

Value Engineering Study Report

William Few Parkway Extension, Phase 2 STP-7037 (1) P.I. Number 250620 Columbia County



Value Management Team



Design Team:

Southern Partners, Inc.

September 2007

Value Engineering Study Report

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Value Management Team



Design Team:

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September 2007



October 10, 2007

Ms. Lisa Myers
Design Review Engineer Manager
Georgia Department of Transportation
#2 Capitol Square, Room 266
Atlanta, GA 30334

RE: Submittal of the final Value Engineering Report
Project – STP-7073 (1)
Columbia County
P.I. No. – 250620
William Few Parkway Extension Phase 2
PBS&J Project Task Order No. 18

Dear Ms. Myers:

Please find enclosed four (4) hard copies and a CD of our final Value Engineering Report for the William Few parkway extension, phase 2, Columbia County, as referenced above.

This Value Engineering Study, which was performed during the period September 25 through September 28, 2007, identified 13 **Alternative Ideas**, of which 6 are recommended for implementation. The VE Team also identified 3 **Design Suggestion Ideas** which are recommended for the Engineer to consider in his final design. We believe that the 6 **Alternative Ideas** recommended may have a significant positive affect on the project.

We trust that you will find this report to be in proper order. It should be noted that the results of this workshop are volatile in that they can be overcome by the events that accompany the expeditious continuance of the design process. Accordingly, we encourage an equally expeditious implementation meeting to design the disposition of the contents of this report.

On behalf of our VE Team, we thank you very much for this opportunity to work with you and the hard working staff of the Georgia Department of Transportation.

Yours truly,

PBS&J

A handwritten signature in black ink that reads 'Les M. Thomas'.

Les M. Thomas, P.E., CVS-Life
VE Team Leader

Value Engineering Study Report

Project – STP-7073 (1)

Columbia County

P.I. No. – 250620

William Few Parkway Extension, Phase 2

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EXECUTIVE SUMMARY

INTRODUCTION

This report summarizes the analysis and conclusions by the PBS&J Value Engineering workshop team as they performed a VE study during the period of September 25 – September 28, 2007 in Atlanta, at the office of the Georgia Department of Transportation. The subject of the Value Engineering study was Georgia Department of Transportation William Few Parkway Extension Phase 2, STP-7073 (1), Columbia County, P.I. No. – 250620

The concept design for the project has been prepared by Southern Partners, Inc. At the time of the workshop the plans had advanced to the concept design level.

PROJECT DESCRIPTION

This project comprises the William Few Parkway Extension – Phase 2, from Washington Road (SR 104) north and east on a new location to the existing Hardy McManus Road.

William Few Parkway currently serves as an access to the Greenbrier Elementary, Middle, and High schools. The purpose of the project is to assist in the distribution of school traffic away from Washington Road and provide access to other users.

The proposed roadway will be approximately 1.3 miles on new location with one 12' lane in each direction with a 14' center turn lane, 12' shoulders (10' paved, 2' grassed), a 5' bike lane and a new bridge over the Euchee Creek.

The current estimated construction cost is \$18,431,686.74

This project is rather fully described in the documentation that is located in Tab 5 of this report, entitled *Project Description*.

VALUE ENGINEERING PROCESS

The Value Engineering team followed the seven step Value Engineering job plan as promulgated by the Georgia Department of Transportation. This seven step job plan includes the following:

- Investigative
- Analysis
- Speculation
- Evaluation
- Development
- Recommendation
- Presentation

This report is a component of the Presentation Phase. As part of the VE workshop in Atlanta, the team made an informal presentation of their results on the last morning of the workshop. This report is intended to formalize the workshop results and set the stage for a formal implementation meeting in which alternatives and design suggestions will typically be accepted, accepted with modifications, or rejected for cause. The worksheet that follows, along with the formally developed alternatives and design suggestions can be used as a “score sheet” for the implementation meeting. It is also included in this report to identify, on a summary basis, the results of the workshop. The reader is encouraged to visit the third tabbed section of this report entitled *Study Results* for a review of the details of the developed alternatives. The tabbed section *Project Description* includes information about the project itself and the tabbed section *Value Engineering Process* presents the detail process of the Value Engineering Study.

CONCLUSIONS AND RECOMMENDATIONS

During the speculation phase the VE Team identified *13 Alternative Ideas* that appeared to hold potential for reducing the construction cost, improving the end product and/or reducing the difficulty and time of project construction.

After the evaluation phase was completed, *6 Alternative Ideas* and *3 Design Suggestions* remained for further consideration. These Alternative Ideas and Design Suggestions may be found, in their documented form, in the section of this report entitled *Study Results*. The following *Summary of Alternatives and Design Suggestions* coupled with the documentation of the developed alternatives should provide the reader with the information required to fully evaluate the merits of each of the alternatives.

These and the other alternatives and design suggestions may be reviewed more thoroughly where they are documented in the third tab of this report entitled *Study Results*.

Study Results

Study Results

Introduction

This section includes the study results presented in the form of fully developed Value Engineering alternatives that include descriptions of the original design, description of the alternative design configurations, comments on the technical justifications, opportunities and risks associated with the alternatives, sketches, calculations and technical justification for these alternatives. For the most part, these fully developed alternatives represent an array of choices that clearly could have an impact on the eventual cost and performance of the finished project.

The documented alternatives also include Design Suggestions (DS). As their name implies, these are short write-ups making note of VE perspectives on technical issues and sharing some thoughts for consideration as the design moves forward.

This introductory sheet is followed by a *Summary of Alternatives & Design Suggestions* table. It should be noted that the alternatives that are included, which have cost estimates attached are not necessarily representative of the final cost outcome for each alternative. Some of these alternatives have components that are mutually exclusive so they may not be added together.

The users of this report are asked to consider these alternatives and design suggestions as a smorgasbord of choices for selection and use as the project moves forward. The following *Summary of Alternatives & Design Suggestions* may also be used as a “score sheet” within the bounds of an implementation meeting.

Cost Calculations

The cost calculations are intended only as a guide to the approximate results that might be expected from implementation of the alternatives. They should be helpful in making clear choices as to the pursuit of individual alternatives.

A composite mark-up of 10% for the construction cost comparisons was derived from the cost estimate for the project. This estimate can be found in the section of this report entitled *Project Description*.

Value Analysis Design Suggestion



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County –P.I. No. 250620

ALTERNATIVE NO.: **WF-2**

DESCRIPTION: **WIDEN RIVERWOOD PARKWAY AT WILLIAM FEW**
PARKWAY INTERSECTION.

SHEET NO.: 1 of 3

Original Design:

Original design does not allow for widening on Riverwood Parkway to foster improved traffic operations at the William Few Parkway intersection.

Alternative:

Construct additional turn lanes for the entrance for both egress and ingress on Riverwood Parkway to improve traffic operations at the intersection, as well as to remove traffic storage from William Few Parkway and Washington Road.

Opportunities:

- Improve traffic operations at intersection.
- Remove storage from William Few Parkway and Washington Road.

Risks:

- Minimal design impact.
- Additional construction cost.

Technical Discussion:

Additional turn lanes could be constructed on Riverwoods Parkway, as well as on William Few parkway, south of the Riverwoods intersection. The addition of turn lanes would enhance traffic operations at the intersection by allowing more turn movement opportunities in a shorter period of time. The addition of turn lanes in these areas would also relieve traffic storage on Washington Road and the southern portion of William Few Parkway by reducing traffic movement times. Additional widening on Riverwoods Parkway north of the William Few Parkway intersection will likely be required to handle the additional traffic volumes generated by the more efficient traffic operation due to the addition of turn lanes.

Illustrations

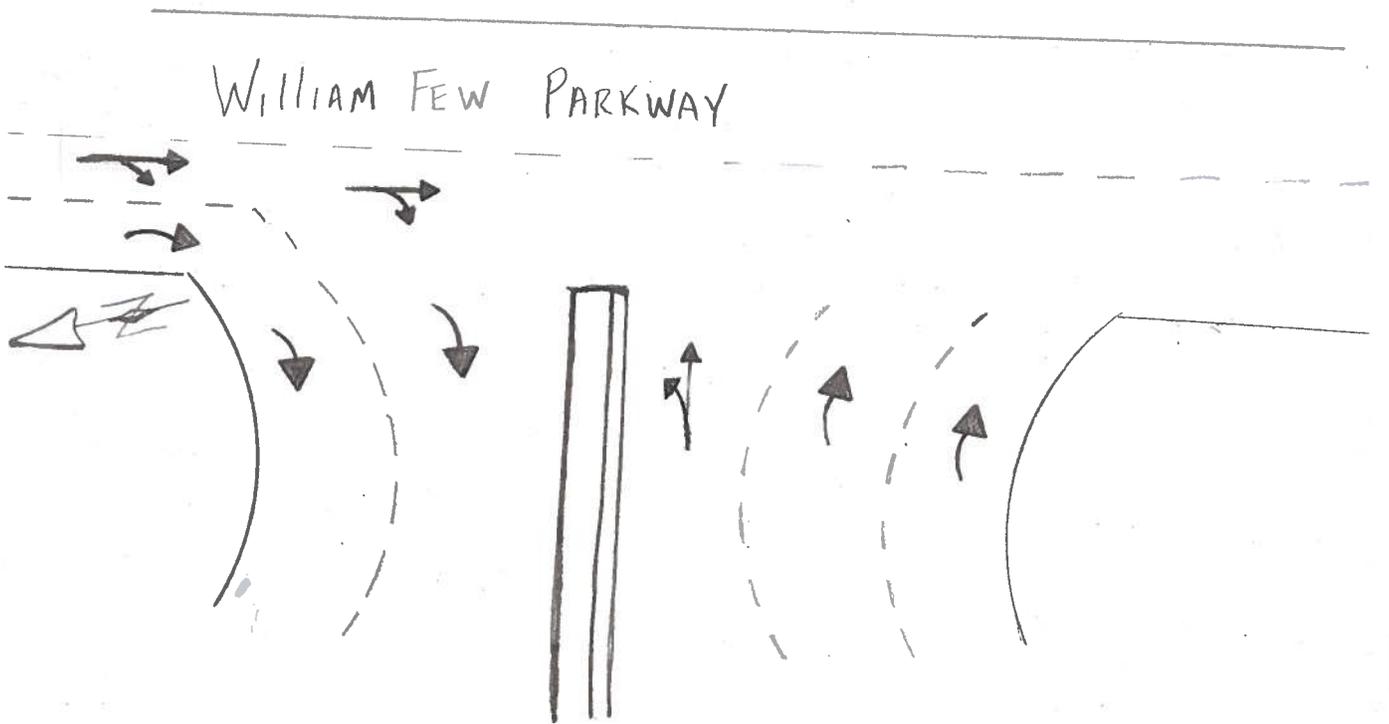


PROJECT: Georgia Department of Transportation – STP-7073(1)
William Few Pkwy Extn. Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: WF-2

DESCRIPTION: WIDEN RIVERWOOD PARKWAY AT WILLIAM FEW PARKWAY
INTERSECTION

SHEET NO.: 2 of 3



Illustrations

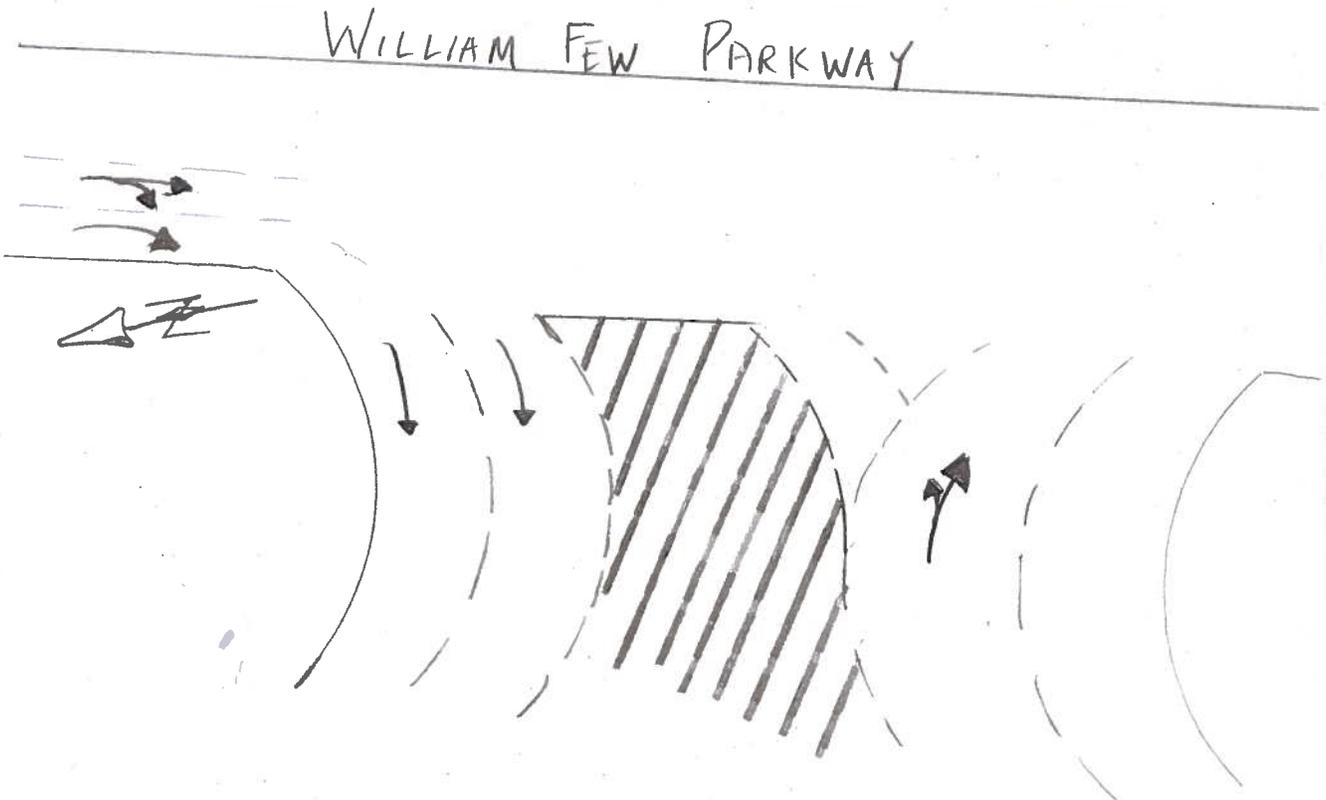


PROJECT: Georgia Department of Transportation - STP-7073(1)
William Few Pkwy Extn. Phase II - Columbia County - P.I.# 250620

ALTERNATIVE NO.: WF2

DESCRIPTION: WIDEN RIVERWOOD PARKWAY AT WILLIAM FEW PARKWAY
INTERSECTION

SHEET NO.: 3 of 3



Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn. Phase II – Columbia County – P.I.# 250620 ALTERNATIVE NO.: **WF-6**

DESCRIPTION: **RELOCATE BIKE LANE TO A MULTI-USE TRAIL** SHEET NO.: **1 of 4**

Original Design:

Original design constructs bike lane adjacent to roadway.

Alternative:

Relocate bike lane from adjacent to roadway to a 10’ multi-use trail in the unpaved shoulder area, removing pedestrian and bike traffic from adjacent proximity to vehicle traffic.

