

D.O.T. 66

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

**FILE** P. I. No. M002966 Haralson-Carroll Counties **OFFICE** Preconstruction  
CSNHS-M002-00(966)  
I-20 Pavement Reconstruction **DATE** May 24, 2005

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

**TO** SEE DISTRIBUTION

**SUBJECT** PROJECT CONCEPT REPORT APPROVAL

Attached for your files is the approval for subject project.

MBP/cj

Attachment

DISTRIBUTION:

David Mulling  
Harvey Keepler  
Ken Thompson  
Jamie Simpson  
Michael Henry  
Keith Golden  
Joe Palladi (file copy)  
Paul Liles  
Babs Abubakari  
Brent Story  
Kent Sager  
BOARD MEMBER  
FHWA

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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**INTERDEPARTMENT CORRESPONDENCE**

**FILE** P.I. No. M002966 Haralson-Carroll Counties **OFFICE** Preconstruction  
 CSNHS-M002-00(966)  
 I-20 Pavement Reconstruction **DATE** May 3, 2005

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

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

**SUBJECT** PROJECT CONCEPT REPORT

This project is the concrete reconstruction of the existing pavement and shoulders of I-20 from the Alabama state line to SR 61 for a total project length of 23.62 miles. The existing I-20 within the project limits consist of four, 12' lanes (2 in each direction) with 10' inside shoulders, 14' outside shoulders, and a variable width (88'-150') depressed median. The project has a total of twenty-four (24) existing major structures with sufficiency ratings ranging from 70-99.

State Route 401/I-20, a rural principal arterial, is a primary corridor in west Georgia. The primary purpose for this project is the rehabilitation of the existing roadway to preserve the integrity, serviceability, and safety of the interstate system. The majority of the pavement within the project is in poor to fair condition. This condition will continue to deteriorate as traffic increases. The base year traffic (2007) is 49,500 VPD and the design year traffic (2027) is 68,000 VPD.

The construction proposes to replace the pavement of the existing travel lanes, which consist of concrete pavement, with full depth continuous reinforced concrete. The outside shoulder will be replaced with full depth continuous reinforced concrete, while the inside shoulder will be replaced with hot mix asphalt. The existing guardrail will be upgraded to current standards and vegetation will be cleared according to current guidelines.

Environmental concerns include requiring a COE 404 Permit; a Categorical Exclusion will be prepared; a public hearing open house is not required; time saving procedures are appropriate.

**It is recommended that this project be split into two separate projects. The first project will begin at the Alabama state line and end at US 27, and will assume the project number CSNHS-M002-00(966), P.I.No. M002966. The second project will begin at US 27 and end at SR 61. The project number will be determined by the Office of Financial Management.**

P.I. No. M002966, Haralson-Carroll  
May 3, 2005

The estimated costs for these projects are:

**CSNHS-M002-00(966) Haralson-Carroll Counties - 11.81 miles**

	<u>PROPOSED</u>	<u>APPROVED</u>	<u>FUNDING</u>	<u>PROG DATE</u>
Construction (includes E&C and inflation)	\$79,626,000	\$79,626,000	Q05	2005
Right-of-Way & Utilities	-0-	-0-		

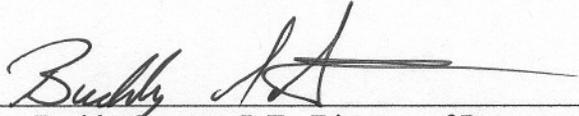
**CSNHS-M002-00(xxx) Carroll County - 11.81 miles**

	<u>PROPOSED</u>	<u>APPROVED</u>	<u>FUNDING</u>	<u>PROG DATE</u>
Construction (includes E&C and inflation)	\$77,172,000	\$77,172,000	Q05	2005
Right-of-Way & Utilities	-0-	-0-		

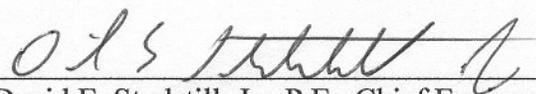
This project will enhance safety along this portion of I-20. I recommend this project concept be approved.

MBP:JDQ/cj

Attachment

CONCUR   
Buddy Gratton, P.E., Director of Preconstruction

APPROVE   
For: Robert M. Callan, Administrator, FHWA

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

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

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**INTERDEPARTMENTAL CORRESPONDENCE**

**FILE:** CSNHS-M002-00(966) Haralson/Carroll      **OFFICE:** Engineering Services  
P.I. No. M002966  
I-20 Pavement Reconstruction

**DATE:** April 22, 2005

**FROM:** David Mulling, Project Review Engineer *REW*  
**TO:** Meg Pirkle, Assistant Director of Preconstruction

**SUBJECT: CONCEPT REPORT**

We have reviewed the Concept Report submitted April 8, 2005 by the letter from Brent Story dated April 7, 2005, and have the following comment:

- Ensure that no culvert extensions will be required as noted in the Concept Report. Some widening will be required on the outside and inside shoulders.

The costs for the two segments of this project are:

<b>Segment 1</b>		<b>Segment 2</b>	
Construction	\$72,386,030	Construction	\$70,155,948 ✓
Inflation	\$0.00	Inflation	\$0.00
E & C	\$7,238,603	E&C	\$7,015,595
Reimbursable Utilities	\$0.00	Reimbursable Utilities	\$0.00
Right of Way	\$0.00	Right of Way	\$0.00

REW

c: Brent Story, Attn.: Andy Casey

## SCORING RESULTS AS PER MOG 2440-2

<b>Project Number:</b> CSNHS-M002-00(966)		<b>County:</b> Haralson/Carroll		<b>PI No.:</b> M002966	
<b>Report Date:</b> April 7, 2005		<b>Concept By:</b> DOT Office: Road Design			
<input checked="" type="checkbox"/> Concept Stage		Consultant: N/A			
<b>Project Type:</b> Choose One From Each Column		<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural	<input type="checkbox"/> ATMS <input type="checkbox"/> Bridge Replacement <input type="checkbox"/> Building <input type="checkbox"/> Interchange Reconstruction <input type="checkbox"/> Intersection Improvement <input checked="" type="checkbox"/> Interstate <input type="checkbox"/> New Location <input type="checkbox"/> Widening & Reconstruction <input type="checkbox"/> Miscellaneous	
<b>FOCUS AREAS</b>	<b>SCORE</b>	<b>RESULTS</b>			
Presentation	100				
Judgement	100				
Environmental	100				
Right of Way	100				
Utility	100				
Constructability	100				
Schedule	100				

