

**FINAL
TYPICAL SECTION REPORT**

**PD&E Study
I-75 (S.R. 93) from South of S.R. 56 to North of S.R. 52
Pasco County**

**Work Program Item Segment No. 258736 1
Federal Aid Program No. NH-75-1(91)275**

**This project evaluates improvement alternatives for I-75 (S.R. 93) from south of
S.R. 56 to north of S.R. 52 in Pasco County, Florida.
The approximate length of the project is 19.15 kilometers (11.902 miles).**

Prepared for:

**Florida Department of Transportation
District Seven
11201 North McKinley Drive
Tampa, Florida 33612-6403**

**November 1997
(Revised June 2000)**

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District Seven
11201 North McKinley Drive
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Prepared by:

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**November 1997
(Revised June 2000)**

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SECTION 1

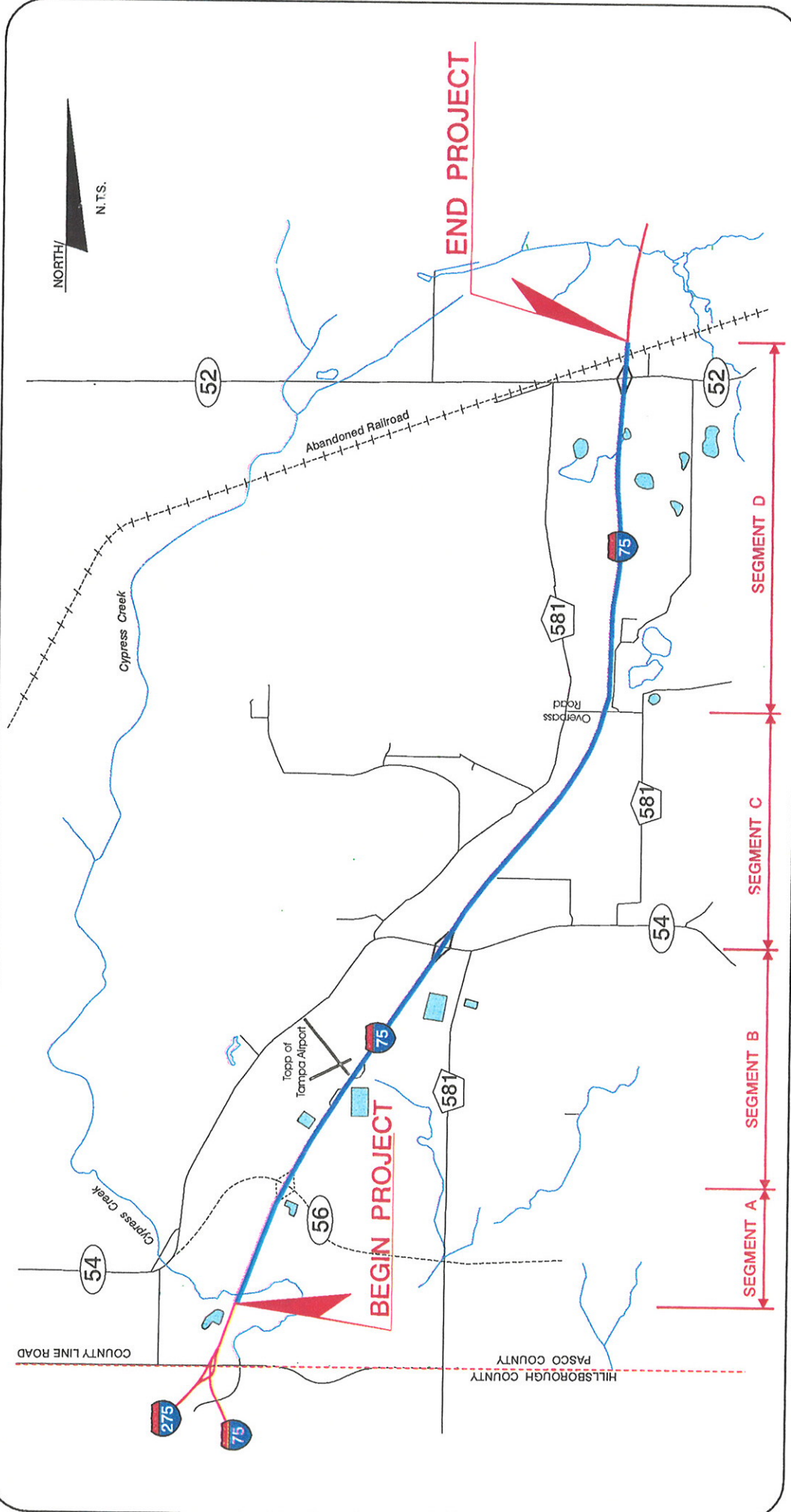
INTRODUCTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for improvement alternatives along I-75 (S.R. 93) from south of S.R. 56 to north of S.R. 52 in Pasco County, Florida. The project location map in Figure 2-1 illustrates the location and limits of the study.

1.1 PURPOSE

The objective of the PD&E Study is to provide documented environmental and engineering analyses to assist the FDOT in reaching a decision on the type, location and conceptual design of the necessary improvements, in order to accommodate future traffic demand in a safe and efficient manner. The PD&E Study also satisfies the requirements of the National Environmental Policy Act (NEPA) and the Federal Highway Administration (FHWA) in order to qualify the project for Federal-aid funding of future development phases of the project.

This report documents the need for the improvements, and develops and evaluates improvement alternatives as they relate to the transportation facility. Information relating to the engineering and environmental characteristics essential for alternatives and analytical decisions was collected. Once sufficient data were available, design criteria were established and “build” alternatives were developed. The comparison of these alternatives to the “No Build” alternative was based on a variety of parameters with the goal being to identify the alternative having the least impact, while providing the necessary improvements. The design year for analysis is Year 2020.



LEGEND

- Project Limits
- River / Water
- Railroad
- State Road Numbers
- County Road Numbers
- Proposed Roadway

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)
PD&E STUDY

From South of S.R. 56 to North of S.R. 52
 Pasco County, Florida

PROJECT LOCATION MAP

SPN #: 14140-1423
 WPI #: 7147619
 FAP#: NH-75-(191)275

1.2 PROJECT DESCRIPTION

The I-75 corridor is primarily a north/south facility which, in its entirety, extends from a southern terminus at Miami, Florida, to a northern terminus at Sault Saint Marie, Michigan. The PD&E Study corridor encompasses the portion of I-75 from south of the proposed interchange with S.R. 56 to north of the existing interchange with S.R. 52, in Pasco County, Florida, a distance of approximately 19.15 kilometers (km) [11.902 miles (mi)]. I-75's functional classification is "rural interstate." The facility is also a part of the Federal Aid Interstate System, the Florida Intrastate Highway System (FIHS) and State Highway System.

Please note, the new S.R. 56 interchange is currently under construction and has a scheduled opening year of August 2001. This interchange will therefore be considered an existing condition for the PD&E Study.

Please note, the proposed S.R. 56 diamond interchange is currently in the design phase (Design Year 2020) and is currently funded for construction in Fiscal Year 1998/99, according to the current FDOT Adopted Five Year Work Program. This interchange will therefore be considered an existing condition for the PD&E Study.

SECTION 2

EXISTING CONDITIONS

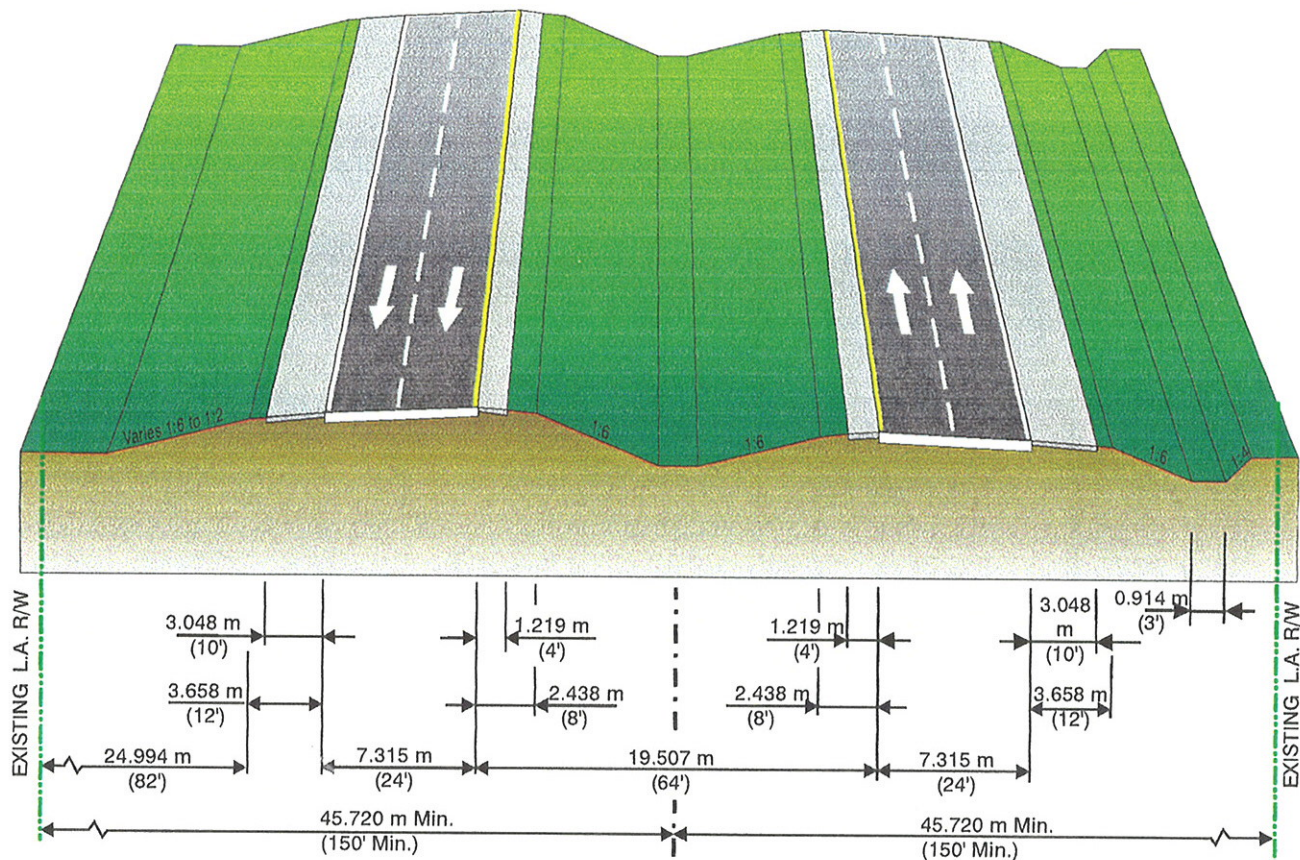
2.1 EXISTING TYPICAL SECTIONS

The following paragraphs describe the pertinent existing roadway and bridge typical sections within the study corridor. Please note, the metric dimensions in this section represent a soft conversion of the English dimension.

