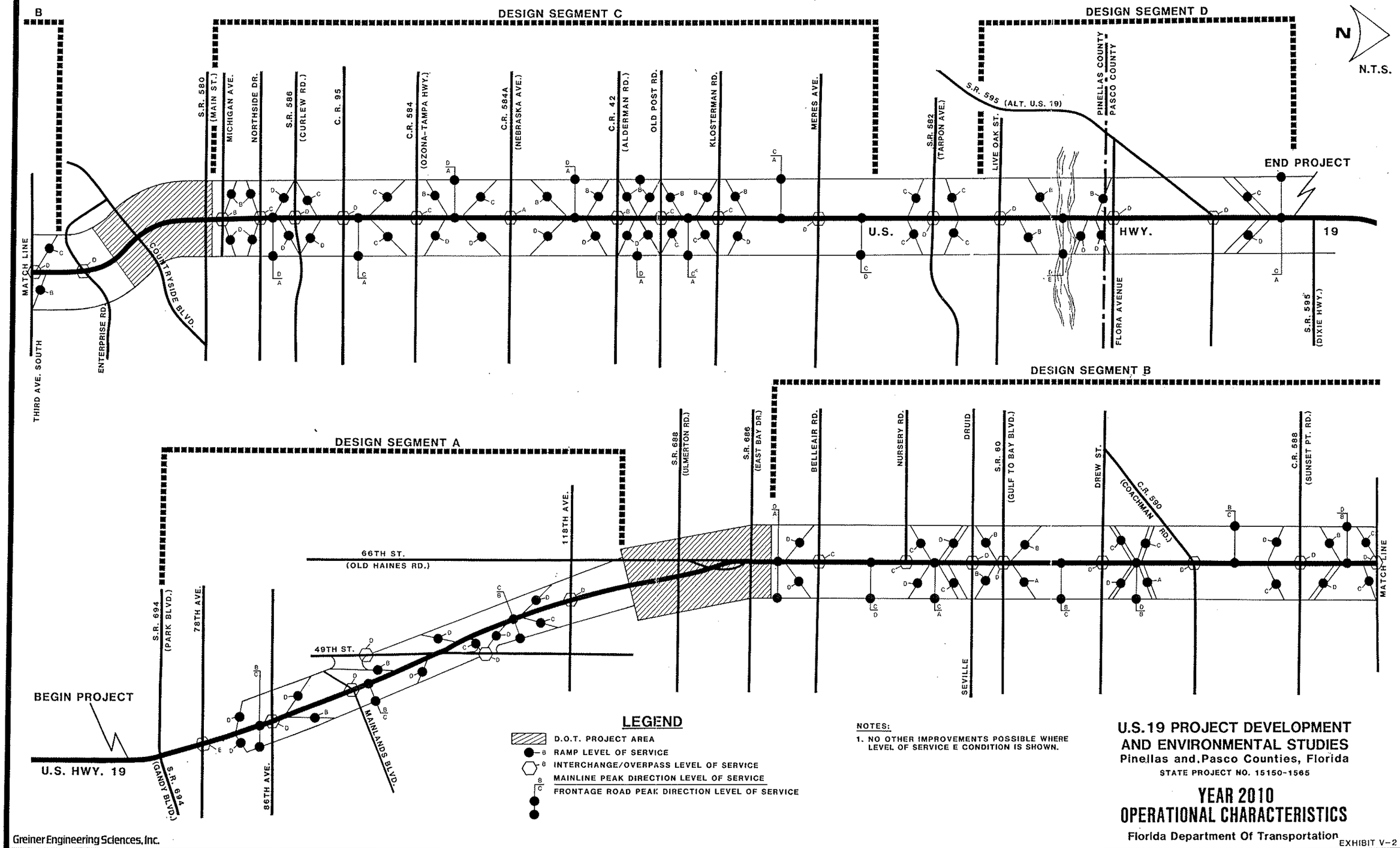
[4]The V/C Ratios below were used to determine peak-hour Level of Service.