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

Office of Airport and Road Design

PROJECT CONCEPT REPORT

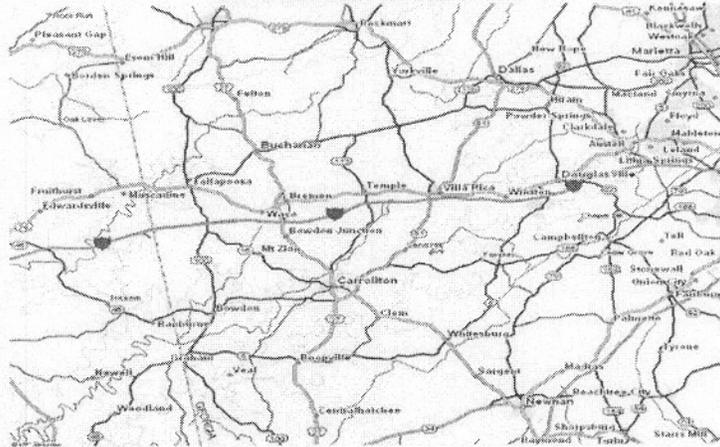
Project Number: CSNHS-M002-00(966)

County: Haralson/Carroll

P. I. Number: M002966

Federal Route Number: 20

State Route Number: 402



Recommendation for approval:

DATE 4-7-05

C. Andy Cane  
Project Manager

DATE 4-7-05

Butch  
Office Head/District 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 the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Financial Management  
Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Environmental/Location Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Traffic Safety & Design Engineer

DATE \_\_\_\_\_

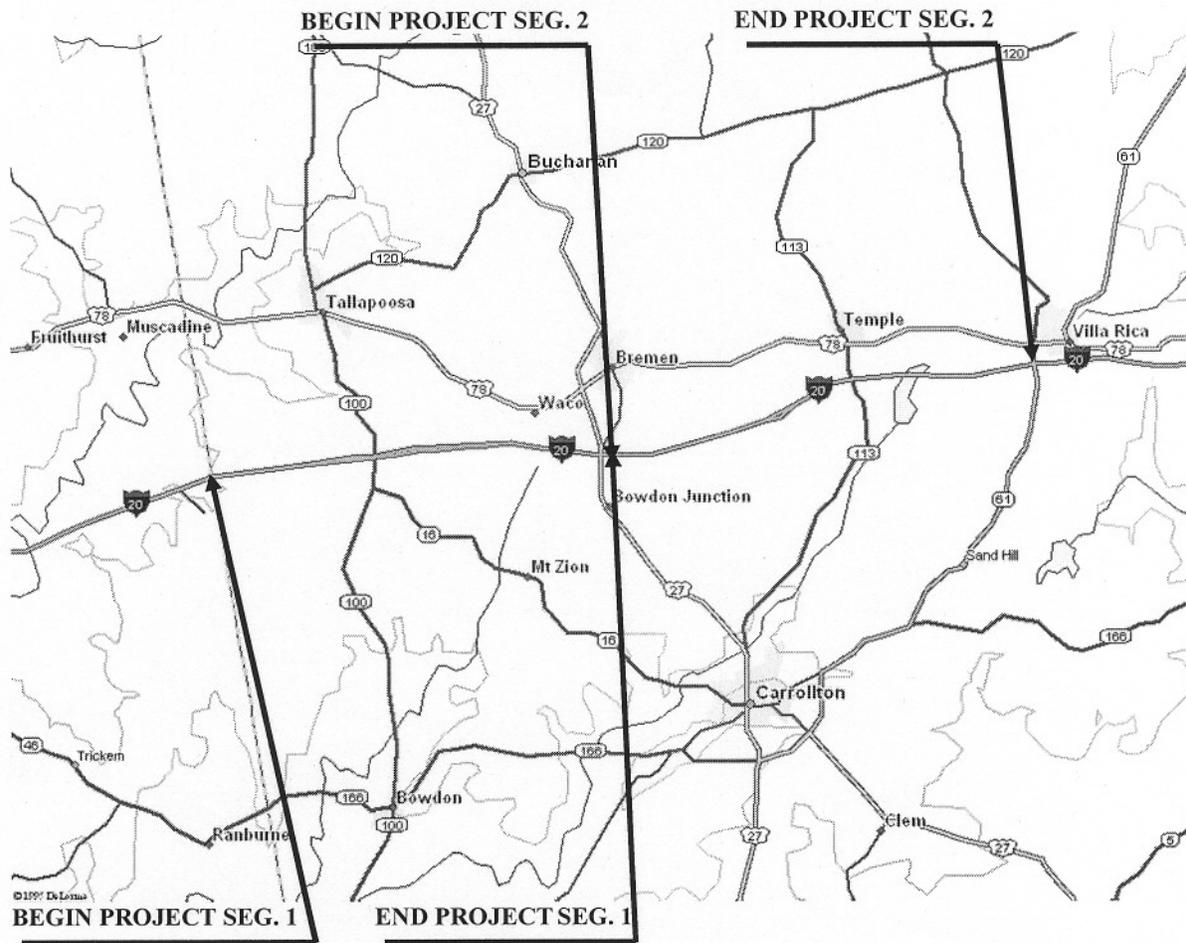
\_\_\_\_\_  
District Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

Project Concept Report page 2  
Project Number: CSNHS-M002-00(966)  
P. I. Number: M002966  
County: Haralson/Carroll

**PROJECT MAP – Project No. CSNHS-M002-00(966) CARROLL & HARALSON COUNTIES**



Project Concept Report page 3  
Project Number: CSNHS-M002-00(966)  
P. I. Number: M002966  
County: Haralson/Carroll

**Need and Purpose:** The primary need for the project is the rehabilitation of the existing roadway to preserve the integrity and safety of the system. The majority of the pavement within the project is in poor to fair condition. This condition will continue to deteriorate as traffic grows. This project is the concrete reconstruction of the existing pavement and shoulders of I-20/SR 402 from the Alabama State line to SR 61. The existing guardrail will be upgraded to current standards and vegetation will be cleared according to current guidelines.

**Description of the proposed project:** The project is located within Haralson and Carroll counties. The project scope is to replace the pavement of the two existing travel lanes, which consist of concrete pavement, with full depth Continuous Reinforced Concrete. The outside shoulder will be replaced with full depth Continuous Reinforced Concrete; while the inside shoulder will be replaced with Hot Mix Asphalt. The project will also upgrade the guardrail to current standards and all vegetation will be cleared according to current guidelines on both eastbound and westbound lanes of I-20/SR402 from the Georgia/Alabama State line in Haralson County to SR61 in Carroll County. It is proposed that the project be split into two separate projects. The first project would begin at the Alabama State Line and end at US 27. The second project would begin at US 27 and end at SR 61.

