FINAL

PRELIMINARY ENGINEERING REPORT

SR 586 (CURLEW ROAD) AND SR 584 (TAMPA ROAD)
From SR 595 (Alternate U.S. 19) to the Seaboard Coastline Railroad

Work Program No. 7116868, 7116869
State Project No. 15009-1504, 15080-1508
Federal Project No. M-1520(2)

United States Department of Transportation
Federal Highway Administration
and
Florida Department of Transportation
District 7
Tampa, Florida

SR 586 and SR 584 each have segments of two-lane and three-lane roadway which are inadequate for existing and future traffic volumes. A six-lane cross section is needed for both roads to accomodate year 2010 traffic. All signalized intersections need more capacity. Several locations need dual left-turn lanes.

Prepared By:

H. W. LOCHNER, INC.

July, 1987

Revised February, 1988

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PREFACE

The process of completing a Development and Environmental Study for a project classified as a Categorical Exclusion entails a series of engineering and environmental studies which are utilized in preparation of a Preliminary Engineering Report. This report is essentially a working document and, as a result, is subject to various revisions and additions.

During the alternate development process, a number of cross sections and alignments were considered. Some of these were dismissed for reasons of cost and/or socioeconomic and environmental impacts. Three cross sections were identified as viable alternates, analyzed in detail, and reported in Sections 3.0 and 4.0 of this document. Cost estimates were prepared for each of the three cross sections based upon the lowest cost alignment for each cross section. These alternates were presented at a Public Information Workshop on October 29, 1987. Following that, project refinements were made, the Preliminary Engineering Report was updated, and the project was readied for a Public Hearing, which was held on June 15, 1989. Alternate B was presented as the Preferred Alternate.

Subsequent to the Public Hearing, Alternate B was adopted as the Recommended Alternate and further project refinements were made in order to mitigate community impacts without compromising the safety or efficiency of the project. Recommended project concept design features are set forth in Section 12.0 - Recommendations of this report. It is on the basis of these concepts that preliminary engineering will be developed.

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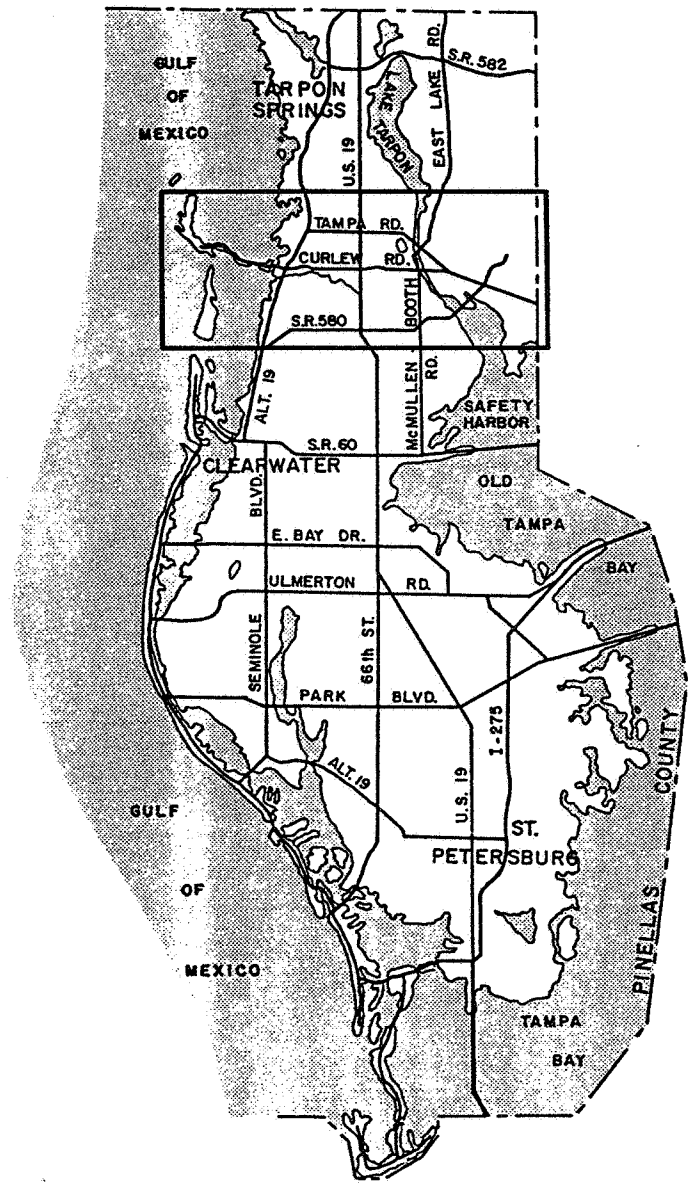
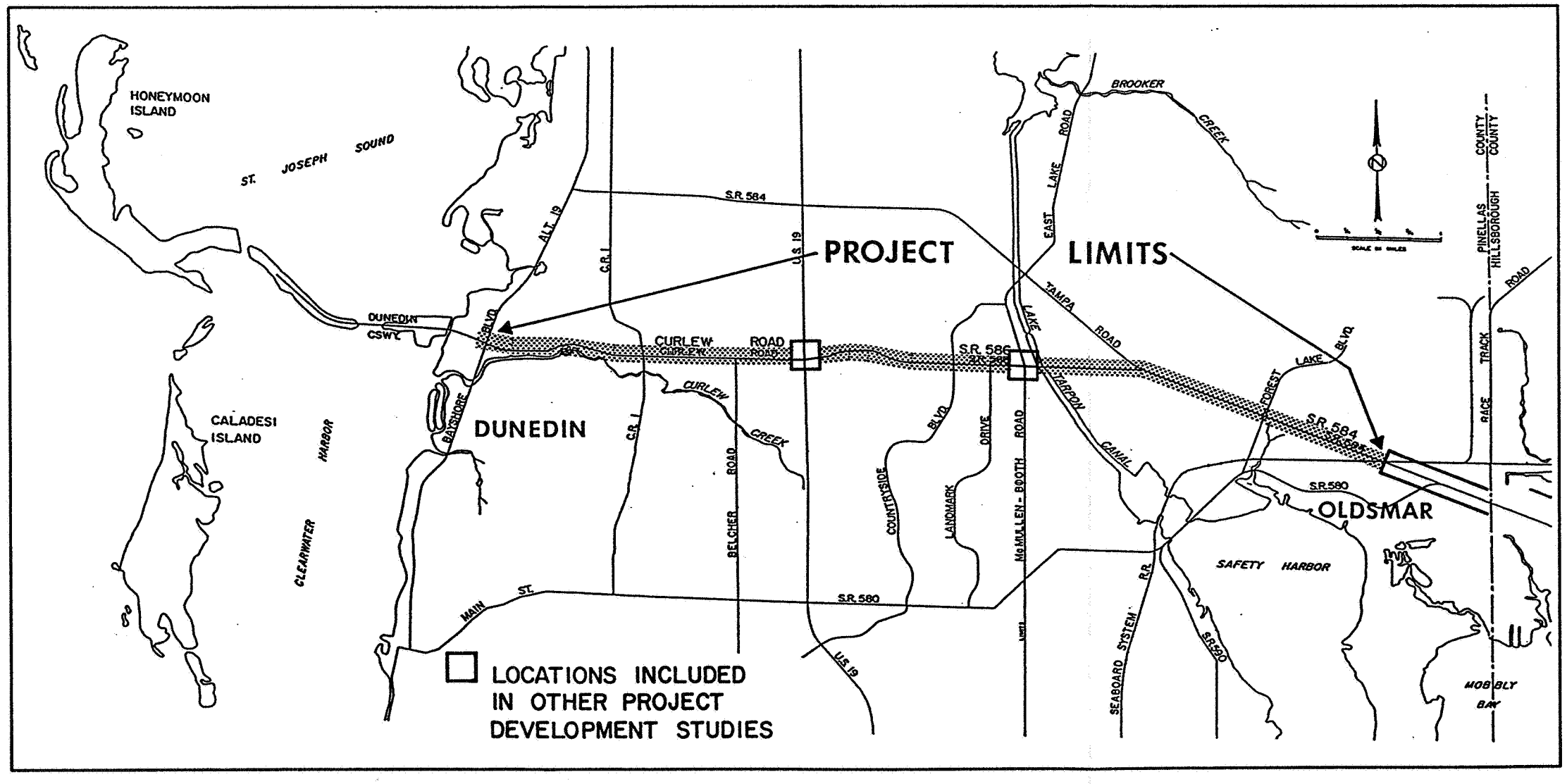
SUMMARY

State Road (SR) 586 and SR 584 are urban major arterials locally known as Curlew Road and Tampa Road. The SR 586/SR 584 project is in the northern portion of Pinellas County and extends from Alternate U.S. 19 (Bayshore Blvd) in Dunedin to the Seaboard Coastline Railroad in Oldsmar. Total length of the project is approximately seven miles -- with 5 1/3 miles along SR 586 and 1 2/3 miles along SR 584. Together, SR 586 and SR 584 provide the most direct transportation route between northern Pinellas County and the Greater Tampa Area. Extended westerly beyond Alternate U.S. 19 as Dunedin Causeway Blvd, this roadway provides the only land connection to Honeymoon Island State Park, a relatively new state recreational facility. Refer to Project Location Map, Exhibit 1.

The existing roadway has segments of two-lane and three-lane pavement throughout its length. Most of the three-lane improvements were completed in early 1987 and were complemented with the reconstruction of several intersections. These recent improvements have provided an additional measure of safety and capacity, but do not fully meet the current needs or long-term needs of the SR 586/SR 584 corridor.

Pinellas County, through its Year 2010 Long Range Transportation Plan, calls for the improvement of SR 586 as a six-lane urban major arterial from west of Alternate U.S. 19 to SR 584. This plan also calls for six lanes on SR 584 from SR 586 to the Seaboard Coastline Railroad. Beyond the railroad, SR 584 would connect to SR 580.





S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	**PROJECT LOCATION**	EXHIBIT 1

Generally, traffic on SR 586 will double between 1986 and 2010. While future volumes on SR 584 will be dependent on roadway network expansion into northeast Pinellas County and northwest Hillsborough County, traffic on SR 584 is expected to increase a minimum of from 67 percent to 86 percent for the 24-year period. Without additional traffic lanes, operational conditions on SR 586 and SR 584 will become intolerable.

Corridor alternatives were explored to the north and south of both SR 586 and SR 584. No existing corridors having sufficient right-of-way width or adequate continuity within reasonable distance of SR 586 are available. Significant impacts to the cohesion and character of established neighborhoods would result with project development in any alternate corridor. Although there is a potential need for a transportation corridor beginning in the vicinity of the SR 584/SR 586 merge and extending to Linebaugh Avenue in Hillsborough County, this corridor is not a viable location for serving the transportation needs in the existing SR 586/SR 584 corridor west of SR 580. This Linebaugh extension corridor would form a major east-west transportation link between the planned development in northwest Hillsborough County and northeast Pinellas County.

Alternate designs within the preferred corridor were developed to include desirable, minimum and compromise options. These options include shared-lanes for bicycles; 11-foot vs. 12-foot traffic lanes; 14-foot flush median vs. 22-foot and 30-foot raised medians; and, 10-foot vs. 12-foot border widths. Typical right-of-way requirements for these three alternative cross sections would be 100 feet, 118 feet, 122 feet, and 130 feet. Any one of

the typical cross sections, if implemented, will cause damages to fronting properties. A maximum number of five buildings would be damaged or severed. Other damages relate to property acquisition.

Recommendations favor the cross section with a 22-foot raised median. Twelve-foot borders will be used along the project for an added measure of pedestrian safety. Typical right-of-way width will be 122 feet. Six lanes are recommended for the entire project length. These will consist of four 12-foot traffic lanes and two 14-foot outside traffic lanes for shared motor vehicle and bicycle use.

1.0 INTRODUCTION

East-west travel along SR 586 and SR 584 is expected to increase as a consequence of population and employment growth. The attractiveness of this corridor can only be amplified because of its location and the continued growth in northern Pinellas County and northwest Hillsborough County. Locally named Curlew Road and Tampa Road also lead into Dunedin Causeway Boulevard, which is the only land connection to Honeymoon Island State Park. Future improvements for these corridor roadways have been listed in the Pinellas County Year 2010 Long Range Transportation Plan. Dunedin Causeway Boulevard will have two-lane, four-lane, and six-lane improvements. Curlew Road is planned for six lanes from Alternate U.S. 19 to Tampa Road. Six lanes are planned for Tampa Road from Curlew Road to the Seaboard Coastline Railroad. East of the railroad, Tampa Road will carry six lanes and eight lanes as part of the SR 580 improvement project. The plan fully recognizes this corridor as an important cross-county transportation link.

This report documents existing characteristics and conditions on SR 586 and SR 584 along with the need for an improved facility. Improvement alternatives are identified, described, and evaluated.

2.0 EXISTING CONDITIONS

2.1 EXISTING ROADWAY CHARACTERISTICS

Until recently, SR 586 and SR 584 were two-lane rural roads with left-turn lanes at major cross roads. Construction in 1986 and early 1987 improved significant sections of both roads to include a third, center lane, which is utilized as a two-way left-turn lane. The rural cross section remains, along with side ditch drainage.

2.1.1 Right-of-Way

Right-of-way for SR 586 and SR 584 is typically 100 feet in width. Several segments of roadway have 10 to 20 feet of additional width. These segments may be as short as approximately 100 feet, or as long as 1200 feet. They are randomly located along the project length with the additional width on one side or on the opposite side of SR 586 and SR 584. While these are helpful in minimizing right-of-way acquisition costs, they are not of sufficient length or in locations that lend themselves strategically to the placement of roadway alignments. Also, because of the irregular spacing of these wider rights-of-way, one design alternate would not have an advantage over other alternates.

2.1.2 Typical Cross Sections

Eleven-foot traffic lanes are predominant for most of the project length. The roadways are either two-lane or three-lane rural cross sections, as follows:

Three Lanes	Two Lanes
Alt. 19 to Sequoia Terr.	Sequoia Terr. to Cordoba Ct.
Cordoba Ct. to Merlin Dr.	Merlin Dr. to Gull Aire Blvd.
Gull Aire Blvd to S.C.R.R.	

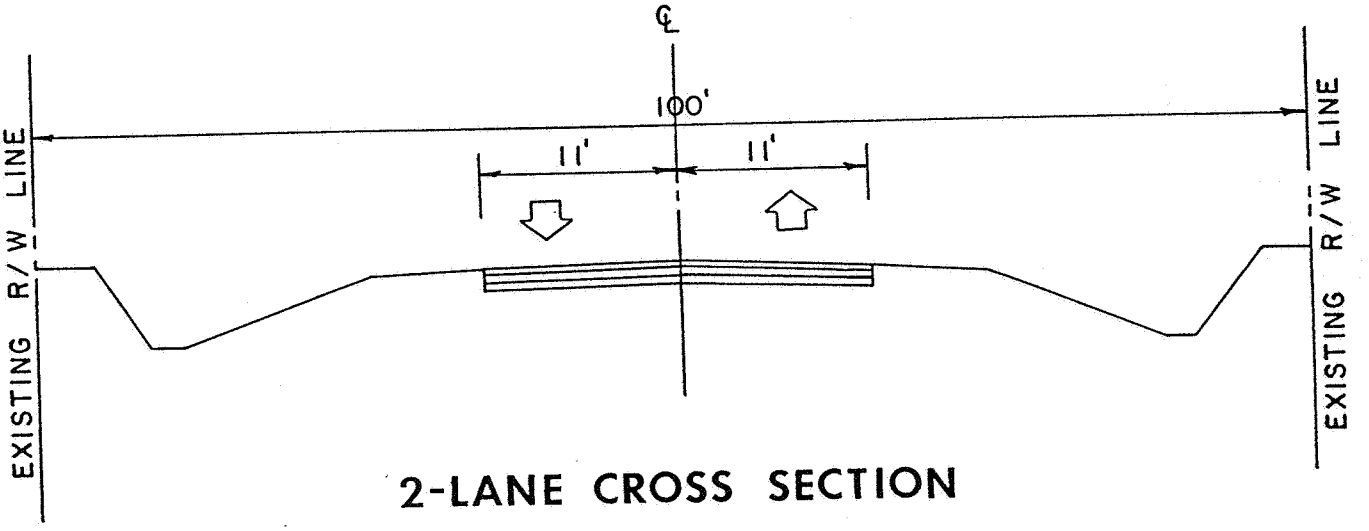
Outside of the traffic lanes, the cross section includes side ditches for drainage, and in several locations sidewalks have been added to the backslope side of the ditches. General features of these cross sections are portrayed in Exhibit 2.

2.1.3 Alignment And Sight Distance

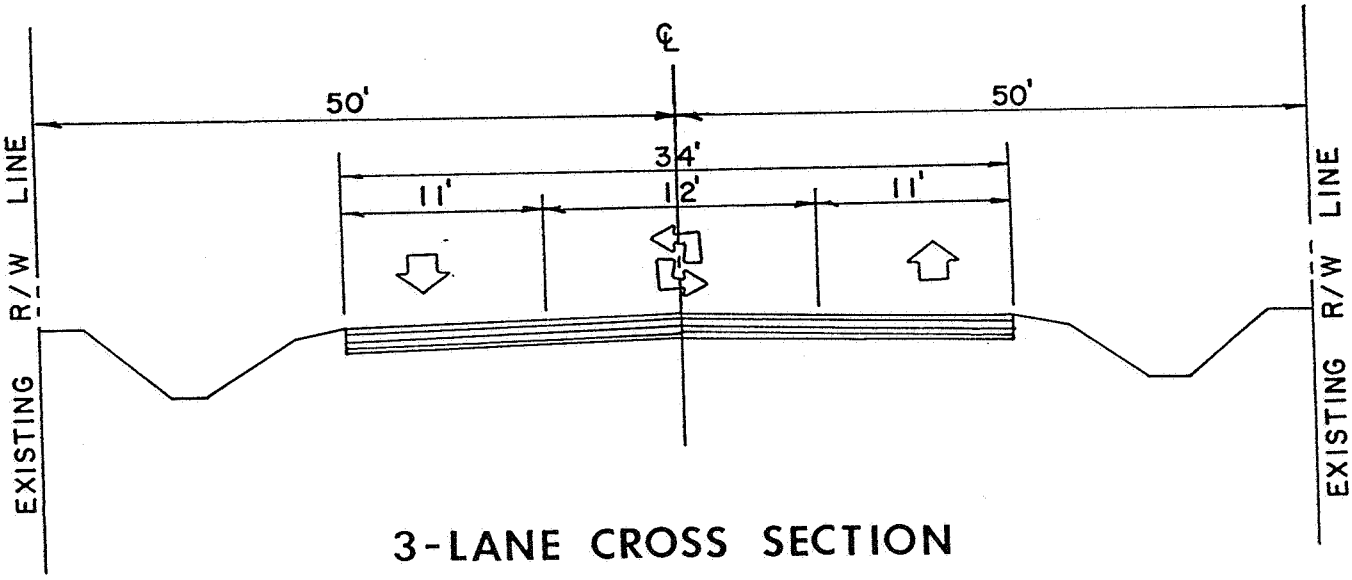
From Alternate 19 to CR 1, the existing SR 586 roadway follows a gently winding alignment which approximately parallels Curlew Creek. It then follows a tangent alignment due east from CR 1 to U.S. 19. From U.S. 19 to Countryside Boulevard, SR 586 swings northward around two Sand Hill Lakes and then returns to an east-west alignment. The tangent alignment continues east to the SR 586/SR 584 intersection, where the roadway turns and runs southeasterly on a tangent alignment beyond the eastern terminus of the project. The approximate bearing of this last section is south 70° East.

The maximum degree of curve of the existing roadway is 6°, which is well within the limits specified by the AASHTO Green Book for rural roads with a 50 mph design speed.

Maximum existing roadway grade is approximately 3.5 percent. Existing roadway stopping and passing sight distances appear adequate.



2-LANE CROSS SECTION



3-LANE CROSS SECTION

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	**EXISTING TYPICAL SECTIONS**	EXHIBIT 2

2.1.4 Pedestrian Facilities

Due to the historical low density, rural character of the study area, sidewalks are not continuous along either Tampa Road or Curlew Road. In general, existing sidewalks are associated with newer developments and are found at the locations described below.

Beginning at CR 1, sidewalks extend east on both sides of Curlew for approximately 2400 feet. They begin again, on the north side of Curlew Road, at the Spanish Oaks subdivision and extend for approximately 1000 feet along the length of the development. A short length of sidewalk exists on the south side of Curlew, beginning at Fisher Street and extending to U.S. 19.

The longest continuous stretch of sidewalk begins just west of U.S. 19 and extends east, on the south side of Curlew, to Landmark Drive and on the north side of Curlew to Countryside Blvd.

The only other length of sidewalk in the study corridor is located on the north side of Curlew Road and is coterminus with the boundaries of the shopping center which is just west of the junction of Curlew and Tampa Roads.

With the exception of crosswalks, which occur at all signalized intersections, no other facilities expressly for the use of pedestrians exist in the study corridor.

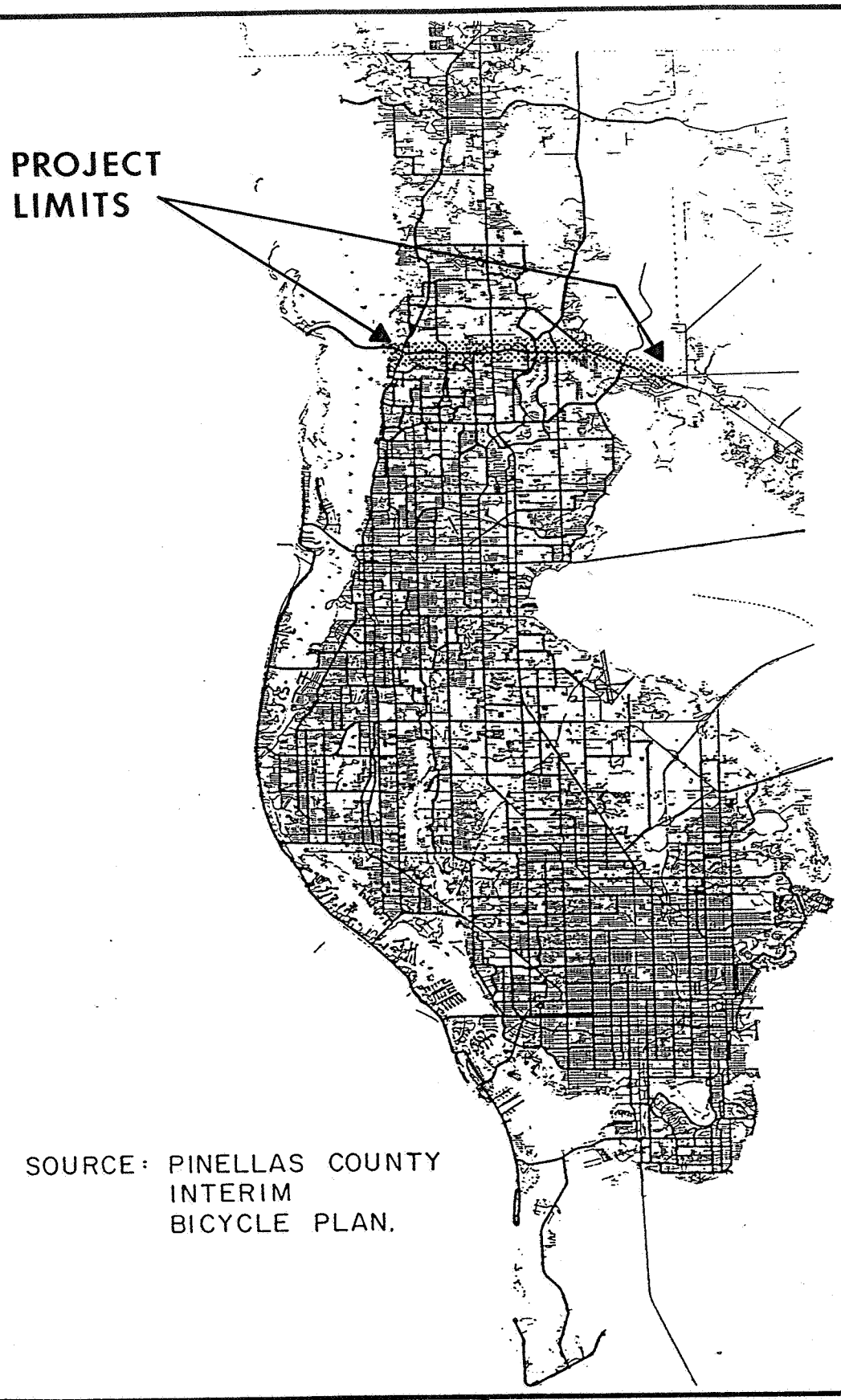
2.1.5 Bicycle Facilities

No separate or vehicle shared bicycle facilities are evident along the project length. However, in 1984, state and county officials decided to include bicycle considerations in the design of state and county transportation projects. State roads 584 and 586 have both been included in the Pinellas County Interim Bicycle Route Plan (1985), as shown in Exhibit 3.

In June of 1984, the Florida State Legislature passed SB 789, now known as the 1984 Bicycle Law. Sponsored by two Pinellas County legislative representatives, this law requires that bicycle and pedestrian ways be given full consideration in the planning and development of local, regional, and state transportation plans and programs. Under this law, the Florida Department of Transportation must establish bicycle facilities in conjunction with the construction, reconstruction, or other improvement of most state transportation facilities. Special emphasis is placed on state projects in, or within five miles of an urban area (population 50,000 or more). This policy generally provides for the construction of wide curb lanes, paved shoulders, or bicycle lanes in conjunction with other planned roadway improvements. Exhibit 4 is a representation of the type of improvement that could be made to facilitate bicycle travel on Curlew and Tampa Roads.