As shown in Figure 2-1, within the study corridor, the existing I-75 roadway primarily features two 3.658 meters (m) [12 feet (ft)] lanes each way, a 19.507 m (64 ft) depressed median, 3.658 m (12 ft) graded outside shoulders [of which 3.048 m (10 ft) is paved], 2.438 m (8 ft) graded inside shoulders [of which 1.219 m (4 ft) is paved], intermittent open roadside ditches on both sides and a minimum limited access right of way (ROW) width of 91.44 m (300 ft). However, the northbound roadway currently features four lanes from south of Cypress Creek to just north of the creek, then tapers successively to three lanes and finally to two lanes near the location of the proposed S.R. 56 northbound exit ramp. Nevertheless, the proposed S.R. 56 interchange project will widen only the northbound I-75 roadway in order to maintain the four lanes to the new exit ramp, and thereafter three lanes to the new entrance ramp terminal. In addition, the southbound roadway currently flares from two lanes to three lanes just north of the bridge over Cypress Creek.

As shown in Figure 2-2, the existing I-75 bridges over Cypress Creek each feature 3.048 m (10 ft) shoulders and 0.419 m (1.38 ft) barriers. The southbound bridge features three 3.658 m (12 ft) lanes, while the northbound bridge has four 3.658 m (12 ft) lanes. These bridges are separated by 12.573 m (41.24 ft).

As shown in Figure 2-3, the existing twin I-75 bridges over S.R. 54 and over S.R. 52 each feature two 3.658 m (12 ft) lanes, a 3.048 m (10 ft) outside shoulder, a 1.219 m (4 ft) inside



POSTED SPEED: 110 km/h (70 mph)

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I-75 (S.R. 93)

PD&E STUDY

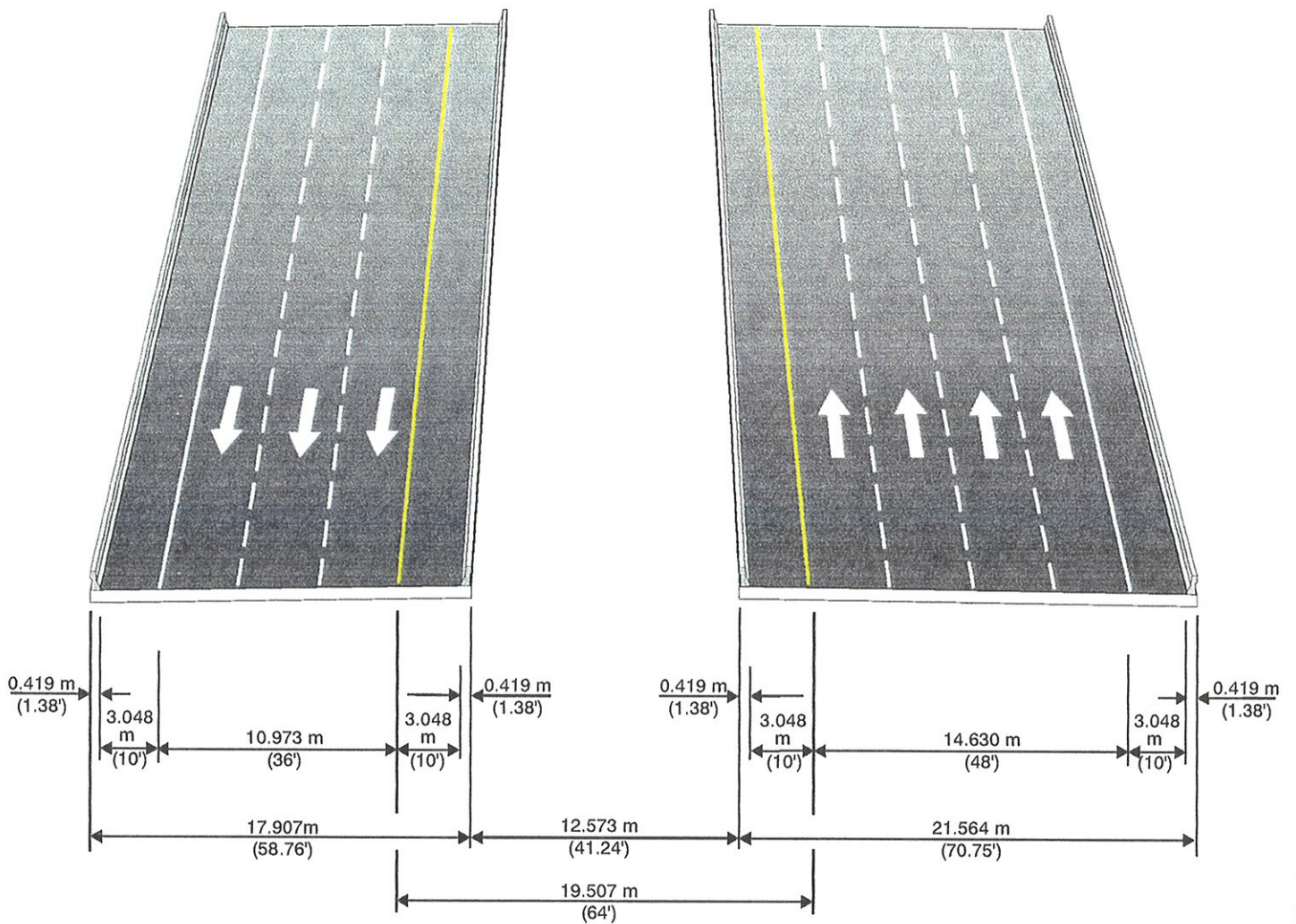
From South of S.R. 56 to North of S.R. 52

Pasco County, Florida

**EXISTING I-75 ROADWAY
TYPICAL SECTION**

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 2-1



POSTED SPEED: 110 km/h (70 mph)

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I-75 (S.R. 93)

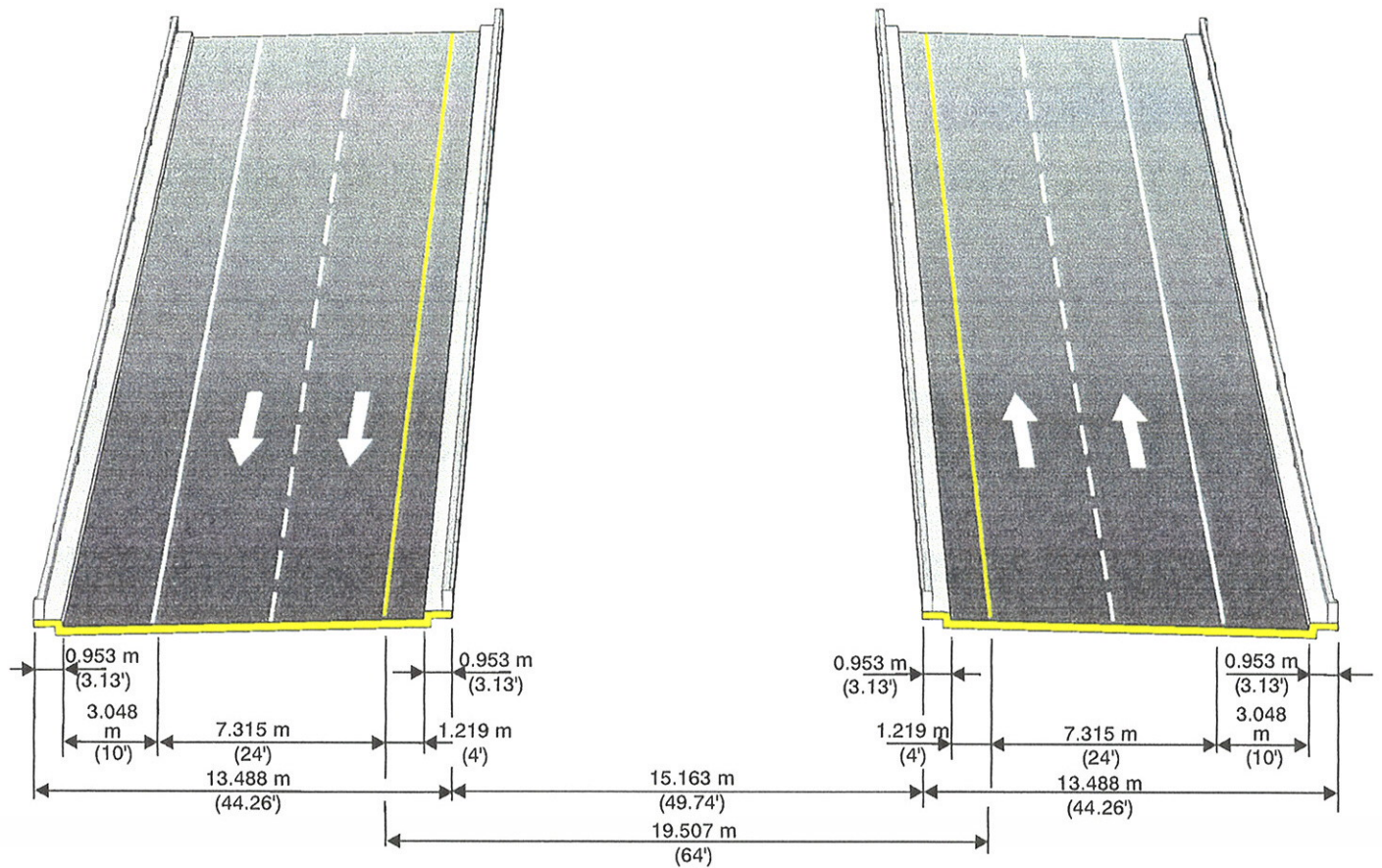
PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

**EXISTING I-75 BRIDGES
OVER CYPRESS CREEK**

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 2-2



POSTED SPEED: 110 km/h (70 mph)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52

Pasco County, Florida

**EXISTING I-75 BRIDGES
OVER S.R. 54 & S.R. 52**

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 2-3

shoulder and 0.953 m (3.13 ft) “outdated” curb and railing. Each pair of bridges are separated by 15.163 m (49.74 ft).