**Is the project located in a Non-attainment area?**  Yes  No

**PDP Classification:** Major on Existing Location

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

**Functional Classification:** Interstate Principal Arterial

**U. S. Route Number:** I-20

**State Route Number:** SR 402

**Traffic (AADT):**

Current Year: (2004) 47,300 Build Year: (2007) 49,500 Design Year: (2027) 68,000

**Existing design features:**

- Typical Section: 4-12' lanes (2 in each direction) with 10' inside shoulders, 14' outside shoulders, and a variable width (88'-150') depressed median.
- Posted speed: 70mph Maximum degree of curve: 1°00'00"
- Maximum super-elevation rate for curve: 3.70%
- Maximum grade: 4.0%
- Width of right of way: 300ft.
- Major Structures:
  - BRIDGES on SR 402/I-20:
    - Under CR 110 (Sufficient Rate 92.2%)
    - Over SR 100 (Sufficient Rate 91.6%)
    - Over SR 100 (Sufficient Rate 79.2%)
    - Under CR 348 Atlantic Ave. (Sufficient Rate 99.3%)
    - Under CR 219 Price Creek Rd. (Sufficient Rate 91.1%)
    - Over SR 1/ US 27 (Sufficient Rate 95.6%)

Over SR 1/ US 27 (Sufficient Rate 95.6%)  
Under Southern Railroad (Sufficient Rate %)  
Under CR244 Millers Academy Rd. (Sufficient Rate 91.2%)  
Under S-2185 Pleasant Ridge Rd. (Sufficient Rate 83.8%)  
Under CR 291 Levans Rd. (Sufficient Rate 88.5 %)  
Under S-1809 Centerpoint - Temple (Sufficient Rate 99.7%)  
Under SR 113 (Sufficient Rate 98.4%)  
Under CR 319 Bar-J Rd. (Sufficient Rate 91.3%)  
Over Little Tallapoosa River (Sufficient Rate 95.4%)  
Over Little Tallapoosa River (Sufficient Rate 79.3%)  
Under CR 830 Pleasant Grove CH (Sufficient Rate 89.1%)  
Under CR 356 South Vanwert Rd. (Sufficient Rate 97.7%)  
Under SR 61 SBL (Sufficient Rate 98.9%)  
Under SR 61 NBL (Sufficient Rate 98.9%)

**BRIDGE CULVERTS on SR 402/I-20:**

Over Walker Creek Trib. (Sufficient Rate 80.6%) – Triple 8x8 Box  
Over Walker Creek Trib. (Sufficient Rate 80.6%) – Triple 8x8 Box  
Over Walker Creek (Sufficient Rate 80.6%) – Double 10x8 Box  
Over Walker Creek (Sufficient Rate 80.6%) – Double 10x8 Box  
Over Walker Creek (Sufficient Rate 91.5%) – Double 10x6 Box  
Over Walker Creek (Sufficient Rate 91.5%) – Double 10x6 Box  
Over Turkey Creek (Sufficient Rate 70.0%) – Triple 8x8 Box  
Over Buck Creek (Sufficient Rate 70.0%) – Triple 8x8 Box  
Over Buck Creek Trib. (Sufficient Rate 70.0%) – Triple 9x8 Box  
Over Webster Creek (Sufficient Rate 70.0%) – Triple 9x8 Box

- Major interchanges along the project: I-20 @ SR 100 in Haralson County at 4.7MP  
I-20 @ CR348 in Haralson County at 9.0MP  
I-20 @ US 27 in Carroll County at 11.1MP  
I-20 @ SR 113 in Carroll County at 18.8MP
- Existing length of roadway segments: 9.32 miles in Haralson County 0.00MP to 9.32MP  
14.30 miles in Carroll County 9.32MP to 23.62MP

**Proposed Design Features:**

- Proposed typical section: 4-12' lanes (2 in each direction) with 10' inside shoulders, 14' outside shoulders, and a variable width (88'-150') depressed median.
- Proposed Design Speed: 70mph
- Proposed Maximum grade: 4.0% Maximum grade allowable: 5.0%
- Proposed Maximum super-elevation rate for curve: 3.70%
- Proposed Maximum degree of curve 1°00'00" Maximum degree allowable: 3°00'00"

**Right of way**

- Width: Utilize existing 300ft. of Right-of-Way

- Easements: Temporary ( ), Permanent ( ), Utility ( ), None (X).
- Type of access control: Full Limited(X), Partial ( ), By Permit ( ), Other ( ).
- Number of parcels:0                      Number of displacements:
  - Business: 0
  - Residences: 0
  - Mobile homes: 0
  - Other: 0

- Structures:

Bridges: Retain existing bridges. No widening is required on the six mainline bridges.

Culverts: Retain existing culverts. No lengthening is required.

- Major intersections and interchanges: I-20 @ SR 100 in Haralson County  
I-20 @ CR348 in Haralson County  
I-20 @ US 27 in Carroll County  
I-20 @ SR 113 in Carroll County

- Traffic control during construction: Stage Traffic Control will be utilized on this project.

- Design Exceptions to controlling criteria anticipated:

	<u>UNDETERMINE</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
- Environmental concerns:
- Level of environmental analysis:
  - Are Time Savings Procedures appropriate? Yes (X), No ( ),
  - Categorical exclusion (X),
  - Environmental Assessment/Finding of No Significant Impact (FONSI) ( ), or
  - Environmental Impact Statement (EIS) ( ).
- Utility involvements:

**Project responsibilities:**

- Design, GDOT

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Project Number: CSNHS-M002-00(966)  
P. I. Number: M002966  
County: Haralson/Carroll

- Letting to contract, GDOT
- Supervision of construction, GDOT
- Providing material pits, By Contractor

#### **Coordination**

- Initial concept meeting date and brief summary. Feb. 16, 2005
- Concept meeting date and brief summary. Apr. 6, 2005
- P. A. R. meetings, dates and results. No meeting to be held
- FEMA, USCG, and/or TVA. No coordination
- Public involvement. None
- Local government comments. No comments at this time
- Other projects in the area. PI#0006438 Carroll Co. Maintenance: I-20 under CR 319 / Bar J. Road Emergency Bridge Repair from MP 10.31 to MP 10.71

#### **Scheduling – Responsible Parties' Estimate**

- Time to complete the environmental process: 4 Months
- Time to complete preliminary construction plans: 2 Month
- Time to complete right of way plans: No right of way plans needed
- Time to complete the Section 404 Permit: 4 Months
- Time to complete final construction plans: 1 Month
- Time to complete to purchase right of way: N/A
- List other major items that will affect the project schedule: N/A