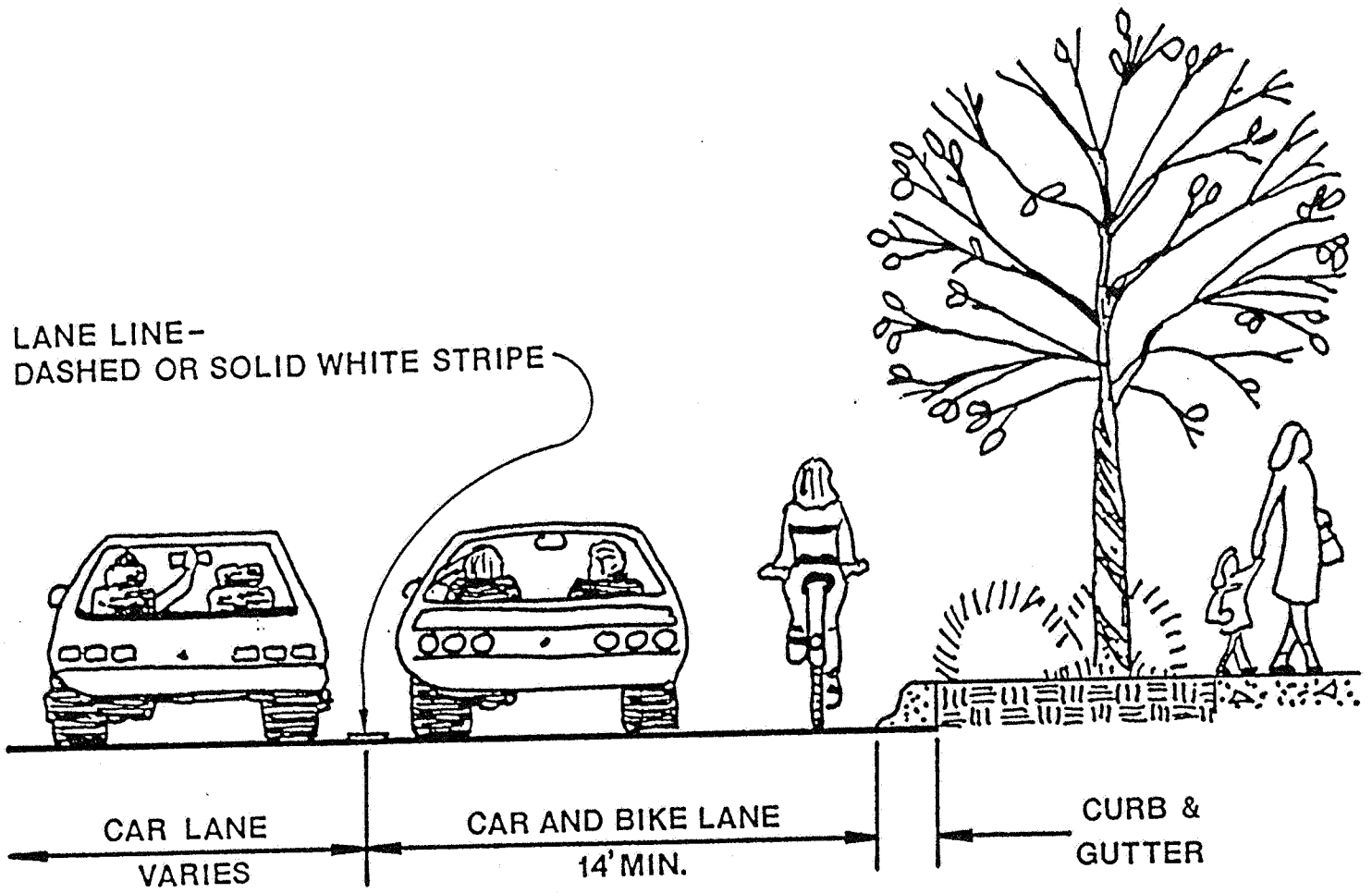
2.1.6 Intersection Designs

Signalized intersections have separate left-turn lanes at all intersection approaches. At those locations having a three-lane cross section, vehicles



SOURCE: PINELLAS COUNTY
INTERIM
BICYCLE PLAN.

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	PINELLAS COUNTY INTERIM BICYCLE ROUTE PLAN	EXHIBIT 3



SOURCE: PINELLAS COUNTY INTERIM BICYCLE PLAN.

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	**TYPICAL SECTION WITH WIDE CURB - LANE**	EXHIBIT 4

on SR 586 and SR 584 utilize the two-way left-turn lane for left-turns into driveways and at non-signalized intersections.

2.1.7 Operational Conditions

Current traffic volumes are heavy enough to cause lengthy delays during AM and PM peak periods at a number of locations on SR 586 and SR 584. Recent improvements have provided a measure of increased capacity at several intersections and along those segments of the project length where continuous two-way left turns have been added.

Nonetheless, only two lanes are available for through traffic volumes, which currently are heavy enough to require a four-lane facility. Lengthy vehicle platoons and queues frequently deny crossroad traffic the opportunity of crossing or entering SR 586 and SR 584. Effectively, the system breaks down when this occurs. The inability of the traffic system to respond to demand has generated requests for additional traffic signals -- particularly in those areas through which SR 584 passes.

Levels of Service (LOS) range from 'C' at the western end of the project, to LOS 'F' at the eastern end. Through the central portion, LOS 'D' is predominant (see Section 5.1).

2.1.8 Lighting

There are no street lighting systems along the SR 586/SR 584 roadways.

2.1.9 Traffic Signal Locations

Traffic signals are located at the following intersections:

*Intersections with SR 586
- Alternate US. 19
- CR 1
- Belcher Road
- U.S. 19
- Countryside Boulevard
- McMullen-Booth Road
- SR 584

*Intersections with SR 584
- SR 586
- Sperry Corp. Entrance Roadway (part-time)
- Forest Lakes Blvd

2.1.10 Posted Speed Limits

The project length has posted speed limits for 45 mph except for the extreme west end of the project, near Alternate U.S. 19, where the speed limit is posted for 35 mph. School zone speed limits are posted for 15 mph just east of Countryside Boulevard and just west of the Seaboard Coastline Railroad.

2.1.11 Emergency And Evacuation Services

SR 586/584 is used by police, fire, and medical emergency vehicles. Local police and fire protection are provided by the governments of Dunedin, Oldsmar, Clearwater, and Pinellas County. Local area hospitals include Mease, Clearwater Community, Morton Plant, and Tarpon Springs General.

SR 586/584 has been designated as a hurricane evacuation route by the Tampa Bay Regional Planning Council.

2.1.12 Public Transportation

Scheduled public transportation with routes that serve the entire length of the project are unavailable. The Pinellas Suncoast Transit Authority has

two bus routes that provide service for a short distance along the project length. These routes extend from the Dunedin Causeway to CR 1, then to the south along CR 1. Service is infrequent, with headways of 2 hours and 25 minutes during periods of service.

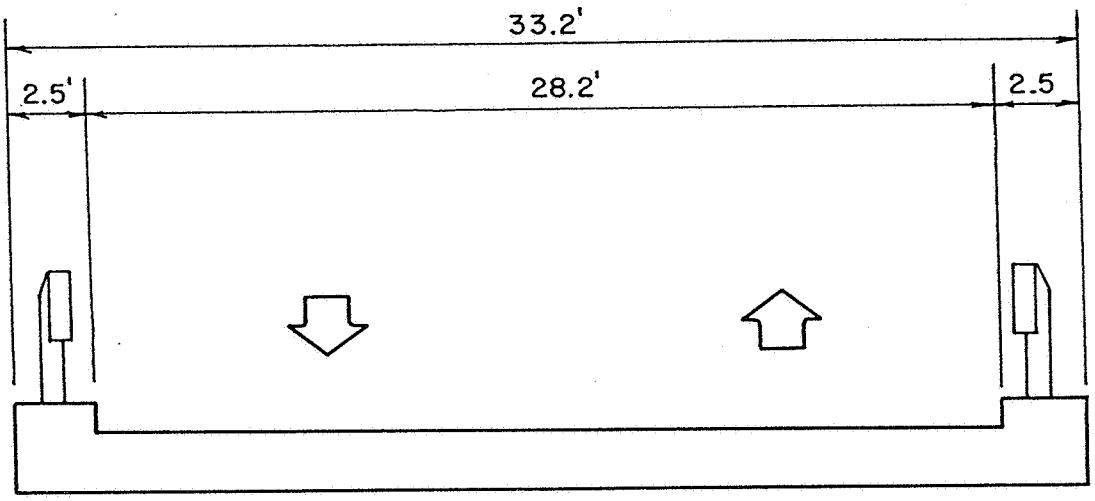
2.2 EXISTING BRIDGE

An existing two-lane bridge located approximately 0.6 mile east of McMullen-Booth Road, carries Curlew Road traffic over Tarpon Lake Outfall Canal. The canal is an artificial feature which flows into Safety Harbor, some 1 1/4 miles south of the bridge. A cross section of the bridge is portrayed in Exhibit 5.

2.2.1 Structure Data

Pertinent data from the Structure Inventory and Appraisal listing dated January 6, 1986 follows:

- Structure No.	150018
- Year Built	1967
- Design Load	H-20
- Structure Type	Pre-Stressed Concrete Beam
- No. of Spans	8
- Roadway Width - Curb-to-Curb	28.2 Ft.
- Sidewalks	Left 1.5 Ft. - Right 1.5 Ft.
- Deck Width - Out-to-Out	33.2 Ft.
- Total Length	370 Ft.
- Condition	Rating
-- Deck	7
-- Superstructure	8
-- Substructure	7
-- Estimated Remaining Life	31 Yrs.
-- Operating Rating	52 Tons
-- Inventory Rating	28 Tons
- Appraisal	Rating
-- Structure Condition	9
-- Safeload Capacity	9



S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	EXISTING LAKE TARPON CANAL BRIDGE	EXHIBIT 5

The bridge has two lanes; one westbound, one eastbound.

Ratings are on a scale of 0 to 9. The condition of this bridge is from good to excellent.

2.2.2 Channel Data

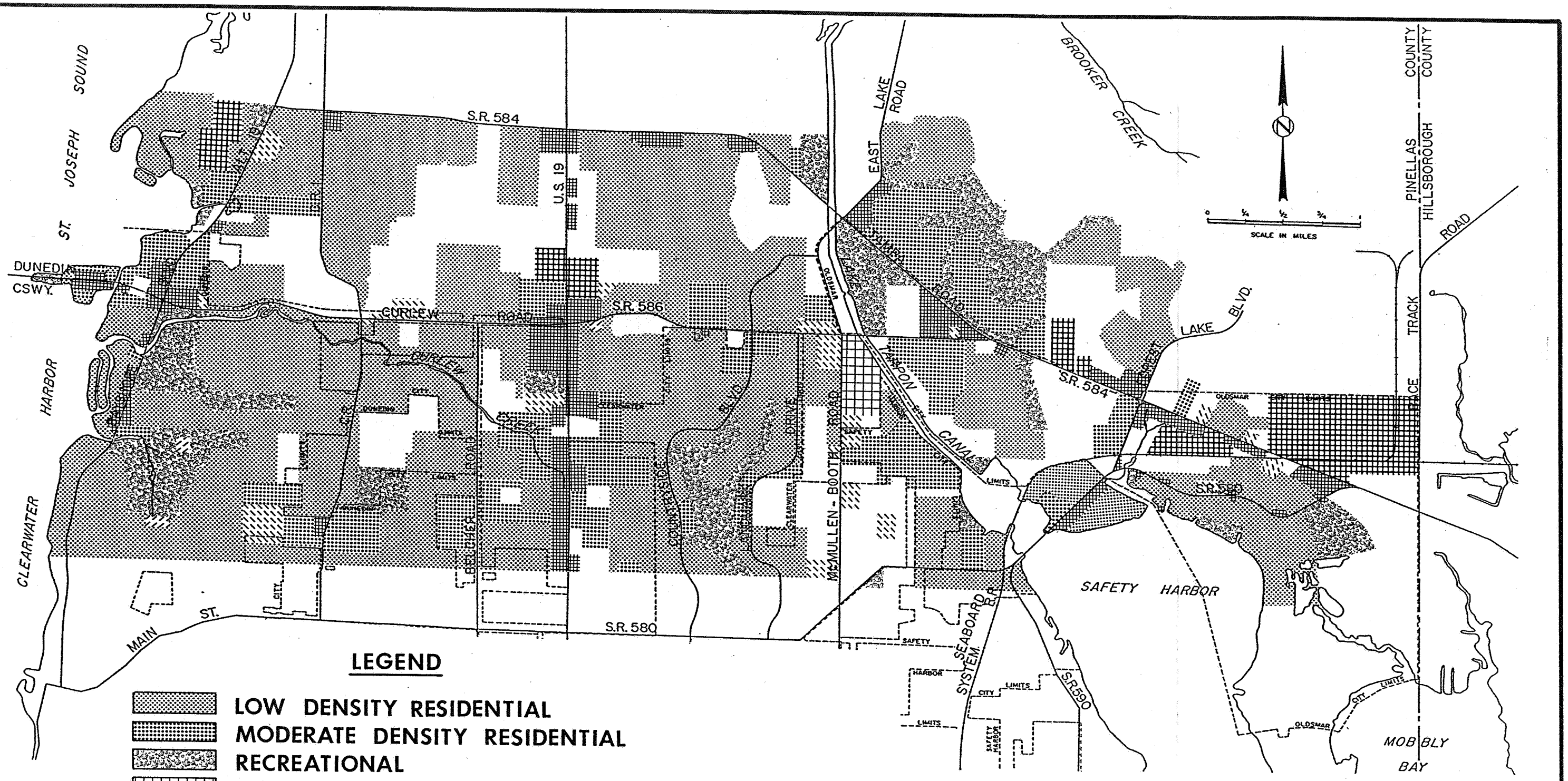
Lake Tarpon Outfall Canal is about 240 feet wide with a design depth of 12′ to 18′. It is a non-navigable waterway used primarily by small boats for fishing and boating recreation. A control structure is 1600 feet north of Curlew Road and minimum vertical clearance is available beneath the Curlew Road bridge. The canal and canal right-of-way are well maintained.

2.3 LAND USE

The study segments of SR 584 and 586 are located in a rapidly developing area, with most properties having been converted from agricultural to more intensive uses over the past 10 - 15 years (see Exhibit 6).

2.3.1 Developed Areas

The predominant existing land use is residential, with a mixture of single family, apartment, condominium, and mobile home dwelling types. Major multi-family developments are located on SR 584 (Tampa Road) at the southwest corner of Forest Lakes Boulevard; just south of Forest Lakes Boulevard, on the north side of Tampa Road; and, on the north side of Tampa Road, just west of the junction with SR 586 (Curlew Road). On SR 586, the major multi-family areas are at Countryside Boulevard; Landmark Drive, and just west of Alternate 19, near the Dunedin Causeway. There are also three



S.R. 586 / S.R. 584
PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY

EXISTING LAND USE

EXHIBIT 6

substantial mobile home complexes on SR 586, the first on the north side of the road, west of Landmark, and the second on the south side of the road, between Tampa Road and the Lake Tarpon Canal, and the third is located immediately north of the intersection of Curlew and Alternate 19. The remaining residential land uses consist of single family, detached dwellings.

The major commercial developments in the study corridor consist of four community shopping centers, located at Curlew and Alternate 19; Curlew and U.S. 19; the intersection of Curlew and Tampa Roads; and at Tampa and Forest Lakes Boulevard.

There are scattered smaller commercial and industrial land uses along Tampa Road in Oldsmar, near the eastern end of the project area. These include a small commercial strip, a car wash, two auto dealerships, and other relatively small businesses.

Other uses through the corridor include: religious institutions, located primarily on Curlew Road between CR 1 and U.S. 19; an elementary school at Curlew Road and McMullen-Booth Road; recreational areas at the Lake Tarpon Canal and near Alternate 19; and agricultural uses between the Canal and McMullen-Booth Road. Few parcels remain undeveloped.

Future land use plans for the study area call for residential uses to fill the vacant parcels along Curlew Road and a mixture of commercial and industrial uses to fill remaining open areas along the Tampa Road section.

Current Development of Regional Impact (DRI) activity includes some 10,000 acres, most of which is north of the project corridor. This development area, more than 15 square miles in size, will someday provide housing for 97,000 persons. In addition to housing units, the area is planned for some 5.5 million square feet of commercial/industrial/office floor area. Details are listed in Table 1 and portrayed in Exhibit 7. Other planned activity includes Curlew Centre, a 13-acre development with some 137,000 square feet of commercial and office space at the SR 586/584 'Y' intersection; the Collen/Rood property, one-half mile east of the 'Y' in the early planning stages as a Planned Urban Development that will include 245,000 square feet of commercial and office space, 226 townhomes, 304 apartments, and a 40-acre golf course; and, a new church planned on the 10-acre site on the south side of Curlew Road, 500 feet west of Countryside Boulevard.

2.3.2 Natural Areas

Due to the rapid development that is occurring in the project area, the natural features that currently exist in the project vicinity represent only the vestiges of natural systems which existed prior to development. The significant natural features that remain are described below.

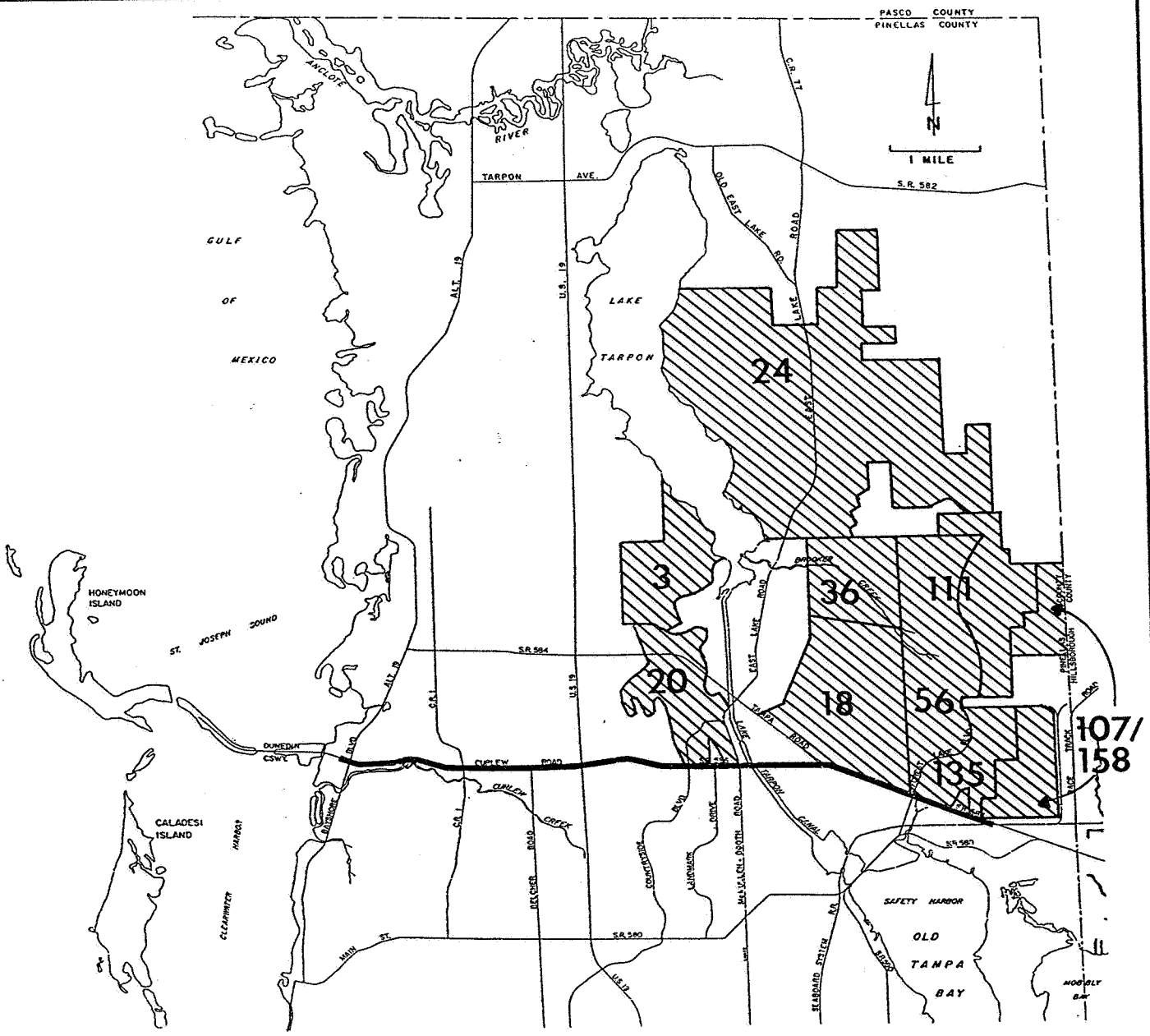
There are two seepage areas (permanently wet areas), located on the north side of SR 586, about 200 feet either side of the Countryside subdivision entrance, which support a bayhead vegetative association. This verifies that ground water seepage is a constant feature here as bayhead vegetation is adapted to continually moist, if not saturated, soil conditions.

TABLE 1

NORTH EAST PINELLAS COUNTY
MAJOR ACTIVITY - DEVELOPMENTS OF REGIONAL IMPACT

DEVELOPMENT	DRI & MAP NO.	DEVELOPMENT TYPE	DEVELOPMENT SIZE	RESIDENTIAL UNITS	COMMERCIAL S. F.	PROJECTED POPULATION	PROJECT STATUS	PROJECTED COMPLETION DATE
HIGHLAND LAKES	3	RESIDENTIAL	339 ACRES	2,539	N/A	6,248	COUNCIL APPROVED DEVELOPMENT ORDER	UNKNOWN
EAST LAKE WOODLANDS	18	RESIDENTIAL	1,137 ACRES	N/A	N/A	14,500	COUNCIL APPROVED DEVELOPMENT ORDER	UNKNOWN
RAMBLEWOOD	20	RESIDENTIAL	857 ACRES	6,100	N/A	15,500	COUNCIL APPROVED DEVELOPMENT ORDER	UNKNOWN
LAKE TARPON VILLAGE	24	RESIDENTIAL	4,000 ACRES	20,100	N/A	44,000	COUNCIL APPROVED (APPEALED)	UNKNOWN
BOOT RANCH	36	RESIDENTIAL	800 ACRES	4,000	N/A	10,000	COUNCIL APPROVED (WITHDRAWN)	UNKNOWN
FOREST LAKES (PHASE 1)	56	RESIDENTIAL	1,341 ACRES	2,865	N/A	6,591	COUNCIL APPROVED DEVELOPMENT ORDER	UNKNOWN
TAMPA BAY PARK OF COMMERCE (PHASE 1-4)	107 & 158	INDUSTRIAL/OFFICE/ COMMERCIAL	629 ACRES	N/A	5,350,000	N/A	COUNCIL APPROVED DEVELOPMENT ORDER	UNKNOWN
FOREST LAKES (PHASE 2)	111	RESIDENTIAL / COMMERCIAL	984 ACRES	1,310	116,000	N/A	AWAITING DEV. ORDER	UNKNOWN
CYPRESS LAKES	135	RESIDENTIAL/ OFFICE	N/A	N/A	N/A	N/A	DRI UNDER REVIEW	UNKNOWN

SOURCE: TAMPA BAY REGIONAL PLANNING COUNCIL



LEGEND

3 Highland Lakes
18 East Lake Woodlands
20 Ramblewood
24 Lake Tarpon Village
36 Boot Ranch
56 Forest Lakes
107 Tampa Bay Park Commerce
111 Forest Lakes Phase II & III
135 Cypress Lakes
158 Tampa Bay Pk. of Commerce (I.II.IV)

Source: Tampa Bay Regional Planning Council

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	DEVELOPMENTS OF REGIONAL IMPACT	EXHIBIT 7

A 30-foot strip of land adjacent and parallel to the highway right-of-way has been periodically cleared for power line right-of-way maintenance. The bayhead dominants in this area have been replaced by a dense tangle of successional vegetation, and the presence of emergent aquatic plants suggest that this site is semi-permanently flooded.

Two small lakes are present in the project area and are located on the south side of SR 586, between U.S. 19 and Countryside Boulevard. These lakes are generally surrounded by residential development and serve as stormwater storage areas under Pinellas County's Stormwater Management Plan.

West of County Road 1, SR 586 has been forced to curve gently to the north to avoid several meander loops of Curlew Creek, which drains the west flank of the ridge. These loops have eroded into the creek valley's north wall, resulting in a steep bluff which drops approximately 15 feet from the highway elevation, which is at approximately 25 feet MSL. There is considerable seepage along the toe of the bluff and a few wetland plants are present in the seepage zone attesting to its permanency.