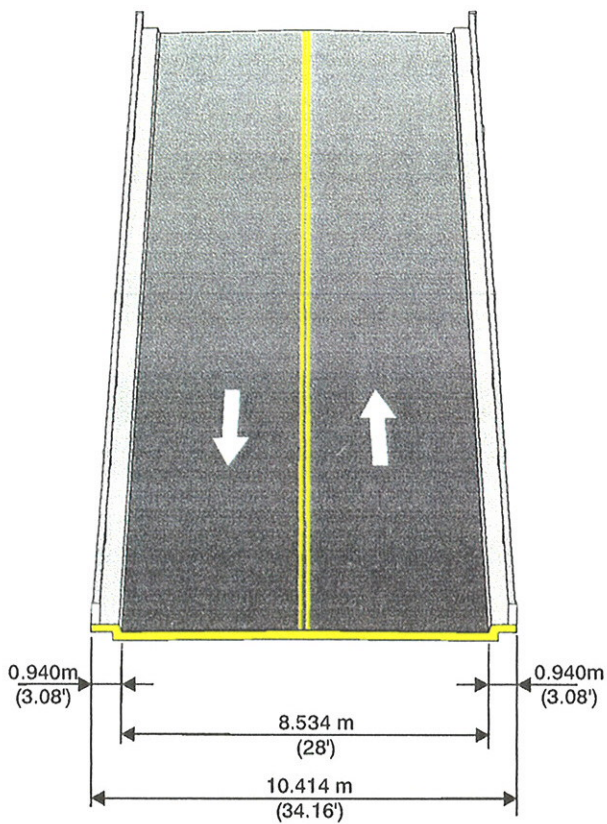
As shown in Figure 2-4, the existing Overpass Road bridge over I-75 features a 4.267 m (14 ft) travel lane each way (centerline-to-curb) and a 0.940 m (3.08 ft) wide “outdated” curb and railing on both sides.

The existing ramps at the I-75 interchanges with S.R. 54 and S.R. 52 (not shown) primarily feature one 4.267 m (14 ft) lane and 1.829 m (6 ft) graded shoulders, including a 1.219 m (4 ft) outside paved shoulder.

The existing S.R. 52 roadway through the I-75 interchange area exhibits highly variable features, which precludes depiction of a typical section. However, excluding provisions for various auxiliary lanes and intermittent painted medians, the roadway is undivided and features one 3.658 m (12 ft) lane each way, with grassed outside shoulders and open drainage.

Typical sections for the following corridor-related facilities are not addressed in this report, since they will not require modification to implement the conceptual objectives of the PD&E Study.

- The proposed S.R. 56 roadway approaching the proposed bridge over I-75.
- The proposed S.R. 56 bridge over I-75.
- The Overpass Road roadway approaching the bridge over I-75 (non-interchange grade separation).
- The twin I-75 bridges over the former railroad corridor just north of S.R. 52. (This corridor has been sold by CSX to different private owners on either side of the I-75 ROW. The FDOT is currently



POSTED SPEED: 50 km/h (30 mph)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

**EXISTING OVERPASS RD.
BRIDGE OVER I-75**

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 2-4

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pursuing purchase of the portion between the existing I-75 ROW lines, which is still owned by CSX. Therefore, these bridges are recommended for removal and non-replacement, in order to provide increased opportunities for vertical sight distance improvements as part of the PD&E Study.)

In addition, the existing S.R. 54 roadway typical section through the interchange area is not addressed, since the recently-constructed “interim” interchange improvements widened the S.R. 54 pavement enough to accommodate four future through lanes (as required by the Year 2020 Pasco County Comprehensive Plan¹) with minor roadway reconstruction.

2.2 REFERENCES

1. Pasco County Comprehensive Plan; Pasco County Board of County Commissioners; Adopted June 15, 1989, Refined January 1995.

SECTION 3

TYPICAL SECTION DESIGN CRITERIA

In order for the proposed roadway improvements to fulfill their objective of accommodating motorized vehicles, and where appropriate, pedestrians and bicyclists in a safe and efficient manner, the typical sections must adhere to specific design standards. The FDOT's Plans Preparation Manual¹ was the primary reference for development of proposed typical section design criteria for this PD&E Study. Table 3-1 presents the pertinent criteria used for this effort and their respective values or designations. A discussion of each criterion follows below.

3.1 FUNCTIONAL CLASSIFICATION

The functional classification of a roadway affects elements of design such as design speed, level of service requirements, and local access accommodations. The FDOT's Straight Line Diagrams indicate I-75 is a rural interstate within the project limits, while S.R. 52 is a rural principal arterial within the interchange area. According to the Pasco County Comprehensive Plan², Overpass Road is an unimproved off-system collector.

3.2 DESIGN SPEED

The design speed affects design elements such as horizontal and vertical alignments, superelevation, and typical section dimensions (clear zone, median width, etc.). For the I-75 mainline, a design speed of 110 kilometers per hour (km/h) [70 miles per hour (mph)] was selected to match the existing posted speed limit. For S.R. 52, a design speed of 90 km/h (55 mph) was selected, which exceeds the existing posted speed limit of 70 km/h (45 mph). These speeds are in conformance with the FDOT's Plans Preparation Manual¹.

For the Overpass Road bridge (unpaved, off-system approach roadway), a design speed of 60 km/h (40 mph) was selected, which exceeds the existing posted speed of 50 km/h (30

3.3 DESIGN VEHICLE

Design vehicles are selected motor vehicles with specific dimensions, weight, and operating characteristics used to establish roadway design controls for accommodating vehicles of designated classes. In the design of any roadway facility, the largest design vehicle likely to use that facility with considerable frequency is used to determine the dimensions of such critical features as radii at intersections and radii at turning roadways. The WB-15 (WB-50) is representative of larger tractor/semi-trailer combinations commonly in use on the interstate system. This choice of design vehicle is consistent with the Florida Green Book³.

3.4 LANE WIDTHS

A mainline lane width of 3.6 m (12 ft) was chosen, consistent with the Plans Preparation Manual¹. For interchange ramps (single lane), the standard 4.5 m (15 ft) width was selected.

3.5 MEDIAN WIDTHS

If I-75 mainline widening occurs within the border, the existing median width of 19.507 m (64 ft) will be retained, which meets or exceeds the width specified by the Plans Preparation Manual¹ for an interstate freeway without barrier [19.2 m (64 ft)]. If I-75 mainline widening occurs within the existing median, the resultant median width will be 12.538 m (40 ft), which would require a design variation without a barrier.

For S.R. 52, a depressed median width of 12.0 m (40 ft) was chosen, consistent with the Plans Preparation Manual¹ requirement for arterials with a design speed greater than 80 km/h (50 mph). The S.R. 52 Finding of No Significant Impact (FONSI) from U.S. 19 to I-75 [SP No. 14120-1518, WPI No. 7115879, FAP No. F-270-1(2), approved July 13, 1988] proposed a 15.850 m (52 ft) median, consistent with the “desirable” width within the range of acceptable widths in effect at that time. That range has been subsequently replaced by a single standard dimension of 12.0 m (40 ft).

SECTION 4

PROPOSED TYPICAL SECTIONS

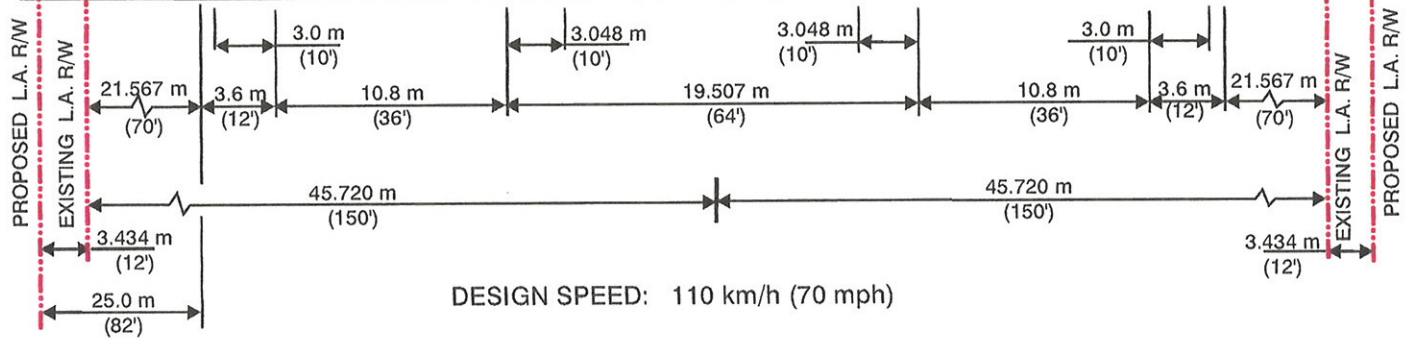
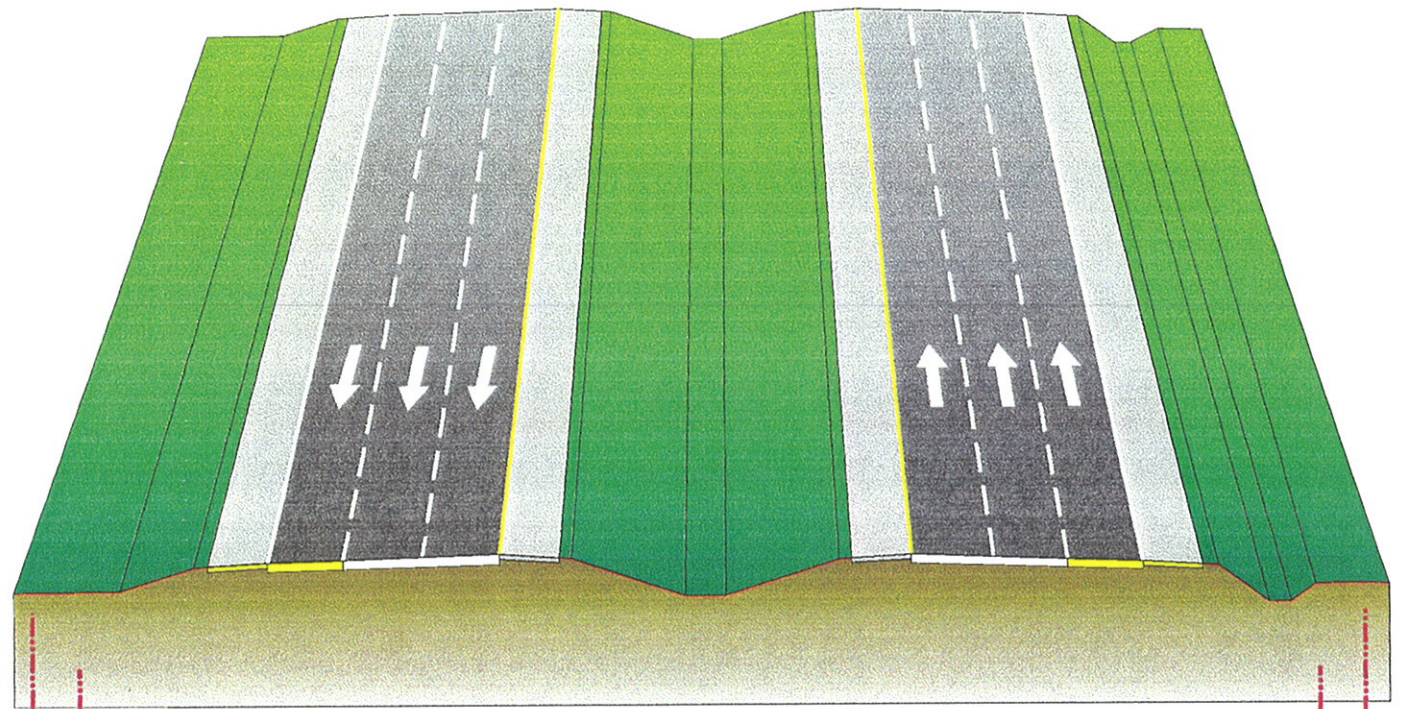
This section of the report describes and presents graphically the initial proposed typical sections developed for this PD&E Study. Please note, where the dimension of an existing feature is retained, the metric dimension represents a soft (three-place) conversion of the English dimension. Where a proposed feature is in addition to or supersedes an existing feature, the metric dimension represents a hard (one-place) conversion of the English dimension.