**Other alternates considered:**      Overlay section

**Comments:** None

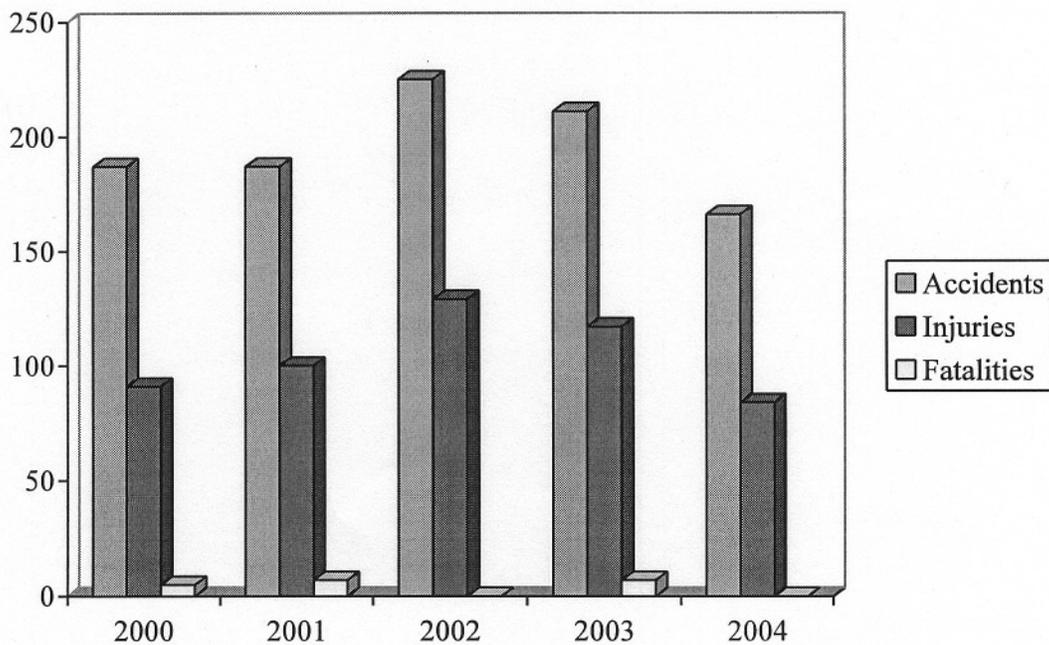
#### **Attachments:**

1. Sketch location map,
2. Accident summary,
3. Cost Estimates:
  - a. Construction including E&C,
4. Minutes of Initial Concept Team meeting,
5. Minutes of Concept Team meeting,
6. Typical section,
7. Capacity analysis,
8. VE Study Recommendations

**Crash Data  
 For  
 CSNHS-M002-00(966) Carroll & Haralson County  
 P.I. No. M002966**

<u>Year</u>	<u># of Crashes</u>	<u># of Injuries</u>	<u># of Fatalities</u>	<u># of Crashes caused by deer</u>	<u>% of Crashes caused by deer</u>
2000	187	91	5	3	1.6
2001	187	100	7	6	3.2
2002	225	129	0	4	1.8
2003*	211	117	7	5	2.4
2004*	166	84	0	1	0.6

\*Data from these two years are incomplete.



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 Project Number: CSNHS-M002-00(966)  
 P. I. Number: M002966  
 County: Haralson/Carroll

### SUMMARY OF PROJECT COST (section 1)

DATE: March 10, 2005

ESTIMATED LETTING DATE: June, 2005

PREPARED BY: Andy Casey

PROJECT LENGTH (MILES): 11.81

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

PROJECT COST	
A. RIGHT-OF-WAY:	
1. PROPERTY (LAND & EASEMENT)	
2. DISPLACEMENTS; RES:0, BUS;0, M.H.:0	
3. OTHER COST (ADM./COST, INFLATION)	
SUBTOTAL:A	\$ -0-
B. REIMBURSABLE UTILITIES:	
1. RAILROAD	
2. TRANSMISSION LINES	
3. SERVICES	
SUBTOTAL:B	\$ -0-
C. CONSTRUCTION:	
1. MAJOR STRUCTURES	
a. RETAINING WALLS	
b. BRIDGES	
c. DETOURS BRIDGES	
d. BOX CULVERTS	
SUBTOTAL:C-1	\$ -0-
2. GRADING AND DRAINAGE:	
a. EARTHWORK - EXCAVATE EXISTING SHOULDERS = 78,000 cy*\$5.69	\$ 443,820
b. EARTHWORK - EXCAVATE EXISTING TRAVEL LN = 147,000 cy*\$5.69	\$ 836,430
c. EARTHWORK - OUTSIDE SHOULDER/FRONT SLOPE = 488,000 cy*\$4.81	\$ 2,347,280
SUBTOTAL:C-2 a thru c	\$ 3,627,530

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 Project Number: CSNHS-M002-00(966)  
 P. I. Number: M002966  
 County: Haralson/Carroll

d. DRAINAGE:		
1) Cross Drain Pipe (exclude box culverts)		
2) Curb and Gutter		
3) Longitudinal System		
	SUBTOTAL:C-2	\$ -0-
3. BASE AND PAVING: (Alternate 6 with HMA inside shoulder)		
a. AGGREGATE BASE 12" GAB \$12.41x670,000 SY		\$ 8,314,700
b. ASPHALT PAVING: 12.5 mm Super. \$42.10x8,000 tons	\$ 336,800	
Interlayer 19 mm Super. \$40.00x103,000 tons	\$ 4,120,000	
Lower layer 25 mm Super. \$40.00x26,500 tons	\$ 1,060,000	
Bituminous Tack Coat \$1.00x7,000 GL	\$ 7,000	
	SUBTOTAL:C-3 b	\$ 5,523,800
c. CONCRETE PAVING: 11" CRC Full Depth \$235.00x162,000 cy		\$ 38,070,000
	SUBTOTAL:C-3	\$ 51,908,500
4. LUMP ITEMS:		
a. TRAFFIC CONTROL		\$ 3,500,000
b. CLEARING AND GRUBBING (to include exist. concrete slab removal)		\$ 9,750,000
c. LANDSCAPING		\$ -0-
d. EROSION CONTROL		\$ 1,300,000
e. DETOURS		\$ -0-
	SUBTOTAL:C-4	\$ 14,550,000
5. MISCELLANEOUS:		
a. LIGHTING		\$ -0-
b. SIGNING - STRIPING - SIGNAL		\$ 1,000,000
c. GUARDRAIL		\$ 1,100,000
d. APPROACH SLABS - MAINLINE BRIDGES		\$ 200,000
	SUBTOTAL:C-5	\$ 2,300,000
6. SPECIAL FEATURES:		
	SUBTOTAL:C-6	\$ -0-