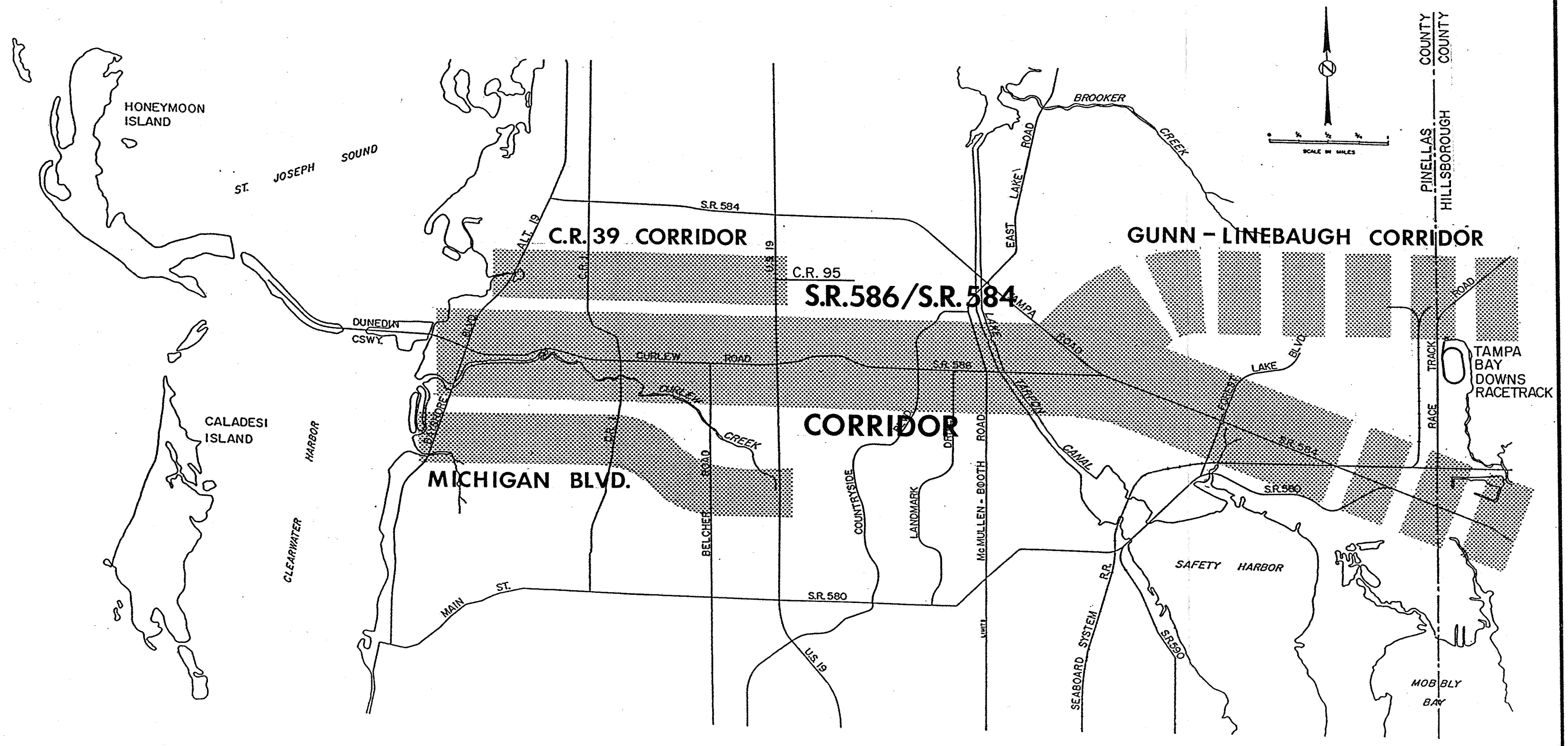
Approximately 1/8 mile east of the SR 584/586 junction, the channelized upper reaches of Moccasin Creek crosses under SR 584 through a box culvert. Just upstream of SR 584, the creek flows out of a small piece of forested wetland, dominated by aquatic plant species.

3.0 ALTERNATIVES CONSIDERED

The importance of the existing SR 586/SR 584 corridor is underwritten by its east-west traverse of northern Pinellas County between the southern end of Lake Tarpon and the top of Tampa Bay, i.e. Safety Harbor. Along with SR 580, it is the most significant east-west transportation link between Pinellas County and Hillsborough County north of Tampa Bay. The Pinellas County Year 2010 Long Range Highway Plan identifies SR 586/SR 584 (Curlew Road/Tampa Road) as a six-lane divided major arterial from Alternate U.S. 19 to its merge with SR 580 near the Hillsborough County Line. West of Alternate U.S. 19, the extension of Curlew Road is signed as Dunedin Causeway Boulevard which continues westerly to Honeymoon Island State Park. Dunedin Causeway Boulevard is planned for multi-lane and two-lane improvements from Alternate U.S. 19 to the State Park. Beyond the eastern terminus of the SR 586/SR 584 project, the SR 580 corridor is also under study for major upgrading of that facility.

3.1 ALTERNATE CORRIDOR CONSIDERATIONS

A corridor analysis was performed which addressed the project specific length of 7.4 miles from Alternate U.S. 19 to the Seaboard Coastline Railroad (see Exhibit 8). The purpose of this corridor analysis was to determine if any viable alternate corridor locations exist for the proposed improvements to SR 586/SR 584. The feasibility of improvements in other proximate parallel corridors are considered below.



S.R. 586 / S.R. 584
PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY

ALTERNATE CORRIDOR CONSIDERATIONS

EXHIBIT 8

3.1.1. Tampa Road (SR 584)

Approximately 1 1/4 miles to the north of SR 586, the east-west portion of SR 584, from Alternate U.S. 19 to U.S. 19 is shown on the Year 2010 Plan as a four-lane divided facility. The section of Tampa Road from U.S. 19 easterly, and then southeasterly around Lake St. George, will be six lanes through its junction with SR 586. In summary, the PATS 2010 Plan's system analysis indicates a need for improvements in this corridor to serve needs other than those identified in the SR 586/SR 584 corridor.

3.1.2 SR 580

Similarly, to the south approximately two miles is located the closest east-west arterial -- SR 580, extending from Main Street in Dunedin to St. Petersburg Drive in Oldsmar. This arterial is also planned for widening as a six-lane thoroughfare. One section is now under construction and other sections are programmed for construction.

State Road 584 connects to SR 586 two miles west of the Seaboard Coastline Railroad. Relocated SR 580 will connect to SR 584 immediately to the east of the railroad. From this junction easterly, to beyond the county line, SR 580 is currently planned to be an eight-lane facility. All three arterials (SR 584/ SR 586, and SR 580) merge within the City of Oldsmar. To the west of Oldsmar, each arterial serves a separate corridor. Through Oldsmar, SR 580 becomes a single primary transportation corridor link between northern Pinellas County and the Tampa area.

3.1.3 County Road 39

County Road 39 (CR 39) is approximately one-half mile north of Curlew Road and is planned as an upgraded two-lane facility, with extensions and connections to other elements of the 2010 Highway Plan. When these improvements are implemented, CR 39 will be linked to Alternate U.S. 19 and CR 95, near U.S. 19, through a chain of improvements which include a grade separation at U.S. 19. While these improvements are needed, and will enhance east-west traffic movements, the corridor of service is local in character, with limited right-of-way and cannot be considered as an alternate location to the Curlew Road/Tampa Road corridor. Development of a six-lane facility in this corridor would significantly impact the cohesion and character of existing neighborhoods.

3.1.4 Michigan Boulevard

The Michigan Boulevard corridor was also evaluated as a possible alternate to SR 586. This local collector is about 3/4 miles south of SR 586 and extends from Alternate U.S. 19 to CR 1 -- a distance of 1 1/2 miles. Similar to CR 39, Michigan Boulevard is planned by Pinellas County for ultimate extension from Alternate U.S. 19 to U.S. 19 through a series of local two-lane improvements. A grade separation is also included as part of the work being planned for U.S. 19. Widening of Michigan Boulevard to six lanes and extension to SR 580 would be extremely costly in terms of right-of-way, construction. Additionally significant impact to the cohesion and character of established neighborhoods would occur. As with CR 39, Michigan Blvd is a much needed improvement, but its function is primarily associated with local community access and as such will serve a relatively narrow and short corridor.

3.1.5 One-Way Pair

The existing pattern was examined for east-west streets that are nearby and parallel to Curlew Road that could possibly be used together with Curlew Road in the development of a one-way system. This examination found no parallel streets with sufficient continuity and right-of-way that could be utilized in a one-way pair.

3.1.6 Gunn-Linebaugh Extension

Because of the magnitude of planned development in northeast Pinellas County and northwest Hillsborough County, there is potential need for a new transportation corridor extending from the vicinity of the junction of SR 584/SR 586 easterly into Hillsborough County and connecting to Gunn Highway and Linebaugh Avenue. Instead of serving the SR 586/SR 584 corridor connection to SR 580 in Hillsborough County, this corridor would interconnect the northern portions of Pinellas and Hillsborough Counties immediately north of the Tampa Bay Downs Racetrack. Except for the SR 584, SR 586, SR 580 corridors, the only other existing corridor north of Tampa Bay with direct east-west connections between the two counties is SR 582 (Tarpon Springs-Lake Fern Road), which is just north of Lake Tarpon, some seven miles north of the "Gunn - Linebaugh Connector".

The Gunn-Linebaugh corridor passes through East Lake Woodlands, Forest Lakes, Cypress Lakes and Tampa Bay Park of Commerce. The corridor location is shown on Exhibit 8. Any roadway located in this corridor would impact the East Lake Woodlands Golf and Country club. As it extended to the east, it would pass through existing pine flatwoods, hardwood swamps,

cypress swamps and areas of oak and hydric hammocks. Some of these natural areas are planned for development as residential commmunities in Forest Lakes and Cypress Lakes. Areas affected in Tampa Bay Park of Commerce are planned for industrial/warehouse and commercial office space uses.

While construction of the Gunn-Linebaugh corridor would impact existing and proposed developments, it would strengthen system linkage between northeast Pinellas County and northwest Hillsborough County north of the SR 580 corridor. This corridor could become one of the major elements of a regional transportation network formed to serve the rapidly developing area to the north of Tampa Bay. As this area north of Tampa bay continues to grow, transportation network studies are being expanded to include consideration of this and other new links in northeast Pinellas County, northwest Hillsborough County and the south-central portion of Pasco County. Improvements in the Gunn-Linebaugh corridor would not serve the SR 586/SR 584 travel demands, which are oriented to the SR 580 corridor in Hillsborough County.

3.1.7 Summary

In summary, the east-west corridors served by SR 584 and SR 580 are separate and distinguishable from SR 586. The corridors offered by CR 39 and Michigan Boulevard are too narrow and too short. Existing established neighborhoods and programmed new developments preclude the acquisition and clearing of new right-of-way which would be needed for construction of a six-lane urban arterial extending from Alternate U.S. 19 to the Seaboard Coastline Railroad. Development of a one-way system is not feasible. The

SR 586/SR 584 corridor is the only corridor with 100 feet of right-of-way, or more, available between Alternate U.S. 19 and the Seaboard Coastline Railroad. In addition to serving the corridor between northern Pinellas County and the Tampa area, SR 586/SR 584 provides direct access for recreational trips to Honeymoon Island State Park and to the Caladesi Island State Park ferry terminal. There are no viable alternate corridors for the proposed improvements which would provide equal service with less cost and disruption than would the SR 586/SR 584 corridor. Although there is a potential need for the development of transportation improvements in the Gunn-Linebaugh corridor, these improvements will not serve or obviate the need for improvements to the SR 584 from SR 586 to the Seaboard Coastline Railroad.

While the SR 586/SR 584 corridor is the only practical choice for arterial improvements, there are several alignments and typical cross sections within this corridor which require evaluation at a more intense level of design detail. These alternate alignments include acquisition of right-of-way from either side and/or both sides of the existing right-of-way.

3.2 ROADWAY DESIGN ALTERNATES

Four cross sections were investigated for Curlew Road. One of these is the existing facility or no-build alternative. Three build alternates, each having six-lane cross sections, were developed in conformance with the Pinellas County Year 2010 Long Range Transportation Plan.

The first build alternative investigated is the smallest of the three build alternatives and can be constructed for the most part within the existing

100-foot right-of-way. This cross section would have six 11-foot lanes with a 14-foot two-way continuous left-turn lane. No accommodations are made for shared vehicle/bicycle curb lanes.

The second and third build alternatives investigated feature 22-foot and 30-foot raised medians and require 118-foot and 130-foot rights-of-way respectively. Both cross sections include four 12-foot lanes and two 14-foot shared vehicle/bicycle curb lanes. Bicyclists can be expected along the length of the project due to the many adjacent residential areas present and planned.

The four alternatives were evaluated in terms of construction costs and right-of-way requirements. Traffic service, aesthetics and relative impacts were also evaluated. The no-build alternative would have no construction costs and would require no right-of-way. The three build alternatives are each more costly and disruptive than the no-build alternative. Each build alternative reflects cost and disruption as related to its comparative width. These comparisons are discussed and tabularized in Section 3.3 - Comparative Evaluation.

3.2.1 Alignments

As noted earlier, alignment studies included the location of alternatives to the right, center or left of the existing roadway alignments. Combinations of these were also evaluated.

A specific length which included three different alignment considerations is associated with the proposed interchange between Curlew Road and McMullen-

Booth Road. Earlier studies of the McMullen-Booth Road corridor led to the positioning of the proposed interchange on the center of SR 586. This center location for the interchange, and for SR 586, was evaluated against locations of SR 586, and the interchange, to the north and to the south.

An alignment to the north would require right-of-way from the Curlew Creek Elementary School. This acquisition of right-of-way would impact an existing playground area located between the school building and SR 586.

Locating the alignment to the south would bring the proposed right-of-way line to within 16 feet of the north face of the Florida Convalescent Center. This south alignment would also sever or damage four residential structures in Gull-Aire Village, east of Lake Tarpon Canal.

The center alignment, which is in agreement with the currently proposed location for the McMullen-Booth Road interchange, would not impact school property or damage residential structures in Gull-Aire Village. The proposed south right-of-way line for the center alignment would be the same as the existing right-of-way line -- or 45 feet from the north face of the Florida Convalescent Center.

Because this center location for SR 586, through the interchange with McMullen-Booth Road, is the most desirable with respect to minimal impact on adjacent properties it was selected as the preferred alignment. The north and south alignments through this length of the project were eliminated from further consideration.

Another section of the project of specific interest is SR 584 from the SR 586/584 intersection to the railroad crossing at the project's eastern terminus. Through this section, the alignment and right-of-way cost evaluations indicated that acquiring all right-of-way on the south side was least expensive for that segment between the SR 586/584 intersection and Forest Lakes Boulevard. From Forest Lakes Boulevard to the railroad crossing, it was determined that taking all right-of-way on the north side is less expensive than either a south side - or centered right-of-way taking.

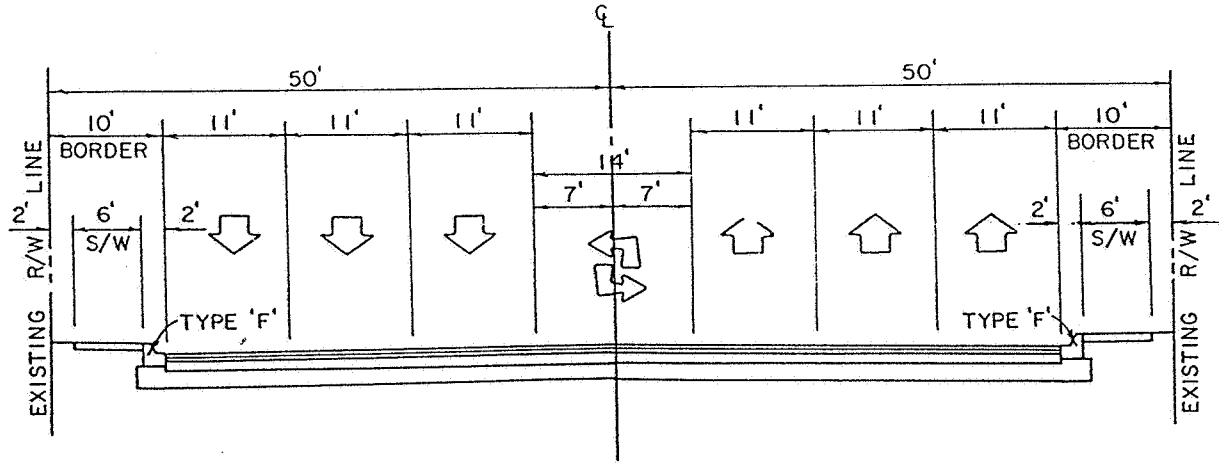
However, there has been substantial interest in the donation of the needed additional right-of-way for the improvement by property owners on both sides of the roadway. If enough right-of-way can be donated, the centered alignment may become the most economical alternative in this area.

3.2.2 No-Build Alternative

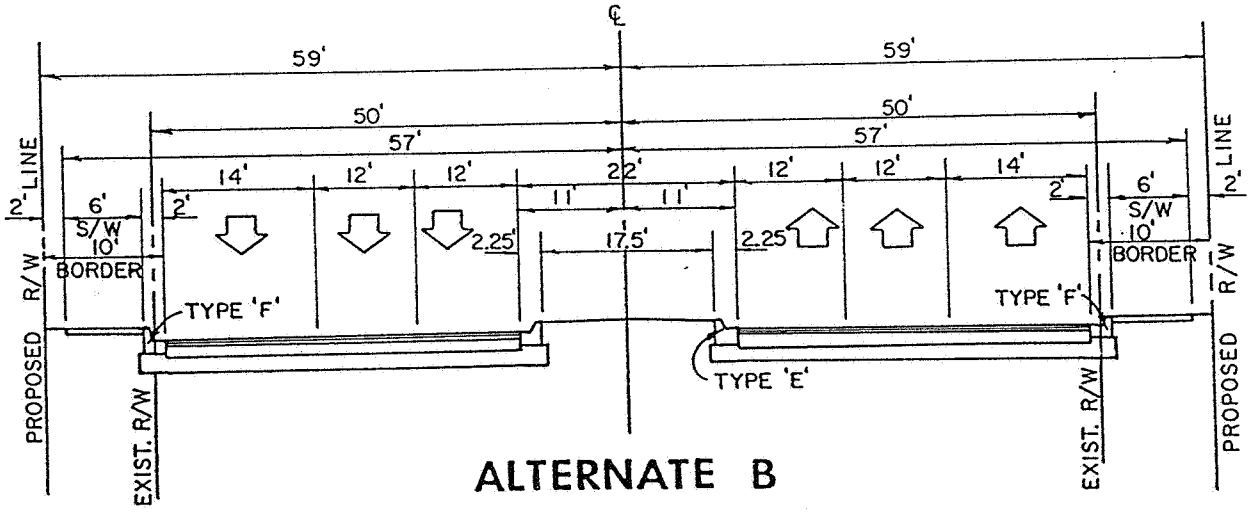
Today, Curlew and Tampa Roads do not provide sufficient east-west capacity for existing traffic volumes. Low Levels of Service are pronounced, particularly along Tampa Road. Left turns to and from abutting properties are extremely difficult because of long traffic streams with few gaps.

3.2.3 Alternative Roadway Concepts

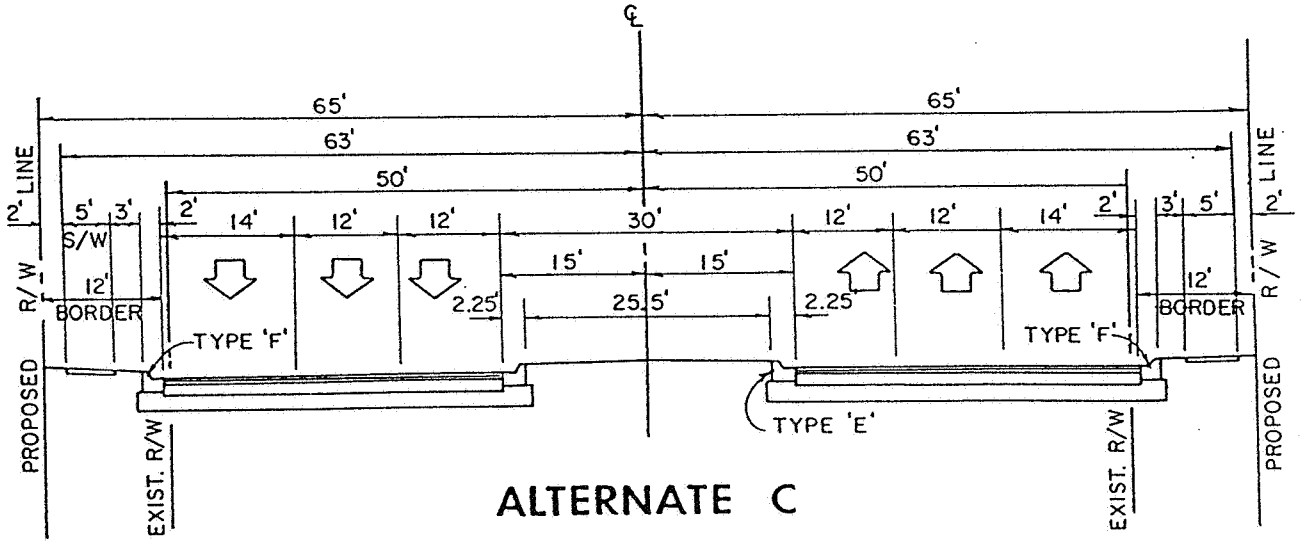
Three cross sections were developed for use during conceptual design studies. Typical cross sections for Alternates A, B and C are shown in Exhibit 9.



ALTERNATE A



ALTERNATE B



ALTERNATE C

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	**DESIGN ALTERNATES**	**EXHIBIT 9**

Recommended design criteria for the three alternatives are listed in Table 2. The rationale and application of design criteria for each cross section follow:

Typical Section 'A' - Flush Median

This is the narrowest cross section under consideration. Features are;

- 14-foot continuous two-way left-turn lane for flexibility of access to the many driveways and minor cross streets. Standard painted left-turn lanes would be utilized to major cross streets.
- 11-foot traffic lanes to minimize right-of-way requirements.
- Curb and gutter Type F normally used adjacent to outside traffic lanes.
- 6-foot sidewalk because it is located next to back of curb and the 8-foot combination of sidewalk and curb and gutter is a minimum.
- 10-foot border width is a minimum.
- 2-foot minimum beyond the sidewalk is requried for utility pole line and construction requirements to match existing conditions.
- Right-of-way needed for Typical Section 'A' is 100 feet.

Typical Section 'B' - 22-foot Raised Median

This cross section was designed to provide more safety and attractiveness. Major features are:

- 22-foot raised median would establish a physical barrier between opposing traffic lanes. It would be interrupted at driveways and cross streets where appropriate. This median can also be planted with sod and/or landscaped for a more attractive appearance. A

TABLE 2

RECOMMENDED DESIGN CRITERIA

SR 586 (CURLEW ROAD) SR 584 (TAMPA ROAD)

Design Speeds
* SR 586/SR 584- 50 mph (Desirable)
* Crossroads and Cross streets
  -U.S. 19 Mainline - 60 mph Des./55 mph Min.
  -U.S. 19 Frontage Roads - 45 mph
  -Major Urban Arterials - 45 mph
  -Minor Urban Arterials - 40 mph
  -Minor and Major Urban Collectors - 35 mph
  -Local Streets - 30 mph

Pavement Widths
*SR 586/SR 584
  -Traffic Lane - 12' desirable/11' minimum
  -Traffic/Bikeway Lane - 14'
  -Continuous Two-way Left-turn lane - 14' desirable/12' minimum

Median Widths
* Raised Median
  -Desirable minimum - 30' e-e
  -Minimum - 19.5' e-e
* Paved Flush Median (Continuous Two-way Left-turn Lane)
  -14' Desirable/12' minimum

Horizontal Alignment
*Degree of curvature - 6° Maximum
*Minimum length for small deflection angles:
  -900' for central of 1°
  -500' for central of 5°
*Tangent lengths between reverse curves - adequate to facilitate super-elevation transition

Vertical Alignment
*Rates of Grades (flat terrain)
  -Desirable maximum - 4%
  -Maximum - 6%
*Stopping sight distance - FDOT Green Book, 1986
*Crest and sag curves - FDOT Green Book, 1986

Superelevation Rate
*Maximum Rate - 0.05 feet per foot
  -Consideration must be given to fronting properties, intersecting streets and driveways, and drainage.

Pavement Cross Slope (Not in Superelevation Section)
*Recommended - 0.02 feet per foot
*Maximum - 0.04 feet per foot
*Minimum - 0.015 feet per foot
*Change in cross slope between adjacent travel through-lanes - 0.04 feet per foot

Miscellaneous
* Border Width (edge of pavement to R/W)
  -Desirable - 12'
  -Minimum - 10'
* Sidewalk Widths:
  -5' when distance between back of curb and face of sidewalk is 2.5' or more.
  -6' when sidewalk is against back of curb (try to avoid).
*Buffer strip width (between back of curb and sidewalk)
  -Minimun - 2'
* Clear zone width:
  -Desirable Minimum - 4'
  -Minimum - 2.5'
* Utilities - Per FDOT "Utility Accomodations Guide"
* Roadway Lighting - Continuous, at illumination levels recommended by AASHTO

Sources

* A Policy on Geometric Design of Highways and Streets. AASHTO, 1984.
* Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Greenbook). FDOT, 1986.
*Roadway and Traffic Standards. FDOT, 1984.
*Recommended Practices for Subdivision Streets. ITE.
*Draft EIS, U.S. 19 (State Road 55) from State Road 694 (Gandy Blvd) in Pinellas County to State Road 595 (Alternate U.S. 19 in Pasco County, Florida. FDOT and FHWA.

raised median provides a refuge for pedestrians and a good location for signs, signals, and other appurtenances. A raised median is more visible to the driver than a flush paved median, especially at night when the pavement is wet.

- Type E curb and gutter normally used adjacent to raised median.
- 12-foot traffic lanes to minimize right-of-way requirements.
- 14-foot outside traffic lanes to allow for bicyclists. Without provision for bicyclists, the lane width could be reduced to 12 feet.
- Curb and gutter Type F normally used adjacent to outside traffic lanes.
- 6-foot sidewalk because it is located next to back of curb and the 8-foot combination of sidewalk and curb and gutter is a minimum.
- 2-foot minimum beyond the sidewalk is required for utility pole line and construction requirements to match existing conditions.
- Right-of-way needed for Typical Section 'B' is 118 feet.

Typical Section 'C' - 30-foot Raised Median

This cross section is similar to Typical Section 'B' except the median is 30 feet wide. The additional eight feet of median provides a safer refuge for vehicles as they await a gap in the traffic stream for completion of their left-turn from driveway or cross street intersections. The 30-foot median also allows for dual left-turn lanes.

- 3-foot grass buffer strip between back of curb and edge of sidewalk for aesthetics and for pedestrian safety.
- 5-foot sidewalk is acceptable with this cross section because of the 3-foot grass strip. Without the grass strip, this sidewalk would be 6 feet wide.