Opportunities:

- Increase separation in vehicle and pedestrian/bike traffic.

Risks:

- Moderate increase in design effort.
- Requires additional R.O.W.
- Additional pavement costs.

Technical Discussion:

The original design calls for a 10’ outside combination paved shoulder and bike lane. The alternative proposed is to construct a 6’-6” full build-up, paved shoulder while removing the bike lane to the shoulder not adjacent to the roadway, and constructing as an 8’ multi-use trail. A benefit would be to create a buffer between pedestrian/bike traffic and vehicular traffic. The alternative may require additional R.O.W. to be acquired beyond the specified 100’ corridor to accommodate the multi-use trail.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,535,643.40	\$	\$ 1,535,643.40
ALTERNATIVE	\$ 1,512,944.40	\$	\$ 1,512,944.40
SAVINGS	\$ 22,699.00	\$	\$ 22,699.00

Illustrations



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Parkway, Columbia County– P.I. No. 250620

ALTERNATIVE NO.: **WF- 6**

DESCRIPTION: **RE-LOCATE THE BIKE LANE TO A MULTI-USE TRAIL**

SHEET NO.: 2 of 4



Calculations



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-6**

DESCRIPTION: **RELOCATE BIKE LANES TO A MULTI-USE TRAIL**

SHEET NO.: **3** of **4**

Reduce full build-up shoulder from 10' to 6'-6":

Project length- 6,500 LF Design typical pavement width- 58' Proposed pavement width- 54.5'

$$54.5/58 = 0.94$$

Concept Base and Pavement costs= \$1,535,643.40 x 0.94= \$ 1,443,504.79

Base and Pavement savings= **\$92,138.61 Saved**

Construct 8' multi-use trail:

Project length- 6,500 LF Proposed width= 8' $6500 \times 8/9 = 5,778$ SY Application Rate- Assume 330LB/SY

$$5,778 \text{ SY} \times 330 \text{ LB/SY} = 1,906,740 \text{ LB} / 2000 \text{ LB/Ton} = 953.37 \text{ Tons}$$

Estimate price 19mm Superpave= \$75.00/ton

$$953.37 \text{ tons} \times \$75.00/\text{ton} = \mathbf{\$71,502.75 \text{ Cost}}$$

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn. Phase II – Columbia County – P.I.# 250620 ALTERNATIVE NO.: **WF-7**

DESCRIPTION: **REDUCE THE PAVED SHOULDER TO 7'-6"** SHEET NO.: **1 of 5**

Original Design:

The original roadway design calls for a 12'-0" improved shoulder (10'-0" paved).
 The original bridge design calls for the construction of a 600 ft long bridge over Euchee Creek and is comprised of fifteen 40 ft spans. The bridge is 60'-5" wide and accommodates 2-12 ft travel lanes, a 14 ft flush median, 5 ft flush shoulder and 5 ft bike lanes on each side. The intermediate bents are all pile bents.

Alternative:

The alternative roadway design calls for reducing width of the improved shoulder to 10'-0" (7'-6" paved). The reduced shoulder width is proposed to be carried over the bridge as well. The 7'-6" width serves as a multi-use trail for pedestrian as well as bicycle traffic.

Opportunities:

- Reduction in pavement costs.
- Reduction in bridge costs.
- Reduction in earthwork costs.

Risks:

- Moderate design impacts.

Technical Discussion:

Reduction of the width of travel lanes throughout the project would result in 5' of full build-up pavement that would not have to be constructed, resulting in significant cost savings. The 7'-6" paved shoulder exceeds the minimum required (6'-6" paved) by "GDOT Design Standards for Collector Roadways (Table 6.2/Page 6-3). A 7'-6" would accommodate a 4'-0" Bike Lane and 3'-6" for the construction of rumble strips adjacent to the through lanes.

The reduced bridge cross section would be 55'-5" (a reduction of 5'). All other bridge geometry remains the same as in the current design.

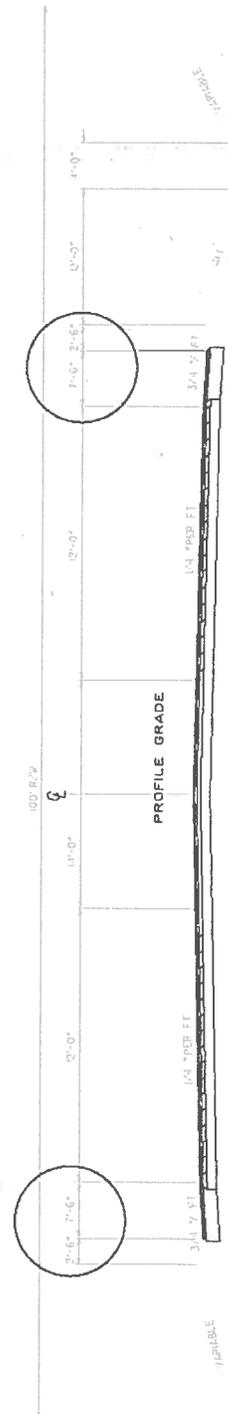
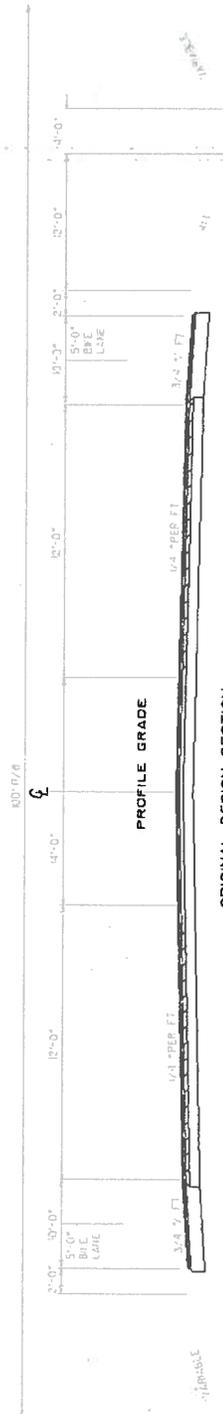
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 3,977,197	\$	\$ 3,977,197
ALTERNATIVE	\$ 3,433,725	\$	\$ 3,433,725
SAVINGS	\$ 543,472	\$	\$ 543,472

PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-7**

DESCRIPTION: **REDUCE THE PAVED SHOULDER TO 7'-6"**

SHEET NO.: **2** of **5**



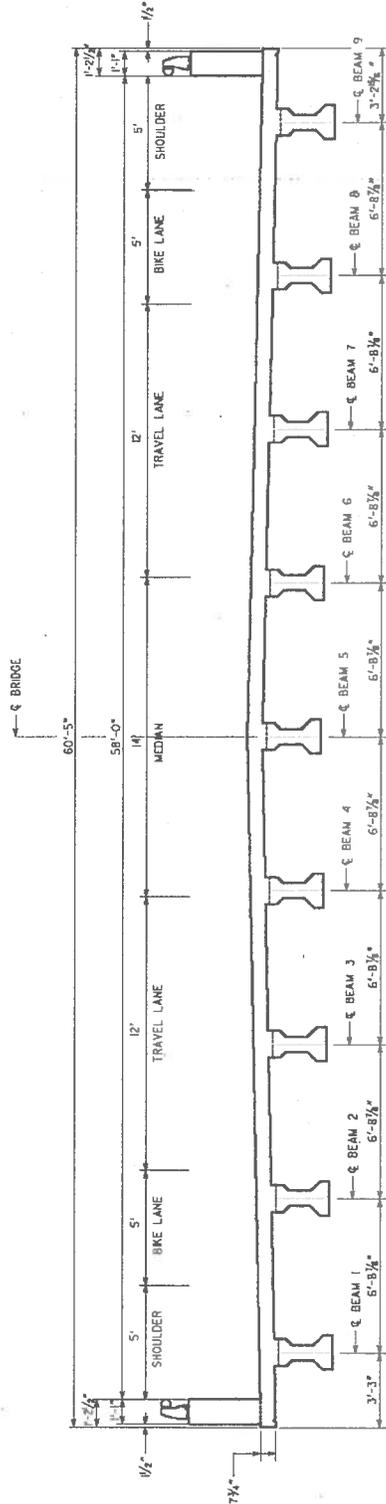
PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-7**

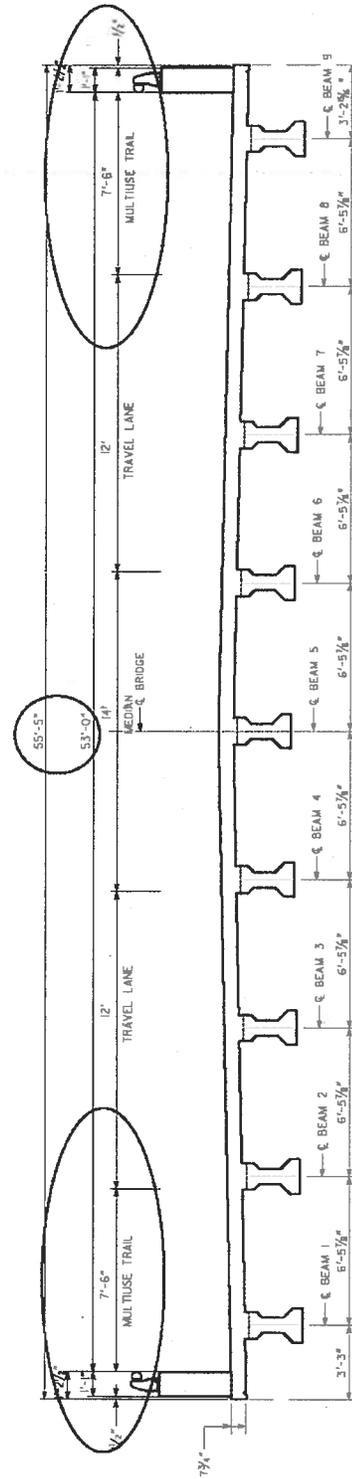
DESCRIPTION: **REDUCE THE PAVED SHOULDER TO 7'-6"**

SHEET NO.: **3 of 5**

SECTIONS AT BRIDGE



ORIGINAL BRIDGE SECTION (ASSUMED)



ALTERNATIVE BRIDGE SECTION (WF-7)

Calculations



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-7**

DESCRIPTION: **REDUCE THE PAVED SHOULDER TO 7'-6"**

SHEET NO.: 4 of 5

Reduction in paving area: $(6500 \text{ lf} \times 5 \text{ ft}) / (9 \text{ sf/cy}) \Rightarrow 3610 \text{ sy}$
Assume ~ 2 foot depth on earthwork reduction & \$ 4.25/cy

Right of way- $(5400 \text{ ft} \times 100 \text{ ft}) / (43560 \text{ sf} / \text{acre}) = 12.4 \text{ acres}$
 $\$911,400 / 12.4 \text{ acres} \Rightarrow \$73,500 / \text{acre}$

AFFECTED PAY ITEMS:

Original- Reduction = Alternative

Right of Way: $(5400 \text{ lf} \times 5 \text{ ft}) / (43560 \text{ sf/acre}) = 0.62 \text{ acres}$

$12.40 \text{ acres} - 0.62 \text{ acres} = 11.78 \text{ acres}$

Earthwork: $(6500 \text{ lf} \times 5 \text{ ft} \times 2 \text{ ft}) / (27 \text{ cf/cy}) \Rightarrow 2410 \text{ cy}$
 $2410 \text{ cy} \times \$4.25 \Rightarrow \$ 10245.00$

$\$1,000,000.00 - \$10245.00 = \$989,755.00$

10" GAB- $(3610 \text{ sy}) \Rightarrow 3610 \text{ sy}$

$30,000 \text{ sy} - 3610 \text{ sy} = 26390 \text{ sy}$

12.5 mm Superpave- $(3610 \text{ sy} \times 165 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 300 \text{ tons}$

$2748 \text{ tons} - 300 \text{ tons} = 2448 \text{ tons}$

19.0 mm Superpave- $(3610 \text{ sy} \times 220 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 400 \text{ tons}$

$3300 \text{ tons} - 400 \text{ tons} = 2900 \text{ tons}$

25.0 mm Superpave- $(3610 \text{ sy} \times 440 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 795 \text{ tons}$

$6600 \text{ tons} - 795 \text{ tons} = 5835 \text{ tons}$

BRIDGE ITEMS:

Reduction in bridge width = 5'.

Reduction in total deck area = $5' \times 600' = 3000 \text{ SF}$

(Note: Bridge cost assumed to be \$90 / SF; Also, savings in Alternative Design is considered cost for Original Design.)

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn. Phase II – Columbia County – P.I.# 250620 ALTERNATIVE NO.: **WF-8**

DESCRIPTION: **REDUCE MEDIAN TO 12'-0"** SHEET NO.: **1 of 5**

Original Design:

The original design calls for a 14'-0" flush median (two-way left turn lane).

The original bridge design calls for the construction of a 600 ft long bridge over Euchee Creek and is comprised of fifteen 40 ft spans. The bridge is 60'-5" wide and accommodates 2-12 ft travel lanes, a 14 ft flush median, 5 ft flush shoulder and 5 ft bike lanes on each side. The intermediate bents are all pile bents.

Alternative:

The alternative design calls for reducing the flush median to 12'-0". The reduced median width is proposed to be carried over the bridge as well.

Opportunities:

- Reduction in pavement costs.
- Reduction in bridge costs.
- Reduction in earthwork costs.

Risks:

- Moderate design impacts.
- Requires an exception to GDOT policy.

Technical Discussion:

Reduction of width of the flush median throughout the project would result in 2' of full build-up widening that would not have to be constructed, resulting in significant cost savings. Although a 12'-0" flush median would require an exception to GDOT policy, AASHTO's "Policy on Geometric Design of Highways 2004" states that 10'-0" to 16'-0" flush medians are permissible (page 434).

The reduced bridge cross section would be 58'-5" (a reduction of 2'). All other bridge geometry remains the same as in the current design.