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 Project Number: CSNHS-M002-00(966)  
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 County: Haralson/Carroll

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		\$0.00
B. REIMBURSABLE UTILITIES		\$0.00
C. CONSTRUCTION		
1. MAJOR STRUCTURES	\$ -0-	
2. GRADING AND DRAINAGE	\$ 3,627,530	
3. BASE AND PAVING	\$ 51,908,500	
4. LUMP ITEMS	\$ 14,550,000	
5. MISCELLANEOUS	\$ 2,300,000	
6. SPECIAL FEATURES	\$ -0-	
SUBTOTAL CONSTRUCTION COST	\$ 72,386,030	
E. & C. (10%)	\$ 7,238,603	
INFLATION (5% PER YEAR)	\$ -0-	
NUMBER OF YEARS	0	
TOTAL CONSTRUCTION COST		\$ 79,624,633
GRAND TOTAL PROJECT COST		\$ 79,624,633

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 Project Number: CSNHS-M002-00(966)  
 P. I. Number: M002966  
 County: Haralson/Carroll

### SUMMARY OF PROJECT COST (section 2)

DATE: March 10, 2005

ESTIMATED LETTING DATE: June, 2005

PREPARED BY: Andy Casey

PROJECT LENGTH (MILES): 11.81

( )PROGRAMMING PROCESS (X)CONCEPT DEVELOPMENT ( )DURING PROJECT DEV.

<b>PROJECT COST</b>	
<b>A. RIGHT-OF-WAY:</b>	
1. PROPERTY (LAND & EASEMENT)	
2. DISPLACEMENTS; RES:0, BUS;0, M.H.:0	
3. OTHER COST (ADM./COST, INFLATION)	
SUBTOTAL:A	\$ -0-
<b>B. REIMBURSABLE UTILITIES:</b>	
1. RAILROAD	
2. TRANSMISSION LINES	
3. SERVICES	
SUBTOTAL:B	\$ -0-
<b>C. CONSTRUCTION:</b>	
1. MAJOR STRUCTURES	
a. RETAINING WALLS	
b. BRIDGES	
c. DETOURS BRIDGES	
d. BOX CULVERTS	
SUBTOTAL:C-1	\$ -0-
2. GRADING AND DRAINAGE:	
d. EARTHWORK - EXCAVATE EXISTING SHOULDERS = 77,000 cy*\$5.69	\$ 438,130
e. EARTHWORK - EXCAVATE EXISTING TRAVEL LN = 146,340 cy*\$5.69	\$ 832,675
f. EARTHWORK - OUTSIDE SHOULDER/FRONT SLOPE = 450,000 cy*\$4.81	\$ 2,164,500
SUBTOTAL:C-2 a thru c	\$ 3,435,305

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 Project Number: CSNHS-M002-00(966)  
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d. DRAINAGE:		
1) Cross Drain Pipe (exclude box culverts)		
2) Curb and Gutter		
3) Longitudinal System		
SUBTOTAL:C-2		\$ -0-
3. BASE AND PAVING: (Alternate 6 with HMA inside shoulder)		
a. AGGREGATE BASE	12" GAB \$12.41x650,000 SY	\$ 8,066,500
b. ASPHALT PAVING: 12.5 mm Super.	\$42.10x7,730 tons	\$ 325,433
Interlayer	19 mm Super. \$40.00x101,894 tons	\$ 4,075,760
Lower layer	25 mm Super. \$40.00x25,934 tons	\$ 1,037,360
Bituminous Tack Coat	\$1.00x6,350 GL	\$ 6,350
SUBTOTAL:C-3 b		\$ 5,444,903
c. CONCRETE PAVING: 11" CRC Full Depth	\$235.00x160,784 cy	\$ 37,784,240
SUBTOTAL:C-3		\$ 51,295,643
4. LUMP ITEMS:		
a. TRAFFIC CONTROL		\$ 3,500,000
b. CLEARING AND GRUBBING (to include exist. concrete slab removal)		\$ 9,000,000
c. LANDSCAPING		\$ -0-
d. EROSION CONTROL		\$ 1,200,000
e. DETOURS		\$ -0-
SUBTOTAL:C-4		\$ 13,700,000
5. MISCELLANEOUS:		
a. LIGHTING		\$ -0-
b. SIGNING - STRIPING - SIGNAL		\$ 1,000,000
c. GUARDRAIL		\$ 500,000
d. APPROACH SLABS - MAINLINE BRIDGES		\$ 225,000
SUBTOTAL:C-5		\$ 1,725,000
6. SPECIAL FEATURES:		
SUBTOTAL:C-6		\$ -0-

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 Project Number: CSNHS-M002-00(966)  
 P. I. Number: M002966  
 County: Haralson/Carroll

ESTIMATE SUMMARY		
A. RIGHT-OF-WAY		\$0.00
B. REIMBURSABLE UTILITIES		\$0.00
C. CONSTRUCTION		
1. MAJOR STRUCTURES	\$ -0-	
2. GRADING AND DRAINAGE	\$ 3,435,305	
3. BASE AND PAVING	\$ 51,295,643	
4. LUMP ITEMS	\$ 13,700,000	
5. MISCELLANEOUS	\$ 1,725,000	
6. SPECIAL FEATURES	\$ -0-	
SUBTOTAL CONSTRUCTION COST	\$ 70,155,948	
E. & C. (10%)	\$ 7,015,595	
INFLATION (5% PER YEAR)	\$ -0-	
NUMBER OF YEARS	0	
TOTAL CONSTRUCTION COST		\$ 77,171,543
GRAND TOTAL PROJECT COST		\$ 77,171,543

Project Concept Report page 15  
 Project Number: CSNHS-M002-00(966)  
 P. I. Number: M002966  
 County: Haralson/Carroll

### Initial Concept Team Meeting Minutes

Haralson/Carroll Counties PI#M002966 CSNHS-M002-00(966)  
 February 16, 2005; 9:00am

- Concrete reconstruction of existing pavement
- Guardrail upgrade to current standards
- Vegetation clearance to current guidelines