		Freeway[5]		
Level of Service	Arterials[6]	4-Lane	6-Lane	8-Lane
A	≤0.60	<0.35	<0.40	<0.42
B	<0.70	<0.50	<0.58	<0.63
C	<0.80	<0.68	<0.73	<0.75
D	<0.90	<0.82	<0.82	<0.83
E	<1.00	<1.00	<1.00	<1.00
F	>1.00	>1.00	>1.00	>1.00

[5]Highway Capacity Manual, 1965, Special Report 87.

[6]Traffic and Transportation Handbook, Institute of Traffic Engineers, 1982.

[7]LOS Determined by Weaving Volume.



LEGEND

- D.O.T. PROJECT AREA
- RAMP LEVEL OF SERVICE
- INTERCHANGE/OVERPASS LEVEL OF SERVICE
- MAINLINE PEAK DIRECTION LEVEL OF SERVICE
- FRONTAGE ROAD PEAK DIRECTION LEVEL OF SERVICE

NOTES:

1. NO OTHER IMPROVEMENTS POSSIBLE WHERE LEVEL OF SERVICE E CONDITION IS SHOWN.

U.S.19 PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDIES

Pinellas and Pasco Counties, Florida

STATE PROJECT NO. 15150-1565

YEAR 2010 OPERATIONAL CHARACTERISTICS

Florida Department Of Transportation

Greiner Engineering Sciences, Inc.

EXHIBIT V-2

TABLE V-3

YEAR 2010 INTERCHANGE/OVERPASS AT-GRADE INTERSECTION OPERATIONAL CHARACTERISTICS

LANE REQUIREMENTS AND MINIMUM STORAGE LENGTH (IN FEET)

	NORTHBOUND				SOUTHBOUND				EASTBOUND			WESTBOUND			SUMMARY OF CRITICAL		
CROSS ROAD	U	L	T	R	U	L	T	R	L	T	R	L	T	R	MOVEMENT	V/C	LOS
6th Ave. N.	-	1	1	1	-	1	1	S	1	1	1	1	2	S			
	-	325	200	200	-	105	105	-	195	195	195	270	125	-	1448	0.88	D
Mainlands	1	-	2	S	-	1	2	-	-	-	-	1	-	1			
lvd.	430	-	430	-	-	230	230	-	-	-	-	260	-	260	1285	0.78	D
9th St. N.	-	2	-	-	-	-	2	-	-	-	-	-	-	-			
(North Ramps)	-	210	-	-	-	-	125	-	-	-	-	-	-	-	1368	0.83	D
9th St. N.	-	-	2	-	-	1	-	-	-	-	-	-	-	-			
(South Ramps)	-	-	150	-	-	270	-	-	-	-	-	-	-	-	1346	0.78	D
118th Ave N.	-	2	S	1	-	2	S	1	2	3	1	2	3	1			
		370	-	370	-	330	-	330	160	160	160	245	245	245	1426	0.86	D
Bellair Road	1	2	2	1	1	2	S1	1	2	2	1	2	2	S			
	315	315	315	315	230	230	230	230	308	50	50	370	50	-	1196	0.75	C
Nursery Road	-	1	2	S	-	1	2	S	1	1	S	1	1	S			
	-	470	470	-	-	260	260	-	180	180	-	90	90	-	1197	0.73	C
Druid Road	-	1	3	1	-	1	3	1	1	2	1	1	2	1			
	-	495	495	495	-	500	500	500	150	150	150	105	105	105	1382	0.97	D

- Shared Lane

Storage Lengths to 8' Point

LOS E indicates no practical at-grade improvements are feasible

TABLE V-3

YEAR 2010 INTERCHANGE/OVERPASS AT-GRADE INTERSECTION OPERATIONAL CHARACTERISTICS (Continued)

LANE REQUIREMENTS AND MINIMUM STORAGE LENGTH (IN FEET)