- 12-foot border width is minimum.
- Right-of-way needed for Typical Section 'C' is 130 feet.

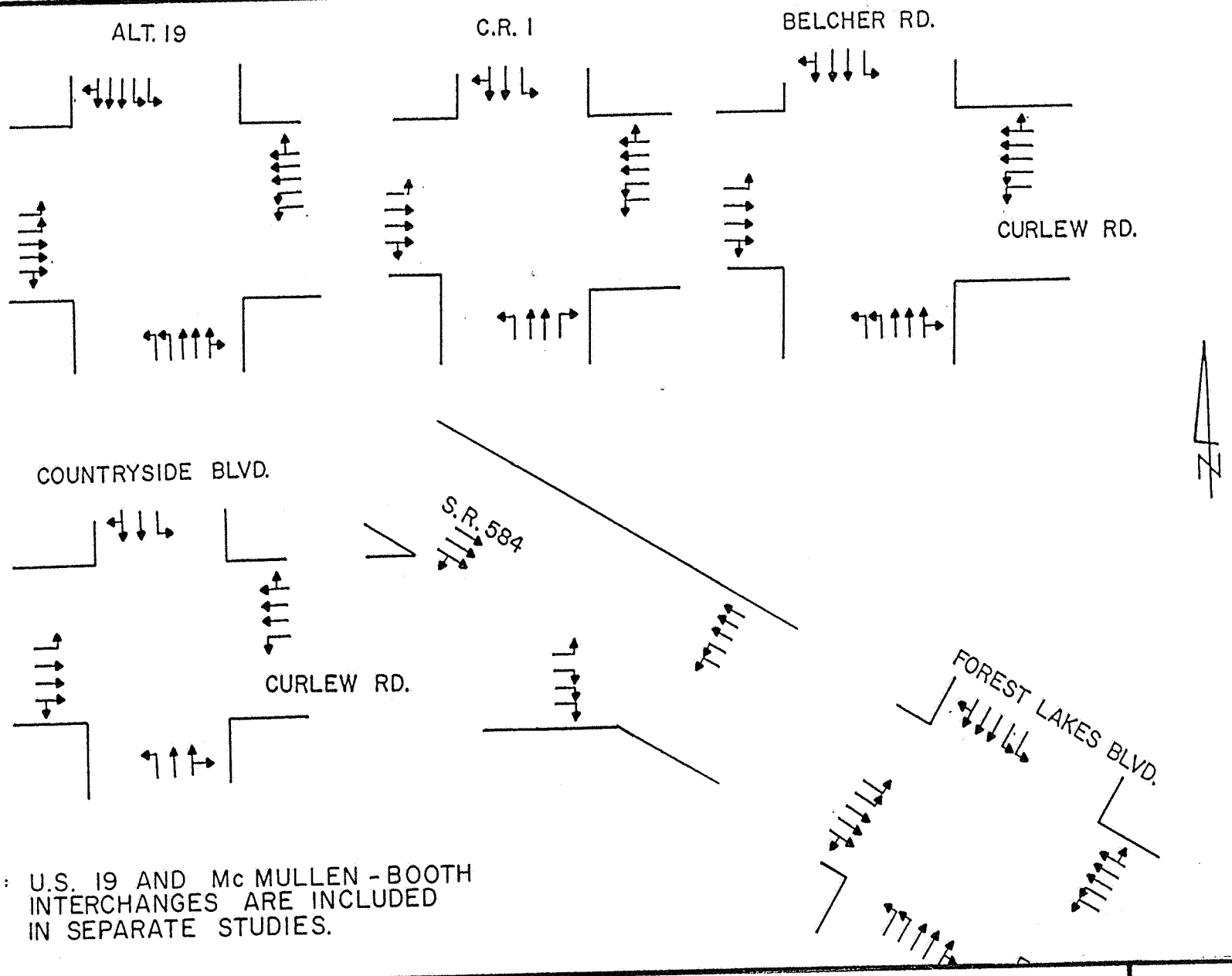
3.2.4 Intersection Design Alternatives

Implementation of any of the build alternatives will inherently improve safety and capacity at all intersections primarily because of the added lanes for eastbound and westbound traffic on Curlew Road. Beyond the additional lanes, it is necessary to provide left-turn lanes at all cross streets. Alternate A provides a continuous left-turn lane. At several major cross streets, dual left-turn lanes are required on Curlew Road. All major signalized cross streets will require additional lanes at their approaches to Curlew Road.

Improvements are required at the following locations:

* Intersection with Curlew Road
  - Alternate 19
  - C.R. 1
  - Belcher Road
  - Countryside Boulevard
  - Tampa Road
* Intersection with Tampa Road
  - Forest Lakes Boulevard
  - Pine Street (Designs forthcoming by land developer.)

All of the above intersections require signalization. The geometric configuration of the intersection would be similar for all three alternatives, differing only with respect to median type. The number of approach lanes for a given intersection would be identical under all three alternates. Sketches with the number of lanes for each intersection are provided in Exhibit 10.



NOTE: U.S. 19 AND Mc MULLEN - BOOTH INTERCHANGES ARE INCLUDED IN SEPARATE STUDIES.

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	**INTERSECTION CONFIGURATIONS**	EXHIBIT 10

Consideration was given to the construction of a grade-separated interchange rather than an at-grade intersection at the SR 586/584 'Y'. Capacity Analyses have indicated LOS 'D' can be obtained with an at-grade intersection. Further, the introduction of a grade-separated interchange into an at-grade arterial facility does not match other features of an arterial system -- such as traffic signals within a short distance downstream of the interchange. Also, driveway connections could not be made within the influence of the interchange. Right-of-way and construction costs would be much higher for the grade-separated interchange than for the at-grade intersection. For these reasons, the grade-separated interchange alternative was eliminated from further study.

At U.S. 19 and McMullen-Booth Road, tight diamond or urban interchanges are being planned as part of project development for those facilities by others. Improvements to SR 586 are being coordinated with, and planned to match, these interchanges.

3.3 COMPARATIVE EVALUATION

3.3.1 Costs

There would be no construction and right-of-way costs for the no-build alternate. Costs for the three build alternates, in millions of dollars, are summarized as follows:

Item	Alternate A	Alternate B	Alternate C
Right-of-way	9.237	13.635	23.263
Construction	18.458	20.048	20.865
Engineering & Contingencies	3.692	4.01	4.173
Total	31.387	37.693	48.301

3.3.2 Traffic Service

No-Build Alternative -- is inadequate for current traffic volumes and would have extensive periods of intolerable congestion and delay under design year traffic volumes. Level of Service (LOS) 'F' would exist under no-build conditions.

Alternate A -- would provide LOS 'D' in year 2010 with a six-lane cross section. The six 11-foot lanes would provide marginally acceptable comfort for the traveling public. The 14-foot two-way continuous left-turn lane would provide access to all fronting properties, except those within the influence of channelized intersections. While this access is a benefit to fronting properties, all left-turning vehicles would execute their turns against three lanes of opposing traffic. Pedestrians are served by a 6-foot sidewalk on both sides of the roadway. Design speed for alternate A is 40 mph due to its 11-foot lanes.

Alternate B -- would provide LOS 'D' in year 2010 with a six-lane cross section. There would be a marked advantage in safety over Alternate A because of the 22-foot raised median, which provides a positive separation between opposite streams of traffic along with protection for left turning vehicles at selected median openings. A shared vehicle/bicycle 14-foot curb lane is provided in both directions to accommodate bicycle traffic. Six-foot sidewalks are provided on both sides of the roadway to handle pedestrian traffic. Roadway design speed is 50 mph.

Alternate C -- A still higher margin of safety is provided with Alternate C due to its 30-foot raised median. Comfort levels are high due to the large

traffic separator and 12-foot lanes. LOS 'D' is provided in year 2010 with the six-lane cross section. Again, pedestrians and bicyclists are provided for with sidewalks and shared vehicle/bicycle curb lanes. Design speed is 50 mph.

3.3.3 Aesthetics

No-Build Alternative -- The aesthetics of the existing facility would not change significantly. The section of SR 586 from Alternate U.S. 19 to the Lake Tarpon Canal has the appearance of a narrow roadway, flanked with grass swales, passing through a pleasant suburban setting in undulating terrain.

Alternative A -- would have the least appeal aesthetically because of the continuous 96 feet of paved width. Grass side strips are limited within the existing right-of-way.

Alternative B -- has a 22-foot median which would allow for some flexibility in preparation of landscape plans. The planted median would be flanked by two paved roadways, each some 38 feet in width.

Alternative C -- has the most appeal aesthetically due to the wide 30-foot raised median. Landscape plans could provide for an attractive planted median, again flanked by two 38-foot roadways.

3.3.4 Impacts

Environmental Impacts -- for air, noise and other natural features would be generally the same for Alternates A,B, and C under year 2010 traffic

volumes. In the design year, air quality would be worse for the No-Build alternate than for any of the Build Alternates because of traffic density, delays and congestion associated with high volumes on a two-lane highway.

Right-of-Way Impacts -- would be greater for the build alternates than for the No-Build alternate. The impact of each Build alternate is directly related to its required right-of-way and is set forth in Table 3. All three Build alternates would damage or sever up to four commercial buildings at the intersection with Alternate U.S. 19. Alternate C would damage a fifth building at the Curlew Road/Tampa Road intersection. Another economic impact is the amount of parking that would be lost to the business community. Most of the parking impacts would occur at major intersections, typically on all legs of the intersection.

3.3.5 Evaluation Matrix

Exhibit 11 depicts an evaluation matrix assessing the three cross section alternates. In addition to the comparisons that were already discussed, the alternates are compared as regards to safety, social and neighborhood impacts, and property value impacts.

TABLE 3

ECONOMIC IMPACTS

	Damaged or Severed		Square-Foot Right-of-Way Required			
Alternate	Buildings	Parking Stalls	Business	Residential	Other	Total
A	4	56	128,000	46,500	615,000	789,500
B	5	195	194,500	101,500	929,000	1,275,000
C	5	197	252,500	185,500	1,218,000	1,656,000

EXHIBIT 11
EVALUATION MATRIX
CROSS SECTION ALTERNATES

	Alternate A	Alternate B	Alternate C
1. Traffic Service and Operations	Two-way continuous left-turn lane provides access to most fronting properties, but medial friction will be substantial. Eleven-foot lanes may limit maneuverability and comfort during peak hours. No provisions for shared vehicle-bicycle lanes.	Raised median provides positive separation for opposing traffic streams. Left-turn lanes are protected. Twelve-foot lanes best for maneuverability and comfort of driver on high volume road. Provides shared vehicle-bicycle lane. Some left-turn restrictions from driveways and side streets.	Same as for Alternate B, plus advantage of providing dual left turns without changing median width.
2. Safety	Least measure of safety for pedestrians: 1. Sidewalk is back of curb next to 11-foot traffic lane. 2. No median refuge. 84-feet between sidewalks. Not as safe for children and elderly. Narrow lanes may have adverse affects on capacity and safety.	Moderate pedestrian safety with sidewalk behind curb and 14-foot traffic lane. Median provides pedestrian refuge when crossing street. Controlled and restricted left-turns improve safety.	Best of three alternates for pedestrian safety. Widest median provides most distance between opposing traffic lanes. Controlled and restricted left-turns improve safety. No lane shifts where dual left-turns are used.
3. Social and Neighborhood Impacts	Except for intersections, can be constructed within existing right-of-way. Would be least disruptive in terms of number of parcels impacted and business damage.	Requires an additional 18 feet of right-of-way. Would be high impact in residential and commercial locations where all R/W is taken on one side.	Requires an additional 30 feet of R/W. Extremely high impact on properties where all R/W is taken on one side.
4. Impact on Property Values	Residential property values would be least affected because this alternate provides the greatest setback distance from pavement to building fronts. Commercial values would probably increase because of higher roadway capacity and resultant increased exposure and access, as compared to existing road.	Residential property values would be decreased particularly where R/W is acquired on one side only. Commercial values would increase because of increased exposure to higher traffic volumes, as compared to existing road.	Severe impact on residential property values. Commercial values would increase because of increased exposure to higher traffic volumes, as compared to existing road.
5. Aesthetics	A broad strip of concrete at least 96 feet in width. At intersections, up to 120 feet wide. No potential for sod or plantings.	Potential for sod and moderate plantings in median. Better appearance that Alternate A.	Best potential for landscaping median and developing boulevard environment. Three-foot wide side strip can also be sodded.
6. Cost	$ 31.387 Million	$ 37.693 Million	$ 48.301 Million

4.0 CROSSING OF LAKE TARPON CANAL

4.1 DESIGN ALTERNATIVES

The location of the new bridge over Lake Tarpon Outfall Canal east of McMullen-Booth Road, has been established by requirements of the proposed interchange between McMullen-Booth Road and Curlew Road and in the interests of minimizing right-of-way acquisition along Curlew Road. This interchange is included in a study of the McMullen-Booth corridor which is currently nearing completion. As noted earlier, a primary control along Curlew Road for positioning the interchange was a nursing home facility on the south side of Curlew Road, west of McMullen-Booth Road, and Curlew Creek Elementary School, on the north side. It was necessary to continue the tangent alignment of Curlew Road easterly from the McMullen-Booth interchange because of the cross section geometry of Curlew Road and the proximity of the Canal to the interchange. A dual left-turn lane is required for west-to-south turning movements and the combination of cross section and alignment geometry will extend a 30-foot median onto the west end of the bridge. The 30-foot median would be carried across the entire length of the bridge in the event the dual left-turn lane would need a future extension.

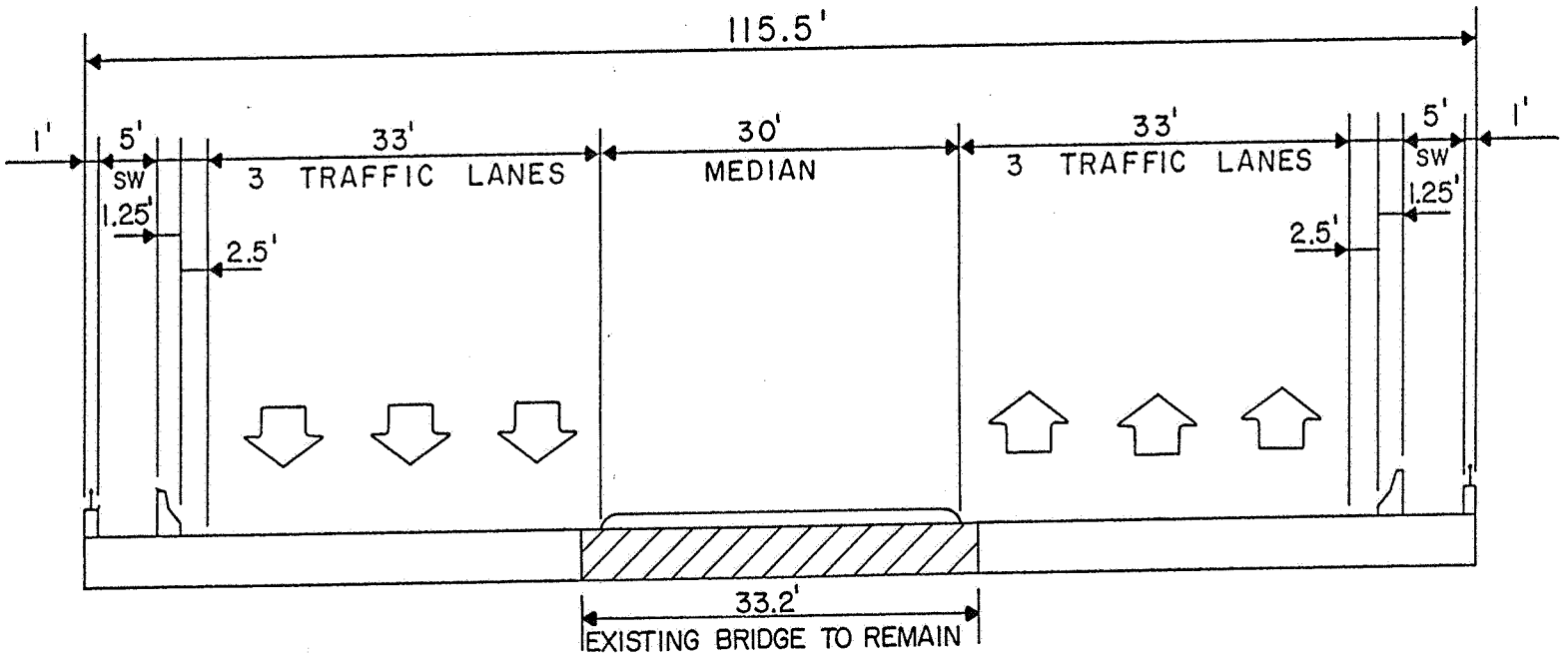
The bridge inspection report dated November 25, 1985, rated the structure's condition as good to excellent. The estimated remaining life of the bridge at that time was 31 years. The condition and amount of remaining service life warrants consideration of using the existing structure as part of the new 6-lane bridge. Estimated construction cost savings, if the existing bridge is used, is approximately $0.5 million.

New three-lane bridge sections would be constructed north and south of the existing bridge for westbound and eastbound traffic, respectively. The overall width of the expanded bridge would be 115.5 feet with Alternate A and 125.5 feet with Alternates B or C (see Exhibits 12 and 13). The new structure would be approximately the same length as the existing bridge (370 feet). The Florida DOT Green Book states that an offset distance (or shoulder) is desirable when a bridge length exceeds 500 feet. Since the length of the proposed Curlew Road bridge over the Lake Tarpon Outfall Canal is less than 500 feet, full shoulders will not be provided.

4.2 COMPARATIVE EVALUATION OF DESIGN ALTERNATIVES

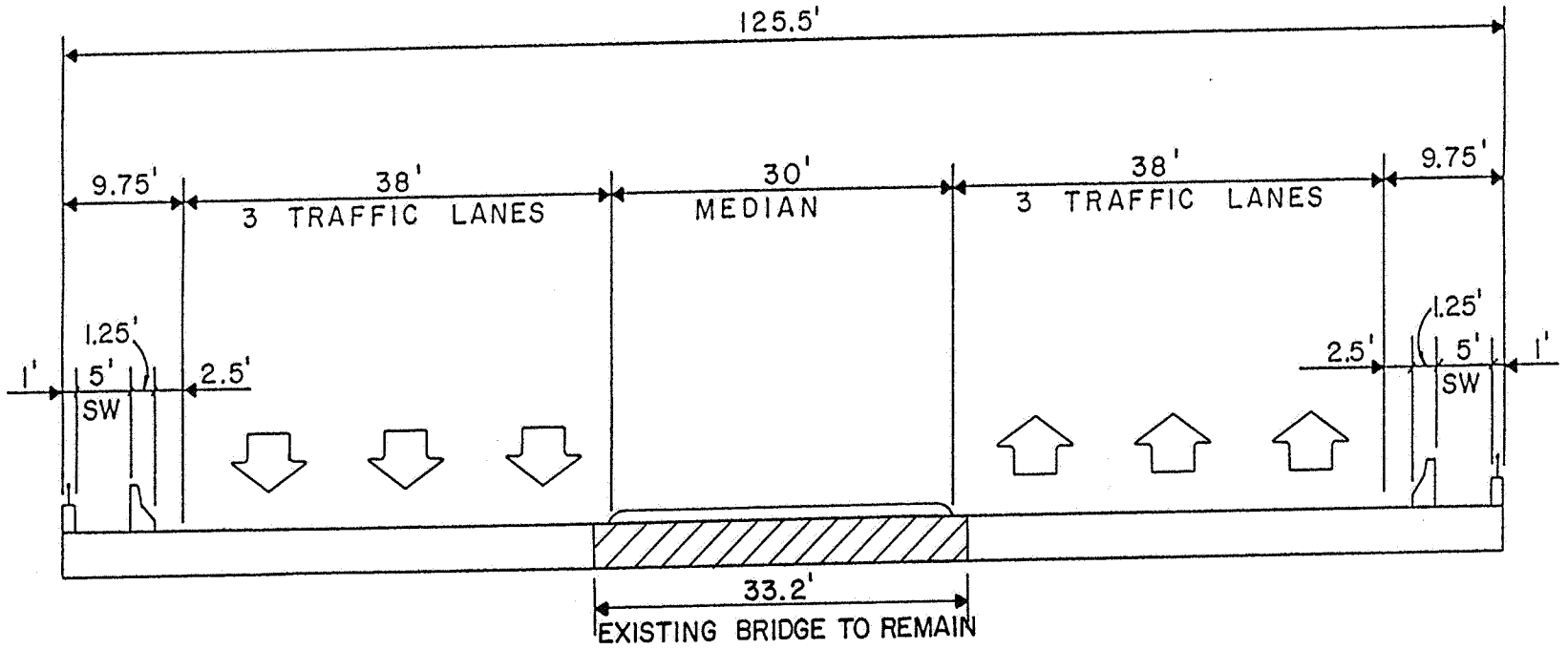
Construction costs for the three bridge alternates are directly related to their respective widths. These construction costs, in millions of dollars, are summarized as follows:

ITEM	ALTERNATE A	ALTERNATE B	ALTERNATE C
Lake Tarpon Canal Bridge	$2.03	$2.21	$2.21



TYPICAL SECTION A
30' MEDIAN

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	**BRIDGE AT LAKE TARPON CANAL**	EXHIBIT 12



TYPICAL SECTION B & C
30' MEDIAN

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	BRIDGE AT LAKE TARPON CANAL	EXHIBIT 13

5.0 TRAFFIC

5.1 EXISTING TRAFFIC

Traffic counts were taken in December, 1986 and January, 1987 for use in a traffic study* for the SR 586/SR 584 (Curlew Road/Tampa Road) Corridor. The results of the study indicated that the lowest existing volume on SR 586 (Curlew Road) was 10,800 vehicles per day (vpd) west of Alternate U.S. 19 and the highest volume was 26,500 just west of U.S. Route 19. Along SR 584 (Tampa Road) volume counts ranged from 29,600 vpd southeast of the Curlew Road intersection to 30,500 northwest of CR 233 (Forest Lakes Boulevard).

In general, the volumes along Curlew Road were highest in the vicinity of U.S. 19. East and west of U.S. 19, the volumes decline. Heaviest volumes in the corridor are along Tampa Road and are in the 30,000 vpd range.

Traffic counts as taken in December, 1986 and January 1987 required the application of conversion factors for trucks and for seasons. Normally, the use of field data for truck percentages, and FDOT seasonal factors for Pinellas County, would have been adequate for conversion of raw field counts to average daily traffic (ADT). Both Curlew and Tampa Roads, however,

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* Technical Memorandum - Corridor Design Traffic Volumes, Project Development and Environmental Study, SR 586 (Curlew Road) from SR 595 (Alternate U.S. 19) to SR 584 (Tampa Road) and SR 584 (Tampa Road) from SR 586 (Curlew Road) to the Seaboard System Railroad. H.W. Lochner, Inc., Revised May, 1987

provide direct alignment to Honeymoon Island State Park and the influence of this recreation facility on corridor traffic flow was investigated as part of the traffic study.

Honeymoon Island State Park has peak visitations in March, April and May. Saturdays, Sundays and holidays have highest daily visitations. The lowest periods for visitations to the State Park are in December and January -- the same months as traffic counts were taken for the project. Appropriate conversions were made to the field counts to accomodate average daily vehicle visitations to the State Park. The results of these conversions, plus application of truck and seasonal conversion factors were used to establish 1986 base year project traffic. The 1986 ADT is shown in Exhibit 14.

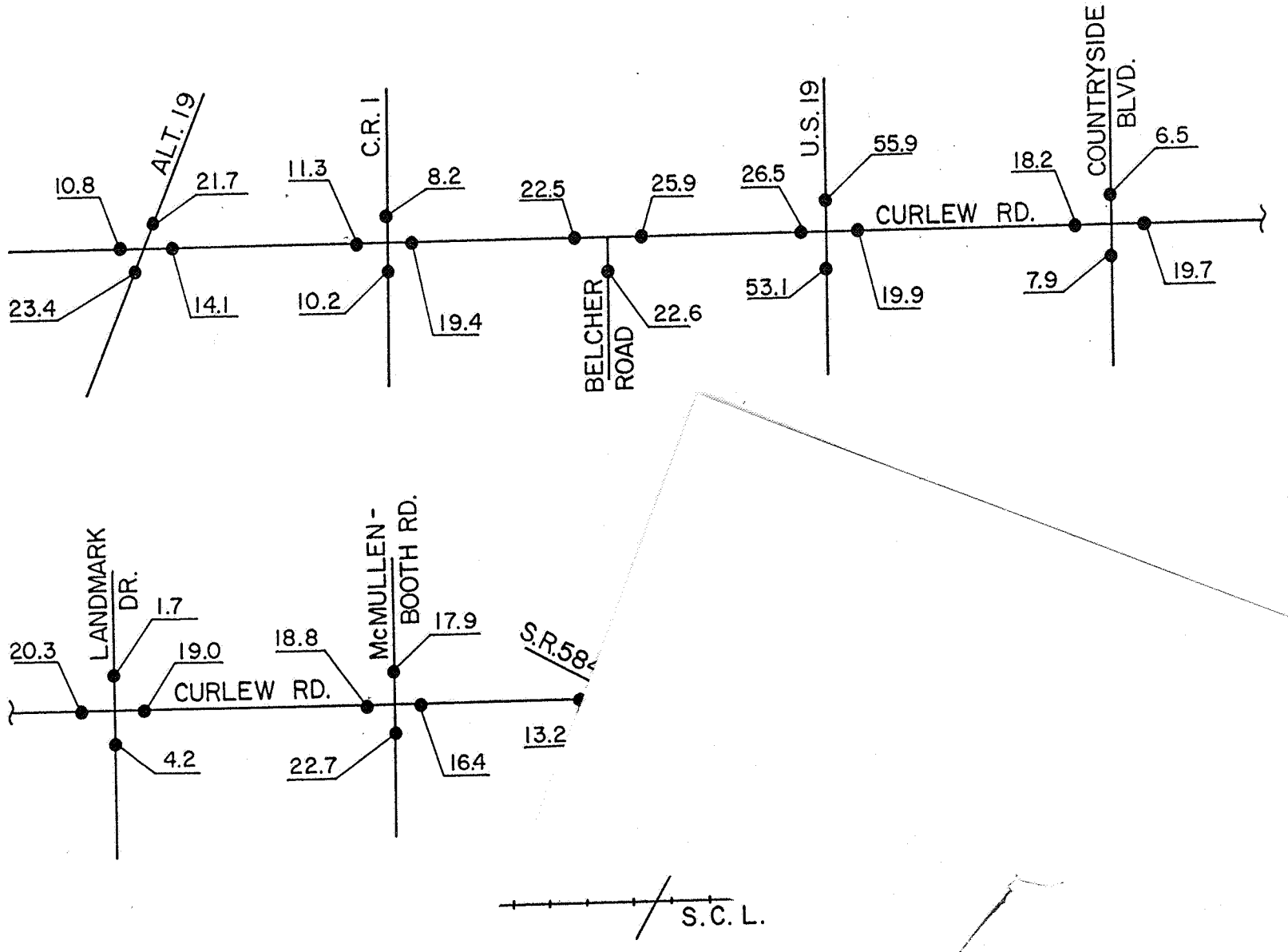
Generalized upper limits of highway capacities utilized by the Pinellas Area Transportation Study are shown in Exhibit 15. Based on this data, the following sections of the project length are functioning at the indicated levels of service (LOS).