4.1 TYPICAL SECTION 1


Typical Section 1 (Figure 4-1) depicts I-75 mainline roadway widening into the existing border, which features the addition of one lane each way. The resulting section features three 3.6 m (12 ft) lanes each way, 3.6 m (12 ft) outside shoulders [of which 3.0 m (10 ft) is paved], while retaining the existing 19.507 m (64 ft) depressed median and 3.657 m (12 ft) inside shoulders [of which 3.048 m (10 ft) is paved]. In order to maintain the minimum 25.0 m (82 ft) border, 3.434 m (12 ft) of limited access ROW acquisition will be required on each side of the roadway.

4.2 TYPICAL SECTION 2

Typical Section 2 (Figure 4-2) depicts widening of the existing three-lane southbound I-75 bridge over Cypress Creek by adding one lane to the outside of the existing structure. This widening is necessary to overcome a projected southbound traffic capacity deficiency between S.R. 56 and the I-75/I-275 apex. The resulting bridge typical section will feature four 3.6 m (12 ft) lanes, 3.0 m (10 ft) shoulders and a 0.46 m (1.5 ft) outside barrier, while retaining the existing inside 0.419 m (1.38 ft) barrier constructed in 1984 and the 12.573 m (41.24 ft) separation from the northbound bridge. A total of 3.372 m (12.12 ft) of deck widening is proposed.



LEGEND

 Denotes Widening

FLORIDA DEPARTMENT OF TRANSPORTATION

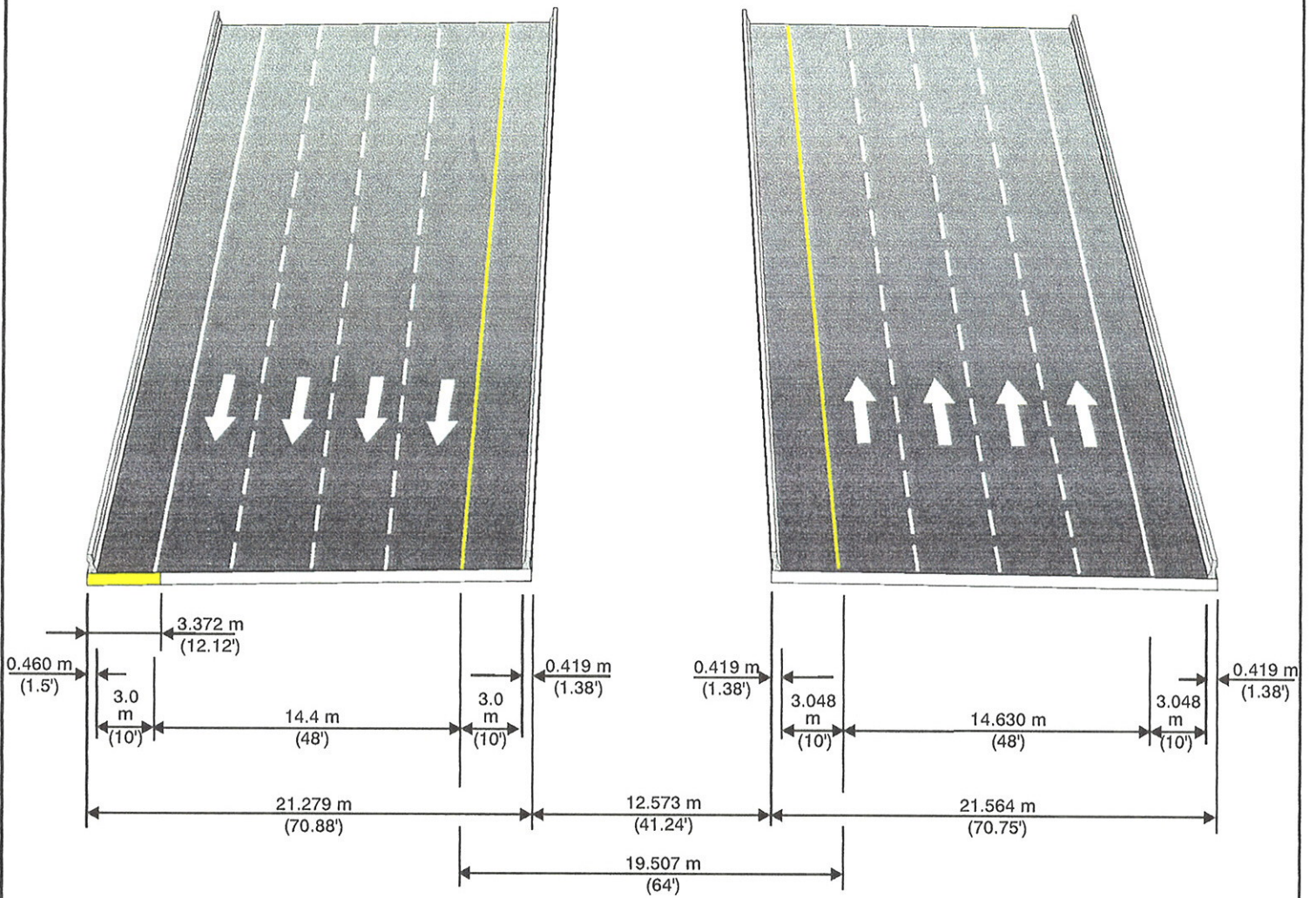
I-75 (S.R. 93)
PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

PROPOSED TYPICAL SECTION 1

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 4-1



DESIGN SPEED: 110 km/h (70 mph)

LEGEND

 Denotes Widening

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52

Pasco County, Florida

PROPOSED TYPICAL SECTION 2

SPN #: 14140-1423
 WPI #: 7147619
 FAP#: NH-75-1(91)275

FIGURE 4-2

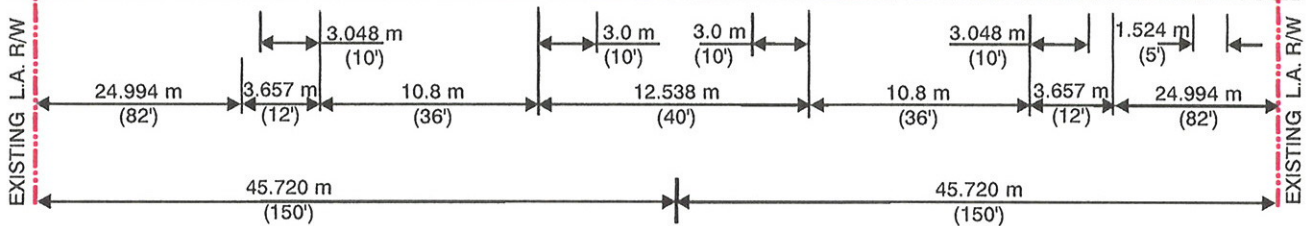
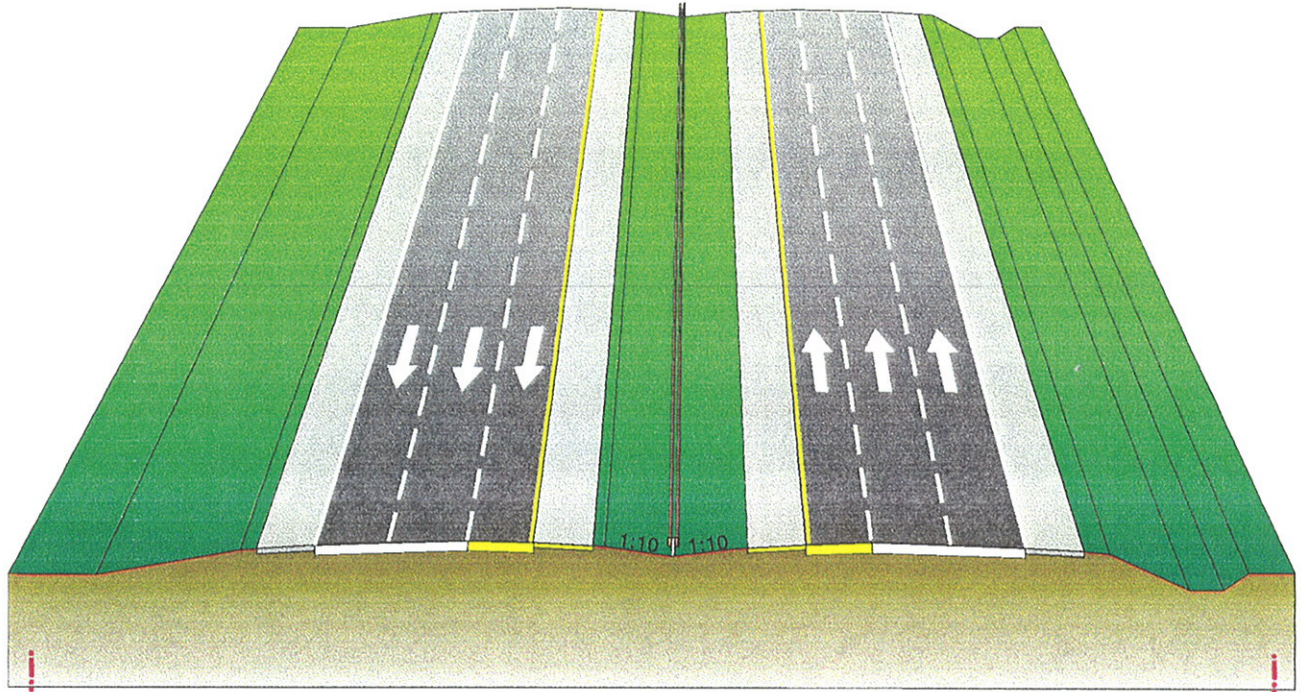
Outside widening of the bridge is geometrically compatible with the outside introduction of the proposed two-lane southbound entrance ramp from S.R. 56, as well as the ongoing final design project to widen southbound I-275 south of Cypress Creek one lane to the outside. In addition, the position of the piers of the proposed S.R. 56 bridge over I-75 accommodates I-75 southbound widening within the border more easily than widening within the median.