	NORTHBOUND				SOUTHBOUND				EASTBOUND			WESTBOUND			SUMMARY OF CRITICAL		
ROSS ROAD	U	L	T	R	U	L	T	R	L	T	R	L	T	R	MOVEMENT	V/C	LOS
.R. 60	1	2	2	1	1	2	2	1	2	3	1	2	3	1			
	295	295	135	135	220	220	125	125	375	375	375	300	300	300	1304	0.88	D
Drew St.	1	2	2	1	1	2	2	1	2	2	1	2	2	1			
	345	345	345	345	300	300	300	300	190	190	-	195	195	195	1408	0.85	D
›achman Rd.	1	2	S1	1	1	2	S1	2	2	1	1	2	1	1			
	150	150	150	150	270	270	270	270	235	235	235	200	200	200	1350	0.82	D
ınset Pt. Rd.	1	2	3	1	1	2	3	1	2	2	1	2	2	17			
	385	385	215	580	330	330	330	330	215	215	585	340	225	225	1374	0.97	D
‹ecutive Dr.	-	1	2	S	-	1	2	S	1	1	S	1	1	S			
	-	335	335	-	-	105	95	-	200	200	-	265	265	-	1440	0.87	D
Republic Drive	-	1	1	S	-	1	1	S	1	1	S	1	1	S			
	-	320	320	-	-	295	295	-	155	155	-	175	175	-	925	0.67	B
Northside Drive	-	1	1	S	-	1	2	S	1	2	1	1	2	1			
	-	205	125	-	-	160	80	-	255	255	255	240	240	240	986	0.72	C
ırlew Road	1	2	2	-	1	2	2	-	2	3	1	2	3	1			
	320	320	200	200	195	195	135	135	250	250	250	295	295	295	1274	0.88	D

S - Shared Lane

:orage Lengths to 8' Point

LOS E indicates no practical at-grade improvements are feasible

TABLE V-3

YEAR 2010 INTERCHANGE/OVERPASS AT-GRADE INTERSECTION OPERATIONAL CHARACTERISTICS (Continued)

LANE REQUIREMENTS AND MINIMUM STORAGE LENGTH (IN FEET)

	NORTHBOUND				SOUTHBOUND				EASTBOUND			WESTBOUND			SUMMARY OF CRITICAL		
CROSS ROAD	U	L	T	R	U	L	T	R	L	T	R	L	T	R	MOVEMENT	V/C	LOS
C.R. 39	-	1	S1	S	-	1	S1	S	1	1	S	1	1	S			
	-	160	160	-	-	155	155	155	215	175	-	310	310	-	1393	0.84	D
mpa Road	1	2	S1	S	1	2	S1	S	2	2	S	2	2	S			
(S.R. 584)	330	330	330	-	170	170	170	-	105	105	-	170	170	-	1263	0.77	C
Nebraska Rd.	1	2	S1	S	1	2	S1	S	2	2S	2	2S					
.R. 584A)	175	175	175	-	130	130	130	-	120	120	-	100	60	-	767	0.47	A
derman Road	1	2	S1	1	1	2	S1	S	2	1	S	2	1	1			
	170	170	170	170	210	210	210	-	150	150	-	120	120	120	1028	0.62	B
d Post Road	-	1	S1	S	-	1	S1	S	1	1	S	1	1	S			
	-	310	310	-	-	335	335	-	150	150	-	105	105	-	1249	0.73	C
Klosterman Rd.	1	2	S1	S	1	1	2	1	2	2	S1	1	1	S			
	220	220	220	-	95	95	95	95	280	50	50	85	-	1126	0.68	C	
ora Avenue	-	1	2	S	-	1	2	S	1	1	S	1	1	S			
	-	140	125	-	-	125	70	-	60	60	-	60	60	-	738	0.45	A
t. 19	1	1	2	S	1	1	2	-	3	1	S	1	S	S			
	50	75	135	-	65	210	130	-	535	100	-	70	-	-	1160	0.86	D

S - Shared Lane

orage Lengths to 8' Point

[4]LOS E indicates no practical at-grade improvements are feasible.