#### Attendees:

NAME	OFFICE	PHONE #	E-MAIL
Jason McCook	GDOT Road Design	404-657-8249	<a href="mailto:jason.mccook@dot.state.ga.us">jason.mccook@dot.state.ga.us</a>
Andy Casey	GDOT Road Design	404-657-9757	<a href="mailto:andy.casey@dot.state.ga.us">andy.casey@dot.state.ga.us</a>
Jessica Granell	FHWA	404-562-3644	<a href="mailto:jessica.granell@fhwa.dot.ga">jessica.granell@fhwa.dot.ga</a>
Scott Zehngraff	GDOT TS&D	404-635-8127	<a href="mailto:scott.zehngraff@dot.state.ga.us">scott.zehngraff@dot.state.ga.us</a>
Reid Mathews	GDOT Maint.	404-635-8198	<a href="mailto:reid.matthews@dot.state.ga.us">reid.matthews@dot.state.ga.us</a>
Ken Howard	GDOT - Dis. 6 Maint.	770-387-3605	<a href="mailto:ken.howard@dot.state.ga.us">ken.howard@dot.state.ga.us</a>
Kerry Bonner	GDOT Dist. Util.	770-387-3614	<a href="mailto:kerry.bonner@dot.state.ga.us">kerry.bonner@dot.state.ga.us</a>
Wendy Bickers	GDOT OFM	404-463-5023	<a href="mailto:wendy.bickers@dot.state.ga.us">wendy.bickers@dot.state.ga.us</a>
Angelo Yokaris	GDOT Road Design	404-657-9757	<a href="mailto:angelo.yokaris@dot.state.ga.us">angelo.yokaris@dot.state.ga.us</a>
Kenny Beckworth	GDOT – Dis. Construction	770-387-3609	<a href="mailto:kenny.beckworth@dot.state.ga.us">kenny.beckworth@dot.state.ga.us</a>
Steve Sanders	GDOT – Dis. Traffic Ops.	770-387-3637	<a href="mailto:steve.sanders@dot.state.ga.us">steve.sanders@dot.state.ga.us</a>
Buddy Gratton	GDOT Preconstruction	404-656-5187	<a href="mailto:buddy.gratton@dot.state.ga.us">buddy.gratton@dot.state.ga.us</a>
Lisa Myers	GDOT Eng. Services	404-651-7468	<a href="mailto:lisa.myers@dot.state.ga.us">lisa.myers@dot.state.ga.us</a>
James Magnus	GDOT Construction	404-656-5306	<a href="mailto:james.magnus@dot.state.ga.us">james.magnus@dot.state.ga.us</a>
Lonnie Jones	GDOT Construction	404-656-5306	<a href="mailto:lonnie.jones@dot.state.ga.us">lonnie.jones@dot.state.ga.us</a>
Klint Rommel	GDOT OEL	404-699-4415	<a href="mailto:klint.rommel@dot.state.ga.us">klint.rommel@dot.state.ga.us</a>
Bridgett Nero	GDOT Road Design	404-657-9757	<a href="mailto:bridgett.nero@dot.state.ga.us">bridgett.nero@dot.state.ga.us</a>

1. Jason McCook presided over the meeting. Everyone introduced themselves and Jason passed around some copies of a draft of the concept report and gave time to read through.
2. Jason began by reading through and highlighting the different aspects of the project.
3. James Magnus asked what was meant by culverts involved and Jason explained that any culvert that may be extended or worked on was counted in the number of culverts involved in the project.
4. Lisa Myers commented on how bridge involvement needed to be added into the cost for the VE team to have accurate information for the meeting on February 17, 2005. Andy Casey assured her that the information and costs would be corrected to reflect bridge jacking.
5. Buddy Gratton commented on the grading cost being too low and Lonnie Jones commented on the cost for the removal of shoulders and earthwork costs being too low. Jason agreed that the earthwork needs increasing.
6. The question was raised as to what the actual shoulder widths would be. The report says one thing and the typicals say another. Andy Casey clarified that the shoulders would be 10' graded with 4' being paved.
7. James Magnus questioned what the pavement on the shoulders would be and the best choice was discussed. Buddy Gratton asked if the 4' of paving on the shoulder was needed for staging and it was said that it was so therefore the 4' on the shoulder would need to be full depth.
8. Buddy Gratton asked about the amount of truck traffic and Reid Mathews commented that there is a large amount.
9. James Magnus commented on how if the staging is done as proposed that the median inlets would have to be adjusted to grade and that the drainage cost was too low. Scott Zehngraff commented that the earthwork was again too low as well due to the median work that would need to be done.
10. Lisa Myers asked if the letting was supposed to be June this year. Andy Casey responded that it is.
11. Buddy Gratton asked about the base material. Andy Casey said that according to the old plans there was however Jason McCook commented that there is very little GAB.
12. Jason explained that the project would be split up into phases and what would be done during each phase.
13. James Magnus commented that the bridge cost should be increased to address the approach slabs. He also suggested that the costs of earthwork and drainage to include the structure extensions should be increased as well.

14. Buddy Gratton made the suggestion that the VE team should look at the 85 project and consider using the same type staging done there to see if it would be cost effective to tear out and rebuild rather than the proposed staging.
15. Lisa Myers said that the VE team could look at the option that Buddy Gratton mentioned and make a recommendation but needed more accurate cost to be able to make a good comparison and recommendation.
16. Buddy Gratton commented that the lab should check to see if cross drains are needed.
17. Jason McCook commented that alternate 6 for the pavement design is the recommendation.
18. Buddy Gratton commented that the existing pavement could be crushed and used for base material to eliminate some of the cost for disposal. He suggested that the end product under the full pavement depth option would be better, and that this option be considered on the VE study.
19. Andy Casey asked about any utility issues and Kerry Bonner commented that there were none with the exception of any bridges that are jacked.
20. Jason McCook asked about the weigh stations and the message boards and Reid Mathews commented that the weigh stations are on the ramps and the message signs are not affected either.
21. Klint Rommel reported that the clearing needs to be looked at and that there was species out there. A fish and muscle survey needs to be done and a Section 7 would be needed. There would be no archeological or historical concerns.
22. Andy Casey reported that the clearing would be done for 50' outside the shoulder edge of pavement and 32' in the median.
23. Jason McCook asked about the game fencing and Buddy Gratton said the number of deer should be checked.
24. Andy Casey asked about additional fiber optics and was told there was not any needed.
25. Jason McCook said there would be no public meeting but some provisions may be needed to be set in place to inform the public. Buddy Gratton suggested letting Vicki handle informing the public.
26. Jason McCook said that the project schedule would be abbreviated and that there would be no PFPR. Lisa Myers said there would be one and then it was clarified that the PFPR would be the FFPR.
27. Andy Casey commented that the plans would be 8.5" x 11" as suggested by maintenance and that there was no survey being done.