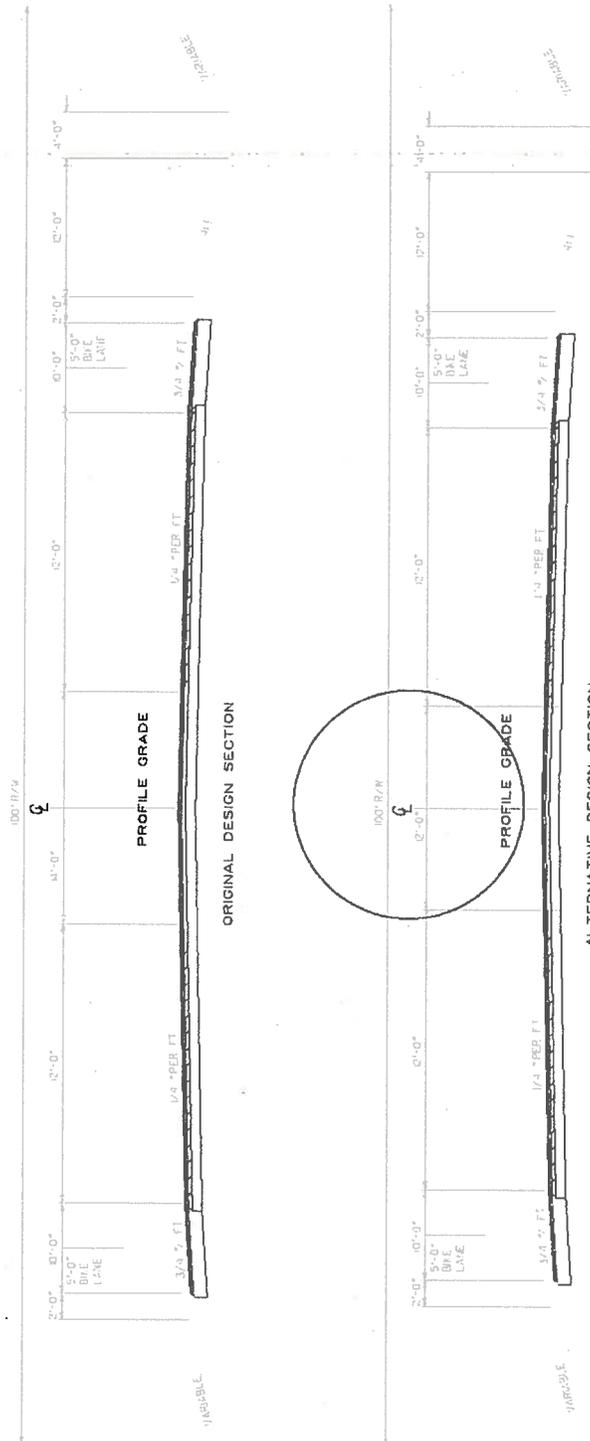
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 3,798,997	\$	\$ 3,798,997
ALTERNATIVE	\$ 3,580,184	\$	\$ 3,580,184
SAVINGS	\$ 218,813	\$	\$ 218,813

PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-8**

DESCRIPTION: **REDUCE MEDIAN TO 12'-0"**

SHEET NO.: **2 of 5**



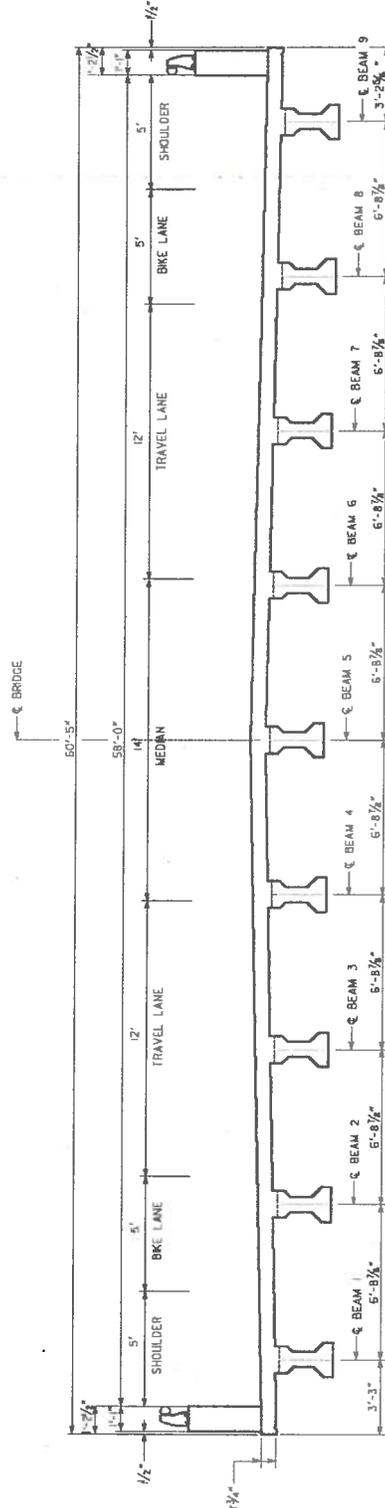
PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-8**

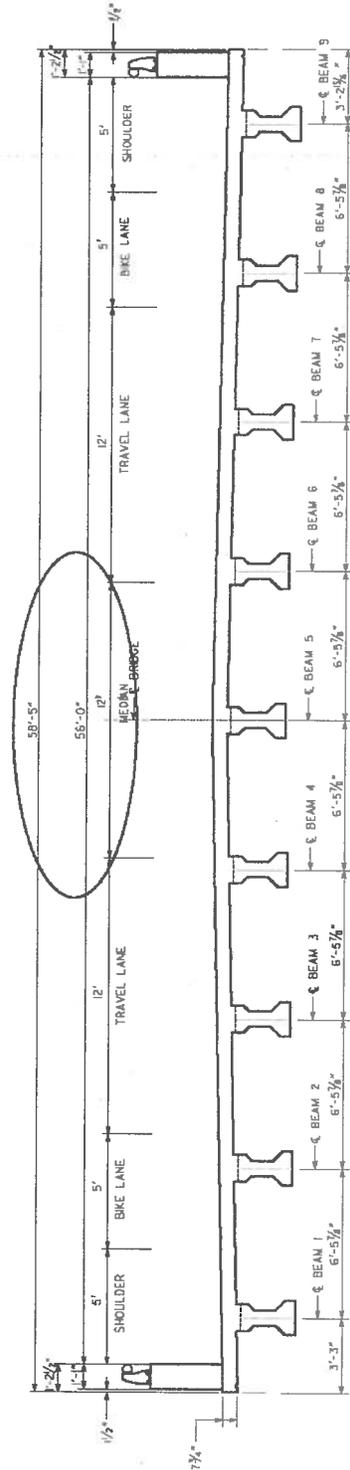
DESCRIPTION: **REDUCE MEDIAN TO 12'-0"**

SHEET NO.: **3 of 5**

SECTIONS AT BRIDGE



ORIGINAL BRIDGE SECTION (ASSUMED)



ALTERNATIVE BRIDGE SECTION (WF-B)

Calculations



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-8**

DESCRIPTION: **REDUCE MEDIAN TO 12'-0"**.

SHEET NO.: 4 of 5

Reduction in paving area: $(6500 \text{ lf} \times 2 \text{ ft}) / (9 \text{ sf/cy}) \Rightarrow 1450 \text{ sy}$
Assume ~ 2 foot depth on earthwork reduction & \$ 4.25/cy

Right of way- $(5400 \text{ ft} \times 100 \text{ ft}) / (43560 \text{ sf / acre}) = 12.4 \text{ acres}$
 $\$911,400 / 12.4 \text{ acres} \Rightarrow \$73,500 / \text{acre}$

AFFECTED PAY ITEMS:

Original- Reduction = Alternative

Right of Way: $(5400 \text{ lf} \times 2 \text{ ft}) / (43560 \text{ sf/acre}) = 0.25 \text{ acres}$

$12.40 \text{ acres} - 0.25 \text{ acres} = 12.15 \text{ acres}$

Earthwork: $(6500 \text{ lf} \times 2 \text{ ft} \times 2 \text{ ft}) / (27 \text{ cf/cy}) \Rightarrow 965 \text{ cy}$
 $965 \text{ cy} \times \$4.25 \Rightarrow \4100.00

$\$1,000,000.00 - \$4100.00 = \$995,900.00$

10" GAB- $(1450 \text{ sy}) \Rightarrow 1450 \text{ sy}$

12.5 mm Superpave- $(1450 \text{ sy} \times 165 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 120 \text{ tons}$ $2748 \text{ tons} - 120 \text{ tons} = 2628 \text{ tons}$

19.0 mm Superpave- $(1450 \text{ sy} \times 220 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 160 \text{ tons}$ $3300 \text{ tons} - 160 \text{ tons} = 3140 \text{ tons}$

25.0 mm Superpave- $(1450 \text{ sy} \times 440 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 320 \text{ tons}$ $6600 \text{ tons} - 320 \text{ tons} = 6280 \text{ tons}$

BRIDGE ITEMS:

Reduction in bridge width = 2'.

Reduction in total deck area = $2' \times 600' = 1200 \text{ SF}$

(Note: Bridge cost assumed to be \$90 / SF; Also, savings in Alternative Design is considered cost for Original Design.)

Value Analysis Design Suggestion



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County –P.I. No. 250620

ALTERNATIVE NO.: **WF-11**

DESCRIPTION: **CONSTRUCT A 60' WIDE TWO-LANE BRIDGE WHICH
CAN LATER BE RE-STRIPED AND UTILIZED AS A 4-
LANE BRIDGE.**

SHEET NO.: 1 of 2

Original Design:

-Original design calls for construction of 58' wide full depth paving consisting of a 14' two-way left turn lane, 2- 12' travel lanes, and 2- 10' paved shoulders.

Alternative:

-Proposed alternate construction calls for 60' wide full depth pavement consisting of a 16' two-way left turn lane, 2-12' travel lanes, and 2- 10' paved shoulders.

Opportunities:

- Section could be converted to future 5 lane urban section.
- Significant future construction time and cost savings.

Risks:

- Moderate design impact.
- Additional construction cost.

Technical Discussion:

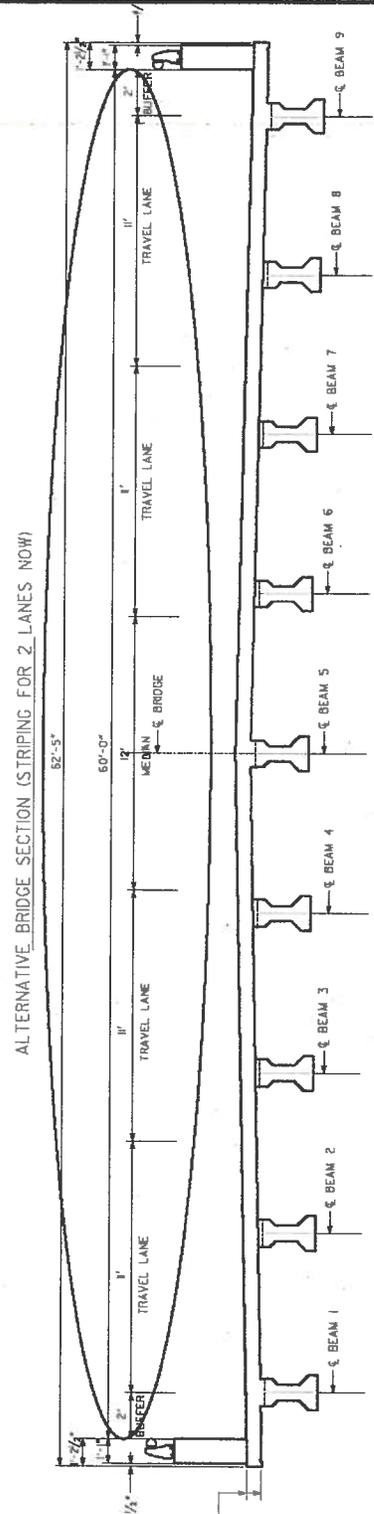
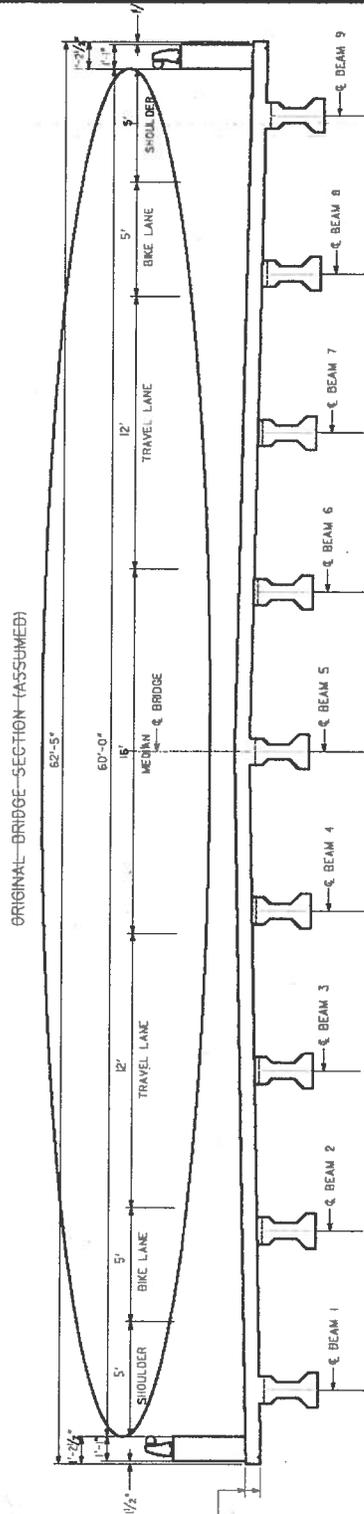
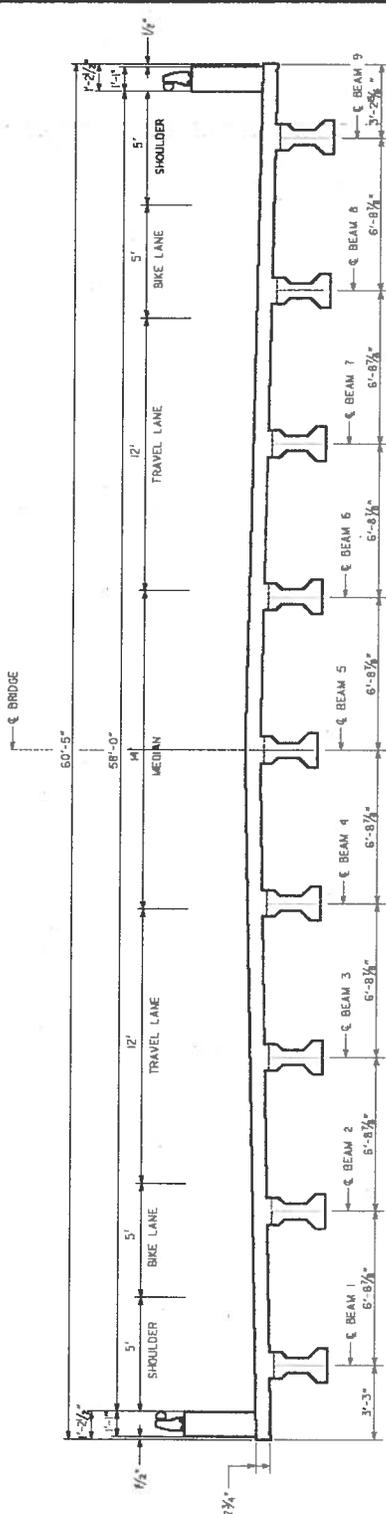
The additional full depth build-up is proposed for roadway and bridges to allow for future conversion of this section to a five lane urban section. The future typical section will consist of a 12' two-way left turn lane, 4- 11' travel lanes, as well as a 2.5' curb and gutter section. Proposed and alternate details of each respective typical section are shown on Illustrations for WF-11. This alternate provides a 60' section from face of bridge rail to face of bridge rail for bridge sections to match the 60' typical pavement section proposed for the roadway.

**PROJECT: Georgia Department of Transportation – STP-7073(1)
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620**

ALTERNATIVE NO.: WF-11

DESCRIPTION: CONSTRUCT A 60' WIDE TWO-LANE BRIDGE WHICH CAN LATER BE RE-STRIPED AND UTILIZED AS A 4-LANE BRIDGE.