4.3 TYPICAL SECTION 3

Typical Section 3 (Figure 4-3) depicts I-75 mainline roadway widening within the existing median, with the addition of one lane each way. The resulting section has a 12.538 m (40 ft) V-ditch median with 1:10 slopes and double-faced three-beam guardrail in the ditch bottom, three 3.6 m (12 ft) lanes each way, and 3.6 m (12 ft) inside shoulders [of which 3.0 m (10 ft) is paved], while retaining the existing 3.657 m (12 ft) outside shoulders [of which 3.048 m (10 ft) is paved], and 24.994 m (82 ft) borders with open drainage. Since the resultant median width is less than the required 19.2 m (64 ft) width (without a barrier), a design variation will be required to proceed with this typical section. However, this section has the advantage of fitting within the existing limited access ROW. In addition, by sloping the new lanes toward the median, the amount of runoff which must be attenuated and treated can be limited to the runoff from the additional impervious area.

4.4 TYPICAL SECTION 4

Typical Section 4 (Figure 4-4) depicts widening of the existing three-lane southbound I-75 bridge over Cypress Creek by adding one lane to the inside of the existing structure. The resulting bridge typical section would feature four 3.6 m (12 ft) lanes, 3.0 m (10 ft) shoulders and a 0.46 m (1.5 ft) inside barrier, while retaining the existing 0.419 m (1.38 ft) outside barrier constructed in 1984. A total of 3.372 m (12.12 ft) of deck widening would be proposed, resulting in a 9.201 m (29.12 ft) separation from the northbound bridge.



DESIGN SPEED: 110 km/h (70 mph)

LEGEND

Denotes Widening

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

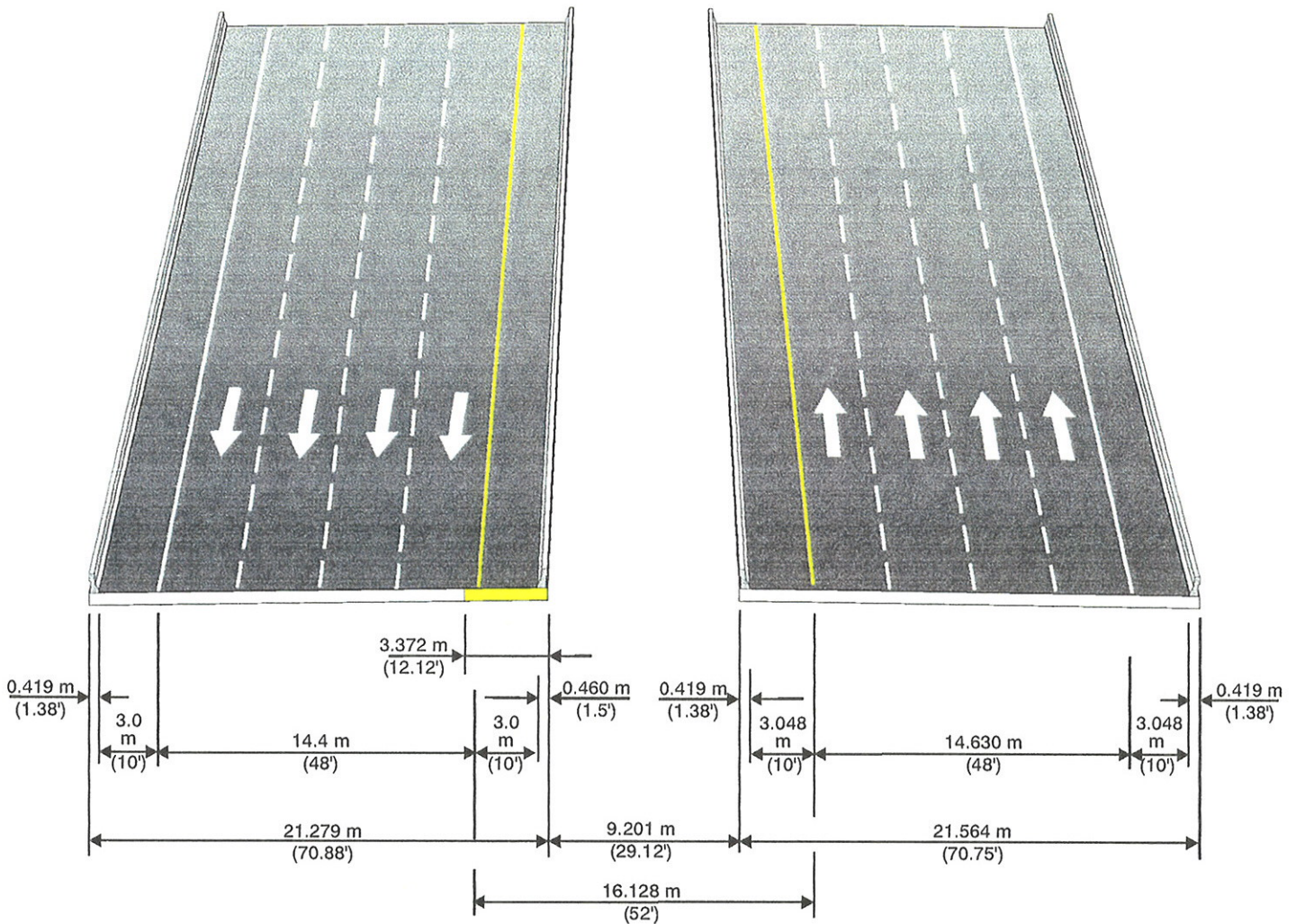
From South of S.R. 56 to North of S.R. 52

Pasco County, Florida

PROPOSED TYPICAL SECTION 3


SPN #: 14140-1423
 WPI #: 7147619
 FAP#: NH-75-1(91)275

FIGURE 4-3



DESIGN SPEED: 110 km/h (70 mph)

LEGEND

 Denotes Widening

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52

Pasco County, Florida

PROPOSED TYPICAL SECTION 4

SPN #: 14140-1423
 WPI #: 7147619
 FAP#: NH-75-1(91)275

FIGURE 4-4

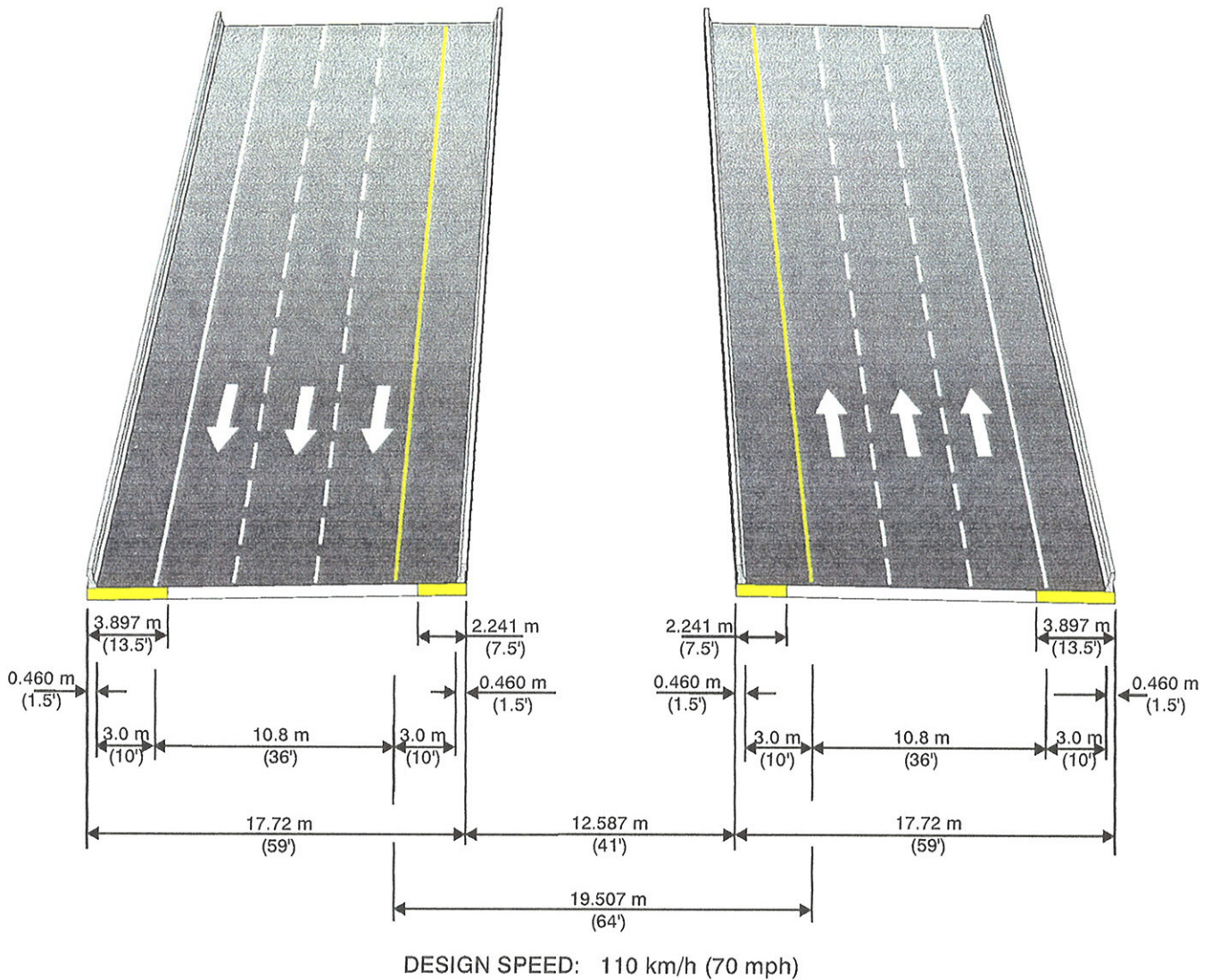
Inside widening of the bridge is geometrically incompatible with the outside introduction of the proposed two-lane southbound entrance ramp from S.R. 56, as well as the ongoing final design project to widen southbound I-275 south of Cypress Creek one lane to the outside. In addition, the position of the piers of the proposed S.R. 56 bridge over I-75 accommodates I-75 southbound widening within the border more easily than widening within the median. Therefore, the inside bridge widening typical section is considered to be “fatally flawed”, and is consequently not recommended for carrying forward for development of improvement alternatives.