28. Staging was discussed. Andy Casey went over the 2 staging alternates and the displays for them. Alternate one suggested no lane closures. Alternate two suggested one lane closure. He also commented that exits and could be opened.
29. James Magnus recommended that the staging be done by closing one side during the weekends paving the whole closed side and the shoulder being done during the week. Andy Casey commented that alternate 2 seemed to be the recommendation but with one lane being dropped and a contra flow being implemented.
30. Buddy Gratton commented on the staging concern and use of temporary paving. Scott Zehngraff recommended that the VE team look at the cost in paving the inside median rather than paving and throwing away the outside shoulder for staging purposes.
31. Buddy Gratton commented on if the overlay option is done then the letter size plans would be a problem since there is no survey and no cross sections.

### Concept Team Meeting Minutes

Haralson/Carroll Counties PI#M002966 CSNHS-M002-00(966)

April 6, 2005; 9:00am

- I-20 Rehabilitation
- Concrete reconstruction of existing pavement
- Guardrail upgrade to current standards
- Vegetation clearance to current guidelines.

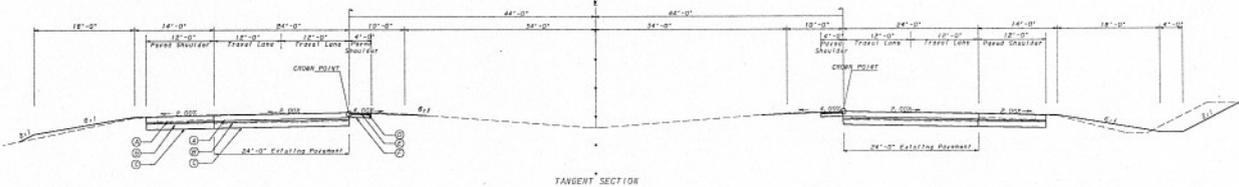
#### Attendees:

NAME	OFFICE	PHONE #	E-MAIL
Brent Story	GDOT Road Design	404-656-5386	<a href="mailto:Brent.Story@dot.state.ga.us">Brent.Story@dot.state.ga.us</a>
Andy Casey	GDOT Road Design	404-657-9757	<a href="mailto:Andy.Casey@dot.state.ga.us">Andy.Casey@dot.state.ga.us</a>
Bill Dungan	GDOT- Area Engineer	770-646-5522	<a href="mailto:Bill.Dungan@dot.state.ga.us">Bill.Dungan@dot.state.ga.us</a>
Scott Zehngraft	GDOT TS&D	404-635-8127	<a href="mailto:Scott.Zehngraft@dot.state.ga.us">Scott.Zehngraft@dot.state.ga.us</a>
Curtis Grovner	GDOT Maint.	404-635-8734	<a href="mailto:Curtis.Grovner@dot.state.ga.us">Curtis.Grovner@dot.state.ga.us</a>
Ken Howard	GDOT - Dis. 6 Maint.	770-387-3605	<a href="mailto:Ken.Howard@dot.state.ga.us">Ken.Howard@dot.state.ga.us</a>
Patrick Bowers	GDOT - Dist. Const. Eng.	770-387-3609	<a href="mailto:Patrick.Bowers@dot.state.ga.us">Patrick.Bowers@dot.state.ga.us</a>
Sue Anne Decker	GDOT - Dist. 3 Traffic Op.	404-463-5023	<a href="mailto:SueAnne.Decker@dot.state.ga.us">SueAnne.Decker@dot.state.ga.us</a>
Angelo Yokaris	GDOT Road Design	404-657-9757	<a href="mailto:Angelo.Yokaris@dot.state.ga.us">Angelo.Yokaris@dot.state.ga.us</a>
Kenny Beckworth	GDOT - Dis. Construction	770-387-3609	<a href="mailto:Kenny.Beckworth@dot.state.ga.us">Kenny.Beckworth@dot.state.ga.us</a>
Michelle Jackson	GDOT - Dist. 6 Const.	706-272-2211	<a href="mailto:Michelle.Jackson@dot.state.ga.us">Michelle.Jackson@dot.state.ga.us</a>
Scott Klar	GDOT - Dist. 7 Survey	404-599-6097	<a href="mailto:Scott.Klar@dot.state.ga.us">Scott.Klar@dot.state.ga.us</a>
Andy Stone	GDOT - TEA	706-272-2211	<a href="mailto:Andy.Stone@dot.state.ga.us">Andy.Stone@dot.state.ga.us</a>
Klint Rommel	GDOT OEL	404-699-4415	<a href="mailto:Klint.Rommel@dot.state.ga.us">Klint.Rommel@dot.state.ga.us</a>
Bridgett Nero	GDOT Road Design	404-657-9757	<a href="mailto:Bridgett.Nero@dot.state.ga.us">Bridgett.Nero@dot.state.ga.us</a>

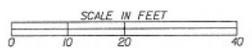
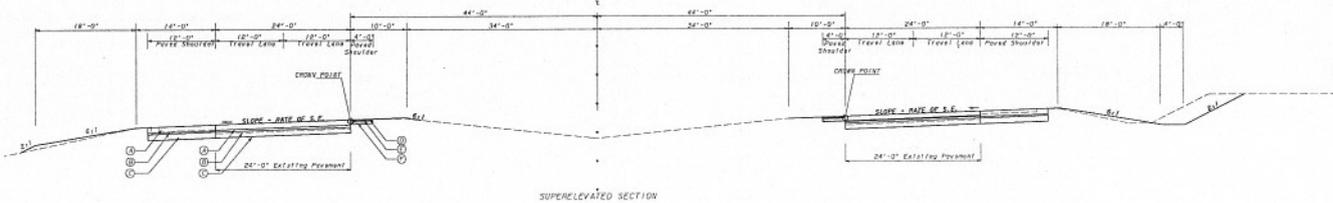
1. Andy Casey presided over the meeting, which began at 9:06 am. Everyone introduced themselves and Andy began by outlining the projects need and purpose, description, traffic, existing and proposed design features. He also mentioned that the project was to be split in to two projects.
2. The crown will be corrected using a 3 inch grade difference. It was stated by Patrick Bowers that Bar J Road should be done so coordination with that project should not be a problem.
3. A correction in the report was made by Andy Casey, other alternatives were considered, one being overlaying.
4. Andy Casey outlined the alternates considered in the VE study and which ones were being incorporated into the project. The recommendations for barn roof side slopes instead of guardrail where applicable and underdrains were discussed.
5. Curtis Grovner wanted to be sure the underdrains were placed laterally.
6. Klint Rommel was concerned with the placement of the underdrains since any additional runoff will be an environmental concern.
7. Andy Casey briefly told what the estimate was for the cost of each project.
8. Patrick Bowers asked if the barrow area could be used from perhaps the median if there is enough there and if it would be economical. Bill Dungan said it was probably slim pickings in some areas. Andy asked if identifying sites was still allowed and Patrick said it was. Brent Story asked who was responsible for identifying the sites but that it wasn't a problem identifying potential sites. Patrick mentioned that he was in favor of clearing heavily wooded areas in the medians if possible. Andy was concerned with the contractors use of the site for testing and Patrick said they can do that and it can be checked.
9. Brent Story mentioned having crushing the slabs and re-using them as one of the notes. Patrick Bowers was concerned if that was cost effective.
10. Andy Casey outlined the typical section and pointed out the corrections needed. He also mentioned that the alternative being done ranked highly in the Life Cycle Cost analysis and that it is thought to be the best solution.
11. Patrick Bowers mentioned that he thinks the inside shoulders should be full depth although it is more expensive. He said that it will save in the long run. Andy Casey said that if full depth is done then why not full width as well which would be at even greater cost. Scott Zehngraff mentioned that in doing that the asphalt may have to be ripped out as well.
12. Andy Casey outlined the staging plans, mentioning that night and weekend work is what is proposed. Patrick said that he thinks ½ a mile can be completed per weekend.