*On Curlew Road

- Alt. 19 to CR 1 — LOS C/D
- CR 1 through McMullen-Booth Road intersection — LOS D
- West leg of intersection with Tampa Road — LOS D

*On Tampa Road

- From Curlew Road to S.C.L. Railroad — LOS F



S.R. 586 / S.R. 584
PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY

1986 AVERAGE DAILY TRAF

EXHIBIT 14

Level Of Service	A	B	C	D	E
FREEWAYS					
Four Lane	22,800	38,000	57,000	68,400	76,000
Six Lane	34,200	57,000	85,500	102,600	114,000
Eight Lane	45,600	76,000	114,000	136,800	152,000
EXPRESSWAYS					
Four Lane	18,200	30,400	45,600	54,700	60,800
Six Lane	27,400	45,600	68,400	82,100	91,200
Eight Lane	36,500	60,800	91,200	109,400	121,600
DIVIDED ARTERIALS					
Two Lane	5,900	9,900	14,800	17,800	19,800
Four Lane	11,200	18,600	27,900	33,500	36,000
Six Lane	17,100	28,500	42,700	51,300	55,700
Eight Lane	22,100	36,800	55,200	66,200	72,000
UNDIVIDED ARTERIALS					
Two Lane	4,700	7,900	11,800	14,200	15,700
Four Lane	8,200	13,600	20,400	24,500	27,200
ONE WAY ARTERIALS					
Two Lane	4,300	7,200	10,800	13,000	13,600
Three Lane	7,000	11,700	17,500	21,000	21,800
Four Lane	10,200	17,000	25,500	30,600	32,400
COLLECTORS					
Two Lane(u)	3,900	6,500	9,700	11,700	12,900
Two Lane(d)	5,100	8,500	12,700	15,200	16,900
RURAL ROADS, BRIDGES AND CAUSEWAYS					
Two Lane	6,600	10,900	16,400	20,500	24,600
Four Lane	14,700	24,500	36,700	45,000	50,000

COMMUNITY TYPE FACTORS

	CBD	FRINGE	RESIDENTIAL	OBD
Freeways	1.0	1.0	1.0	1.0
Expressways	.8	1.0	1.0	1.0
Divided Arterials	.8	1.0	1.0	1.0
Undivided Arterials	.8	1.0	1.0	1.0
One Way Arterials	.8	.9	1.0	1.0
Bridges	1.0	1.0	1.0	1.0
Collectors	.8	.9	1.0	.9

Sources: 1965 Highway Capacity Manual, UTP Technical Procedure T1, and Pinellas Area Transportation Study Plan Reevaluation Data.

(2/80)

S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY

GENERALIZED HIGHWAY CAPACITIES

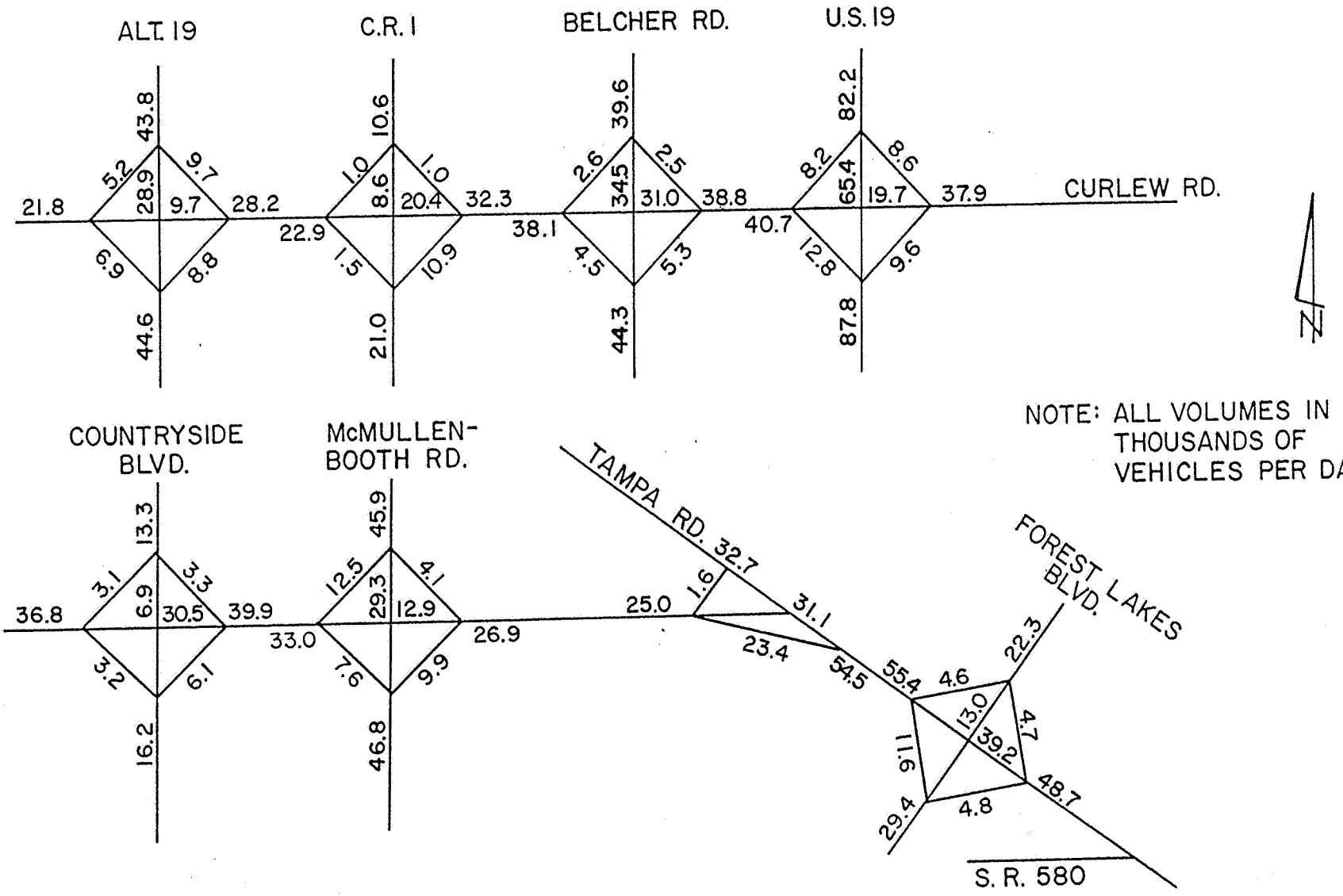
EXHIBIT 15

All signalized intersections are channelized and are configured with varied combinations of left-turn, right-turn and through lanes. Some of these channelized improvements have been constructed in the past twelve months and contribute favorably to an increase in the LOS. The newly constructed three-lane cross sections have also improved LOS. Nonetheless, the entire length of Curlew Road and Tampa Road is basically a two-lane facility and while these recent improvements have been beneficial to traffic operations they alone cannot supplant the capacity that would accompany a multi-lane facility. Long platoons of vehicles are common throughout the day along with congestion and long delays. Queued vehicles continue to block driveways and cross streets, generating local demands for additional traffic signals. These roadway operational conditions reflect the levels of service indicated above.

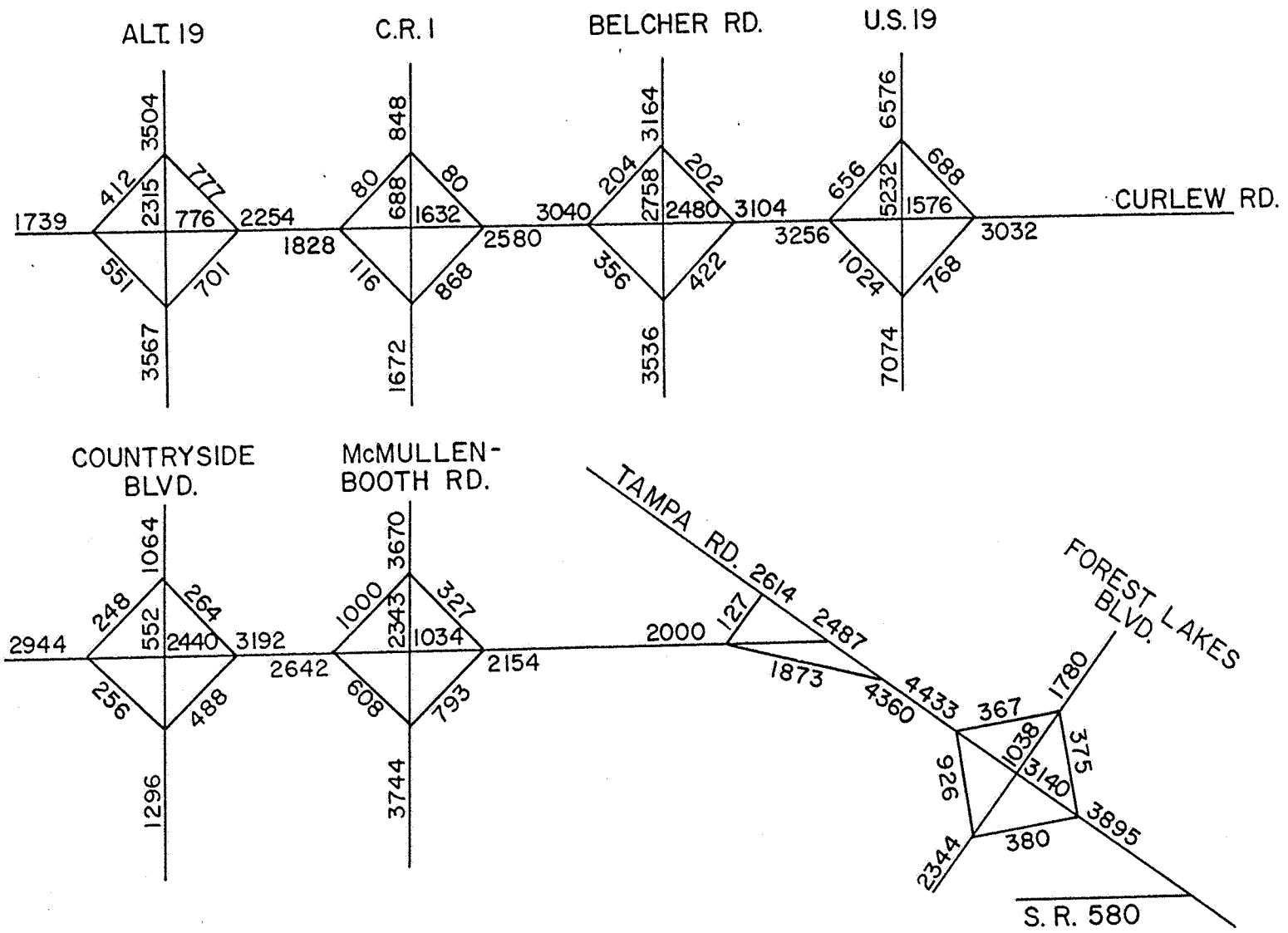
5.2 2010 DESIGN YEAR TRAFFIC

Estimated daily traffic assignments for year 2010 are shown on Exhibit 16. Heavy turning movements are expected at intersections with Alternate U.S. 19, U.S. 19, McMullen-Booth Road and Tampa Road.

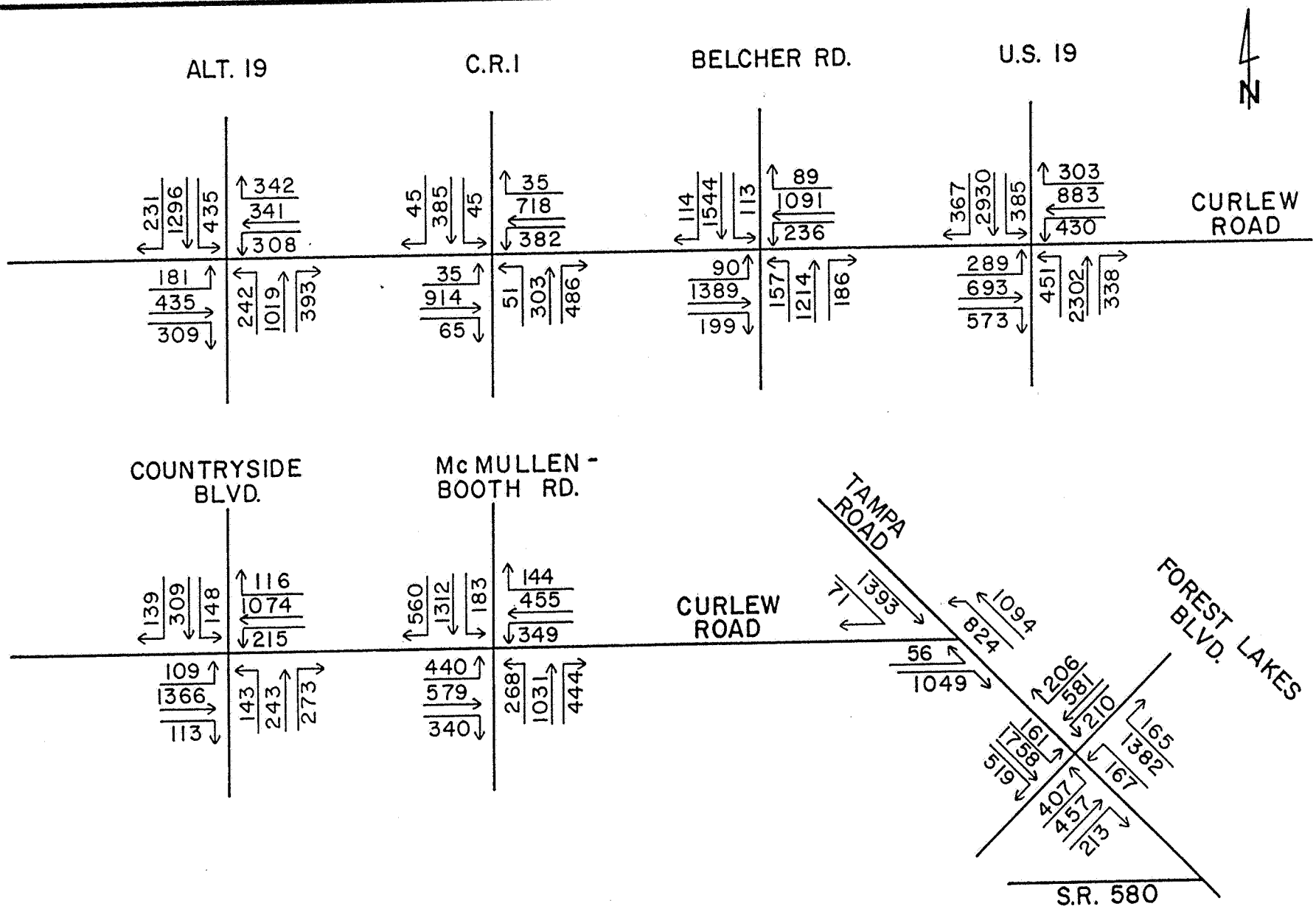
Exhibits 17, 18 and 19 portray 2010 design hour volumes, AM peak hour volumes and PM peak hour volumes. The number of lanes needed on each intersection approach to attain a LOS 'D' or better at each intersection are portrayed in Table 4. Interchanges are planned at the intersections of Curlew Road with U.S. 19 and with McMullen-Booth Road. These interchanges are included in separate studies which are being coordinated with the SR 86/SR 584 Study at interface points with Curlew Road. Levels of service



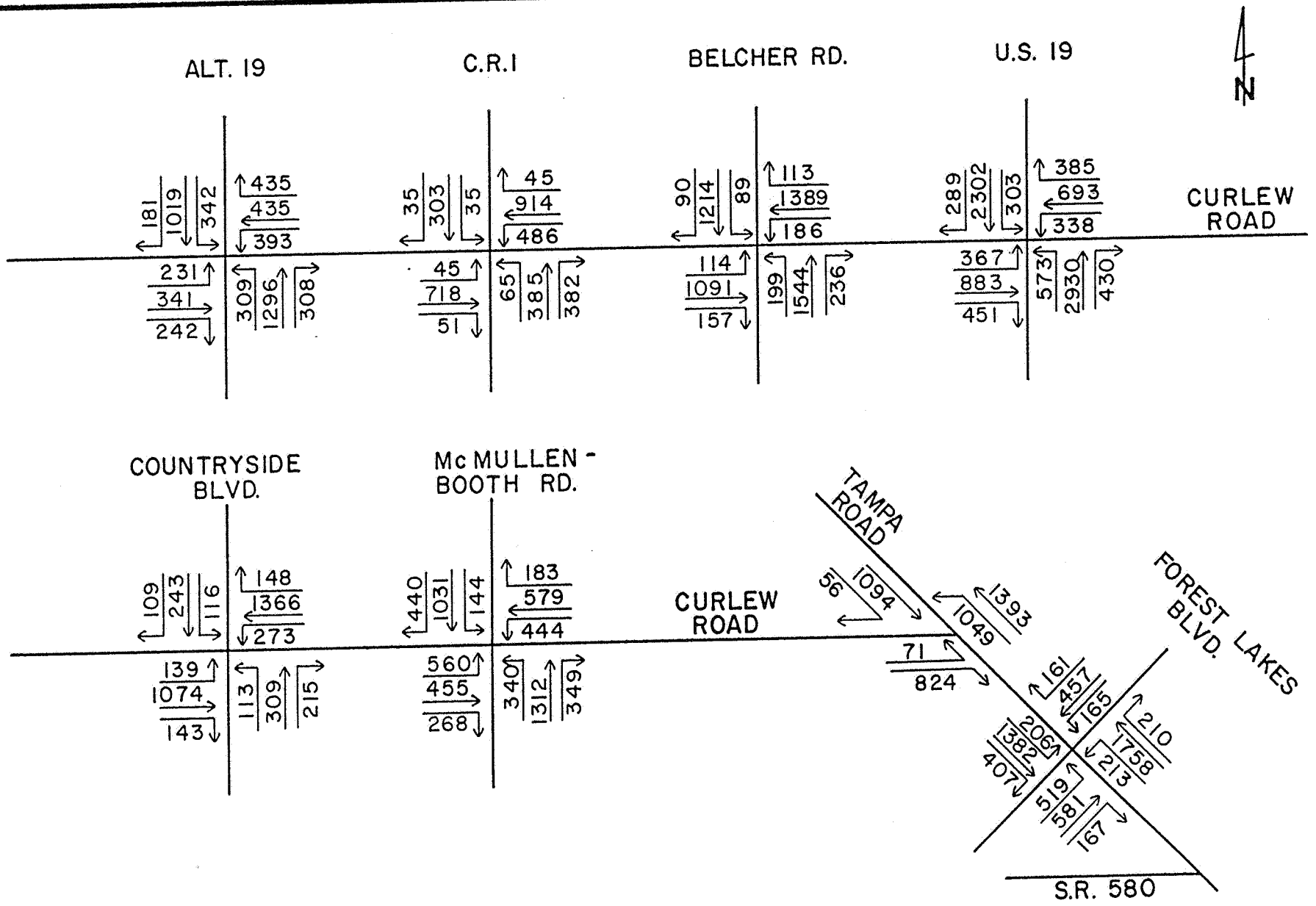
S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	**ESTIMATED 2010 AVERAGE DAILY TRAFFIC**	EXHIBIT 16



S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	2010 DESIGN HOUR VOLUMES	EXHIBIT 17



S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	2010 DIRECTIONAL DESIGN HOUR VOLUMES A.M. PEAK HOUR	EXHIBIT 18



S.R. 586 / S.R. 584 PROJECT DEVELOPMENT & ENVIRONMENTAL STUDY	2010 DIRECTIONAL DESIGN HOUR VOLUMES P.M. PEAK HOUR	EXHIBIT 19

TABLE 4

YEAR 2010 LEVELS OF SERVICE

INTERSECTION		EB	WB	NB	SB	INTERSECTION
Alt.19/SR 586	APP. LANES	5	5	5	5	
	A.M. LOS	D	D	D	D	D
	P.M. LOS	C	D	D	D	D
C.R. 1/SR 586	APP. LANES	4	5	4	3	
	A.M. LOS	C	D	C	C	C
	P.M. LOS	C	C	C	C	C
Belcher Rd./SR 586	APP. LANES	4	5	5	4	
	A.M. LOS	D	D	D	D	D
	P.M. LOS	D	D	D	C	D
Countryside Blvd/ SR 586	APP. LANES	4	4	3	3	
	A.M. LOS	D	C	D	D	D
	P.M. LOS	C	D	D	D	D
SR 586/SR 584	APP. LANES	4	--	5	3	
	A.M. LOS	D	--	D	D	D
	P.M. LOS	D	--	D	D	D
Forest Lakes Blvd./ SR 584	APP. LANES	5	5	5	5	
	A.M. LOS	D	C	E	E	D
	P.M. LOS	D	D	E	D	D

Notes: 1. Optimum green times developed through use of the Intersection Analysis Program (IAP), consistent with Appendix II, Chapter 9 of the 1985 Highway Capacity Manual. Green times were then used as part of input to Highway Capacity Software program.

2. Eleven-foot lanes used in analysis to obtain worst-case conditions under Alternate A.

3. Subsequent analysis for Alternates B and C indicate same number of approach lane requirements. See Appendix A.

expected in 2010 for each approach and for each intersection in the SR 586/SR 584 Study are listed in Table 4.

5.3 K, D, T AND PH FACTORS

The traffic study for SR 586/SR 584 discussed background and reasons for K, D, T and PH factors. Each of these factors is utilized in the derivation of design data for determining the number of lanes that are required on the new or improved facility. More importantly, these factors are part of the technical input for determining the number of lanes at each intersection approach.

Based on previous work performed in the traffic study, the recommended factors for design are as follows:

K = 8.0 percent
D = 56 percent
T = 2 percent (peak hour)
PHF = 0.92

5.4 EXPANDED NETWORK STUDY

The Pinellas County Transportation Planning Department evaluated supplemental roadway alignments within the SR 584/586 corridor in order to optimize the traffic flow of the adopted highway network. The testing of these supplemental alignments was performed by running the UTPS model's battery of programs with the year 2010 highway network.

The alternatives that were tested consisted of additional east-west links to the existing system. 2010 traffic volumes on SR 586 and SR 584 generally decreased or did not vary significantly in comparison to those on the adopted network, depending upon where the new links were added. However, all of the alternatives that were evaluated indicated the need for six lanes on SR 586 and SR 584.

Efforts between Pinellas, Hillsborough and Pasco Counties are currently underway so that respective future transportation networks can be fully coordinated. Results of this coordination process will not alter the need for six lanes in the SR 586/SR 584 Corridor. Planning and design studies are also underway on the Pinellas County Northeast Corridor and along Pine Street Extended. These transportation facilities are expected to add or change intersection requirements at their connections to SR 584 -- but will not change the six-lane cross section requirements of SR 584.

6.0 ACCIDENTS

Accident data obtained from the Florida Department of Transportation (FDOT) were analyzed and summarized for the study segment of SR 586/584. The summary addresses SR 584 and SR 586 separately. Tables 5 and 6 present accident data for the project area, between 1981 and 1985.

The most common method used to analyze accidents which occur on specific sections of roadway is to convert the actual number of accidents into a rate, usually per million or per 100 million vehicle miles of travel. Actual accident rates in this study are computed per million vehicle miles of travel (ACC/MVM). This rate can then be compared to regional or statewide averages for facilities with similar characteristics.

Critical accident rates are related to statewide rates and include only injury and fatal accidents.

Another key indicator of accident experience is the ratio of critical accident rate to actual accident rate. This ratio is a measure of the relative safety of any given road, segment of road, or spot location. The lower the safety ratio, the safer the facility. A safety ratio greater than 1.00 is undesirable. Both segments of the SR 586/SR 584 project had safety ratios lower than 1.00 for all years except 1984.