4.5 TYPICAL SECTION 5

Typical Section 5 (Figure 4-5) depicts the proposed twin I-75 bridges over S.R. 54 and over S.R. 52 corresponding to border widening for the approach roadways as previously shown in Figure 4-1 (Typical Section 1). These improved bridges can result from widening of the existing twin structures at S.R. 54 or replacement at S.R. 52. (See discussions below.) Each resulting twin bridge will feature three 3.6 m (12 ft) lanes, 3.0 m (10 ft) shoulders and 0.46 m (1.5 ft) barriers. The resulting separation between each pair of structures will be 12.587 m (41 ft) and the effective median width will be 19.507 m (64 ft).

4.5.1 Widening At S.R. 54

According to as-built plans and the current inspection report, the existing I-75 bridges over S.R. 54 are structurally sufficient and can accommodate widening. In addition, the recently-constructed “interim” interchange improvements removed the existing bridge abutment slopes and installed retaining walls, thereby widening the S.R. 54 pavement underneath the overpasses enough to accommodate four future signalized through lanes, with minor reconstruction. Therefore, bridge replacement is not proposed for development of improvement alternatives.



LEGEND

 Denotes Deck Widening After Removal of Existing Curb and Rail (S.R. 54 Bridges Only)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

PROPOSED TYPICAL SECTION 5

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 4-5

A:\CORREL\I-75\REPORT\PROJ\TYP_SECTION5_FINAL\FIG_4-5.CORR_10-20-07

4.5.2 Replacement Vs. Widening At S.R. 52

The previously-recommended removal of the existing I-75 bridges over the former railroad corridor (see Section 2.1) will allow the existing deficient crest vertical curves at that location to be corrected and shifted southward to the I-75 overpasses over S.R. 52 (which are now on a positive grade), if the S.R. 52 bridges are replaced. Replacement would also allow correction of the existing vertical clearance over S.R. 52, which is deficient by as much as 0.15 m [6 inches (in)]. In addition, a previous PD&E Study recommended widening S.R. 52 through the I-75 interchange area to a four-lane divided rural roadway by acquiring ROW on the south side of the existing ROW. Consequently, the piers supporting the south ends of the existing I-75 bridges would obstruct this proposed S.R. 52 horizontal alignment. Removal/relocation of those piers will require complete replacement of the bridges.

For the above-stated reasons, a typical section which features widening of the bridges at S.R. 52, in lieu of replacement, is considered to be “fatally-flawed,” and is therefore not recommended for development of improvement alternatives.

As demonstration of the conceptual viability of complete replacement of the twin bridges over S.R. 52, the following traffic control/sequence of construction concept is offered to maintain the existing horizontal alignment of the approach roadways with four lanes of traffic at all times:

1. Reconfigure the striping of the existing bridge decks to shift the traffic as far to the outsides as possible, using temporary 0.6 m (2 ft) shoulders and 3.3 m (11 ft) lanes. Place a temporary barrier at the inside edge of the constricted traveled way of each bridge.
2. Demolish the portion of the existing bridges on the median side of the temporary barriers.

3. Construct a temporary four-lane divided bridge within the expanded separation between the existing bridges. Also construct temporary pavement in the approach roadway median.
4. Shift both directions of traffic to the temporary bridge.
5. Demolish the remaining portion of the old bridges.
6. Construct as much of the new bridges as possible beside the temporary bridge. (Widening of S.R. 52 under I-75 can begin at this stage.)
7. Shift traffic to the partially-complete new bridges, as far to the outsides as possible, using 0.6 m (2 ft) shoulders and 3.3 m (11 ft) lanes, with temporary barriers at the temporary inside deck edges.
8. Demolish the temporary bridge and remove the pavement in the approach median.
9. Construct the remaining (inside) portion of the new bridges.
10. Open the completed new bridges to traffic with the permanent traffic configurations, and remove the temporary pavement in the approach median.

If the use of a temporary bridge is to be avoided, the following sequential concept can be employed. However, please note, the split and subsequent separation between the inside and outside lanes of each direction which occurs during phases 4 through 7 is contrary to driver expectation, and should be avoided if feasible.

1. Reconfigure the striping of the existing bridge decks to shift the traffic as far to the insides as possible, using temporary 0.6 m (2 ft) shoulders and 3.3 m

(11 ft) lanes. Place a temporary barrier at the outside edge of the constricted traveled way of each bridge.

2. Demolish the portion of the existing bridges outside of the temporary barriers.
3. Construct as much of the new bridges as possible outside of the remainder of the existing bridges.
4. Shift only the outside lanes (both directions) onto the partially-complete new bridges, as far to the outsides as possible, using temporary 0.6 m (2 ft) shoulders and 3.3 m (11 ft) lanes, with temporary barriers at the temporary inside deck edges. The inside lanes (both directions) remain open to traffic during this phase.
5. Move the temporary barrier further to the inside of the remainder of the old bridges, further constricting the traveled way to one temporary 3.3 m (11 ft) lane (inside lane, both directions) and 0.6 m (2 ft) shoulders.
6. Demolish the portion of the old bridges outside of the temporary barriers
7. Construct as much additional width of the new bridges as possible outside the remainder of the old bridges. (Widening of S.R. 52 under I-75 can begin at this stage.)
8. Shift the inside lanes (both directions) to the partially-complete new bridges. Both lanes of traffic (both directions) are now on the partially-complete new bridges, shifted as far to the outsides as possible, using 0.6 m (2 ft) shoulders and 3.3 m (11 ft) lanes, with temporary barriers at the temporary inside deck edges.
9. Demolish the remainder of the old bridges.

10. Construct the remaining (inside) portion of the new bridges.
11. Open the completed new bridges to traffic with the permanent traffic configurations.

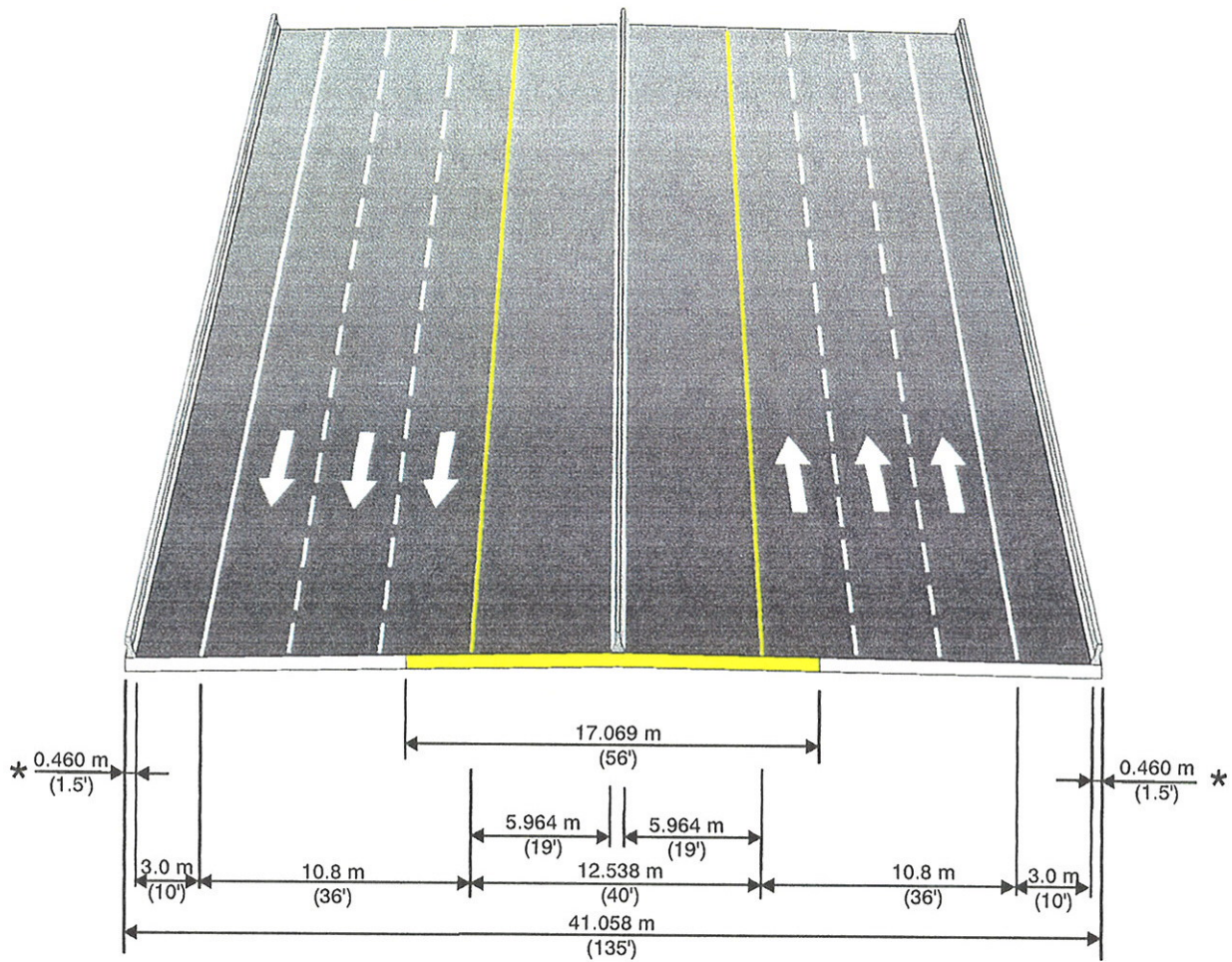
4.6 TYPICAL SECTION 6

Typical Section 6 (Figure 4-6) depicts the proposed single I-75 bridge over S.R. 54 and over S.R. 52 corresponding to median widening for the approach roadways as previously shown in Figure 4-3 (Typical Section 3). These improved bridges can result from widening of the existing twin structures at S.R. 54 or replacement at S.R. 52. (See Section 4.5.) Each resulting bridge will feature a 12.538 m (40 ft) median with a 0.61 m (2 ft) center barrier and 5.964 m (19 ft) inside shoulders, three 3.6 m (12 ft) lanes each way, 3.0 m (10 ft) outside shoulders, and 0.46 m (1.5 ft) side barriers.

With widening, this option proposes a single resulting structure, because the separation distance between twin widened structures would be less than the recommended minimum of 6.0 m (20 ft). With replacement, a single bridge is likewise proposed, since matching the approach roadway median width is preferable. Although the approach median could be flared to accommodate the recommended separation between twin bridges, such bridges would be substantially more costly per square meter/feet to construct than a single bridge. Conversely, tapering the median approaching a single replacement bridge in order to eliminate the excess inside bridge shoulder width is not advisable from a safety or aesthetic standpoint.