SHEET NO.: 2 of 2



Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn. Phase II – Columbia County – P.I.# 250620 ALTERNATIVE NO.: **WF-13**

DESCRIPTION: **USE 11'-0" TRAVEL LANES.** SHEET NO.: **1 of 5**

Original Design:

The original design calls for a 12'-0" travel lanes.

The original bridge design calls for the construction of a 600 ft long bridge over Euchee Creek and is comprised of fifteen 40 ft spans. The bridge is 60'-5" wide and accommodates 2-12 ft travel lanes, a 14 ft flush median, 5 ft flush shoulder and 5 ft bike lanes on each side. The intermediate bents are all pile bents.

Alternative:

The alternative design calls for reducing the travel lanes to 11'-0. The reduced lane width is proposed to be carried over the bridge as well.

Opportunities:

- Reduction in pavement costs.
- Reduction in bridge costs.
- Reduction in earthwork costs.

Risks:

- Moderate design impacts.
- Requires an exception to GDOT policy.

Technical Discussion:

Reduction of width of travel lanes throughout the project would result in 2' of full build-up widening that would not have to be constructed, resulting in significant cost savings. Although 11' lanes would require an exception to GDOT policy, AASHTO's "Policy on Geometric Design of Highways 2004" states that 11' lanes are permissible. It also states that under interrupted-flow operating conditions at low speeds (45 mph or less), narrower lanes are normally adequate and have some advantages. (See Pages 472-473).

The reduced bridge cross section would be 58'-5" (a reduction of 2'). All other bridge geometry remains the same as in the current design.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 3,798,997	\$	\$ 3,798,997
ALTERNATIVE	\$ 3,580,184	\$	\$ 3,580,184
SAVINGS	\$ 218,813	\$	\$ 218,813

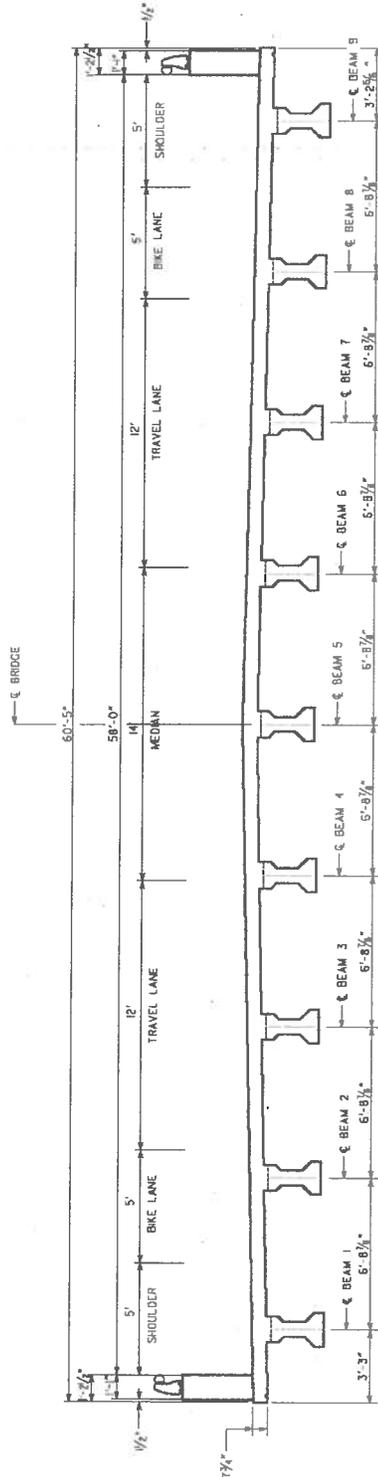
PROJECT: Georgia Department of Transportation – STP-7073(1)
 William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: WF-13

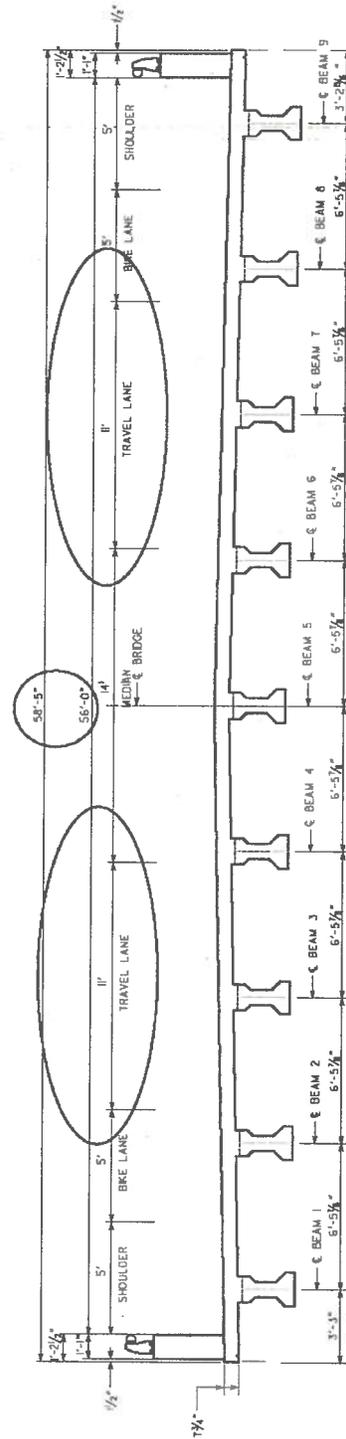
DESCRIPTION: USE 11'-0" TRAVEL LANES.

SHEET NO.: 3 of 5

SECTIONS AT BRIDGE



ORIGINAL BRIDGE SECTION (ASSUMED)



ALTERNATIVE BRIDGE SECTION (WF-13)

Calculations



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **WF-13**

DESCRIPTION: **USE 11'-0" TRAVEL LANES.**

SHEET NO.: 4 of 5

Reduction in paving area: $(6500 \text{ lf} \times 2 \text{ ft}) / (9 \text{ sf/cy}) \Rightarrow 1450 \text{ sy}$
Assume ~ 2 foot depth on earthwork reduction & \$ 4.25/cy

Right of way- $(5400 \text{ ft} \times 100 \text{ ft}) / (43560 \text{ sf} / \text{acre}) = 12.4 \text{ acres}$
 $\$911,400 / 12.4 \text{ acres} \Rightarrow \$73,500 / \text{acre}$

AFFECTED PAY ITEMS:

Original- Reduction = Alternative

Right of Way: $(5400 \text{ lf} \times 2 \text{ ft}) / (43560 \text{ sf/acre}) = 0.25 \text{ acres}$ 12.40 acres - 0.25 acres = 12.15 acres

Earthwork: $(6500 \text{ lf} \times 2 \text{ ft} \times 2 \text{ ft}) / (27 \text{ cf/cy}) \Rightarrow 965 \text{ cy}$ \$1,000,000.00 - \$4100.00 = \$995,900.00
 $965 \text{ cy} \times \$4.25 \Rightarrow \$ 4100.00$

10" GAB- $(1450 \text{ sy}) \Rightarrow 1450 \text{ sy}$

12.5 mm Superpave- $(1450 \text{ sy} \times 165 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 120 \text{ tons}$ 2748 tons - 120 tons = 2628 tons

19.0 mm Superpave- $(1450 \text{ sy} \times 220 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 160 \text{ tons}$ 3300 tons - 160 tons = 3140 tons

25.0 mm Superpave- $(1450 \text{ sy} \times 440 \text{ \#/sy}) / (2000 \text{ \#/ton}) \Rightarrow 320 \text{ tons}$ 6600 tons - 320 tons = 6280 tons

BRIDGE ITEMS:

Reduction in bridge width = 2'.

Reduction in total deck area = $2' \times 600' = 1200 \text{ SF}$

(Note: Bridge cost assumed to be \$90 / SF; Also, savings in Alternative Design is considered cost for Original Design.)

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation – STP-7073(1)
William Few Parkway, Columbia County– P.I. No. 250620**

ALTERNATIVE NO.: **WF-14**

DESCRIPTION: **REDUCE BRIDGE SPAN TO TRANSFER ONLY FLOW OF
EUCHEE CREEK AND NOT BACK-WATER.**

SHEET NO.: **1 of 4**

Original Design:

The original design provides for the construction of a new bridge to cross the Euchee Creek. The design suggests that the bridge span a significant portion of the drainage basin beyond just the creek.

Alternative:

The alternative design proposes to construct a bridge across the Euchee Creek, but that it be designed to only handle/pass the design storm flows resulting from the upstream drainage basin. It appears the current design may be influenced by downstream backwaters resulting in a significant open span. This alternative proposes that the new bridge be designed to have an open span of approximately 300' and a clear height to be established by the designer.

Opportunities:

- Reduce the initial construction cost.
- May help to reduce low level flooding upstream.

Risks:

- None noted.

Technical Discussion:

From the documents received and the discussions during the designers presentation, it appears that the original stormwater calculations, which generally tend to give the designer a “flood elevation”, may have been influenced by a “back-water” or “tail-water” condition caused by the confluence at its outfall into the river. This may have distorted the estimation of the stream flows during storm events.

The resultant of this appears to have significantly lengthened the bridge opening over the creek and adjacent lands than may have been necessary. It seems reasonable that the bridge should be designed to “pass” the Creek’s design storms, and to also be high enough to remain dry during storm events (including those influenced by downstream conditions).

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 3,588,948	\$ 0	\$3,588,948
ALTERNATIVE	\$ 1,794,474	\$ 0	\$1,794,474
SAVINGS	\$ 1,794,474	\$ 0	\$1,794,474

Calculations



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Parkway, Columbia County– P.I. No. 250620

ALTERNATIVE NO.: **WF-14**

DESCRIPTION: **REDUCE BRIDGE SPAN TO TRANSFER ONLY FLOW OF**
EUCHEE CREEK AND NOT BACK-WATER.

SHEET NO.: 3 of 4

ASSUMPTIONS:

The existing Bridge is 600' long and 60.4' wide = $(60.4' \times 600') = 36,252$ SF

The alternative Bridge length will be 300' long and 60.4' wide = $(60.4' \times 300') = 18,126$ SF

A reasonable cost for new bridge is \$90.00/sf.

Value Analysis Design Suggestion



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County –P.I. No. 250620

ALTERNATIVE NO.: **BR-1**

DESCRIPTION: **USE LONGER SPANS TO REDUCE THE NUMBER OF**
BENTS TO REDUCE MITIGATION COSTS

SHEET NO.: **1 of 1**

Original Design:

The original design calls for the construction of a 600 ft long bridge over Euchee Creek and is comprised of fifteen 40 ft spans. The bridge is 60'-5" wide and accommodates 2-12 ft travel lanes, a 14 ft flush median, 5 ft flush shoulder and 5 ft bike lanes on each side. The intermediate bents are all pile bents.

Alternative:

The alternative recommends the construction of the bridge of similar geometry but with longer span arrangements.

Opportunities:

- Reduce number of intermediate bents
- Reduce environmental disturbance in the wetland and, hence, mitigation costs
- Potential savings in construction cost and construction time

Risks:

- Minimal re-design impact.

Technical Discussion:

From the preliminary bridge layout made available to the VE team at the time of the study, there appears to be adequate clearance above the 100-yr flood elevation to accommodate a deeper structure. Type II beams spanning 60 ft or Type III beams spanning 80 ft could be utilized in-lieu of 40 ft Type I MOD beams currently being used.

The bridge carries traffic along the William Few extension across Euchee Creek and the adjacent flood plain. The area is under the influence of backwaters from the Savannah River and, hence, a designated wetland.

Utilizing fewer bents for the construction of the bridge will reduce environmental impacts and mitigation costs.

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn. Phase II – Columbia County – P.I.# 250620 ALTERNATIVE NO.: **BR-2**

DESCRIPTION: **CONSTRUCT TWIN BRIDGES ON SHARED BENTS** SHEET NO.: **1 of 4**

Original Design:

The original design calls for the construction of a 600 ft long bridge over Euchee Creek and is comprised of fifteen 40 ft spans. The bridge is 60'-5" wide and accommodates 2-12 ft travel lanes, a 14 ft flush median, 5 ft flush shoulder and 5 ft bike lanes on each side. The intermediate bents are all pile bents.

Alternative:

The alternative recommends the construction of the bridge of similar geometry but with separate superstructures for each directional lane on a shared bent.

Opportunities:

- Reduced capital cost
- Potential savings in construction cost
- Allows future expansion of the superstructure to allow for additional lane

Risks:

- Minimal re-design impact.

Technical Discussion:

Each of the twin superstructures will accommodate 1-12 ft travel lane with a 2 ft buffer to the barrier on the inside, a 14 ft flush median, 5 ft flush shoulder and 5 ft bike lanes on each side. The barrier rail to the outside is special design (aluminum rail as in the original design) and the barrier to the inside is standard. Each superstructure is 26'-10" out-to-out for a combined superstructure width of 53'-8".

It is assumed that the original bridge deck is supported by 9 Type I MOD PSC Beams. The twin superstructures can each be supported by 4 Type I MOD PSC beams (requiring a total of 8 for both structures).

See following pages for illustrations and calculations.

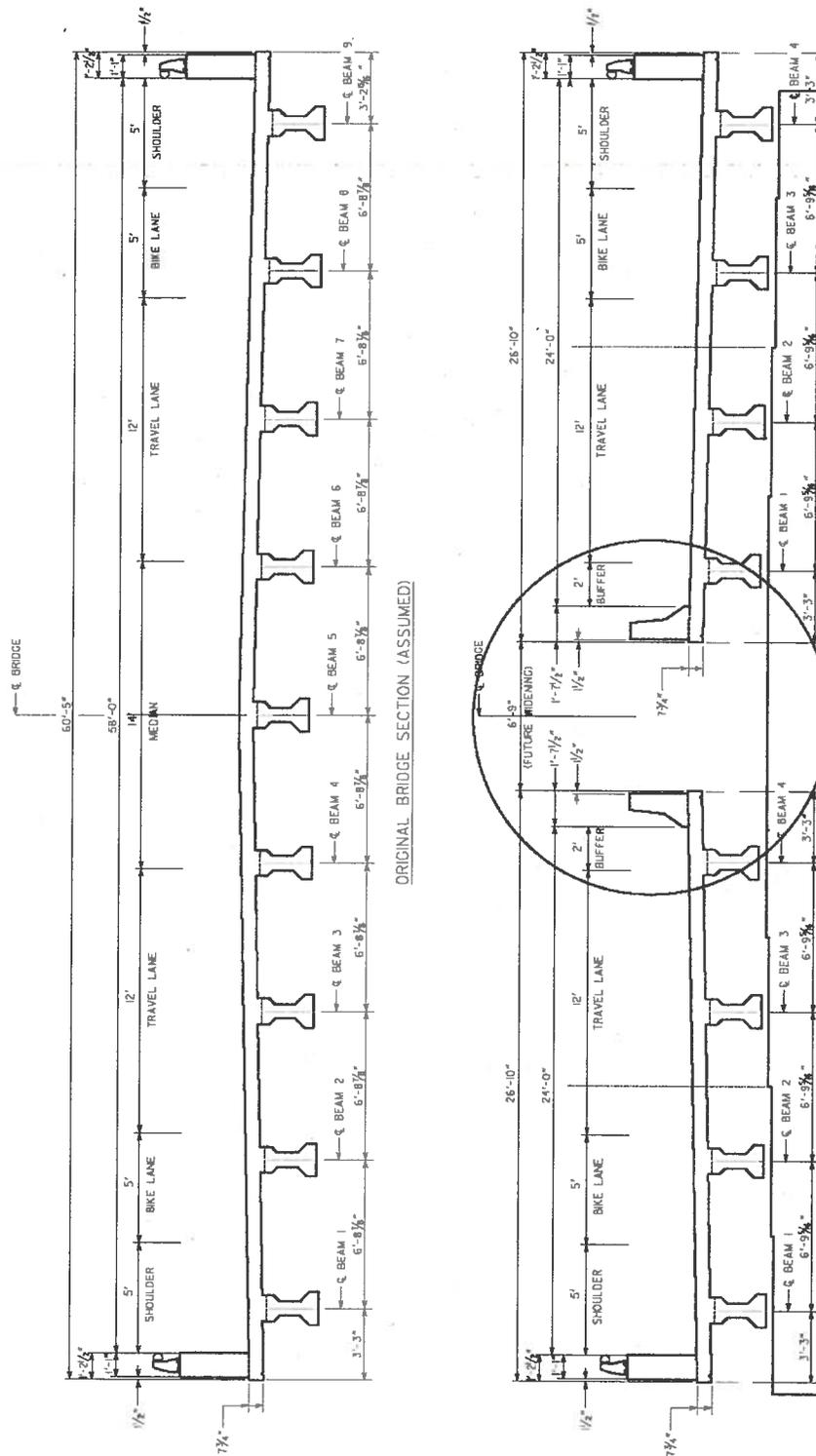
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 190,735	\$	\$ 190,735
ALTERNATIVE	\$ 66,383	\$	\$ 66,383
SAVINGS	\$ 124,352	\$	\$ 124,352

PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **BR-2**

DESCRIPTION: **CONSTRUCT TWIN BRIDGES ON SHARED BENTS**

SHEET NO.: **2 of 4**



ORIGINAL BRIDGE SECTION (ASSUMED)

ALTERNATIVE BRIDGE SECTION (WITH SHARED BENT)

Calculations



PROJECT: **Georgia Department of Transportation – STP-7073(1)**
William Few Pkwy Extn.-Phase II – Columbia County – P.I.# 250620

ALTERNATIVE NO.: **BR-2**

DESCRIPTION: **CONSTRUCT TWIN BRIDGES ON SHARED BENTS**

SHEET NO.: **3 of 4**

Note:

- 1) The VE team is cognizant of the fact that the project design is in its concept phase.
- 2) Calculations below are based on the Preliminary Bridge Layout provided at the time of the VE study.
- 3) Costs savings are based on reduction of structure width from the current design.
- 4) Further cost savings may be realized due to reduction in sub structure components but these components were not addressed since the substructure design had not been completed at the time of the VE study.

Current Design (Assumed):

Fifteen 40' spans, 600' long, 60'-5" wide bridge with 7.5' thick concrete deck (assumed) and 8 Type I MOD PSC beams.

Alternative BR-2:

This alternative proposes twin, 26'-10" wide superstructures in-lieu of a single 60'-5" wide superstructure.

Reduction in width of Class AA Deck Concrete = $60'-5" - (2 \times 26'-10") = 6'-9"$

Volume of reduced Class AA Concrete = $[6.75' \times (7.5"/12)' \times 600'] / 27 = 93.75 \text{ CY}$

Reduction in Area of Concrete Grooving = $(6.75' \times 600') / 9 = 450 \text{ SY}$

Reduction in length of Type I MOD PSC (assumed 8 required for alternate vs. 9 in original design)
 $= 1 \times 600' = 600'$

Addition in standard barrier rails on the insides of the twin decks = $2 \times 600' = 1200'$

NOTE: Reduction from current design = savings for alternate

COST WORKSHEET



PROJECT: **Georgia Department of Transportation – STP-7073(1)** ALTERNATIVE NO.: **BR-2**

William Few Pkwy Extn. Phase II – Columbia County – P.I.# 250620

DESCRIPTION: **CONSTRUCT TWIN BRIDGES ON SHARED BENTS** SHEET NO.: **4 of 4**

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Class "AA" Concrete (Sup)	CY	93.75	\$ 1,122.40	\$105,225.00	0	\$ 1,122.40	\$0.00
Concrete Grooving	SY	450	\$ 4.85	\$2,182.50	0	\$ 4.85	\$0.00
Type I MOD PSC Beam	LF	600	\$ 109.98	\$65,988.00	0	\$ 109.98	\$0.00
Standard Barrier	LF	0	\$ 50.29	\$0.00	1200	\$ 50.29	\$60,348.00
Sub-total				\$173,396			\$60,348
Mark-up at 10.00%				\$17,340			\$6,035
TOTAL				\$190,735			\$66,383

Project Description

PROJECT DESCRIPTION

This project comprises the William Few Parkway Extension – Phase 2, from Washington Road (SR 104) north and east on a new location to the existing Hardy McManus Road.

William Few Parkway currently serves as an access to the Greenbrier Elementary, Middle, and High schools. The purpose of the project is to assist in the distribution of school traffic away from Washington Road and provide access to other users.

The proposed roadway will be approximately 1.3 miles on new location with one 12' lane in each direction with a 14' center turn lane, 12' shoulders (10' paved, 2' grassed), a 5' bike lane and a new bridge over the Euchee Creek.

The current estimated construction cost is \$18,431,686.74

REPRESENTATIVE DOCUMENTS

- Southern Partners, Inc.
 - The Concept Report and Plans
 - Construction Cost Estimates

The VE Team utilized the supplied project materials noted above and the current GDOT standard drawings, details and specifications.

Representative documents follow:

Estimate Report for file "STP-7073(1)_2007-01-09"

Section Clearing and Grubbing					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
201-1500	1	LS	500000.00	CLEARING & GRUBBING -	500000.00
Section Sub Total:					\$500,000.00

Section Earthwork					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
210-0100	1	LS	1000000.00	GRADING COMPLETE -	1000000.00
Section Sub Total:					\$1,000,000.00

Section Base and Pavement					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
310-5100	30000	SY	16.00	GR AGGR BASE CRS, 10 INCH, INCL MATL	480000.00
402-1812	1250	TN	75.00	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	93750.00
402-3112	3300	TN	75.00	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	247500.00
402-3113	2748	TN	77.05	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	211733.40
402-3121	6600	TN	75.00	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	495000.00
413-1000	3830	GL	2.00	BITUM TACK COAT	7660.00
Section Sub Total:					\$1,535,643.40

Section Drainage					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
550-1180	1000	LF	41.57	STORM DRAIN PIPE, 18 IN, H 1-10	41570.00
550-1360	500	LF	79.72	STORM DRAIN PIPE, 36 IN, H 1-10	39860.00
550-3318	10	EA	664.41	SAFETY END SECTION 18 IN, STORM DRAIN, 4:1 SLOPE	6644.10
550-3336	6	EA	1732.77	SAFETY END SECTION 36 IN, STORM DRAIN, 4:1 SLOPE	10396.62
Section Sub Total:					\$98,470.72

Section Concrete					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
433-1000	900	SY	132.91	REINF CONC APPROACH SLAB	119619.00
441-0204	2750	SY	31.72	PLAIN CONC DITCH PAVING, 4 IN	87230.00
441-0740	200	SY	31.99	CONCRETE MEDIAN, 4 IN	6398.00
Section Sub Total:					\$213,247.00

Section Traffic Control					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1010	1	LS	420381.00	TRAFFIC CONTROL -	420381.00
Section Sub Total:					\$420,381.00

Section Erosion Control					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
162-9999	1	Ea	5000000.00	EROSION CONTROL COMPLETE	5000000.00
Section Sub Total:					\$5,000,000.00

Section Guardrail					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
641-1100	1500	LF	52.44	GUARDRAIL, TP T	78660.00
641-1200	2370	LF	18.89	GUARDRAIL, TP W	44769.30
Section Sub Total:					\$123,429.30

Section Striping and signage					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-9999	1	Lump Sum	40000.00	SIGNAGE COMPLETE	40000.00
647-1000	1	LS	160000.00	TRAFFIC SIGNAL INSTALLATION NO - 1	160000.00
652-9999	1	Lump Sum	40000.00	STRIPING - COMPLETE	40000.00
Section Sub Total:					\$240,000.00

Section Grassing					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	10	AC	561.09	TEMPORARY GRASSING	5610.90
700-6910	10	AC	893.29	PERMANENT GRASSING	8932.90
Section Sub Total:					\$14,543.80

Section Miscellaneous					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
231-9999	1	Lump Sum	500000.00	MISCELLANEOUS CONSTRUCTION	500000.00
Section Sub Total:					\$500,000.00

Section Major Structures					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
543-9999	1	Lump Sum	6000000.00	BRIDGE - COMPLETE	6000000.00
Section Sub Total:					\$6,000,000.00

Total Estimated Cost: \$15,645,715.22

Subtotal Construction Cost	\$15,645,715.22
E&C Rate 10.0 %	\$1,564,571.52
Inflation Rate 0.0 % @ 0.0 Years	\$0.00
Total Construction Cost	\$17,210,286.74
Right Of Way	\$911,400.00
ReImb. Utilities	\$310,000.00
Grand Total Project Cost	\$18,431,686.74

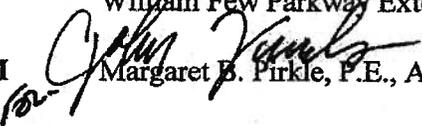
ORIGINAL TO GENERAL FILES

D.O.T. 66

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE P. I. No. 250620, Columbia County **OFFICE** Preconstruction
STP-7073(1)
William Few Parkway Extension, Phase 2 **DATE** August 22, 2005

FROM  Margaret B. Pirkle, P.E., Assistant Director of Preconstruction

TO SEE DISTRIBUTION

SUBJECT APPROVED PROJECT CONCEPT REPORT

Attached for your files is the approval for subject project.

MBP/cj

Attachment

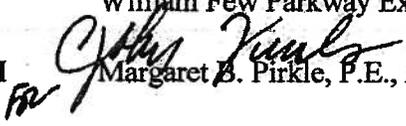
DISTRIBUTION:

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Harvey Keepler
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Keith Golden
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Paul Liles
Babs Abubakari
Ben Buchan
Mike Thomas
BOARD MEMBER

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 250620, Columbia County **OFFICE** Preconstruction
 STP-7073(1)
 William Few Parkway Extension - Phase 2 **DATE** August 16, 2005

FROM  Margaret B. Pirkle, P.E., Assistant Director of Preconstruction

TO David E. Studstill, Jr., P.E., Chief Engineer

SUBJECT PROJECT CONCEPT REPORT

This project comprises the William Few Parkway Extension - Phase 2, from Washington Road (SR 104) extending north and east on new location to Hardy McManus Road.

William Few Parkway currently serves as an access to Greenbrier Elementary, Middle, and High schools. The roadway extends approximately 1500' north from Washington Road (SR 104) to Riverwood Parkway. This portion of roadway is the only ingress and egress route to the schools. The existing school traffic causes both safety and level of service issues on Washington Road (SR 104). The purpose of this project is to assist in distribution of school traffic away from Washington Road and will provide access to Washington Road for the planned developments. Base year traffic (2008) is 5,100 VPD and the design year (2028) traffic is 14,690 VPD.

The proposed roadway will be approximately 1.3 miles on new location with one, 12' lane in each direction with a 14' center turn lane, 12' shoulders (10' paved, 2' grassed), 5' bike lane and side ditches, and a bridge over Euchee Creek. Access will be controlled by permit and the proposed speed design is 45 MPH. Traffic will be maintained on existing roads during construction.

Environmental concerns include requiring a COE 404 Permit; an Environmental Assessment will be prepared; a public hearing open house will be held; time saving procedures are not appropriate.

The estimated costs for this project are:

	<u>PROPOSED</u>	<u>APPROVED</u>	<u>FUNDING</u>	<u>PROG DATE</u>
Construction (includes E&C and inflation)	\$7,913,000	\$10,000,000	Q23	2007
Right-of-Way & Utilities*	Local	Local		

David Studstill
Page 2

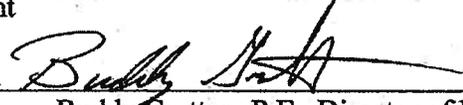
P. I. No. 250620, Columbia
August 16, 2005

I recommend this project concept be approved.

MBP:JDQ/cj

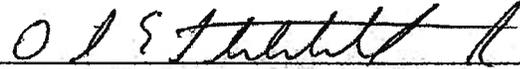
Attachment

CONCUR



Buddy Gratton, P.E., Director of Preconstruction

APPROVE



David E. Studstill, Jr., P.E., Chief Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: STP-7073(1)
County: Columbia
P. I. Number: 250620
Road Name: William Few Parkway

Federal Route Number: N/A
State Route Number: N/A
County Route Number: 1427

Recommendation for approval:

DATE 7/29/05

Jan C Hillaris
Project Manager

DATE 7/29/05

James B. Buchanan
State Urban Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE _____

State Transportation Planning Administrator

DATE _____

State Financial Management Administrator

DATE _____

State Environmental/Location Engineer

DATE _____

State Traffic Safety and Design Engineer

DATE _____

District Engineer

DATE _____

Project Review Engineer

DATE _____

State Bridge and Structural Design Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: STP-7073(1)
County: Columbia
P. I. Number: 250620
Road Name: William Few Parkway

Federal Route Number: N/A
State Route Number: N/A
County Route Number: 1427

Recommendation for approval:

DATE _____

Project Manager

DATE _____

State Urban Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE 8/4/05



State Transportation Planning Administrator

DATE _____

State Financial Management Administrator

DATE _____

State Environmental/Location Engineer

DATE _____

State Traffic Safety and Design Engineer

DATE _____

District Engineer

DATE _____

Project Review Engineer

DATE _____

State Bridge and Structural Design Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: STP-7073(1)
County: Columbia
P. I. Number: 250620
Road Name: William Few Parkway

Federal Route Number: N/A
State Route Number: N/A
County Route Number: 1427

Recommendation for approval:

DATE 7/29/05

Jean C Hillaris
Project Manager

DATE 7/29/05

Jamie B. Buchanan
State Urban Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE _____

State Transportation Planning Administrator

DATE _____

State Financial Management Administrator

DATE _____

State Environmental/Location Engineer

DATE 8-5-05

Heidi Solle
State Traffic Safety and Design Engineer

DATE _____

District Engineer

DATE _____

Project Review Engineer

DATE _____

State Bridge and Structural Design Engineer

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: STP-7073(1)
County: Columbia
P. I. Number: 250620
Road Name: William Few Parkway

Federal Route Number: N/A
State Route Number: N/A
County Route Number: 1427

Recommendation for approval:

DATE _____
Project Manager

DATE _____
State Urban Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE _____
State Transportation Planning Administrator