As can be seen in Table 5, the actual number of accidents on SR 584 have remained fairly constant between 1981 and 1985. Property losses and overall

TABLE 5

SR 584 (Tampa Road) From SR 586 to Seaboard Coastline Railroad

ACCIDENT SUMMARY[1]

Year	Accidents	ADT	Actual Accident Rate	Critical Accident Rate	Ratio	Fatalities	Injuries	Property Loss ($)	Economic Loss
1981	36	9,250	5.219	7.513	0.694	0	14	$ 26,000	$ 138,000
1982	39	9,740	5.369	7.448	0.720	1	28	$ 21,000	$ 445,000
1983	34	9,746	4.678	6.554	0.713	0	21	$ 44,000	$ 239,300
1984	37	8,262	6.005	4.991	1.203	0	24	$ 44,000	$ 267,200
1985	35	20,222	2.321	5.209	0.445	4	32	$ 28,000	$1,205,600
TOTAL	181	- -	- -	- -	- -	5	119	$ 163,000	$2,295,100

1. Data supplied by FDOT.

TABLE 6

SR 586 (Curlew Road) From Alternate 19 to SR 584

ACCIDENT SUMMARY[1]

Year	Accidents	ADT	Actual Accident Rate	Critical Accident Rate	Ratio	Fatalities	Injuries	Property Loss ($)	Economic Loss
1981	75	10,550	3.652	6.403	0.570	1	42	$ 48,000	$ 584,000
1982	74	13,630	2.789	6.218	0.448	0	39	$ 45,000	$ 357,000
1983	65	14,151	2.360	7.462	0.316	0	27	$ 84,000	$ 335,100
1984	62	4,686	6.798	4.621	1.471	0	52	$ 56,000	$ 539,600
1985	73	12,610	2.974	4.872	0.610	1	67	$ 60,000	$ 903,100
TOTAL	349	- -	- -	- -	- -	2	227	$ 293,000	$2,718,800

1. Data supplied by FDOT.

economic losses rose to $28,000 and $1,205,600 respectively from 1981 through 1985. The large overall loss is directly related to the four fatalities in 1985.

Table 6 highlights the accident data for SR 586. Like SR 584, the actual number of accidents on SR 586 have remained fairly constant during the time period studied. Property losses and economic losses in 1985 were $60,000 and $903,100 respectively.

7.0 MAINTENANCE OF TRAFFIC

There are two distinct segments of the SR 584/SR 586 project that require consideration for construction scheduling and maintenance of traffic. These are: 1) crossing of Lake Tarpon Canal; and 2) Curlew Road/Tampa Road reconstruction.

7.1 CROSSING OF LAKE TARPON CANAL

The widening of the existing bridge would be constructed in stages so that two traffic lanes would be available at all times.

7.2 CURLEW ROAD/TAMPA ROAD

Two lanes would be available on Curlew Road and Tampa Road at all times. Left-turn lanes would be provided at major intersections where possible during construction.

Initially, construction will begin on one side with the installation of drainage facilities and new traffic lanes. Following this, work would be done on the other side of Curlew and Tampa Roads. Finally, the center portion of the project would be constructed. Left-turns to and from non-signalized driveways may be curtailed through major construction periods, but access to fronting business properties would be maintained through business hours. Access would also be maintained for fronting residential properties except for short durations when construction activities prevent such use.

8.0 DRAINAGE

The FEMA Flood Insurance Rate Maps (latest revision - 1983) indicate the following areas lie within the limits of the base floodplain (100-year flood zone):

- -From the beginning of the project on the west end to about 700 feet east of Alt. U.S. 19.
- -The Lake Tarpon Canal crossing.
- -From the Curlew Road-Tampa Road intersection east to about 500 feet west of the Tampa Road-CR 233 intersection.
- -From the Tampa Road-CR 233 intersection east to a point approx. 2800' east of the intersection.

According to the FDOT Drainage Manual, there are three basic categories by which the project can be classified for the purpose of assessment and documentation of floodplain encroachments. For approximately 60 percent of the 7.4-mile project which traverses the beach ridge that parallels the coast, the classification is Category 1: Projects Which Will Not Involve Any Work Below the 100-year Floodplain. The remainder of the project is classified as Category 4: Projects on Existing Alignment Involving Replacement of Existing Drainage Structures with No Record of Drainage Problems, or Category 5: Projects on Existing Alignment Involving Replacement of Drainage Structures in Heavily Urbanized Floodplains. The hydraulic studies and design are detailed in the Location Hydraulics Report that was prepared for the project.

8.1 EXISTING DRAINAGE

The existing roadway is a predominately 2-lane rural type typical section. Stormwater collection is via roadway ditches and swales, where they exist. For much of the sandy ridge that the western 2/3 of the 7.4 mile project traverses, there are no defined collection systems and stormwater runoff either percolates into the well drained sandy soils, or is conveyed overland to natural storage areas, detention ponds, or outfalls. From Northridge Drive west, the project lies in the Curlew Creek Basin. The South Creek Basin and the Possum Branch Basin are traversed between Northridge Drive and Lake Tarpon Outfall Canal.

East of the Lake Tarpon Outfall Canal, the project traverses an area of low relief. Stormwater runoff is typically collected in roadside ditches and swales. Drainage is generally to the south toward Safety Harbor via short creeks which drain the flatwoods north of Curlew and Tampa Roads. The wetland vegetation present in most of the ditches indicate that there is standing water in the ditches much of the time.

8.2 PROPOSED DRAINAGE

Over-pavement stormwater collection for the Build alternatives will be via curb and gutters, which route the flow to inlets where the runoff enters the stormsewer system. For that portion of the project that lies on the beach ridge, stormwater quality and quantity criteria will be satisfied through the construction of exfiltration trenches and detention/retention ponds and the utilization of existing detention areas and natural storage areas where

feasible. Table 7 indicates the various stormwater management concepts that may be used for the project. Possible sites for the location of detention/retention ponds are depicted on the conceptual plans.

From the Lake Tarpon Outfall Canal area eastward, the low relief, relatively high water table, and poorly drained soils will restrict the use of exfiltration trenches, and utilization of detention/retention ponds and natural storage areas to adhere to stormwater regulations will be the rule.

The proposed drainage system will be designed in accordance with the Pinellas County Master Drainage Plan.

Major culverts will be extended rather than replaced where condition and existing hydraulic openings will allow. This will also facilitate maintenance of traffic during construction.

TABLE 7

STORMWATER MANAGEMENT CONCEPT

FOR SR 586/584

ROADWAY SEGMENT	DRAINAGE BASIN	STORMWATER DETENTION AND TREATMENT CONCEPTS
1. Alt. U.S. 19 to CR 1	Curlew Creek	Exfiltration trenches, natural storage along Curlew Creek and/or new detention areas on south side.
2. CR 1 to Belcher	Curlew Creek	Exfiltration trenches and Pinellas County Detention Pond No. 3.
3. Belcher to U.S. 19	Curlew Creek	Exfiltration trenches, pipe to natural storage areas and/or new detention areas.
4. U.S. 19 to Northridge	Curlew Creek	Natural storage in designated lakes on south side.
5. Northridge to Lake Tarpon Canal	South Creek	Natural storage in Florida Power Corp. R/W, bayheads and new detention areas.
6. Lake Tarpon Canal to Tampa Road	South Creek, Possum Branch, Oldsmar	Natural storage in Flatwoods ponds, and new detention areas.
7. Tampa Road to Seaboard Systems Railroad	Oldsmar	Natural storage in Cypress domes, and new detention areas.

9.0 VALUE ENGINEERING

A Value Engineering (VE) Study was conducted in March and April of 1988. The consensus of the VE Study Team supported Alternate B as the preferred design concept. The alignment of Alternate B was also supported and suggestions were made for reviews of the alignment in two locations; these being, (1) a short section west of Belcher Avenue, and (2) the section east of McMullen-Booth Road.

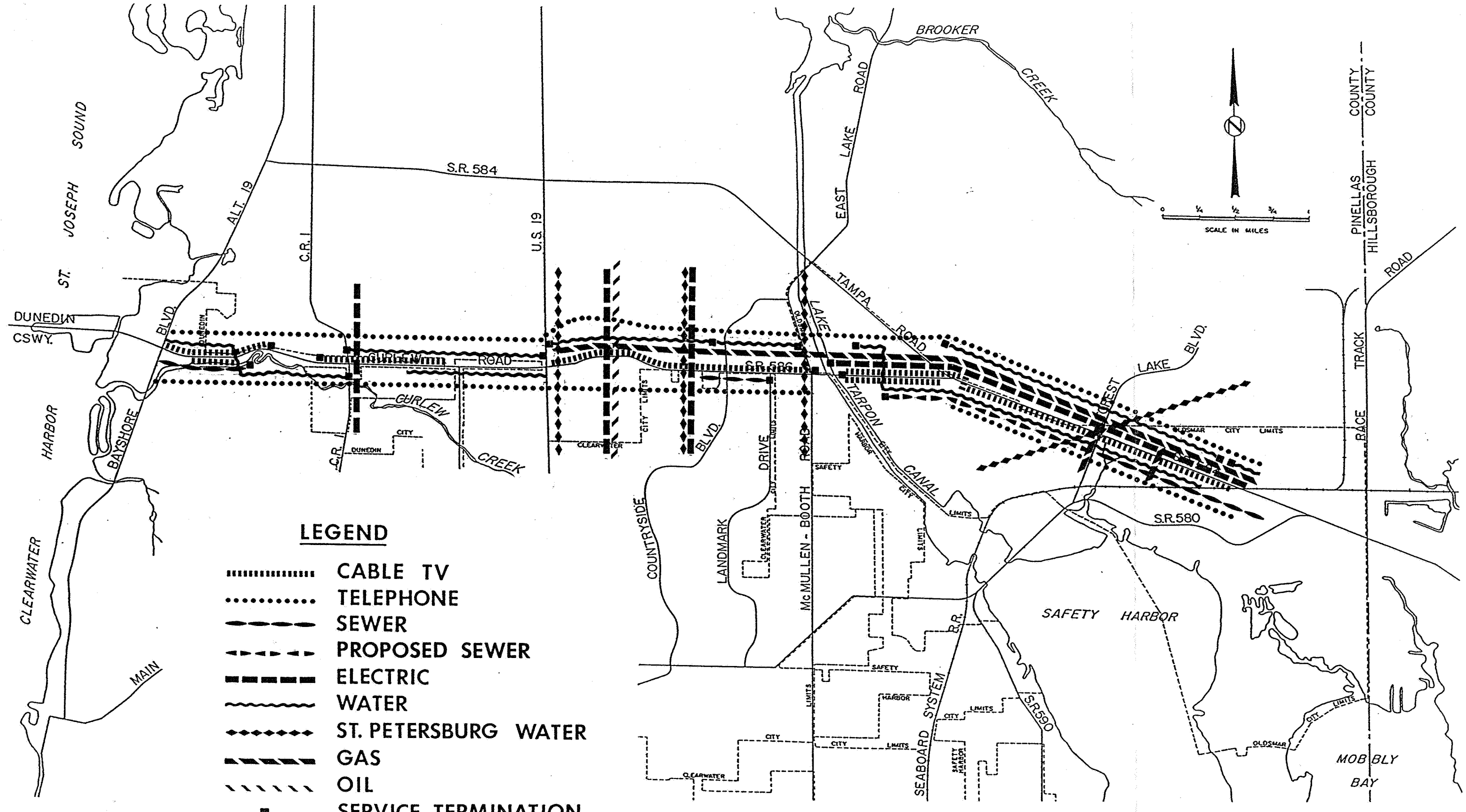
The greatest potential for VE savings was identified as the bridge over Lake Tarpon Canal. The only recommendation of the VE Study Team was for replacement of the Lake Tarpon Canal Bridge as opposed to widening of the Bridge. This recommendation entails higher first costs but lower life cycle costs. Replacement of the Bridge would also reduce traffic disruption because of fewer construction stages.

10.0 UTILITIES

The SR 584/SR 586 project is located in a generally low density, suburban area. However, given the high density and high degree of urbanization in the greater Tampa Bay region, many types and varieties of utilities are found within the project limits. Exhibit 20 indicates the location of major utilities in the study corridor. For the sake of clarity, minor facilities, such as distribution lines, have been omitted.

The City of St. Petersburg maintains a system of underground water transmission pipes which originate in Pasco County and run south through the study area. These lines cross SR 586 at three locations: 1) at U.S. 19, with a 36" pipe in the east right-of-way, 2) just west of Countryside Blvd, with a 60" pipe in the Florida Power overhead line right-of-way, and, 3) at McMullen-Booth Road, with a 48" pipe in the west right-of-way. In addition, a 16" pipe crosses SR 584 just west of Forest Lakes Blvd. Florida Power Company operates a 14" oil pipeline which runs north and south and crosses Curlew Road (Sr 586) underground, just east of 69th Street. Florida Power also maintains a 230KV power line which crosses Curlew just east of Merlin Drive; a 230KV power line which crosses Curlew Road on the west side of CR 1; and a 230KV line which crosses Curlew Road just east of 69th Street. Florida Power also maintains smaller distribution facilities throughout the study area, from Alt. U.S. 19 to McMullen-Booth Road.

Tampa Electric Company maintains both overhead and underground facilities from the eastern project boundary to the Lake Tarpon Outfall Canal. In



S.R. 586 / S.R. 584
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EXISTING UTILITIES

EXHIBIT 20

addition, there are two substations in the corridor, one on Curlew Road near Tampa Road, and the other on Tampa Road, just east of Forest Lakes Boulevard.

General Telephone Company (GTE) has aerial facilities on the north side of Curlew Road from Alternate 19 to Tampa Road (SR 584). They have underground facilities on the south side of Curlew, from Alt. 19 to McMullen-Booth Road. On Tampa Road, GTE maintains both overhead and underground facilities from the Curlew junction to the project boundary.

The City of Oldsmar maintains water lines beginning just east of the Tarpon Canal, on the south side of Curlew, which extend to Tampa Road. These lines continue on the south side of Tampa Road to Pomosa Avenue. There is also a small length of water line on the north side of SR 584 from Gim Gong Road east for approximately 200 feet. In addition, the City maintains sewer lines on the south side of SR 584 from Forest Lakes Blvd to just east of Pomosa Avenue, and also, a line on the north side of Tampa Road, from west of Palm Avenue to Palm Avenue where it crosses the road and attaches to the above mentioned line. The City of St. Petersburg also has lines which run along the north side of SR 584 from Pomosa Avenue to SR 586.

Pinellas County Water System maintains facilities on the north side of Curlew Road from CR 1 to U.S. 19, and on the south side of Curlew from Espina to U.S. 19. The County also has a line on the north side of Curlew from Countryside to McMullen-Booth Road.

The City of Clearwater has a water line on the north side of Curlew Road from U.S. 19 to Countryside Blvd, and a sewer line on the south side of Curlew from Landmark Ave. to Merlin Drive.

The City of Clearwater also has gas facilities in the project area. There is a gas line which crosses Curlew just east of Alternate 19. In addition, there is a line which runs on the south side of Curlew from Fisher Street to U.S. 19, and a line which runs on the north side of both SR 586 and SR 584 from U.S. 19 to beyond the project limits in Oldsmar.

The City of Dunedin maintains a sewer line on the south side of Curlew from Alternate U.S. 19 to Countrywoods Lane. Dunedin also has a water line in the project area, beginning at Alternate U.S. 19, it runs along the north side of Curlew Road until it reaches the city water tower, which is approximately 900′ east of Alternate U.S. 19 on the south side of Curlew. At the tower, the water line crosses to the south of Curlew and continues east to CR 1.

Two cable TV companies serve the area, Gulfstream Cable and Vision Cable. Gulfstream has facilities on the north side of Curlew Road from Alternate U.S. 19 to Sequoia Terrace, and on the south side of Curlew from St. Marks Drive to Birdie Lane. Gulfstream also has facilities on both sides of Curlew from just east of the Tarpon Outfall Canal to SR 584. At SR 584, the line continues on the north side approximately 200 feet, then crosses to the south and continues along SR 584 to beyond the project limits.

Vision Cable's facilities run from U.S. 19 west to McMullen-Booth Road, on the north side of Curlew, and from Cardinal Road west to Spanish Oaks Blvd, on the south side of Curlew.

Paved width of the proposed project from back of curb to back of curb would be 84 feet for Alternate A; 102 feet for Alternate B; and 110 feet for Alternate C. With a centered location, construction of Alternate A would utilize all but 16 feet of the existing 100-foot right-of-way. Alternates B and C would require more than the available right-of-way width. This suggests that all -- or virtually all -- longitudinal underground utilities will need relocation so there is easy access to the utilities should maintenance be required. General policy requires longitudinal underground utilities to be located beyond the curbs of urban arterials unless right-of-way restrictions preclude such location. Only then are longitudinal underground utilities permitted beneath paved surfaces.

Borders for the SR 586/SR 584 improvement alternates under consideration are 10 feet or 12 feet in width. It is assumed the longitudinal underground utilities that need relocation can be relocated to positions within the border area, beneath the sidewalk. During final design of this project, close coordination with utility companies is required to accurately determine exact field locations of existing utilities. Then, utility relocations must be designed and constructed to meet roadway location and construction phases.

Selection of project alignments was based primarily on safety and on right-of-way costs. The selected alignments are presented in Section 12.0 Recommendations. It is assumed that utility adjustment costs would be substantially the same with any alignment selected because of the proposed width of the improvement. In general, utility relocation costs are borne by the utility owner where utilities are located in state rights-of-way. When utilities are located in dedicated easements, relocation costs are borne by the roadway jurisdiction.

11.0 PROJECT COSTS

Roadway and structural costs are included in the costs shown in Table 8. The cost estimate assumes total replacement of the existing Curlew Road and Tampa Road pavements from west of the intersection with SR 595 (Alt. U.S. 19) to approximately Bay View Drive.

TABLE 8

PROJECT COSTS* - SUMMARY TABLE

	ALTERNATE		
	A	B	C
Right-of-way	$ 9.237	$13.635	$23.263
Construction	18.458	20.048	20.865
Engineering and Contingencies	3.692	4.010	4.173
	$31.387	$37.693	$48.301

* Costs in millions of dollars

12.0 RECOMMENDATIONS

12.1 RECOMMENDED ALTERNATE

Alternate B is the recommended design alternate for the Curlew Road/Tampa Road project. It is a six-lane urban section with 22-foot raised median, four 12-foot traffic lanes, and two 14-foot outside lanes for shared use by motor vehicles and bicycles. Alternate B, as shown in Exhibit 9, will have a slight modification. Recommendations include 12-foot borders as opposed to the 10-foot borders shown in Exhibit 9. The 12-foot borders also allow for three feet between the back of curb and edge of sidewalk compared to having the sidewalk edge at the back of curb. Roadside elements within the 12-foot border will be identical to those shown for Alternate C in Exhibit 9. This will provide an additional measure of pedestrian safety. Each border will consist of a two-foot Type 'F' curb and gutter, three-foot grass strip and five-foot sidewalk. Two feet are allowed outside the sidewalk for utility pole lines and/or matching existing conditions. Typically, 122 feet of right-of-way will be needed except along SR 584 between the 'Y' and Forest Lakes Boulevard, where right-of-way width will be 118 feet. This segment of SR 584 has a 25-foot utility easement on the south side of the roadway which can partly be utilized for project development. Distance between the back of curb and edge of sidewalk will be identical to other locations along the project.

12.2 SELECTION OF THE PREFERRED CROSS SECTION

Design alternates for the three typcial cross sections as portrayed on Exhibit 9 were evaluated in terms of traffic service, safety, social and

neighborhood impacts, property value impacts, aesthetics, and costs. This evaluation is set forth in a matrix format on Exhibit 11.

12.2.1 Traffic Service and Safety

Modified Alternate B (with 12-foot borders), as the recommended design alternate, has all the traffic service attributes, plus most of the safety attributes of Alternate C. The difference in safety features between Alternate B and Alternate C are negligible. Alternate B has distinct safety advantages over Alternate A. Bicyclists will be able to share the 14-foot outside lanes with motorists.

Recommended design speed is 45 miles per hour. This is consistent with design speeds of other urban arterials having curbs and gutters and located in the Tampa Bay area.

Median openings will conform to recent guidelines established by FDOT for the Tampa Bay Area. This is particularly important when related to frequency of median openings and the distance between major intersections and the first median opening upstream and/or downstream from these major intersections. Because the SR 584 project section has the heaviest traffic volumes, median openings should be minimized and allowed only at intersections with collector streets or other minor/major arterials.

Year 2010 traffic volumes at several short sections of the project suggest that perhaps a four-lane cross section would adequately serve those volumes and do so with less cost and disruption than a six-lane facility. Generally, changes in cross section over short distances, which include drop lanes, add lanes, tapers, alignment shifts and median differences all produce driver confusion and add hazard to a roadway facility. These changes should be avoided. For lane continuity, balance, and safety, it is recommended that the six-lane Alternate B extend across the entire seven-mile project length.

12.2.2 Social and Neighborhood Impacts

Refinements to the Alternate B alignment have reduced the number of relocations from five to four. Two of these are businesses and two are single unit detached residences. Alternate A and Alternate C would have four and five relocations, respectively. Alternate A could be constructed within existing right-of-way except at major intersections, where additional right-of-way would be required for wider approaches to accommodate dual left-turn lanes. Typically, Alternate B would require 22 feet in addition to the existing 100-foot right-of-way. Alternate C would require an additional 30 feet of right-of-way.

Alternate A would be least disruptive in terms of number of parcels impacted. With Alternate B, there will be high impact in residential and commercial locations where all additional right-of-way is taken on one side. This would be exacerbated under Alternate C because of its wider width.

12.2.3 Impact on Property Values

With Recommended Alternate B, residential property values may decrease, particularly where all additional right-of-way is acquired on one side. Commercial values will most likely increase because of improved accessibility and increased exposure to higher traffic volumes. Commercial values under Alternates A and C would probably increase for the same reasons. Residential values under Alternate A would be least affected as compared to the other two alternates. Alternate C would have the most severe impact on residential property values.

12.2.4 Aesthetics

Approximately 76 percent of the project length is along SR 586 (Curlew Road), which is primarily residential in character. Therefore, a raised median wide enough for potential sodding and planting will be beneficial from an aesthetic standpoint. Alternate A does not offer this potential and Alternate C provides the highest level of aesthetic enhancement. While Alternate B has a median eight feet narrower than Alternate C, attractive sodding and planting can be accomplished within a 22-foot median if judicious selection of plant stock is incorporated into a well-designed landscape plan. Because Curlew Road is also the approach roadway to Honeymoon Island State Park for more than a half-million annual visitors, special consideration should be given to landscaping this facility. Engineering and landscape principles should be combined into a total design of the roadway facility so that maximum safety and environmental benefits are realized.

The 24 percent project length along SR 584 (Tampa Road) has mostly commercial and industrial frontage. Cost, traffic service and safety are the primary issues on this length between the SR 584/SR 586 'Y' and the eastern terminus of the project. Landscaping along Tampa Road can be attractively designed, albeit with more economic selection of plant stock and lower densities in planted areas.

12.2.5 Alternate Cost Comparisons

Estimated costs for each of the project alternates are presented in Table 8, and are repeated below:

	ALTERNATE		
	A	B	C
	(Millions of Dollars)		
Right-of-Way	$ 9.237	$13.635	$23.263
Construction	18.458	20.048	20.865
Engineering and Contingencies	3.692	4.010	4.173
	$31.387	$37.693	$48.301

The major differences in costs between the three alternates are associated almost entirely with right-of-way requirements. Recommended Alternate B has a typical cross section which needs 122 feet in right-of-way width. This is 22 feet more than available right-of-way. Alternate A would require additional right-of-way primarily at intersections, and Alternate C would typically require 30 feet more than the available 100-foot right-of-way. These costs are expected to change as the project advances through final design, right-of-way acquisition and construction. Final costs for Recommended Alternate B will be proportionately the same as the cost estimates shown above, when compared to Alternates A and C.

12.2.6 Summary of Alternate Selection Process

Alternate A is the lowest in cost and would have the least impact on fronting properties. Nonetheless, its lack of pedestrian safety features, plus perceived operational problems under heavy traffic volumes eliminate this alternate from serious consideration. It was included for study only because its cross-sectional dimensions would fit into the existing 100-foot right-of-way.

Alternate C would be the best cross section for traffic service, safety and aesthetics, but the cost and disruption to communities along its length preclude its selection as the preferred alternate.

Recommended Alternate B is $6.306 million higher in costs than Alternate A -- but $10.608 million less than Alternate C. Traffic service and safety is much superior to Alternate A and with exception of the median width, Alternate B is comparable to Alternate C. The recommended alternate will be more disruptive to fronting properties than Alterante A, but less disruptive than Alternate C. Overall, Alternate B best meets transportation needs of the Curlew Road/Tampa Road Corridor at a reasonable cost and with minimum disruption to the community.