As further demonstration of the conceptual viability of complete replacement of the I-75 bridges over S.R. 52 with a new, single bridge, the following traffic control/sequence of construction concept is offered to maintain four lanes of traffic at all times:

1. Reconfigure the striping of the existing bridge decks to shift the traffic as far to the outsides as possible, using temporary 0.6 m (2 ft) shoulders and 3.3 m



DESIGN SPEED: 110 km/h (70 mph)

LEGEND

- Denotes Deck Widening After Removal of Existing Curb and Rail (S.R. 54 Bridges Only)
- * 0.413 m (1.5') of outside deck widening to replace existing curb and railing (S.R. 54 Bridges Only)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

PROPOSED TYPICAL SECTION 6

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 4-6

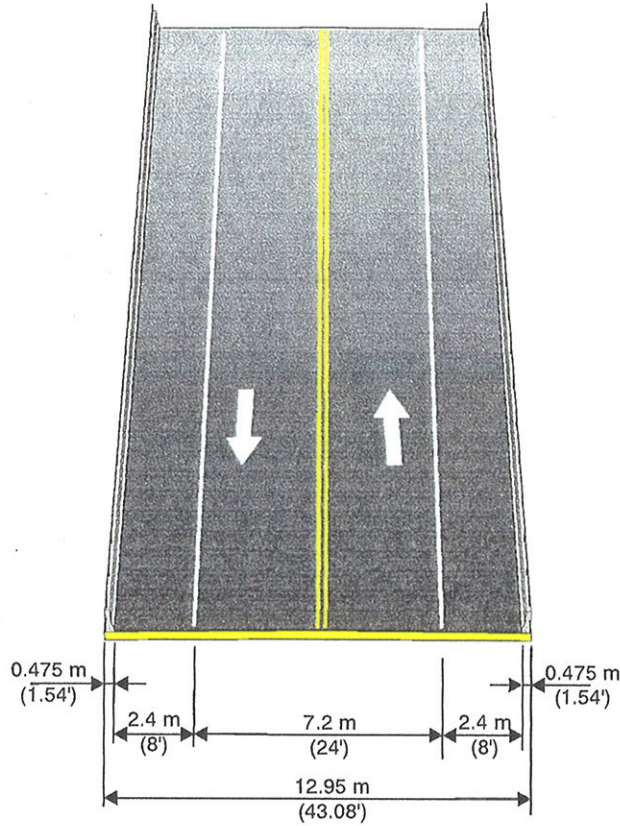
(11 ft) lanes. Place a temporary barrier at the inside edge of the constricted traveled way of each bridge.

2. Demolish the portion of the existing bridges on the median side of the temporary barriers.
3. Construct the center portion of the new bridge, including the permanent center barrier, within the expanded separation between the existing bridges. Also construct temporary pavement in the approach roadway median.
4. Shift both directions of traffic to the center portion of the new bridge, as far to the inside as possible, using 0.6 m (2 ft) shoulders, 3.3 m (11 ft) lanes and temporary barriers near the temporary outside edges.
5. Demolish the remaining portion of the old bridges.
6. Construct the remaining portions of the new bridge. (Widening of S.R. 52 under I-75 can begin at this stage.)
7. Open the completed new bridge to traffic with the permanent traffic configuration, and remove the temporary pavement in the approach median.

4.7 OVERPASS ROAD REPLACEMENT BRIDGE OVER I-75

Figure 4-7 depicts the replacement of the existing Overpass Road Bridge over I-75. The new undivided two-way bridge features two 3.6 m (12 ft) lanes, 2.4 m (8 ft) shoulders and 0.475 m (1.54 ft) barriers with handrail. (Please note, typical sections for non-I-75 corridor facilities are not numbered.)

This replacement is necessary in conjunction with only the border widening option for the I-75 mainline as previously shown in Figure 4-1 (Typical Section 1). This condition occurs



DESIGN SPEED: 60 km/h (40 mph)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

**OVERPASS RD. REPLACEMENT
BRIDGE OVER I-75**

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 4-7

because the existing horizontal clearance distance between the outside edge of I-75 travel lanes and the inside face of the side bridge piers is only 3.467 m (11.38 ft), which is less than a lane width. Outward relocation of the bridge piers to accommodate an additional I-75 lane each way requires complete replacement of the bridge.

4.8 TYPICAL SECTION 7

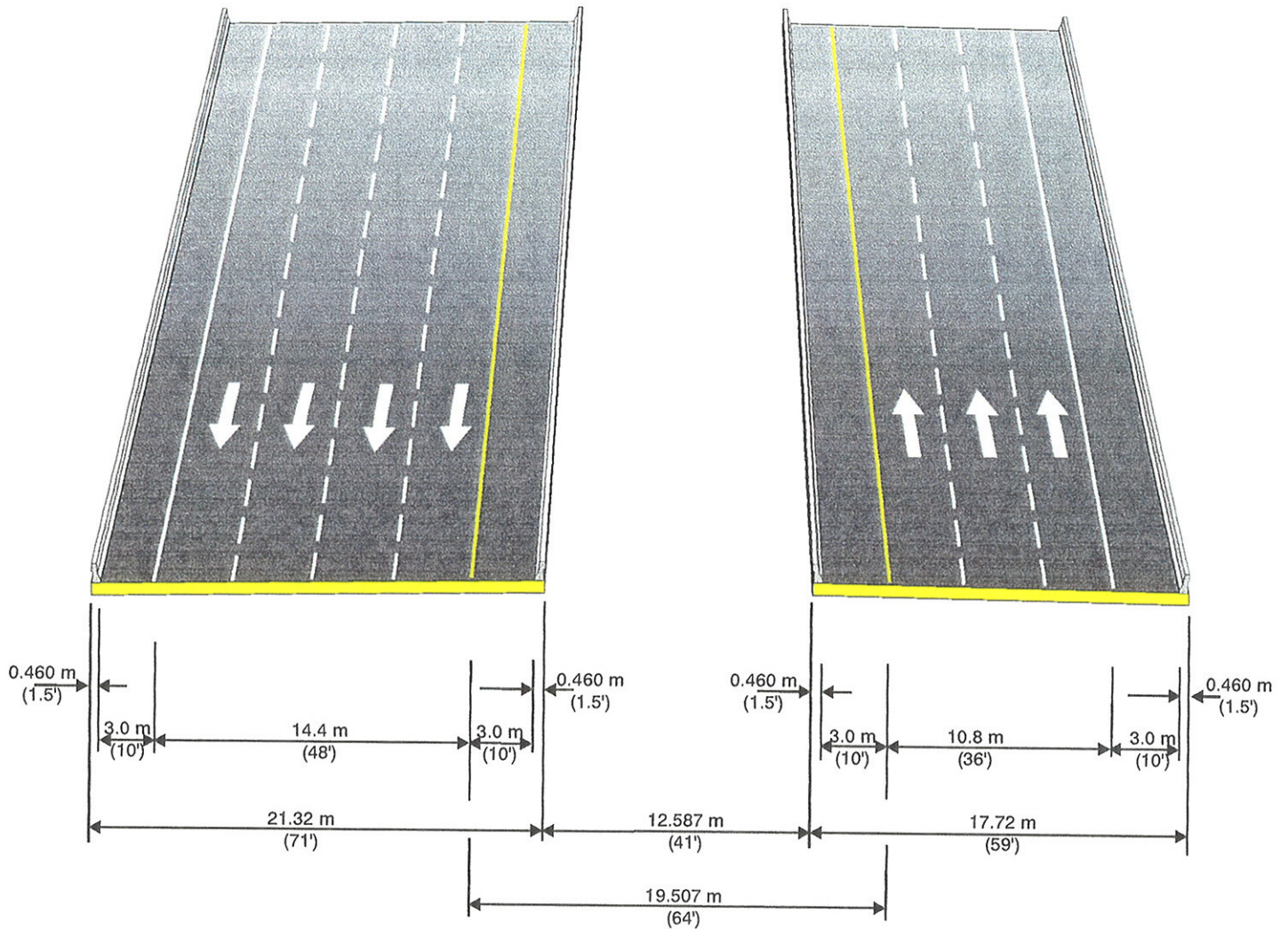
Consideration of a loop-type entrance ramp in the northwest quadrant of a re-configured I-75 interchange with S.R. 52 (for the west-bound to south-bound movement) necessitates a fourth (ramp) lane on the southbound bridge over S.R. 52 to accommodate the proper merge distance. The left side of Typical Section 7 (Figure 4-8) depicts this proposed bridge, in conjunction with through lane widening within the border of the approach roadways as previously shown in Figure 4-1 (Typical Section 1). This bridge features four 3.6 m (12 ft) lanes, 3.0 m (10 ft) shoulders and 0.46 m (1.5 ft) barriers.

4.9 TYPICAL SECTION 8

Typical Section 8 (Figure 4-9) depicts the single I-75 bridge over S.R. 52 which accommodates the loop ramp discussed above and corresponds to through lane widening within the median of the approach roadways as previously shown in Figure 4-3 (Typical Section 3). This bridge features a 12.538 m (40 ft) median with a 0.61 m (2 ft) center barrier and 5.964 m (19 ft) inside shoulders, 3.6 m (12 ft) lanes (four southbound/three northbound), 3.0 m (10 ft) outside shoulders, and 0.46 m (1.5 ft) side barriers.

4.10 PROPOSED S.R. 52 THROUGH INTERCHANGE AREA

The Pasco County Comprehensive Plan¹ designates S.R. 52 through the interchange area as a four-lane facility in the Year 2015. In addition, the S.R. 52 FONSI from U.S. 19 to I-75 approved July 13, 1988 specifies widening of S.R. 52 to a four-lane divided rural roadway by acquiring ROW on the south side.