DATE _____
State Financial Management Administrator

DATE _____
State Environmental/Location Engineer

DATE _____
State Traffic Safety and Design Engineer

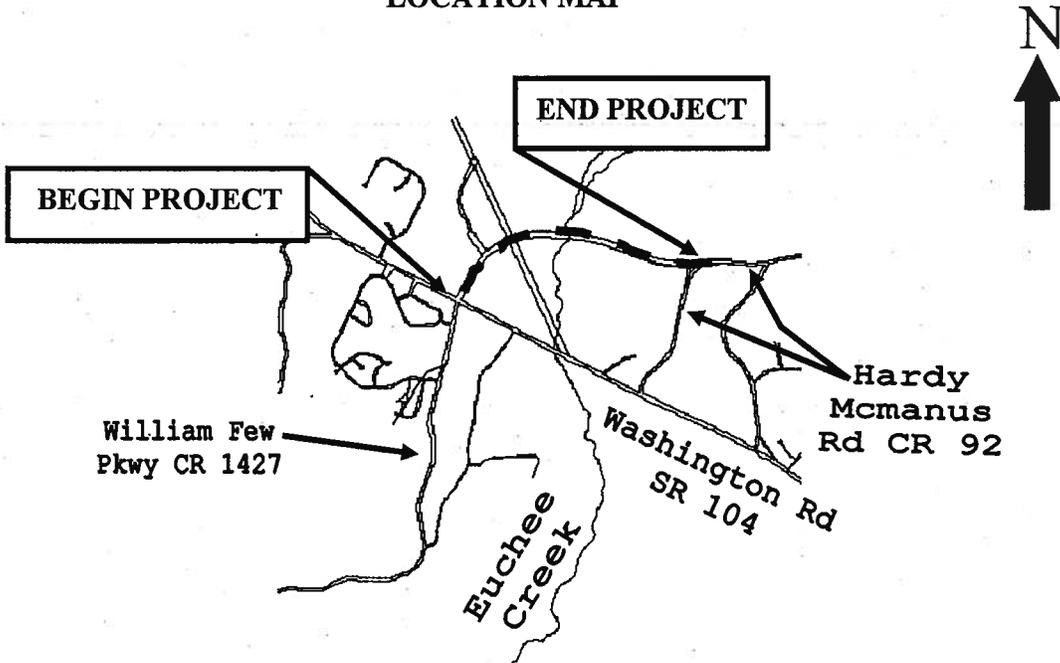
DATE _____
District Engineer

DATE _____
Project Review Engineer

DATE 8/10/05
Paul V. Tiller Jr.
State Bridge and Structural Design Engineer

Project Concept Report page 2
Project Number: STP-7073(1)
P. I. Number: 250620
County: Columbia

LOCATION MAP



William Few Parkway/CR 1427 STP-7073(1), Columbia COUNTY P.I. NO. 250620 PROJECT LOCATION MAP	DATE: 7/29/05
	SCALE: NONE
	FIGURE NO. 1

Need and Purpose Statement: Located in Columbia County, William Few Parkway currently serves as an access to Greenbrier Elementary, Middle and High Schools. The roadway extends approximately 1500' north from Washington Road (SR 104) to Riverwood Parkway. This portion of roadway is the only ingress and egress route to the schools. There is a large volume of school traffic that travels south along Hardy McManus and Halali Farm Roads to Washington Road in order to reach the campuses. The existing school traffic causes both safety and level of service issues on Washington Road (SR 104). In order to provide adequate capacity and level of service on Washington Road, the connection between William Few Parkway and Hardy McManus needs to be constructed.

The existing land along the proposed extension of William Few Parkway is predominantly wetlands, but residential and recreational institutions are presently being established on the upland areas surrounding the proposed roadway. The proposed construction would be the second phase of William Few Parkway extending from Washington Road (SR 104) and ending at Hardy McManus Road.

Based on revised development projections and the countywide transportation plan, the classification of the proposed extension of William Few Parkway has changed. According to the County's study, William Few Parkway is classified as a rural local road serving the educational institutions, proposed residential and recreational development. This classification and the lower growth potential in this corridor, create a need for a three-lane section.

The majority of the traffic using this project will be ingress and egress for the schools and the residential and recreational development. Most traffic will use Washington Road as the connector to Evans and Martinez from this project area. Washington Road will be accessed either directly from William Few or south along Hardy McManus Road. The Washington Road widening project and the Hardy McManus intersection improvements will provide adequate capacity for this volume. William Few Parkway continues south across Washington Road as a two-lane road. Hardy McManus continues east as a two-lane road to Fury's Ferry Road (SR 28). The traffic along this portion of Hardy McManus is primarily residential and school traffic.

The purpose of the project is to assist in distribution of school traffic away from Washington Road and will provide access to Washington Road for the planned developments. The traffic will disperse along William Few Parkway, south of Washington Road, Washington Road and Hardy McManus Road and should cause no need for further improvement. Washington Road and William Few Parkway will be studied and coordinated with the current GDOT widening project on Washington Road.

Description of the proposed project: The proposed project is a roadway extension project of William Few Parkway in Columbia County. The existing William Few Parkway starts as a four lane divided section and transitions to a two lane section from the Washington Road intersection to the Riverwood Parkway intersection. The extension project begins at the end of the four lane section and continues north and east on new location to Hardy McManus Road. William Few Parkway would be a three lane section with two 12 foot lanes, a 14 foot center turn lane, 12 foot shoulders (10 foot paved with a 5 foot bike lane), side ditches, and a bridge over Euchee Creek. Hardy McManus Road will be reconstructed to create a three-leg intersection.

Is the project located in a Non-attainment area? () Yes (X) No

PDP Classification: Major

Federal Oversight (), Full Oversight (), Exempt (X), State Funded (), or Other ()

Functional Classification: Rural Major Collector

U. S. Route Number(s): N/A

State Route Number(s): N/A

Traffic (AADT):

SR 104 – Riverwood Parkway (existing 4 lane)	Base Year: (2008) <u>12,550</u>
	Design Year: (2028) <u>32,640</u>
Riverwood-Hardy McManus (2 lane extension)	Base Year: (2008) <u>5,100</u>
	Design Year: (2028) <u>14,690</u>

Existing design features:

- None – new roadway

Proposed Design Features:

- Proposed typical section(s): One 12 ft. lane in each direction with 14 ft center turn lane, 12' shoulders (10' paved, 2' grassed), 5' bike lane and side ditches.
- Proposed Design Speed Mainline: 45 mph
- Proposed Maximum grade Mainline: 7.5% Maximum grade allowable: 9.0%.
- Proposed Maximum grade Side Street: 6.0% Maximum grade allowable: 9.0%.
- Proposed Maximum grade driveway: 10.0%
- Proposed Maximum degree of curve: 6 Maximum degree allowable: 6
- Right of way
 - Width: 100'
 - Easements: Temporary (), Permanent (X), Utility (), Other ().
 - Type of access control: Full (), Partial (), By Permit (X), Other ().
 - Number of parcels: 8 Number of displacements:
 - Business: 0
 - Residences: 1
 - Mobile homes: 0
 - Other: 0
- Structures:
 - Bridge: Bridge over Euchee Creek.
- Major intersections: William Few Parkway / Riverwood Parkway and William Few Parkway / Hardy-McManus Road
- Traffic control during construction: This project will be mostly new location construction. There will be reconstruction of Hardy-McManus to align with the William Few Parkway extension. It is anticipated that this can be done keeping one lane of traffic open at all times.

- Design Exceptions to controlling criteria anticipated:

	<u>UNDETERMINED</u>	<u>YES</u>	<u>NO</u>
HORIZONTAL ALIGNMENT:	()	()	(X)
ROADWAY WIDTH:	()	()	(X)
SHOULDER WIDTH:	()	()	(X)
VERTICAL GRADES:	()	()	(X)
CROSS SLOPES:	()	()	(X)
STOPPING SIGHT DISTANCE:	()	()	(X)
SUPERELEVATION RATES:	()	()	(X)
HORIZONTAL CLEARANCE:	()	()	(X)
SPEED DESIGN:	()	()	(X)
VERTICAL CLEARANCE:	()	()	(X)
BRIDGE WIDTH:	()	()	(X)
BRIDGE STRUCTURAL CAPACITY:	()	()	(X)

- Design Variances: None expected.
- Environmental concerns:
 - Project may require wetland mitigation, dependent on bridge length. No PAR is anticipated.
 - There are no potential UST sites.
 - There are no potential hazardous waste sites.
 - There are potential historic and archeological resources on the project corridor for which impacts have yet to be determined.
- Level of environmental analysis:
 - Are Time Savings Procedures appropriate? Yes (), No (X),
 - Categorical exclusion (),
 - Environmental Assessment/Finding of No Significant Impact (FONSI) (X), or
 - Environmental Impact Statement (EIS) ().
- Utility involvements:
 - Georgia Power,
 - Atlanta Gas Light Company,
 - BellSouth,
 - Comcast,
 - Knology,
 - Columbia County Water and Sewerage Department.

Project Concept Report page 6
Project Number: STP-7073(1)
P. I. Number: 250620
County: Columbia

Project responsibilities:

- Design: Columbia County
- Right of Way Acquisition: Columbia County
- Relocation of Utilities: Columbia County
- Letting to contract: GDOT
- Supervision of construction: GDOT
- Providing material pits: Contractor
- Providing detours: Contractor

Coordination

- FEMA and USCAE: Flood plain analysis.
- Public involvement: Public Information Open House held January 27, 2000. Need for second hearing to be determined.
- Concept Team Meeting; Date: April 25, 2003.

Scheduling – Responsible Parties' Estimate

- Time to complete the environmental process: 9 Months.
- Time to complete preliminary construction plans: 6 Months.
- Time to complete right of way plans: 3 Months.
- Time to complete final construction plans: 6 Months.
- Time to purchase right of way: 6 Months.
- List other major items that will affect the project schedule: Flood plain study.

Other alternates considered:

1. A two lane rural section with sidewalks. Sidewalks were eliminated since there will be no residential lots directly fronting the roadway and school bus routes will include the planned developments.
2. A four-lane rural section with a 44' wide depressed median was considered, but the countywide traffic study and trip generation did not generate the traffic volumes to support a four lane section.
3. No build was considered. This is not recommended due to traffic volumes and safety issues on SR 104, Washington Road. Traffic created by the three schools has significantly affected the Washington Road intersection and needs to be addressed.

Project Concept Report page 7
Project Number: STP-7073(1)
P. I. Number: 250620
County: Columbia

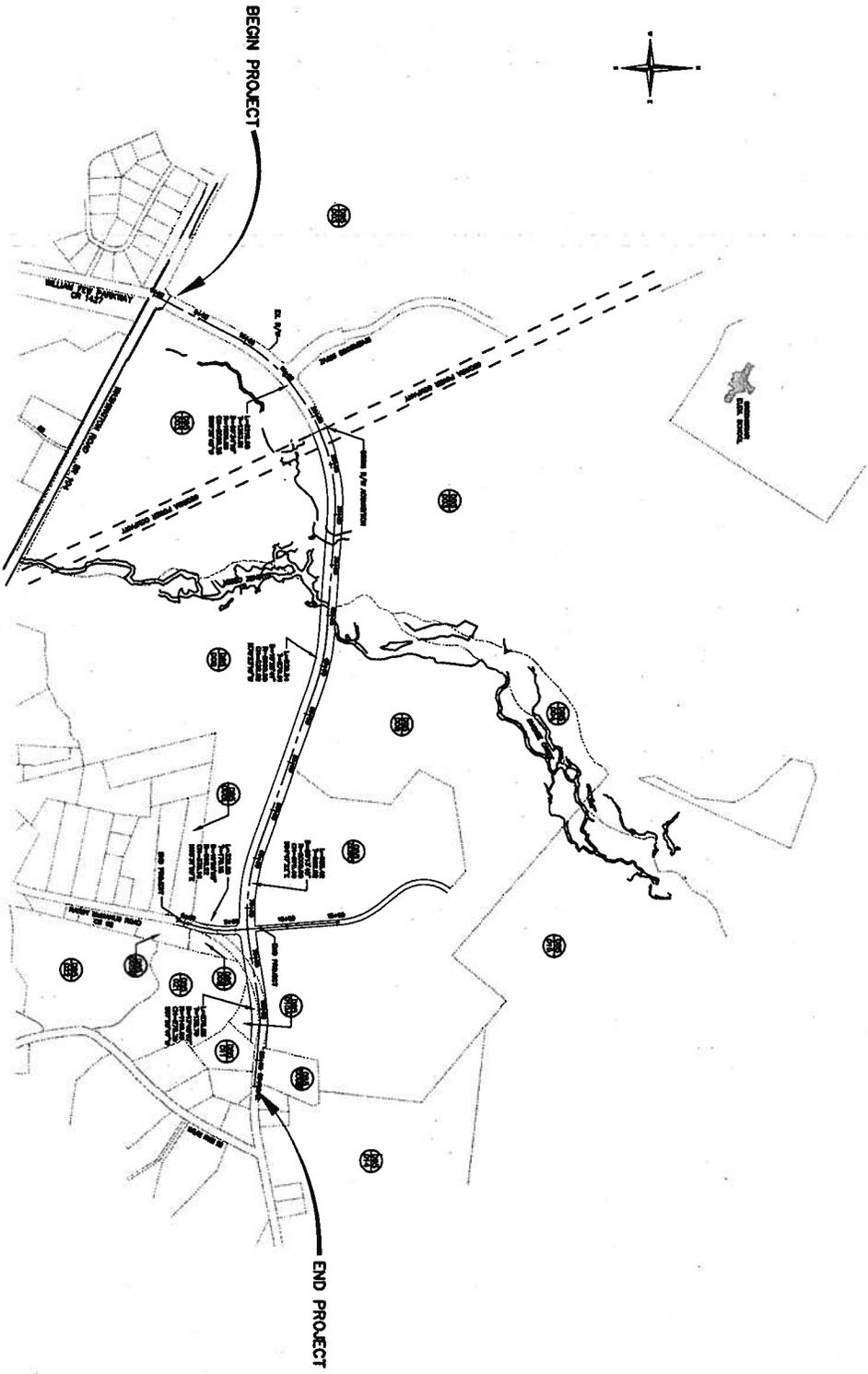
Comments: An Initial Concept Team Meeting was held on March 25, 2003.

