

To: Dwayne Kile, P.E. , District Design Engineer

Date: April 7, 2004

Subject: Design Variation

Financial Project ID: 407951 1

County Section Number: 08040000

State Road Number: 50

Federal Aid Number: 300-1(7)

Federal Oversight: Yes X No

Project Description: S.R. 50 PD&E Study Reevaluation from U.S. 19 (S.R. 55) to the eastern intersection of S.R. 50/S.R. 50A [along the Brooksville Bypass]

Begin Project MP: 0.000 End Project MP: 9.893 (S.R. 50)

Begin Project MP: 0.000 End Project MP: 3.836 (S.R. 50 [Brooksville Bypass])

New Construction RRR Widening X

A design variation is requested for the following element(s):

<input type="checkbox"/> Design Speed ⁽²⁾	<input type="checkbox"/>	<input type="checkbox"/> Lane Widths	<input type="checkbox"/>	<input type="checkbox"/> Shoulder Widths	<input type="checkbox"/>	<input type="checkbox"/> Bridge Widths
<input type="checkbox"/> Structural Capacity	<input type="checkbox"/>	<input type="checkbox"/> Vertical Clearance	<input type="checkbox"/>	<input type="checkbox"/> Grades	<input type="checkbox"/>	<input type="checkbox"/> Cross Slope
<input type="checkbox"/> Superelevation	<input type="checkbox"/>	<input type="checkbox"/> Horizontal Alignment	<input type="checkbox"/>	<input type="checkbox"/> Vertical Alignment	<input type="checkbox"/>	<input type="checkbox"/> Stopping Sight Distance
<input type="checkbox"/> Horizontal Clearance	<input checked="" type="checkbox"/>	<input type="checkbox"/> Other - Border Width				

Background

The project involves the reevaluation of the previous PD&E Study that was performed for S.R. 50 from U.S. 19 (S.R. 55) to the eastern intersection of S.R. 50/S.R. 50A. The previous PD&E Study that was approved in March 1990, which established the need for S.R. 50 from U.S. 19 (S.R. 55) to the eastern intersection of S.R. 50/S.R. 50A [along the Brooksville Bypass] to be initially widened to the existing 4-lane typical section and expandable to a 6-lane typical section. This project involves widening this section of S.R. 50, from the existing 4-lane typical section to a 6-lane typical section. The length of the project is approximately 13.7 miles. The widening of S.R. 50 from U.S. 19 (S.R. 55) to the west intersection of S.R. 50/S.R. 50A is proposed to be widened to the outside; whereas the remainder of the project, from the west intersection of S.R. 50/S.R. 50A to the east intersection of S.R. 50/S.R. 50A [along the Brooksville Bypass], is proposed to be widened to the inside. The existing posted speed limit along S.R. 50 varies between 45 miles per hour (mph) and 55 mph. The proposed design speeds for this project are 65 mph and 45 mph for the portions of the project corridor from U.S. 19 (S.R. 55) to west of the western S.R. 50/S.R. 50A intersection, and from west of the western S.R. 50/S.R. 50A intersection to the eastern S.R. 50/S.R. 50A intersection [along the Brooksville Bypass], respectively.

The proposed substandard border width is located along the section of S.R. 50 from U.S. 19 (S.R. 55) to west of the western S.R. 50/S.R. 50A intersection; hence, the portion of the project with the 65 mph proposed design speed. Avoiding additional right-of-way acquisition and costs requires this variance from the standard border width criteria.

Current Design Criteria

Design criteria requires a minimum border width of 40 feet measured from the shoulder point to the right-of-way line for an arterial roadway with a design speed greater than 45 mph (PPM Section 2.5, Table 2.5.1). The intention of the border width is to accommodate roadside design components such as signing, drainage features, guardrail, fencing and clear zone; the construction and maintenance of the facility; and permitted public utilities. AASHTO criteria requires a minimum border width of 15 feet from the shoulder point to the right-of-way line (AASHTO Chapter 7, Page 467).

Proposed Design Criteria

The proposed design criteria was developed in order to widen the existing 4-lane divided rural typical section to a 6-lane divided rural typical section by constructing an additional travel lane to the outside in each direction. The 6-lane divided rural typical section will also accommodate an open drainage system with a 5-foot sidewalk on the south side and 12-foot shared use path on the north side. The proposed roadway improvements will be constructed within the limits of the existing 200-foot right-of-way, which will accommodate a 34-foot border width from shoulder point to right-of-way line on both sides of the roadway.

Justification

The proposed widening will increase roadway capacity and reduce congestion as well as increase public safety, by widening the existing 4-lane divided rural typical section to a 6-lane divided typical section along S.R. 50 from U.S. 19 (S.R. 55) to west of the western S.R. 50/S.R. 50A intersection within the existing right-of-way. Although the resultant border width of 34 feet within this portion of the project corridor does not meet FDOT criteria, it exceeds the requirements established by AASHTO. In addition, the resultant clear zone width of 44 feet exceeds the FDOT requirements of 36 feet (PPM Section 2.11, Table 2.11.10). Increasing the border width by an additional 6 feet on either side of the roadway would require the acquisition of additional right-of-way; therefore, significantly increasing the project's costs without significantly benefiting the roadway.

Recommended by: Daniel Patrick Kelly, P.E.
Responsible Professional Engineer (print or type)

Date: ___ / ___ / ___

Owen Ayres & Associates, Inc.
Consultant Firm (print or type)

Approved by: _____
District Design Engineer

Date: ___ / ___ / ___

Concurrence ⁽¹⁾: _____
State or District Structures Design Engineer

Date: ___ / ___ / ___

Concurrence ⁽²⁾: _____
State Highway Engineer

Date: ___ / ___ / ___

1. Design variations impacting the geometry, vertical clearance, layout of structures, or superstructure cross slope require concurrence from the District Structures Design Engineer for Category 1 structures and from the State Structures Design Engineer for all other structures.
2. Design speed variations on the FIHS requires concurrence from the State Highway Engineer following a review with the State Transportation Planner.