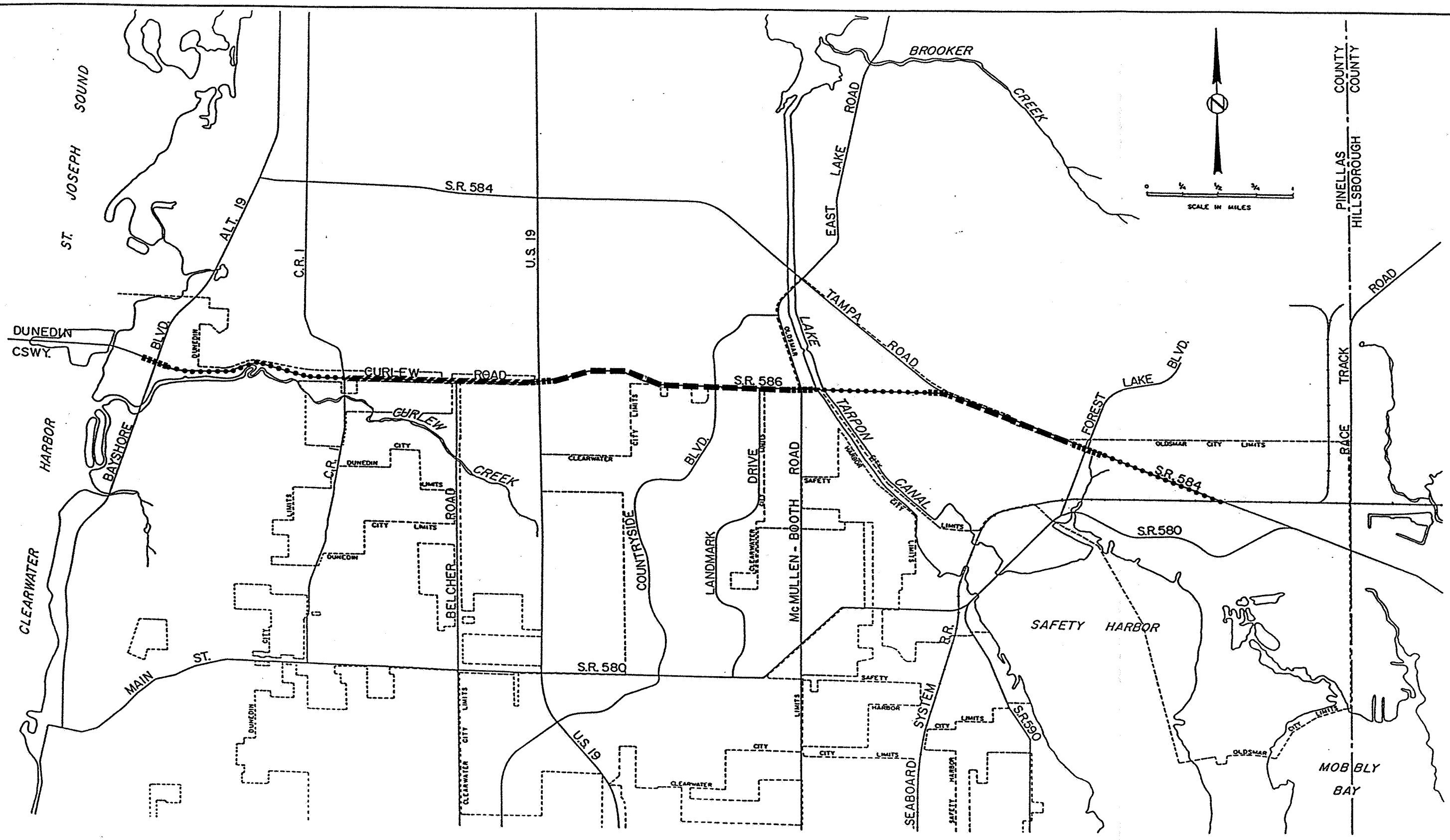
Finally, correspondence from the City of Oldsmar and the Pinellas County Transportation Planning Administration have indicated a preference for Alternate B.

12.3 SELECTION OF PREFERRED ALIGNMENT

Alignment studies were conducted to determine the lowest cost locations related to right-of-way acquisition costs. These studies involved right-of-way acquisition from only the right side, or left side; equally from both sides; and, combinations thereof. Recommended alignment locations for Alternate B are portrayed in Exhibit 21. Conceptual plans for the Alternate B cross sections reflect these alignment right-of-way cost studies.

12.4 INTERSECTION DESIGNS

Because the lane widths of Recommended Alternate B are wider than for Alternate A, another analysis was performed to determine if there would be a change in the number of intersection approach lanes, or levels of service, as compared to the information provided in Table 4. This comparison indicated that the number of approach lanes would remain unchanged at all intersections. The level of service changed on one or two approaches at five intersections for the 2010 A.M. peak hour. For the P.M. peak hour, one or two approaches had level of service changes at four intersections. Overall intersection levels of service, however, remained unchanged. Accordingly, the intersection configurations shown on Exhibit 10 are also applicable to Alternate B. Summary tables for the intersection analyses performed for Alternate B are contained in Appendix A.



RECOMMENDED ALIGNMENT LOCATIONS FOR ALTERNATE B

WITH RESPECT TO ℄ OF EXISTING R/W

- ••••••• LEFT SIDE
- ▬ ▬ ▬ RIGHT SIDE
- ▨▨▨▨ COMBINATION (LT., RT., & CENTER)
- ▪▪▪▪▪▪▪▪ TRANSITION SECTION

EXHIBIT 21

12.5 LAKE TARPON CANAL BRIDGE

The Value Engineering Study Team recommended replacement of the Lake Tarpon Canal Bridge as opposed to widening of the bridge. That recommendation was made because of lower life cycle costs and because replacement of the bridge would reduce traffic disruption due to fewer construction stages. Replacement of the bridge as recommended by the VE Study Team is endorsed.

12.6 MAINTENANCE OF TRAFFIC DURING CONSTRUCTION

Maintenance of traffic will be accomplished as discussed in Section 7.0. Two lanes will be available to traffic on Curlew Road and Tampa Road at all times. Left-turn lanes will be provided at major intersections where possible during construction. Methods similar to Index Nos. 600, 640, and 641 of the Roadway and Traffic Design Standards (1990) will be applied. In this manner, traffic disruptions will be held to a minimum, and all intersecting streets within the project boundaries will remain open during construction.

12.7 PROJECT LENGTH

The project length has been shortened by approximately 2000 feet to allow for a proposed grade separation to carry Tampa Road over the CSX Railroad. At the time the SR 586/SR 584 project was initiated, it appeared that Tampa Road would have a grade crossing at the tracks. Shortly before the June 5, 1989 public hearing, separate project development studies related to the SR 584/SR 580 project -- east of the CSX Railroad -- indicated that a grade separation is needed. This grade separation was then included in the SR584/SR580 project. Accordingly, the SR 586/SR 584 project has been reduced

in length. It will match end conditions with the project to the east at Bay View Drive. The project will now extend from Alternate U.S. 19 in Dunedin to Bay View Drive in Oldsmar. The original project length was approximately 7.4 miles. The adjusted length is approximately seven miles.

APPENDICES

APPENDIX A -- Summary - Intersection Analysis

APPENDIX B -- Agency Coordination

APPENDIX A

Summary - Intersection Analysis

NUMBER OF LANES NEEDED FOR INTERSECTION APPROACHES

YEAR 2010 TRAFFIC
SR 586/SR 584 PD&E STUDY

2010 AM TRAFFIC

INTERSECTION	EXISTING NO. OF LANES PER APPROACH EB	WB	NB	SB	PROPOSED NO. OF LANES PER APPROACH EB	WB	NB	SB	LOS PER APPROACH EB	WB	NB	SB	INTERSECTION L O S
ALT 19	3	2	3	3	5	5	5	5	D	D	D	E	D
CR1	2	2	3	3	4	5	4	3	D	D	C	C	C
COUNTRYSIDE	3	3	2	3	4	4	3	3	D	C	D	D	D
BELCHER	2	2	2	0	4	5	5	4	E	E	D	D	D
TAMPA RD	2	-	2	1	4	-	5	3	D	-	D	E	D
FOREST LAKES	2	3	3	2	5	5	5	5	E	C	E	E	D

2010 PM TRAFFIC

INTERSECTION	EXISTING NO. OF LANES PER APPROACH EB	WB	NB	SB	PROPOSED NO. OF LANES PER APPROACH EB	WB	NB	SB	LOS PER APPROACH EB	WB	NB	SB	INTERSECTION L O S
ALT 19	3	2	3	3	5	5	5	5	D	E	D	D	D
CR1	2	2	3	3	4	5	4	3	C	D	C	C	C
COUNTRYSIDE	3	3	2	3	4	4	3	3	C	D	D	D	D
BELCHER	2	2	2	0	4	5	5	3	D	E	E	C	D
TAMPA RD	2	-	2	1	4	-	5	3	D	-	E	D	D
FOREST LAKES	2	3	3	2	5	5	5	5	D	D	E	D	D

NOTE:

1. 12'-12'-14' LANE WIDTHS WERE CONSIDERED.
2. PEAK HOUR FACTOR OF 0.92.

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

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INTERSECTION..CURLEW RD/ALT 19 F
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV AM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

VOLUMES

	EB	WB	NB	SB
LT	181	308	242	435
TH	435	341	1019	1296
RT	309	342	393	231
RR	0	0	0	0

GEOMETRY

	EB		WB		NB		SB	
L	12.0	L	12.0	L	12.0	L	12.0	
L	12.0	L	12.0	L	12.0	L	12.0	
T	12.0	T	12.0	T	12.0	T	12.0	
T	12.0	T	12.0	T	12.0	T	12.0	
TR	14.0	TR	14.0	TR	14.0	TR	14.0	
	12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
SB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3

SIGNAL SETTINGS

CYCLE LENGTH = 95.0

		PH-1	PH-2	PH-3	PH-4
EB	LT	X			
	TH		X		
	RT		X		
	PD		X		
WB	LT	X			
	TH		X		
	RT		X		
	PD		X		
GREEN		13.4	20.0	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0

		PH-1	PH-2	PH-3	PH-4
NB	LT	X			
	TH		X		
	RT		X		
	PD		X		
SB	LT	X			
	TH		X		
	RT		X		
	PD		X		
GREEN		13.6	32.0	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.447	0.141	28.9	D	27.1	D
	TR	0.835	0.211	26.7	D		
WB	L	0.760	0.141	34.8	D	28.8	D
	TR	0.779	0.211	25.2	D		
NB	L	0.588	0.143	30.4	D	29.2	D
	TR	0.966	0.337	29.0	D		
SB	L	1.058	0.143	80.8	F	47.7	E
	TR	1.021	0.337	38.8	D		

INTERSECTION: Delay = 34.9 (sec/veh) V/C = 1.057 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

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INTERSECTION..CURLEW 2010 DDHV PM F/ALT.19 IAP GREEN TIMES PM
AREA TYPE.....OTHER
ANALYST.......BN A192015P.SIG
DATE..........2/25/88
TIME..........2010 DDHV PM
COMMENT.......12'-12'-14' lane widths & PHF=0.92 applied

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	231	393	309	342	L	12.0	L	12.0	L	12.0	L	12.0	
TH	341	435	1296	1019	L	12.0	L	12.0	L	12.0	L	12.0	
RT	242	435	308	181	T	12.0	T	12.0	T	12.0	T	12.0	
RR	0	0	0	0	T	12.0	T	12.0	T	12.0	T	12.0	
					TR	14.0	TR	14.0	TR	14.0	TR	14.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR.	TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	33.3		3
WB	0.00	2.00	N	0	0	0.92	50	Y	33.3		3
NB	0.00	2.00	N	0	0	0.92	50	Y	33.3		3
SB	0.00	2.00	N	0	0	0.92	50	Y	33.3		3

SIGNAL SETTINGS CYCLE LENGTH = 95.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		13.4	20.0	0.0	0.0	GREEN		11.6	34.0	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.570	0.141	30.2	D	25.0	D
	TR	0.654	0.211	23.1	C		
WB	L	0.970	0.141	56.1	E	42.2	E
	TR	0.992	0.211	40.9	E		
NB	L	0.881	0.122	45.0	E	38.0	D
	TR	1.017	0.358	36.8	D		
SB	L	0.975	0.122	60.2	F	27.3	D
	TR	0.755	0.358	18.4	C		

INTERSECTION: Delay = 34.6 (sec/veh) V/C = 1.077 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

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INTERSECTION..CURLEW RD. E/C.R.1 IAP GREEN TIMES AM
AREA TYPE.....OTHER
ANALYST.....BN CRIA2014.SIG
DATE.....2/25/88
TIME.....2010 DDHV AM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	35	382	51	45	L	12.0	L	12.0	L	12.0	L	12.0	
TH	914	718	303	385	T	12.0	L	12.0	T	12.0	T	12.0	
RT	65	35	486	45	T	12.0	T	12.0	T	12.0	TR	14.0	
RR	0	0	0	0	TR	14.0	T	12.0	R	14.0		12.0	
						12.0	TR	14.0		12.0		12.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR.	TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	24.3		3
WB	0.00	2.00	N	0	0	0.92	50	Y	24.3		3
NB	0.00	2.00	N	0	0	0.92	50	Y	30.3		3
SB	0.00	2.00	N	0	0	0.92	50	Y	30.3		3

SIGNAL SETTINGS CYCLE LENGTH = 89.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		13.2	21.8	0.0	0.0	GREEN		3.3	34.7	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.152	0.148	25.1	D	25.6	D
	TR	0.887	0.245	25.6	D		
WB	L	0.897	0.148	41.8	E	27.8	D
	TR	0.680	0.245	20.5	C		
NB	L	0.883	0.037	82.6	F	22.5	C
	T	0.249	0.390	11.9	B		
	R	0.860	0.390	23.2	C		
SB	L	0.779	0.037	61.3	F	16.9	C
	TR	0.349	0.390	12.4	B		

INTERSECTION: Delay = 24.8 (sec/veh) V/C = 0.948 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

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INTERSECTION..CURLEW RD/C.R. 1 IAP GREEN TIMES PM
AREA TYPE.....OTHER
ANALYST.....BN CR1P2014.SIG
DATE.....2/25/88
TIME.....2010 DDHV PM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	45	486	65	35	L	12.0	L	12.0	L	12.0	L	12.0	
TH	718	914	385	303	T	12.0	L	12.0	T	12.0	T	12.0	
RT	51	45	382	35	T	12.0	T	12.0	T	12.0	TR	14.0	
RR	0	0	0	0	TR	14.0	T	12.0	R	14.0		12.0	
						12.0	TR	14.0		12.0		12.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	24.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	24.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3
SB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3

SIGNAL SETTINGS CYCLE LENGTH = 80.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		15.5	19.6	0.0	0.0	GREEN		3.8	25.1	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.149	0.194	20.4	C	18.8	C
	TR	0.696	0.245	18.7	C		
WB	L	0.873	0.194	32.8	D	25.8	D
	TR	0.865	0.245	22.5	C		
NB	L	0.879	0.048	70.7	F	22.7	C
	T	0.393	0.314	14.0	B		
	R	0.840	0.314	23.8	C		
SB	L	0.473	0.048	31.4	D	15.3	C
	TR	0.341	0.314	13.7	B		

INTERSECTION: Delay = 22.7 (sec/veh) V/C = 0.938 LOS = C

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

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INTERSECTION..CURLEW RD/BELCHER RD E
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV AM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	90	236	157	113	L	12.0	L	12.0	L	12.0	L	12.0	
TH	1389	1091	1214	1544	T	12.0	L	12.0	L	12.0	T	12.0	
RT	199	89	186	114	T	12.0	T	12.0	T	12.0	T	12.0	
RR	0	0	0	0	TR	14.0	T	12.0	T	12.0	TR	14.0	
						12.0	TR	14.0	TR	14.0		12.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3
SB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3

SIGNAL SETTINGS CYCLE LENGTH = 120.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		8.7	41.4	0.0	0.0	GREEN		8.2	45.7	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.797	0.072	61.2	F	47.1	E
	TR	1.032	0.345	46.4	E		
WB	L	1.133	0.072	140.4	F	41.6	E
	TR	0.760	0.345	23.7	C		
NB	L	0.800	0.068	54.2	E	29.2	D
	TR	0.825	0.381	23.4	C		
SB	L	1.062	0.068	130.4	F	37.4	D
	TR	0.966	0.381	31.7	D		

INTERSECTION: Delay = 38.4 (sec/veh) V/C = 1.014 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

****

INTERSECTION..CURLEW RD/BELCHER RD E
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV PM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	114	186	199	89	L	12.0	L	12.0	L	12.0	L	12.0	
TH	1091	1389	1544	1214	T	12.0	L	12.0	L	12.0	T	12.0	
RT	157	113	236	90	T	12.0	T	12.0	T	12.0	T	12.0	
RR	0	0	0	0	TR	14.0	T	12.0	T	12.0	TR	14.0	
						12.0	TR	14.0	TR	14.0		12.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3
SB	0.00	2.00	N	0	0	0.92	50	Y	30.3	3

SIGNAL SETTINGS — CYCLE LENGTH = 120.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		8.7	39.9	0.0	0.0	GREEN		8.2	47.2	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	1.010	0.072	108.0	F	32.6	D
	TR	0.841	0.333	26.3	D		
WB	L	0.893	0.072	64.1	F	42.2	E
	TR	1.004	0.333	40.5	E		
NB	L	1.014	0.068	92.8	F	43.7	E
	TR	1.016	0.393	39.7	D		
SB	L	0.836	0.068	67.8	F	23.6	C
	TR	0.736	0.393	20.9	C		

INTERSECTION: Delay = 37.3 (sec/veh) V/C = 1.010 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

****

INTERSECTION..CURLEW RD/COUNTRYSIDE C
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV AM
COMMENT.....12'-12'-14' lane widths,& PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	109	215	143	148	: L	12.0	L	12.0	L	12.0	L	12.0	
TH	1366	1074	243	309	: T	12.0	T	12.0	T	12.0	T	12.0	
RT	113	116	273	139	: T	12.0	T	12.0	TR	14.0	TR	14.0	
RR	0	0	0	0	: TR	14.0	TR	14.0		11.0		12.0	
					:	12.0		12.0		12.0		12.0	
					:	12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	21.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	21.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	27.3	3
SB	0.00	2.00	N	0	0	0.92	50	Y	27.3	3

SIGNAL SETTINGS — CYCLE LENGTH = 90.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		17.2	30.1	0.0	0.0	GREEN		10.3	16.4	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.366	0.191	24.4	C	29.9	D
	TR	0.983	0.334	30.2	D		
WB	L	0.722	0.191	31.2	D	22.5	C
	TR	0.794	0.334	19.1	C		
NB	L	0.802	0.114	43.7	E	36.8	D
	TR	0.970	0.182	41.9	E		
SB	L	0.830	0.114	46.6	E	32.0	D
	TR	0.808	0.182	27.3	D		

INTERSECTION: Delay = 29.0 (sec/veh) V/C = 1.091 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

****

INTERSECTION..CURLEW RD/COUNTRYSIDE C
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV PM
COMMENT.....12'-12'-14' lane widths,& PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	139	273	113	116	L	12.0	L	12.0	L	12.0	L	12.0	
TH	1074	1366	309	243	T	12.0	T	12.0	T	12.0	T	12.0	
RT	143	148	215	109	T	12.0	T	12.0	TR	14.0	TR	14.0	
RR	0	0	0	0	TR	14.0	TR	14.0		11.0		12.0	
						12.0		12.0		12.0		12.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR.	TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	21.3		3
WB	0.00	2.00	N	0	0	0.92	50	Y	21.3		3
NB	0.00	2.00	N	0	0	0.92	50	Y	27.3		3
SB	0.00	2.00	N	0	0	0.92	50	Y	27.3		3

SIGNAL SETTINGS — CYCLE LENGTH = 90.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD		X				PD		X		
GREEN		17.2	32.1	0.0	0.0	GREEN		8.3	16.4	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.467	0.191	25.4	D	18.4	C
	TR	0.764	0.357	17.7	C		
WB	L	0.917	0.191	48.3	E	28.3	D
	TR	0.947	0.357	24.8	C		
NB	L	0.787	0.092	45.6	E	36.2	D
	TR	0.963	0.182	40.5	E		
SB	L	0.808	0.092	47.8	E	29.1	D
	TR	0.635	0.182	23.2	C		

INTERSECTION: Delay = 27.3 (sec/veh) V/C = 1.122 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

****

INTERSECTION..CURLEW RD/TAMPA RD B
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV AM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

	VOLUMES					GEOMETRY					
	EB	WB	NB	SB		EB		WB	NB		SB
LT	56	0	824	0	L	12.0	L	11.0	L 12.0	T	12.0
TH	0	0	1094	1393	R	12.0	L	11.0	L 12.0	T	12.0
RT	1049	0	0	71	R	12.0	T	11.0	T 12.0	TR	14.0
RR	0	0	0	0	R	14.0	TR	11.0	T 12.0		12.0
						12.0		12.0	T 14.0		12.0
						12.0		12.0	12.0		12.0

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	27.5	3
WB	0.00	2.00	N	0	0	0.92	50	Y	27.5	3
NB	0.00	2.00	N	0	0	0.92	50	Y	14.8	3
SB	0.00	2.00	N	0	0	0.92	50	Y	14.8	3

SIGNAL SETTINGS CYCLE LENGTH = 110.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH						TH		X		
	RT	X					RT	X			
	PD						PD				
WB	LT					SB	LT				
	TH						TH		X		
	RT						RT		X		
	PD						PD				
GREEN		33.1	0.0	0.0	0.0	GREEN		30.3	34.6	0.0	0.0
YELLOW		4.0	0.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.119	0.301	21.2	C	33.2	D
	R	0.899	0.301	28.8	D		
NB	L	1.041	0.275	65.1	F	36.5	D
	T	0.763	0.315	23.2	C		
SB	TR	1.028	0.315	44.9	E	44.5	E

INTERSECTION: Delay = 32.9 (sec/veh) V/C = 0.989 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

****

INTERSECTION..CURLEW RD/TAMPA RD B
AREA TYPE.....OTHER
ANALYST.....BN TPAP2011.SIG
DATE.....2/25/88
TIME.....2010 DDHV PM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

	VOLUMES					GEOMETRY					
	EB	WB	NB	SB		EB		WB	NB		SB
LT	71	0	1049	0	L	12.0	L	11.0	L 12.0	T	12.0
TH	0	0	1393	1094	R	12.0	L	11.0	L 12.0	T	12.0
RT	824	0	0	56	R	12.0	T	11.0	T 12.0	TR	14.0
RR	0	0	0	0	R	14.0	TR	11.0	T 12.0		12.0
						12.0		12.0	T 14.0		12.0
						12.0		12.0	12.0		12.0

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ PKG Y/N	BUSES Nm	Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	27.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	27.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	14.8	3
SB	0.00	2.00	N	0	0	0.92	50	Y	14.8	3

SIGNAL SETTINGS CYCLE LENGTH = 110.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH						TH		X		
	RT	X					RT	X			
	PD						PD				
WB	LT					SB	LT				
	TH						TH		X		
	RT						RT		X		
	PD						PD				
GREEN		26.1	0.0	0.0	0.0	GREEN		38.8	33.1	0.0	0.0
YELLOW		4.0	0.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.192	0.237	25.5	D	34.5	D
	R	0.896	0.237	32.2	D		
NB	L	1.035	0.353	57.2	E	43.4	E
	T	1.015	0.301	42.5	E		
SB	TR	0.844	0.301	25.9	D	28.2	D

INTERSECTION: Delay = 32.9 (sec/veh) V/C = 0.934 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

****

INTERSECTION..CURLEW RD/FOREST LAKES D
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV AM
COMMENT.....12'-12'-14' lane widths,& PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB		EB		WB		NB		SB	
LT	161	167	407	210	L	12.0	L	12.0	L	12.0	L	12.0	
TH	1758	1382	457	581	L	12.0	L	12.0	L	12.0	L	12.0	
RT	519	165	213	206	T	12.0	T	12.0	T	12.0	T	12.0	
RR	0	0	0	0	T	12.0	T	12.0	T	12.0	T	12.0	
					TR	14.0	TR	14.0	TR	14.0	TR	14.0	
						12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
SB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3

SIGNAL SETTINGS CYCLE LENGTH = 115.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD						PD				
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD						PD				
GREEN		7.0	56.5	0.0	0.0	GREEN		15.8	19.7	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.921	0.061	70.7	F	45.7	E
	TR	1.052	0.491	44.0	E		
WB	L	0.955	0.061	78.0	F	19.0	C
	TR	0.702	0.491	15.2	C		
NB	L	1.031	0.137	79.3	F	44.8	E
	TR	0.901	0.171	37.6	D		
SB	L	0.532	0.137	36.0	D	57.0	E
	TR	1.049	0.171	62.4	F		

INTERSECTION: Delay = 39.2 (sec/veh) V/C = 1.222 LOS = D

1985 HCM: SIGNALIZED INTERSECTIONS
SUMMARY REPORT

****

INTERSECTION..CURLEW RD/FOREST LAKES D
AREA TYPE.....OTHER
ANALYST.....BN
DATE.....2/25/88
TIME.....2010 DDHV PM
COMMENT.....12'-12'-14' lane widths, & PHF=0.92 applied.