Attachments:

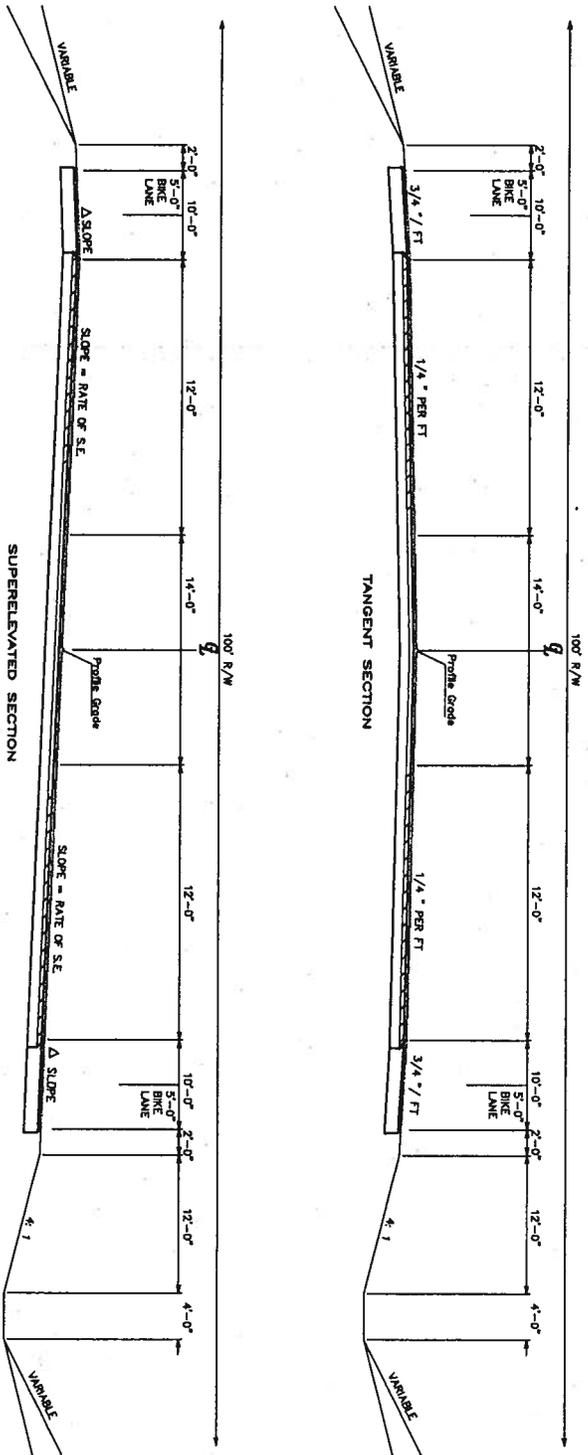
1. Cost Estimates,
2. Typical Sections,
3. Traffic Study,
4. Minutes of Initial Concept Team Meeting (March 25, 2003),
5. Minutes of Interim Concept Team Meeting (April 23, 2003),
6. 11" x 17" layout of project.

PROPERTY OWNERS	
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DATE	PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
04	STP 7073 (1)		



STATE	PROJECT NO.	SHEET	TOTAL
GA	SFB-7073 (1)	NO.	SHEETS



TYPICAL SECTIONS

Estimate Report for file "STP-7073(1)"

Section Clearing and Grubbing					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
201-1500	1	LS	255000.00	CLEARING & GRUBBING -	255000.00
Section Sub Total:					\$255,000.00

Section Earthwork					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
210-0100	1	LS	752500.00	GRADING COMPLETE -	752500.00
Section Sub Total:					\$752,500.00

Section Base and Pavement					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
310-5100	30000	SY	8.88	GR AGGR BASE CRS, 10 INCH, INCL MATL	266400.00
402-1812	1250	TN	39.39	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	49237.50
402-3112	3300	TN	45.62	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	150546.00
402-3113	2748	TN	45.34	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	124594.32
402-3121	6600	TN	36.74	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	242484.00
413-1000	3830	GL	0.97	BITUM TACK COAT	3715.10
Section Sub Total:					\$836,976.92

Section Drainage					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
550-1180	1000	LF	28.01	STORM DRAIN PIPE, 18 IN, H 1-10	28010.00
550-1360	500	LF	50.81	STORM DRAIN PIPE, 36 IN, H 1-10	25405.00
550-3318	10	EA	643.70	SAFETY END SECTION 18 IN, STORM DRAIN, 4:1 SLOPE	6437.00
550-3336	6	EA	2006.28	SAFETY END SECTION 36 IN, STORM DRAIN, 4:1 SLOPE	12037.68
Section Sub Total:					\$71,889.68

Section Concrete					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
433-1000	900	SY	146.83	REINF CONC APPROACH SLAB	132147.00
441-0204	2750	SY	26.29	PLAIN CONC DITCH PAVING, 4 IN	72297.50
441-0740	200	SY	23.25	CONCRETE MEDIAN, 4 IN	4650.00
Section Sub Total:					\$209,094.50

Section Traffic Control					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1010	1	LS	50000.00	TRAFFIC CONTROL -	50000.00
Section Sub Total:					\$50,000.00

Section Erosion Control					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
162-9999	1	Ea	500000.00	EROSION CONTROL COMPLETE	500000.00
Section Sub Total:					\$500,000.00

Section Guardrail					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
641-1100	1500	LF	29.84	GUARDRAIL, TP T	44760.00
641-1200	2370	LF	12.76	GUARDRAIL, TP W	30241.20
Section Sub Total:					\$75,001.20

Section Striping and signage					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-9999	1	Lump Sum	30000.00	SIGNAGE COMPLETE	30000.00
647-1000	1	LS	125000.00	TRAFFIC SIGNAL INSTALLATION NO - 1	125000.00
652-9999	1	Lump Sum	25000.00	STRIPING - COMPLETE	25000.00
Section Sub Total:					\$180,000.00

Section Grassing					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	10	AC	478.64	TEMPORARY GRASSING	4786.40
700-6910	10	AC	763.50	PERMANENT GRASSING	7635.00
Section Sub Total:					\$12,421.40

Section Miscellaneous					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
231-9999	1	Lump Sum	250000.00	MISCELLANEOUS CONSTRUCTION	250000.00
Section Sub Total:					\$250,000.00

Section Major Structures					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
543-9999	1	Lump Sum	4000000.00	BRIDGE - COMPLETE	4000000.00
Section Sub Total:					\$4,000,000.00

Total Estimated Cost: \$7,192,883.70

Subtotal Construction Cost	\$7,192,883.70
E&C Rate 10 %	\$719,288.37
Inflation Rate 0.0 % @ 0.0 Years	\$0.00
<hr/>	
Total Construction Cost	\$7,912,172.07
Right Of Way	\$911,400.00
ReImb. Utilities	\$310,000.00
<hr/>	
Grand Total Project Cost	\$9,133,572.07

Preliminary Right of Way Cost Estimate

Date: April 8, 2004
Project: STP-7073(1) Columbia **P.I. Number:** 250620
Existing/Required R/W: Varies/100' **No. Parcels:** 8
Project Termini: William Few Parkway From Washington Road To Hardy McManus Road
Project Description: William Few Parkway Extension

Land:				
Residential	950,000 sf @ \$ 0.15/ sf = \$	142,500		
			\$	142,500
Damages:				
Proximity - 5 Parcels	\$	120,000		
			\$	<u>120,000</u>
			\$	262,500
	Net Cost		\$	262,500
	Scheduling Contingency 55 %		\$	144,375
	Adm/Court Cost 60%		\$	244,125
	Inflation Factor .40 %		\$	<u>260,400</u>
			\$	911,400

Total Cost \$ 911,400

Prepared By: Philip R. Green
 Southern Partners, Inc.
 Philip R. Green, PE

Approved: [Signature]
 GDOT R/W

Columbia County Land Sales

<u>Highest & Best Use</u>	<u>Size (acres)</u>	<u>Value/SF</u>	<u>Sales price</u>
Residential	1964	\$ 0.10	\$ 8,775,000
	315	\$ 0.16	\$ 2,229,955
	146	\$ 0.14	\$ 850,000



Meeting Memorandum

Attendees:

Name	Organization	Phone No.	E-mail Address
Philip Green	Southern Partners	706-855-6000	pgreen@southernpartners.net
Ronald D. Hutto	Columbia County	706-541-3944	rhutto@co.columbia.ga.us
Robert Dell-Ross	G&O	770-988-9555	rdellross@g-and-o.com
Nicoe Alexander	GDOT Urban	404-656-5441	nicoe.alexander@dot.state.ga.us
Jan C. Hilliard	GDOT Urban	404-656-5441	jan.hilliard@dot.state.ga.us
Glenn Bowman	GDOT Urban	404-656-5454	glenn.bowman@dot.state.ga.us
Joe Palladi	GDOT Urban	404-656-5446	joe.palladi@dot.state.ga.us
David Low	G&O	770-982-5501	dwlow@g-and-o.com
Holly Liles	GDOT	404-657-6913	holly.liles@dot.state.ga.us
Tom Tkacs	G&O	770-988-9555	ttkacs@g-and-o.com
Lisa Duncan	G&O	770-988-9555	lduncan@g-and-o.com
Bill Rutlin	G&O	770-988-9555	wrutlin@g-and-o.com

Date: March 25, 2003

Project: STP-7073(1) Columbia William Few Parkway Extension

PI. 250620

Subject: Initial Concept Team Meeting

1. Jan Hilliard welcomed everyone and asked them to introduce themselves.
2. Glenn Bowman described the purpose of an Initial Concept Team Meeting. The purpose is to get key people together to talk about the foundations for the project and review a sound public involvement strategy.
3. Philip Green described the project. The project will extend back to the Washington Road intersection. GDOT has a widening project from Halali Farm Road to the northwest along Washington Road.
4. Tom Tkacs reviewed the environmental aspects of the project. Tom reviewed the draft Need and Purpose Statement. Logical termini was reviewed.
5. A PIM was held in 2000.

6. Phil Green described the project. We are proposing four lanes with a 20 foot raised median and rural shoulders. An 850 foot bridge is planned to span Uchee Creek. The design speed is 45 mph. Proposed median openings were described.
7. An LGPA exists between Columbia County and GDOT.
8. We don't expect any displacements from the current concept.
9. A new water main is planned along Hardy McManus Road for a new water tank.
10. A bike path is planned along the project. Philip said it is planned on the road shoulder.
11. The advantage of using curb and gutter was discussed. Joe Palladi and Ronnie agreed that in five years time, it will be good to have a curb and gutter section. Ronnie wants a four foot bike lane instead of a multi-use path.
12. Ronnie said this section of Few Parkway is the most difficult part of the corridor. They have a situation that is detrimental to the county because the traffic is over powering. They need a connector to facilitate the growth. This route will eventually extend to I-20.
13. Ronnie thinks this is a one-time opportunity to cross the creek. He does not want to come back later and try to get another environmental document approved to widen the road.
14. Joe said the locals need to get the next segment of Hardy McManus to the east included in the regional transportation program. The environmental document needs to be done from Washington Road east to the appropriate logical termini which may be SR 28.
15. Ronnie wants to build the bridge substructure for four lanes initially with only the necessary lanes constructed.
16. Tom said he had given the Need and Purpose to OEL/FHWA in October 2002.
17. Jan said right of way and construction are in long range. Jan said her records say the County will pay for PE, RW, Utilities and 20% of construction. The project is long range. Columbia County will check on the 20% for construction.
18. Joe said it may be best to do the PIM and then the concept team meeting. Glenn and Jan preferred it the other way. Joe then suggested an internal review before the PIM and the concept team meeting.
19. Ronnie wants to review the project with the three new commissioners. Glenn said we could then have another Initial Concept Team Meeting prior to the PIM to discuss local government input and the ctg design.

Few Parkway
March 25, 2003
Page 3 of 3

20. Joe suggested a grass buffer between back of curb and sidewalk and suggested a 16 foot shoulder, if appropriate. Few drives are anticipated along the new location portion of the roadway. Access management should be exercised and coordinated with the plans.
21. GDOT Planning will coordinate with FHWA to verify that logical termini is their only issue.
22. Must update years in Need and Purpose including accident data and traffic.
23. Environmental document must evaluate entire corridor and establish logical termini where traffic drops off. Phased construction is acceptable.
24. Develop concept, internal review, PIM, then Concept Team Meeting.

This represents my understanding of the meeting. If you have questions or concerns please call me at 770-956-8510 x 219.

Respectfully submitted,

Greenhorne & O'Mara, Inc.

Thomas G. Tkacs, P.E.
Department Head, Resource Management

Distribution: Attendees, Robert Miller, Theon Grojean

Attachments: Agenda



MEMORANDUM OF MEETING

PROJECT: William Few Parkway Extension
STP-7073(1) Columbia County
P.I. No. 250620

PURPOSE: Interim Concept Team Meeting
to Discuss Logical Termini and Need and Purpose

DATE, TIME: April 23, 2003, 2:30 p.m.

PLACE: Georgia DOT Office of Environment and Location, Conference Room

ATTENDEES:

Name	Organization	Phone No.	E-mail Address
Philip Green	Southern Partners	706-855-6000	pgreen@southernpartners.net
Ronald D. Hutto	Columbia County	706-541-3944	rhutto@co.columbia.ga.us
Amy Wirsching	GDOT OEL	404-699-4415	amy.wirsching@dot.state.ga.us
Jerry Hobbs	GDOT OEL	404-699-4457	jerry.hobbs@dot.state.ga.us
Jan C. Hilliard	GDOT Urban	404-656-5441	jan.hilliard@dot.state.ga.us
Katy Allen	FHWA	404-562-3657	katy.allen@fhwa.dot.gov
Radney Simpson	GDOT Planning	404-657-6689	radney.simpson@dot.state.ga.us
David Low	G&O	770-982-5501	dwlow@g-and-o.com
Gail A. D'Avino	GDOT OEL	404-699-3475	gail.davino@dot.state.ga.us
Tom Tkacs	G&O	770-988-9555	ttkacs@g-and-o.com
Keith Melton	GDOT Planning		keith.melton@dot.state.ga.us
Bill Rutlin	G&O	770-988-9555	wrutlin@g-and-o.com

DISCUSSION:

1. Philip Green described the project. Jan Hilliard asked everyone to introduce themselves.
2. Amy Wirsching replaced Michelle Brouillette as the OEL NEPA manager for this project.
3. The purpose of the meeting was to address any project concerns and issues, specifically need and purpose and logical termini.

4. Tom Tkacs described the environmental aspects of the project, including need and purpose. Tom had submitted the Need & Purpose to OEL/FHWA September, 2002, but has not formally received comments.
5. Katy Allen said that the gist of her comments are related to logical termini. The terminus at Hardy McManus is an issue. What impacts will a new road have on Hardy McManus Road?
6. Ronald Hutto described the project as part of the planned Columbia County perimeter around Evans to connect major radial routes from S.R. 10 to S.R. 28. Katy Allen asked if this perimeter route is part of a formal county or regional transportation plan. The William Few Parkway Extension project from Washington Road to Hardy McManus Road has been part of the Augusta Regional Transportation Plan for several years, however the segment from Hardy McManus to Furys Ferry Road (SR 28) is not designated in the regional plan to be upgraded. An active GDOT project, through the Office of Planning, is currently updating the Columbia County Transportation Plan. Katy said we have a segmentation issue. What is the transportation need: traffic and level of service? If you have enough traffic to justify extending the project across the creek, wouldn't that same amount of traffic on Hardy McManus Road also justify widening Hardy McManus at least to SR 28? Katy said she was not going to designate where the logical termini for the east end of the project should be, but it may go at least to SR 28.
7. Katy Allen discussed logical termini for the project. The concept of logical termini has three criteria. A project must satisfy a transportation need, have independent utility, and cannot force future improvements on other transportation facilities. The overall project (potentially from Washington Road to Fury's Ferry Road) must address a transportation need and must have logical termini. Logical termini of William Few Parkway must be evaluated in terms of traffic. Where do traffic volumes drop off?
8. Jerry Hobbs asked if William Few will pull traffic off of Washington Road. It was described by Ronnie that it will not take traffic off of Washington, but only serve the proposed development and existing schools. Columbia County wants to set it up to provide the 4-lane connector from S.R. 10 to I-20 and S.R. 28, crossing Uchee Creek and the difficult environmental issues only once.
9. Facility should be built based on traffic projections. If 4-lane section is required based on traffic, then this is what should be built. If traffic does not support a 4-lane section, to purchase right-of-way for a 4-lane section would not be justified.
10. For the project to move forward, Columbia County will evaluate the logical termini at both ends of the project, at Hardy McManus Road or Fury's Ferry Road on the east end and at Washington Road on the west end. Does traffic disperse at the Washington Road intersection? If not, then the Washington Road intersection is not the logical termini.
11. The environmental document must include the entire corridor for the project, once logical termini are established; however, phased construction would be allowed. The Few Parkway extension between Washington Road and Hardy McManus could be constructed as Phase I. A second PIM will have to show the entire corridor.