DESIGN SPEED: 110 km/h (70 mph)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

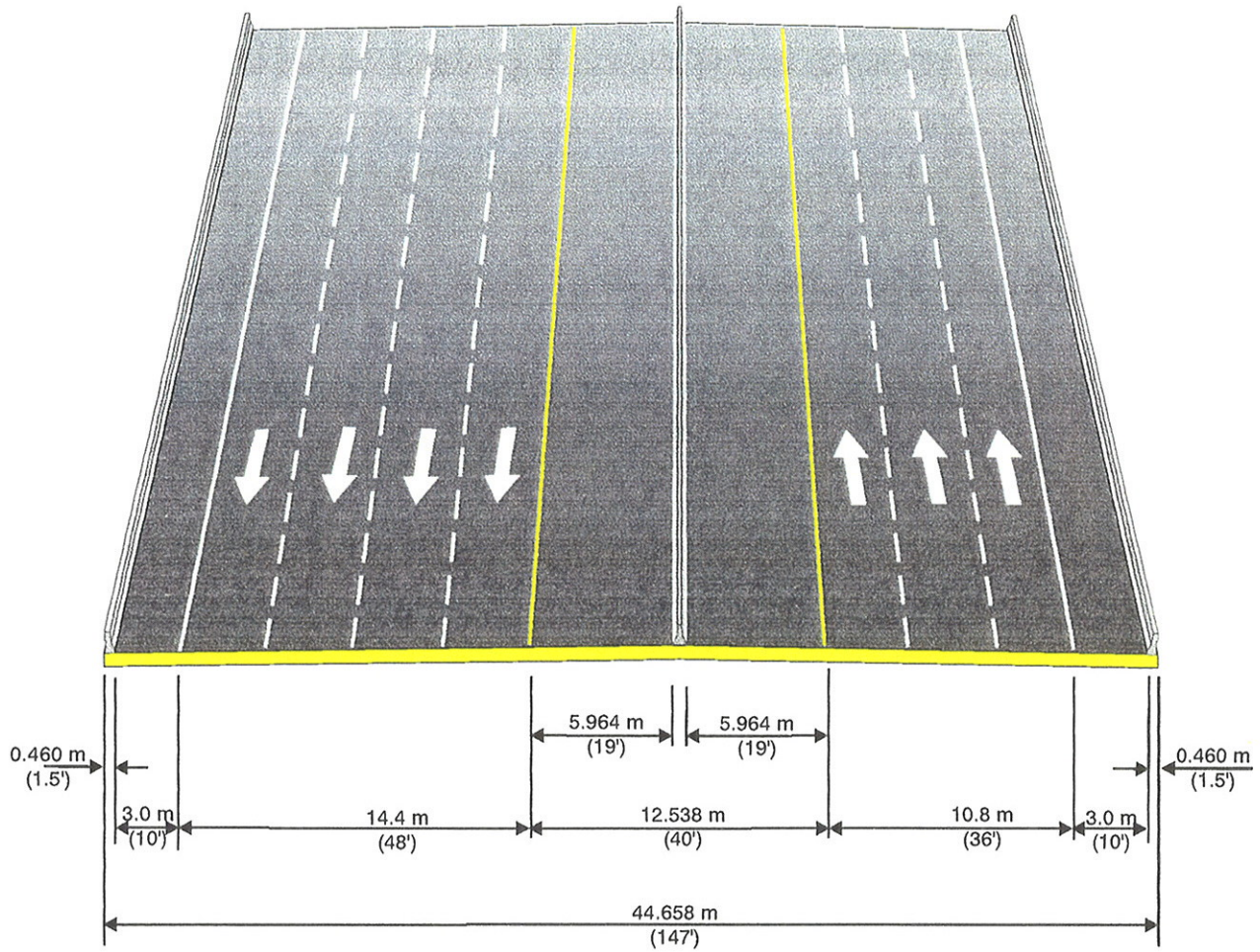
PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

PROPOSED TYPICAL SECTION 7

SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 4-8



DESIGN SPEED: 110 km/h (70 mph)

I-75 (S.R. 93) PD&E STUDY, FIG. 4-9 (10/20/07)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52
Pasco County, Florida

PROPOSED TYPICAL SECTION 8

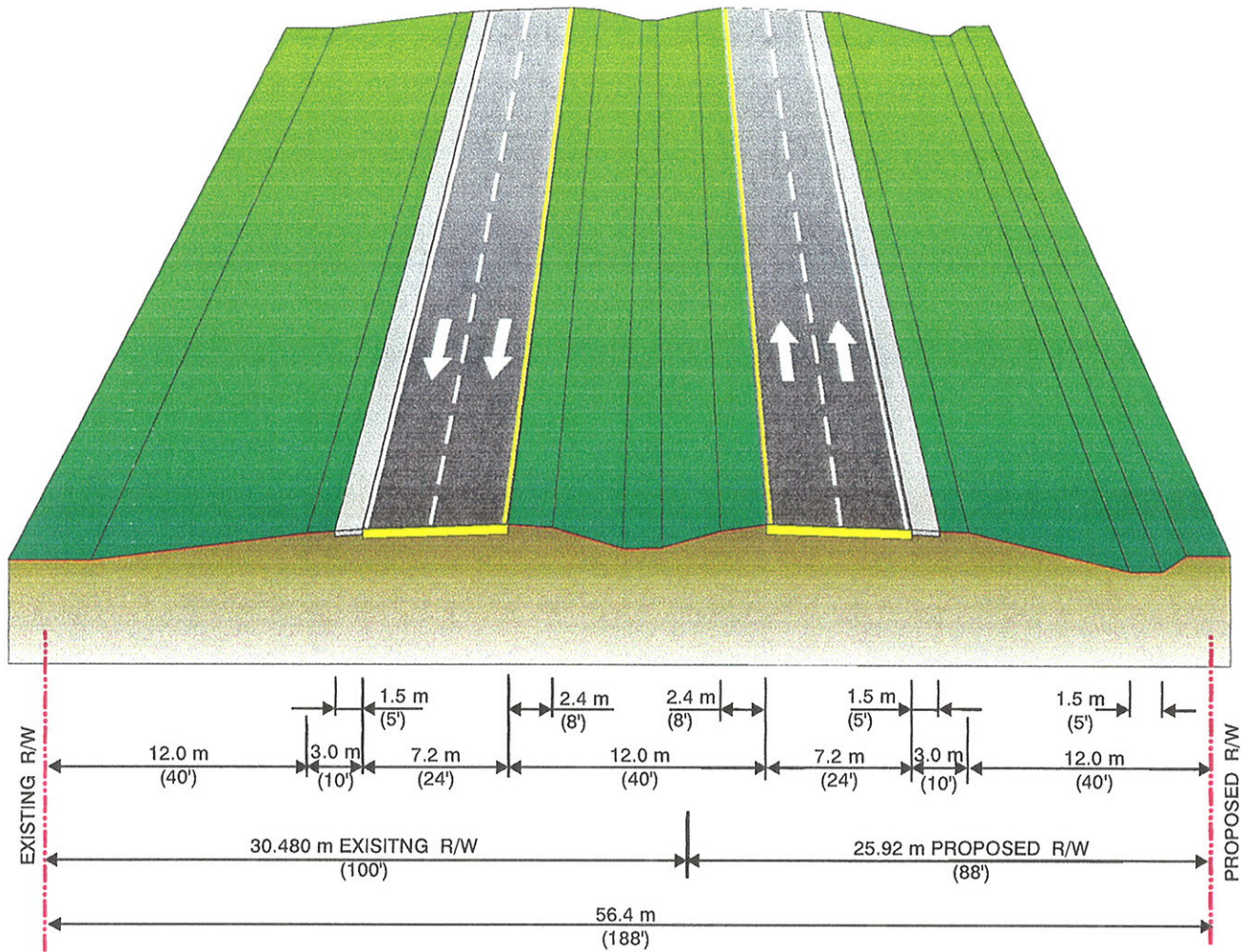
SPN #: 14140-1423
WPI #: 7147619
FAP#: NH-75-1(91)275

FIGURE 4-9

Figure 4-10 depicts this concept and features a 12.0 m (40 ft) depressed median, two 3.6 m (12 ft) lanes each way, 2.4 m (8 ft) inside shoulders, 3.0 m (10 ft) outside shoulders [of which 1.5 m (5 ft) is paved] and 12.0 m (40 ft) borders with open drainage. The total required ROW width is 56.4 m (188 ft), which necessitates 25.92 m (88 ft) of acquisition on the south side.

4.11 PROPOSED INTERCHANGE RAMPS

The proposed re-aligned one-lane ramps at the S.R. 52 interchange (not shown) will feature a 4.5 m (15 ft) travel lane, 1.8 m (6 ft) shoulders [of which 0.6 m (2 ft) is paved on the inside and 1.2 m (4 ft) on the outside], and a 25.0 m (82 ft) outside border. Re-alignment is necessary primarily due to the need for more widely-separated ramp termini at S.R. 52.



DESIGN SPEED: 90 km/h (55 mph)

FLORIDA DEPARTMENT OF TRANSPORTATION

I-75 (S.R. 93)

PD&E STUDY

From South of S.R. 56 to North of S.R. 52

Pasco County, Florida

PROPOSED S.R. 52 THROUGH INTERCHANGE AREA

SPN #: 14140-1423
 WPI #: 7147619
 FAP#: NH-75-1(91)275

FIGURE 4-10

SECTION 5

TYPICAL SECTIONS EVALUATION

Among the eight proposed I-75 typical sections presented in Section 4, seven sections (1, 2, 3, 5, 6, 7 and 8) have been recommended to be carried forward for development of various viable alternatives. The following section discusses the reasons for the elimination of Typical Section 4, as well as the restrictions on the use of Bridge Typical Sections 5, 6, 7 and 8 in certain locations for widening versus replacement.

Typical Section 4 (widening of the southbound Cypress Creek Bridge by adding one lane to inside) was eliminated from further consideration because such widening is geometrically incompatible with the introduction on the outside of the proposed two-lane southbound entrance ramp from S.R. 56, as well as the ongoing final design project to widen southbound I-275 south of Cypress Creek one lane to the outside. In addition, the position of the piers of the proposed S.R. 56 bridge over I-75 accommodates I-75 southbound widening within the border more easily than widening within the median.

At S.R. 54, Typical Sections 5 and 6 (twin bridges and a single bridge respectively) are recommended for use exclusively with bridge widening, in lieu of bridge replacement. Replacement is not proposed over S.R. 54, because the existing bridges are structurally sufficient (see Section 4.5.1) and because the recently-constructed interim improvements underneath the overpasses widened S.R. 54 enough to accommodate four future signalized through lanes with minor reconstruction.

At S.R. 52, Typical Sections 5 and 6 described above, as well as Bridge Typical Sections 7 and 8 (accommodation of a loop ramp at S.R. 52) are recommended for use exclusively with bridge replacement, in lieu of bridge widening. Widening is not feasible at S.R. 52 for the following reasons.

The twin I-75 bridges over the former corridor just north of S.R. 52 are recommended for removal and non-replacement, in order to provide increased opportunities for vertical sight distance improvements. This improvement can be accomplished by correcting and shifting the existing deficient crest vertical curves at that location southward to the I-75 overpasses over S.R. 52 (which are now on a positive grade), only if the S.R. 52 bridges are replaced. Replacement would also allow correction of the existing vertical clearance over S.R. 52, which is deficient by as much as 0.15 m (6 in). In addition, a previous PD&E Study recommended widening S.R. 52 through the I-75 interchange area to a four-lane divided rural roadway by acquiring ROW on the south side of the existing ROW. Consequently, the piers supporting the south ends of the existing I-75 bridges would obstruct this proposed S.R. 52 horizontal alignment. Removal/relocation of those piers will, therefore, require complete replacement of the bridges.