	VOLUMES					GEOMETRY							
	EB	WB	NB	SB	:	EB		WB		NB		SB	
LT	206	213	519	165	: L	12.0	L	12.0	L	12.0	L	12.0	
TH	1382	1758	581	457	: L	12.0	L	12.0	L	12.0	L	12.0	
RT	407	210	167	161	: T	12.0	T	12.0	T	12.0	T	12.0	
RR	0	0	0	0	: T	12.0	T	12.0	T	12.0	T	12.0	
					: TR	14.0	TR	14.0	TR	14.0	TR	14.0	
					:	12.0		12.0		12.0		12.0	

ADJUSTMENT FACTORS

	GRADE (%)	HV (%)	ADJ Y/N	PKG Nm	BUSES Nb	PHF	PEDS	PED. Y/N	BUT. min T	ARR. TYPE
EB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
WB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
NB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3
SB	0.00	2.00	N	0	0	0.92	50	Y	33.3	3

SIGNAL SETTINGS — CYCLE LENGTH = 110.0

		PH-1	PH-2	PH-3	PH-4			PH-1	PH-2	PH-3	PH-4
EB	LT	X				NB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD						PD				
WB	LT	X				SB	LT	X			
	TH		X				TH		X		
	RT		X				RT		X		
	PD						PD				
GREEN		8.1	48.0	0.0	0.0	GREEN		19.7	18.2	0.0	0.0
YELLOW		4.0	4.0	0.0	0.0	YELLOW		4.0	4.0	0.0	0.0

LEVEL OF SERVICE

	LANE GRP.	V/C	G/C	DELAY	LOS	APP. DELAY	APP. LOS
EB	L	0.974	0.074	76.2	F	28.9	D
	TR	0.931	0.436	23.7	C		
WB	L	1.007	0.074	85.3	F	34.2	D
	TR	1.005	0.436	33.2	D		
NB	L	1.009	0.179	65.1	F	50.2	E
	TR	1.026	0.165	55.4	E		
SB	L	0.321	0.179	30.0	D	33.0	D
	TR	0.852	0.165	33.7	D		

INTERSECTION: Delay = 36.4 (sec/veh) V/C = 1.204 LOS = D

APPENDIX B

Agency Coordination

AGENDA
METROPOLITAN PLANNING ORGANIZATION
FRIDAY, OCTOBER 30, 1987
2:00 PM
BOARD ASSEMBLY ROOM
5TH FLOOR, COUNTY COURTHOUSE
CLEARWATER, FLORIDA

I. CALL TO ORDER
II. INVOCATION AND PLEDGE
III. APPROVAL OF MINUTES – Meeting of September 25, 1987
IV. DESIGN OF THE STATE ROAD 580 BRIDGE – Presentation by FDOT
V. PRELIMINARY DESIGN OF IMPROVEMENTS TO STATE ROAD 586 AND STATE ROAD 584
VI. PLANS FOR THE EAST-WEST CONNECTOR ROAD IN OLDSMAR

VII. FALL UPDATE OF THE TRANSPORTATION IMPROVEMENT PROGRAM
A. TIP for Fiscal Years 1988-1992 .
B. Priority Program of State Projects

VIII. AUTHORITY OF THE MPO REGARDING TRANSIT PLANNING ACTIVITIES – Report From Assistant County Attorney Scott Steady

IX. WILLIAMS PARK TRANSIT TERMINAL RELOCATION STUDY

X. TRANSIT DEVELOPMENT PROGRAM UPDATE
A. Small Bus Vs. Large Bus Recommendation – Carryover from September Meeting
B. Elderly and Handicapped Service Recommendation
C. Approval of Monthly Report and Invoice

XI. RESULTS OF JOINT MPO/JWB TRANSPORTATION DISADVANTAGED NEEDS SURVEY

XII. UMTA GRANT ACCEPTANCE

XIII. REESTABLISHMENT OF THE STATEWIDE MPO ADVISORY COUNCIL

XIV. PROPOSED ORDER ON THE ALDERMAN ROAD PETITION FOR DECLARATORY STATEMENT

XV. CITIZENS ADVISORY COMMITTEE ACTIONS
A. Resolution #87-17 Regarding Clean Air Measures
B. Resolution #87-18 Regarding Williams Park Relocation
C. Resolution #87-19 Regarding County Road Names and Numbers

XVI. TRAFFIC SIGNAL AND MEDIAN CONTROL COMMITTEE RECOMMENDATIONS
A. Proposed Signals
B. Review of Median Opening Proposals
C. Review of signals at McMullen Booth Road/Drew Street and Ulmerton Road/58th Street

XVII. OTHER BUSINESS
A. Guideway Transit Project
B. Supplemental Agreements for Joint School Bus Use Contract
C. Correspondence
D. Other

XVIII. ADJOURNMENT

6915Pcw

MEMORANDUM

DATE: August 28, 1987

TO: SR 586/SR 584 Project File - HWL Job 436

FROM: Bern Guentner

SUBJ: 13 Control Criteria for Design

A meeting was held this morning in the DOT District 7 Tampa office to discuss 13 Control Criteria for the SR 586/584 Project. Attendance at the meeting:

Teresa Estes, FDOT
Mariano Berrias, FHWA
Dennis Simpson, Pinellas County
Rudy Garcia, Pinellas County
Hugh Williams, HWL
Bern Guentner, HWL

Each of the Control Criteria was discussed as related to the project. Table One - Recommended Design Criteria in the Preliminary Engineering Report, covered most of the Control Criteria. What is not listed in Table One is included in other sections of the report.

Teresa Estes requested additional information be included in the report with respect to the Lake Tarpon Outfall Canal and the bridge which carries SR 586 over the canal. This information should include:

- Reference to the canal being a non-navigable waterway;
- Substantiation that full shoulders are not needed on the bridge because its length is less than 500 feet. (The FDOT Green Book indicates that full shoulders are needed for disabled vehicles on bridges over 500 feet in length.)
- A discussion of why the existing bridge should be used as part of the future bridge.
- Reasons why the future bridge should not be shifted to the north or south of existing alignment.

Advantages and disadvantages of each alternate should be incorporated into the Preliminary Engineering Report so that these can be reviewed before the Draft Environmental Document is prepared. Mariano requested a copy of the updated Preliminary Engineering Report when it is available so that the FHWA can be ready for the Draft Environmental Document as it is circulated for review.

Teresa suggested that copies of the notes from meetings that were attended by the FHWA be included in the Appendix of the Preliminary Engineering Report. Also, copies of coordination letters from Pinellas County MPO should be included.

BFG/b
8-31-87

Bern436.Mem

TO: Dennis Simpson, Consultant Coordinator
Engineering Department

FROM: Hugh Pascoe
Transportation Planning Administrator

SUBJECT: S.R. 586/584 Alternate Design Concepts

DATE: July 14, 1987

We have reviewed the S.R. 586/584 alternate deisgn concepts that you forwarded to us on July 6, 1987, and have the following general comments:

While Alternative "C" would offer a higher level of design, the additional right-of-way requirements could conceivably make Alternative "B" more acceptable from an environmental and social impact standpoint. Additional information would be needed to determine if Alternative "C" would be precluded for those reasons. Nevertheless, it would appear that "B" is clearly acceptable in meeting design standards, and is in conformance with adopted right-of-way requirements.

However, Alternate "A", with it's 11' lanes (including the curb lane) and painted median does not merit serious consideration.

HP/jmz
7793P/0300P

LOCHNER
H.W. LOCHNER, INC., 9721 EXECUTIVE CENTER DRIVE, ST. PETERSBURG, FLORIDA 33702 (813) 576-2535

April 6, 1987

Mr. Elmer N. Spence, P.E.
Chief, Consulting Services
PINELLAS COUNTY DEPARTMENT OF PUBLIC WORKS AND UTILITIES
315 Court Street
Clearwater, Florida 33516

Re: SR 586 (Curlew Road) and SR 584 (Tampa Road) from SR 595 (Alt. U.S. 19) to the Seaboard System Railroad

Dear Mr. Spence:

Three items are enclosed as an outcome of the meeting on Friday, April 3, 1987:

1) Meeting notes.

2) Recommended Design Criteria (Revised April 3, 1987).

3) Typical Cross Sections (Revised April 3, 1987).

We assume you are in agreement with the changes indicated in the enclosed Design Criteria and Typical Cross Sections, and the procedures we are to use in development of project costs. Our work in the next several weeks will focus on the evaluation of Minimum and Desirable Typical Cross Sections.

Very truly yours,

H. W. LOCHNER, INC.

Bernard F. Guentner

Bernard F. Guentner, P.E.

BFG:ark

Enclosures

MEMORANDUM

DATE: April 3, 1987

TO: Curlew Road (SR 586)/Tampa Road (SR584) Project File; Job No. 436.00

FROM: John Sandeen and Bern Guentner

SUBJ: Meeting to Review Design Criteria and Typical Cross Sections

Location: FDOT Urban Office (D7) Tampa

In Attendance: See attached sign-in sheet.

1. Project base maps were reviewed. Attention was focused on existing right of way along the project.

2. Elmer Spence suggested that Lochner call HNTB for intersection details related to the McMullen-Booth Road Project. Jim Russell is the person to contact.

3. Design criteria was discussed, with the following results:

   - Design speed for SR586/SR584 should be changed from 45 mph to 50 mph.
   - Minimum pavement width of continuous two-way left-turn lane should be changed from 10 feet to 12 feet.
   - Minimum width of Paved Flush Median should be changed from 10 feet to 12 feet.
   - Minimum border width should change from 8 feet to 10 feet.
   - The 6-foot sidewalk against back of curb should be used only where essential to minimize right of way requirements. It is undesirable.
   - Add Buffer Strip Width having a minimum of 2 feet.

4. FHWA will not support 11-foot lanes unless the cost savings compared to 12-foot lanes is "substantial".

5. County wants the 14-foot outside lanes so that bicycles can share the road with motorized vehicles.

6. The FHWA needs justification for the 2-way left-turn lane--if that cross section is recommended.

7. Typical cross sections were discussed and decisions were made to determine right of way impacts (and costs) for a minimum cross section as compared to a desirable cross section. Highlights of this comparison are as follows:

   a. Minimum cross section

      * Six 11-foot lanes (no provisions for bicycles).
      * 14-foot two-way left-turn lane.
      * 10-foot borders.
      * 100-foot right of way.

   b. Desirable cross section

      * Four 12-foot lanes and two 14-foot lanes (provisions for bicycles).
      * 30-foot raised median.
      * 12-foot borders.
      * 130-foot right of way.

   c. Develop right of way costs--for both Minimum and Desirable cross sections. If the Desirable cross section is determined to have significantly higher costs than the Minimum cross section, then the Desirable cross section should be reduced on a step-by-step basis until a Minimum Desirable cross section is established. Priorities for this reduction process are as follows:

      1) Reduce Median to 22 feet.

      2) Reduce Border to 10 feet.

      3) Reduce 12-foot lanes to 11-foot lanes.

      4) Reduce 14-foot outside lane to 11 feet.

   If all four width reductions are made, the resultant right of way requirement would be 108 feet.

8. Elmer Spence was given a letter in response to the comments Lochner received on the traffic report. The significance of the letter is to receive approval of the traffic report.

9. A text on the Corridor Analysis for the project was also given to Elmer Spence. The Corridor Analysis addresses a transportation corridor extending easterly from the junction of SR 584/SR 586 to the Pinellas/Hillsborough County Line just north of the Tampa Bay Downs Race Track. The analysis finds the only feasible corridor to be along Curlew Road and Tampa Road.

BG:ark
4/6/87

SR 586 / SR 54 PD&E STUDY

NAME	AGENCY
David Buser	FDOT - Tampa
Wayne Lasseter	FDOT - Bartow
John Sandeen	HW Lochner, Inc.
Bernie Guentner	" "
Elmer Spence	Pinellas County Eng. Dept.
Dennis Simpson	" " " "
Ed Santana	FHWA
Mariano Berrios	FHWA - Area Engineer
Teresa Estes	FDOT - Bartow
Larry Gaddy	" "
Bern Guentner	H. W. Lochner

RECOMMENDED DESIGN CRITERIA

SR 586 (CURLEW ROAD) SR 584 (TAMPA ROAD)

Design Speeds

* SR 586/SR 584- 50 mph
* Crossroads and Cross streets
  - -U.S. 19 Mainline - 60 mph Des./55 mph Min.
  - -U.S. 19 Frontage Roads - 45 mph
  - -Major Urban Arterials - 45 mph
  - -Minor Urban Arterials - 40 mph
  - -Minor and Major Urban Collectors - 35 mph
  - -Local Streets - 30 mph

Pavement Widths

*SR 586/SR 584
- -Traffic Lane - 12' desirable/11' minimum
- -Traffic/Bikeway Lane - 14'
- -Continuous Two-way Left-turn lane - 14' desirable/12' minimum

Median Widths

* Raised Median
  - -Desirable minimum - 30' e-e
  - -Minimum - 19.5' e-e
* Paved Flush Median (Continuous Two-way Left-turn Lane)
  - -14' Desirable/12' minimum

Horizontal Alignment

*Degree of curvature - 6° Maximum
*Minimum length for small deflection angles:
- -900' for central of 1°
- -500' for central of 5°

*Tangent lengths between reverse curves - adequate to facilitate super-elevation transition

Vertical Alignment

*Rates of Grades (flat terrain)
- -Desirable maximum - 4%
- -Maximum - 6%

*Stopping sight distance - FDOT Green Book, 1986
*Crest and sag curves - FDOT Green Book, 1986

Superelevation Rate

*Maximum Rate - 0.05 feet per foot
- -Consideration must be given to fronting properties, intersecting streets and driveways, and drainage.

Pavement Cross Slope (Not in Superelevation Section)

*Recommended - 0.02 feet per foot
*Maximum - 0.04 feet per foot
*Minimum - 0.015 feet per foot
*Change in cross slope between adjacent travel through-lanes - 0.04 feet per foot

Miscellaneous

* Border Width (edge of pavement to R/W)
  - -Desirable - 12'
  - -Minimum - 10'
* Sidewalk Widths:
  - -5' when distance between back of curb and face of sidewalk is 2.5' or more.
  - -6' when sidewalk is against back of curb (try to avoid).
* *Buffer strip width (between back of curb and sidewalk)
  - -Minimun - 2'
* Clear zone width:
  - -Desirable Minimum - 4'
  - -Minimum - 2.5'
* Utilities - Per FDOT "Utility Accomodations Guide"
* Roadway Lighting - Continuous, at illumination levels recommended by AASHTO

Sources

* A Policy on Geometric Design of Highways and Streets. AASHTO, 1984.
* Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Greenbook). FDOT, 1986.
* *Roadway and Traffic Standards. FDOT, 1984.
* *Recommended Practices for Subdivision Streets. ITE.
* *Draft EIS, U.S. 19 (State Road 55) from State Road 694 (Gandy Blvd) in Pinellas County to State Road 595 (Alternate U.S. 19 in Pasco County, Florida. FDOT and FHWA.

3/17/87

Revised 4/3/87

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TYPICAL CROSS SECTIONS

SR 586 (CURLEW ROAD)/SR 584 (TAMPA ROAD) PD&E STUDY

Three typical cross sections have been developed for use during conceptual design studies that will be undertaken upon approval of the Traffic Report by Pinellas County and the FDOT.

These typical cross sections are attached. The rationale and right-of-way requirements for each cross section are as follows:

Typical Section 'A' - Flush Median

This is the narrowest cross section under consideration. Features are:

-14 foot continuous two-way left-turn lane for flexibility of access to the many driveways and minor cross streets. Standard painted left-turn lanes would be utilized at major cross streets.

-11 foot traffic lanes to minimize right-of-way requirements.

-Curb and gutter Type F normally used adjacent to outside traffic lanes.

-6 foot sidewalk because it is located next to back of curb and the 8-foot combination of sidewalk and curb and gutter is a minimum.

-10 foot border width is a minimum.

-2 foot minimum beyond the sidewalk is required for utility pole line and construction requirements to match existing conditions. In the past, costs for a temporary construction easement were normally negotiated with property owners, but because of the high cost for negotiations and damages, the FDOT now prefers to purchase the property outright.

-Right-of-Way needed for Typical Section 'A' is 100 feet.

Typical Section 'B' - 22 Foot Raised Median

This cross section was designed to provide more safety and attractiveness. Major features are:

-22 foot raised median would establish a physical barrier between opposing traffic lanes. It can be interrupted at most driveways and cross streets. Or, it can be interrupted at only major cross streets, which would give it more capacity and safety. This median can also be planted with sod and/or landscaped for a more attractive appearance.

-Type E Curb and Gutter normally used adjacent to raised median.

-12 foot traffic lanes.

-14 foot outside traffic lanes to allow for bicyclists. Without provision for bicyclists, the lane width could be reduced to 12 feet.

-Curb and Gutter Type F normally used adjacent to outside traffic lanes.

-6 foot sidewalk.

-10 foot border width.

-2 Foot minimum beyond the sidewalk is required for utility pole line and construction requirements to match existing conditions. In the past, costs for a temporary construction easement were normally negotiated with property owners, but because of the high costs for negotiations and damages, the FDOT now prefers to purchase the property outright.

-Right-of-Way needed for Typical Section 'B' is 118 feet.

Typical Section 'C' - 30 Foot Raised Median

This cross section is similar to Typical Section 'B' except the median is 30 feet wide and the four non-bicycle lanes are each 12 feet wide. The additional 8 feet of median provides a safer refuge for longer vehicles as they await a gap in the traffic stream for completion of their left-turn from driveway or cross street intersections. The 30-foot median also allows for dual left-turn lanes. The 12-foot wide lanes are standard.

-Right-of-Way needed for Typical Section 'C' is 130 feet.

3/17/87
Revised 4/3/87

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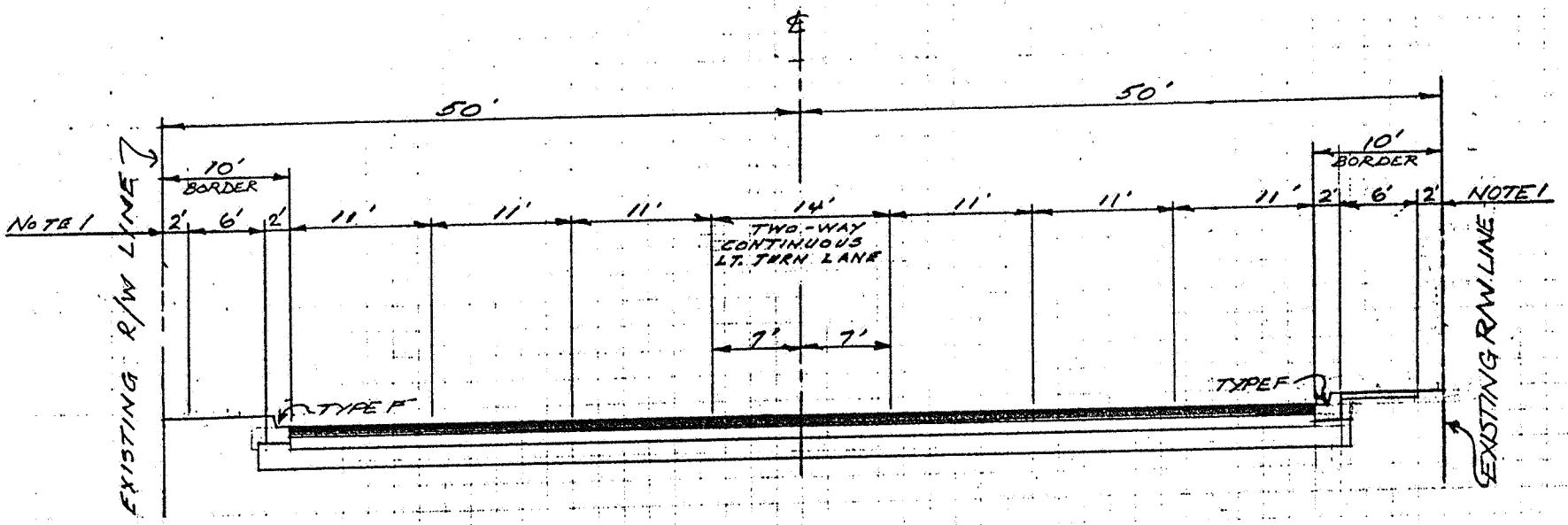

TYPICAL SECTION 'A'
FLUSH MEDIAN

PRELIMINARY

NOTES: 1. MINIMUM 2-FOOT STRIP FOR UTILITY POLE LINE AND/OR CONSTRUCTION TO MATCH EXISTING CONDITIONS BEYOND SIDEWALK.

2. DESIGN SPEED 50 MPH.

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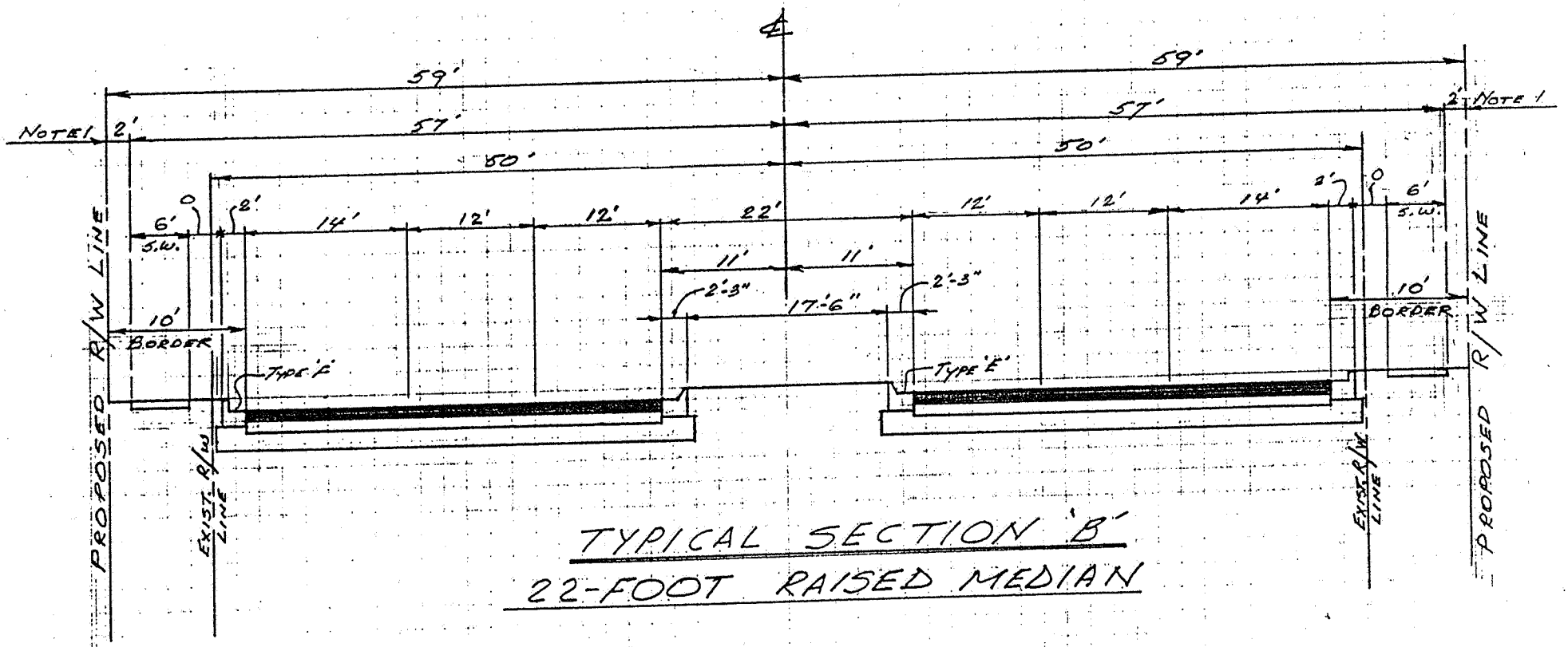
SR 586 (CURLEW RD.) / SR 584 (TAMPA RD.) PD & E STUDY



TYPICAL SECTION 'B'
22-FOOT RAISED MEDIAN

NOTES: 1. MINIMUM 2-FOOT STRIP FOR UTILITY POLE LINE AND/OR CONSTRUCTION TO MATCH EXISTING CONDITIONS BEYOND SIDEWALK.

2. DESIGN SPEED 50 MPH.

PRELIMINARY

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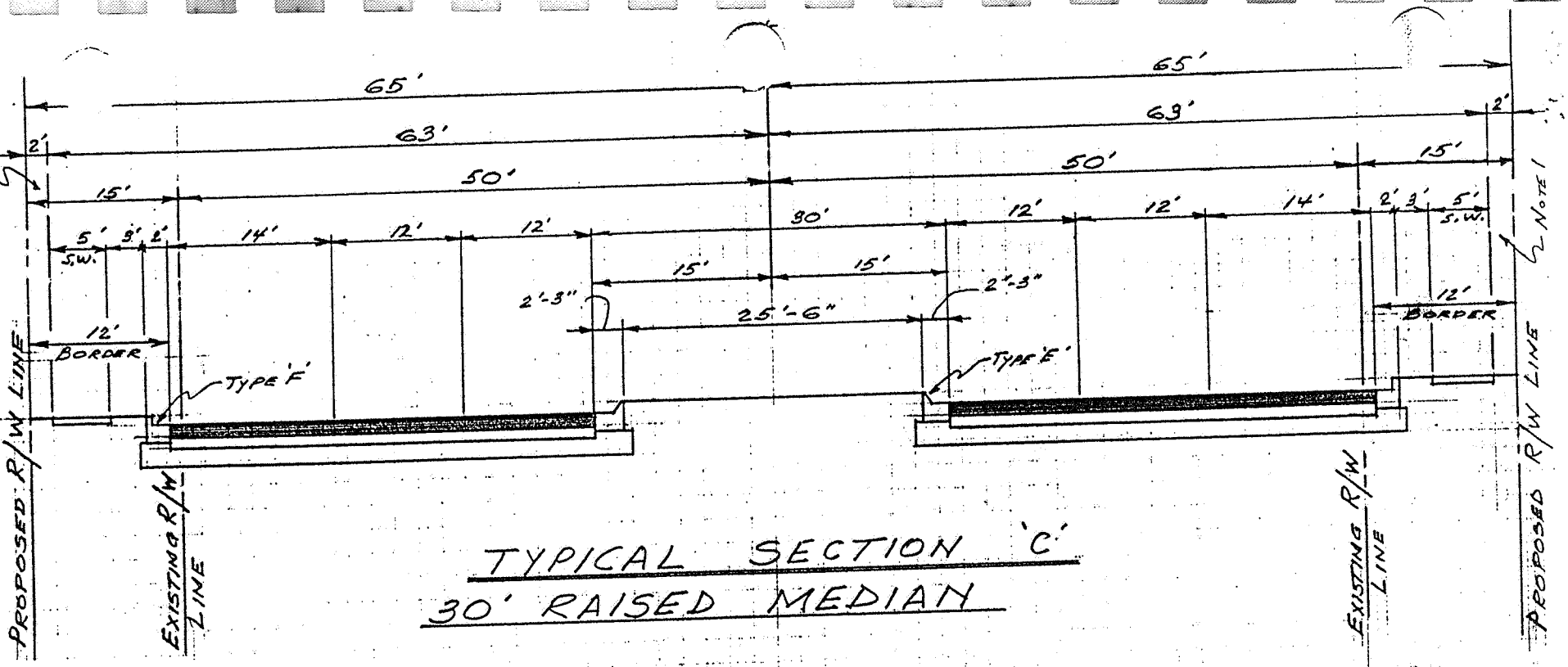
SR 586 (CURLEW RD.)/SR 584 (TAMPA RD.) PD&E STUDY



TYPICAL SECTION 'C'
30' RAISED MEDIAN

NOTES: 1. MINIMUM 2-FOOT STRIP FOR UTILITY POLE LINE AND/OR CONSTRUCTION TO MATCH EXISTING CONDITIONS BEYOND SIDEWALK

2. DESIGN SPEED 50 MPH

PRELIMINARY

3/17/87
Rev. 4/13/87

SR 586 (CURLEW RD.) / SR 584 (TAMPA RD.) P D & E STUDY