Few Parkway
April 23, 2003
Page 3 of 3

12. Environmental constraints along Hardy McManus appear minor, no “show stoppers”, such as archaeology, history, wetlands, protected species and/or 4(f).
13. The group agreed to meet again after logical termini are resolved to get input from FHWA before proceeding to any public information meeting.

This represents my understanding of the meeting. If you have questions or concerns, please call me at 770-956-8510 x 239.

Respectfully submitted,

Greenhorne & O'Mara, Inc.

William Rutlin
Senior Environmental Scientist, Resource Management

Distribution: Attendees, Robert Miller, Theon Grojean

Attachments: Agenda

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE STP-7073(1) Columbia County
William Few Parkway Extension from SR 104 to
Hardy McManus Road
P.I. No. 250620-

OFFICE Urban Design

DATE August 1, 2005

FROM James B. Buchan, P.E., State Urban Design Engineer

TO Meg Pirkle, P.E. Assistant Director of Preconstruction

SUBJECT **Concept Report**

Attached is the original copy of the Concept Report for your further handling for approval in accordance with the Plan Development Process.

JBB: JCH
Attachment

Cc: Brian Summers
Harvey Keeper
Carla Holmes
Joe Palladi
Jamie Simpson
Michael Thomas
Paul Liles

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

Project Number: STP-7073(1)
County: Columbia
P. I. Number: 250620
Road Name: William Few Parkway

Federal Route Number: N/A
State Route Number: N/A
County Route Number: 1427

Recommendation for approval:

DATE 7/29/05

Jan C. Hilliard
Project Manager

DATE 7/29/05

James B. Buchanan
State Urban Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE _____

State Transportation Planning Administrator

DATE _____

State Financial Management Administrator

DATE _____

State Environmental/Location Engineer

DATE _____

State Traffic Safety and Design Engineer

DATE _____

District Engineer

DATE _____

Project Review Engineer

DATE _____

State Bridge and Structural Design Engineer

Value Engineering Process

VALUE ENGINEERING PROCESS

Introduction

This report summarizes the analysis and conclusions by the PBS&J Value Engineering team as they performed a VE Study during the period of September 10- 13, 2007 in Atlanta, Georgia, for the Georgia Department of Transportation.

The Value Engineering Study team and its leadership were provided by PBS&J. This VE Team consisted of the following:

Les M. Thomas, P.E., CVS-Life	Certified Value Specialist
Luke Clarke, P.E.	Highway Design Engineer
Dr. John Luh, P.E., AVS	Highway Design Engineer
Ron Hale, P.E.	Highway Construction Specialist
Randy S. Thomas, AVS	Assistant Team Leader

The Value Engineering Team followed the Seven Step Value Engineering job plan as promulgated by SAVE International. This Seven Step job plan includes the following:

- **Investigation/Information Phase** – during this phase of the VE Team’s work, the team received a briefing from the Georgia Department of Transportation (GDOT) design team and staff. This briefing included discussions of the design intent behind the project, the cost concerns, the physical project limitations. In the working session that followed, the VE Team developed cost models from the cost data provided by the designers and familiarized themselves with the construction drawings and other data that was available to the team. Some of the representative project information (concept report, cost estimate, and special provisions) may be found in the tabbed section of this report entitled *Project Description*. Following this current narrative the reader will also find a cost model done in the Pareto fashion, i.e., identifying the highest costs down to the lowest costs for the larger construction cost elements. This cost model, developed by the VE Team, was used by the VE Team to help focus their week of work. The headings on the Pareto Chart also were used as headings for creative phase activities.
- **Analysis Phase** – during this phase the VE Team determined the “**Functions**” of the project. This was accomplished by reviewing the project from the simplest format in asking the questions of “What is the project suppose to do?”, and “How is it suppose to accomplish this purpose? In the Value Engineering vernacular, the answers to these questions are cast in the form of active verbs and measurable nouns. These verb/noun pairs form the basis of the function analysis which distinguishes a Value Engineering effort from a potentially damaging cost cutting exercise.

- The important functions of the project were identified as follows:
 - **Project Objective/Goals**
 - **Improve Level of Service**
 - **Increase Capacity**
 - **Separate Traffic**
 - **Provide for future growth**
 - **Project Basic Functions**
 - **Construct Additional Traffic Lanes**
 - **Construction Additional Turn Lanes**
 - **Provide Separation of Traffic**
 - **Provide “U” Turn Lanes**
 - **Provide Traffic Controls**
- **Speculation Phase** - The VE team performed a brainstorming session to identify ideas that might help meet the project objectives:
 - Improve Level of Service
 - Improve Safety
 - Increase Capacity
 - Reduce construction and life cycle costs
 - Reduce the time of construction

This brainstorming session initially identified numerous ideas that were then evaluated in the Judgment phase. The reader will find the creative worksheets enclosed. These same work sheets were also used to record the results of the Judgment/Evaluation Phase.

- **Evaluation Phase** – Once the VE Team identified the creative ideas, it was necessary to decide which alternatives should be carried forward. This is the work of the Evaluation or Judgment Phase. The VE Team reflected back on the project constraints and objectives shared with the team by the owner’s representatives, in the kick-off meeting on the first day of the workshop. From that guidance, the team selected ideas that they believed would improve the project by a vote process.

- Following that selection process, the VE Team used the following values as measures of whether or not an alternative had enough merit to be carried forward in the VE process:
 - Construction Cost Savings
 - Maintainability
 - Ability to Implement the Idea
 - General Acceptability of the Alternatives
 - Constructability

Based on these measurement sticks, the VE Team evaluated the alternatives and graded them from 5 (Excellent) down to 1 (Poor). Other notes about the alternatives are annotated at the bottom of the enclosed creative and evaluation sheets.

- **Development Phase** – During this phase, the VE Team developed each of the selected design alternatives. This effort included a detailed explanation of the idea with sketches as appropriate to clarify the idea from the original concept, advantages and disadvantages, a technical explanation and an estimation of the cost and resultant savings if implemented. (see the tabbed section – Study Results)
- **Recommendation Phase** – During this phase the VE Team reviews the alternative ideas to confirm which ones are appropriate for the project, have an opportunity for success and which will improve the value of the project if implemented.
- **Presentation Phase** – As noted earlier, the team made an informal “out-briefing” on the last day of the workshop, designed to inform the Owners and the Designers of the initial findings of the VE Study. This written report is intended to formalize those findings.

The following FAST Diagram and **Function – Worth - Cost** Analysis, were utilized to focus the team and stimulate brainstorming; a copy of the **Attendance Sheets** is also attached so that the reader can be informed about who participated in the Study proceedings.



FUNCTION ANALYSIS AND COST-WORTH

PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Proj. No. STP-7073(1) Columbia County P.I. 250620

SHEET NO.: 1 of 2

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
1	OVERALL PROJECT	Increase	Traffic Capacity	B	18,431	16,000	C/W = 1.15
		Facilitate	Access	B			
		Enhance	Safety	S			
2	RIGHT OF WAY (ROW)	Accommodate	Widening	B	911	911	CW = 1.00
		Facilitate	Utilities	RS			
		Accommodate	Amenities	S			
3	ROADWAY (RD)	Increase	Capacity	B	1535	1535	C/W = 1.00
		Enhance	Safety	S			
4	EARTHWORK (EW)	Support	Road	S	1,000	800	C/W = 1.25
5	DRAINAGE (DR)	Convey	Storm Water	B	98	98	C/W = 1.0
		Facilitate	Utilities	S			

Function defined as: Action Verb Measurable Noun
 Kind: B = Basic HO = Higher Order
 S = Secondary LO = Lower Order
 RS = Required Secondary
 Cost/Worth Ratio = (Total Cost + Basic Worth)



FUNCTION ANALYSIS AND COST-WORTH

PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION Proj. No. STP-7073(1) Columbia County P.I. 250620		SHEET NO.: 2 of 2					
NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
6	CLEARING & GRUBBING			S	500	500	C/W = 1.0
7	EROSION CONTROL			S	5,000	2,500	C/W = 2.0
8	GUARDRAIL & ANCHORING SYSTEMS	Enhance	Safety	B	123	123	C/W = 1.0
9	TRAFFIC CONTROL	Facilitate	Safe Construction	S	350,000	350,000	C/W = 1.0
10	SIGNING & MARKING	Enhance	Directions	S	240	240	CW = 1.0
11	GRASSING	Channelize	Traffic	S			
12	BRIDGE	Stabilize	Earthwork	S	14	14	CW = 1.0
		Cross	Creek	B	6,000	4,000	CW = 1.5

Function defined as: Action Verb Measurable Noun

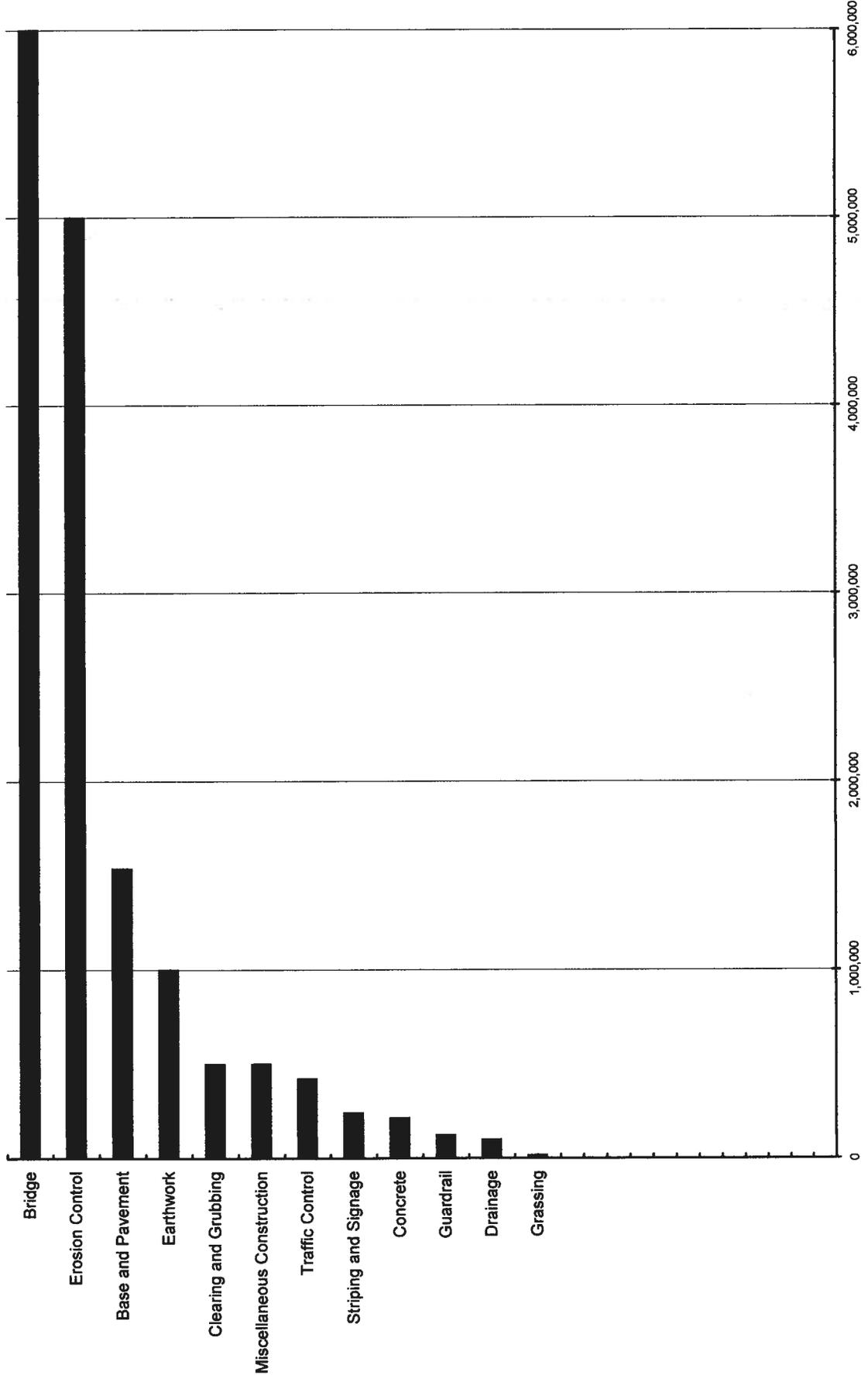
Kind: B = Basic S = Secondary RS = Required Secondary

HO = Higher Order LO = Lower Order

Cost/Worth Ratio = (Total Cost + Basic Worth)

Pareto Chart 2

STP-7037(1) - PI No. 250620
William Few Parkway Ext., Columbia County



DESIGNER PRESENTATION MEETING PARTICIPANTS



September 25, 2007

Georgia Department of Transportation STP-7073(1) Columbia County PI 250620		MEETING PARTICIPANTS		
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Georgia Department of Transportation		September 28, 2007		
STP-7073(1) Columbia County PI 250620				
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CREATIVE IDEA LISTING & EVALUATION



PROJECT: **Georgia Department of Transportation – STP-7073(1)** SHEET NO.: **1 of 1**
Columbia County PI No. 250620

NO.	IDEA DESCRIPTION	RATING
	William Few Parkway (WF)	
WF-1	Re-align the roadway to the south to reduce bridge length, earthwork and mitigation costs	1
WF-2	Widen the intersection of Riverwood Parkway and William Few Parkway (2 lanes out and 2 lanes in)	DS
WF-3	Widen the intersection of Riverwood Parkway and William Few Parkway (2 lanes out, 2 lanes in and a through lane for future)(included with WF-2)	1
WF-4	Turn William Few Parkway directly onto Riverwood Parkway and connect Hardy McManus using a "T" intersection	1
WF-5	Re-align existing Riverwood Parkway south to directly connect to Washington Road	1
WF-6	Re-locate the Bike Lane to a multi-use trail.	4
WF-7	Reduce the paved shoulder to 7'-6".	4
WF-8	Reduce median to 12'	5
WF-9	Delete paved median	1
WF-10	Use two lanes with a 44' grassed median	1
WF-11	Construct a 60' wide two lane bridge which can be re-striped as a four lane in the future	DS
WF-12	Extend the existing Riverwood Parkway southeasterly across William Few Parkway to directly connect to Washington Road	1
WF-13	Use 11' travel lanes	4
WF-14	Reduce Bridge span to transfer only flow of Euchee Creek and not back-water.	3
	Bridge (BR)	
BR-1	Use long spans to reduce the number of bents to reduce the mitigation costs	DS
BR-2	Construct twin bridges on shored bents	4

Rating: 1→2 = Generally not acceptable; 3 = Little Opportunity for Positive Change; 4→5 = Most likely to be Developed;
 DS = Design Suggestion; ABD = Already Being Done