13. Brent Story asked about Alternate 1 and Andy Casey briefly mentioned why Alternate 3 was chosen over alternate 1. Patrick Bowers said that he is comfortable with Alternate 3.
14. Kenny Beckworth was concerned with Stage 2 and the problem with the crossing over. Andy Casey said that the stage was being done that way for production and safety. Scott Zehngraft mentioned that both ways would have to be used depending on the case. Kenny agreed that stage 2 would not work where you can not cross over. Patrick Bowers said that the staging is doable so he had no problem with it.
15. Brent Story asked about the erosion control and if it was to be done in stages. Andy Casey said it was all going to be done in Stage 1 and Patrick Bowers agreed that it could all be done then.
16. Andy Casey asked if there were any other questions, concerns or comments and there were not so the meeting ended at 10:02 am.

1-20



- PROPOSED PAVEMENT:
- A. CONTINUOUS REINFORCED CONCRETE - 11"
  - B. RECYCLED ASPH CONC 19 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME, 330 LB/SY, MIX DESIGN LEVEL A
  - C. GRADED AGGREGATE BASE - 12"
  - D. RECYCLED ASPH CONC 12.5 mm SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME, 165 LB/SY, MIX DESIGN LEVEL A
  - E. RECYCLED ASPH CONC 19 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME, 220 LB/SY, MIX DESIGN LEVEL A
  - F. GRADED AGGREGATE BASE, 6"

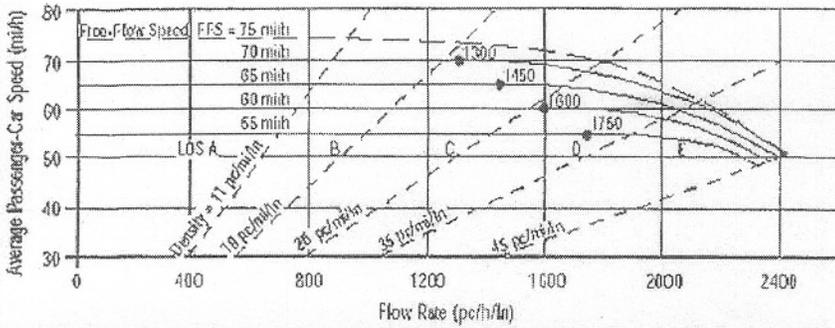


REVISION DATES

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION  
OFFICE: ROAD AND AIRPORT DESIGN  
TYPICAL SECTIONS

DRAWING No.  
5-02

## BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, $v_p$	LOS, S, D
Design (N)	FFS, LOS, $v_p$	N, S, D
Design ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D

General Information		Site Information	
Analyst	C. Andy Casey	Highway/Direction of Travel	East-West
Agency or Company	GDOT	From/To	Ala. State Line to SR 61
Date Performed	10/7/04	Jurisdiction	Haralson County
Analysis Time Period	am	Analysis Year	2004
Project Description: Pavement Rehab and Guardrail Upgrade			

Oper. (LOS)                     
  Des. (N)                     
  Planning Data

Flow Inputs			
Volume, V	1309 veh/h	Peak-Hour Factor, PHF	0.88
AADT	34000 veh/day	%Trucks and Buses, $P_T$	25
Peak-Hr Prop. of AADT, K	0.07	%RVs, $P_R$	2
Peak-Hr Direction Prop, D	55	General Terrain:	Rolling
DDHV = AADT x K x D	1309 veh/h	Grade %	Length
Driver type adjustment	1.00	Up/Down %	mi

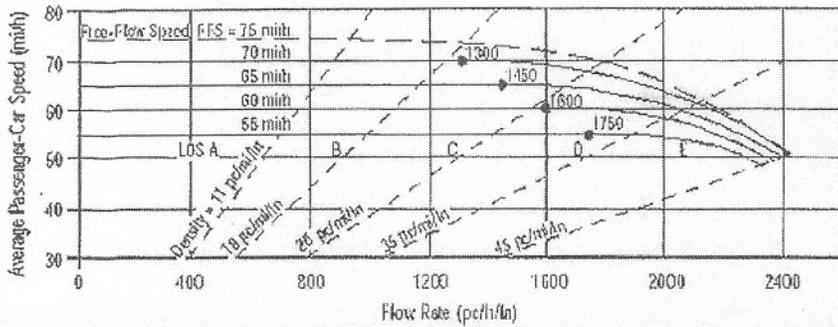
Calculate Flow Adjustments			
$f_p$	1.00	$E_R$	2.0
$E_T$	2.5	$f_{HV} = 1/[1+P_T(E_T-1)+P_R(E_R-1)]$	0.717

Speed Inputs		Calc Speed Adj and FFS	
Lane Width	12.0 ft	$f_{LW}$	mi/h
Rt-Shoulder Lat. Clearance	6.0 ft	$f_{LC}$	mi/h
Interchange Density	0.50 l/mi	$f_{ID}$	mi/h
Number of Lanes, N	2	$f_N$	mi/h
FFS (measured)	70.0 mi/h	FFS	70.0 mi/h
Base free-flow Speed, BFFS	mi/h		

LOS and Performance Measures		Design (N)	
<u>Operational (LOS)</u>		<u>Design (N)</u>	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	1038 pc/h/ln	Design LOS	
S	70.0 mi/h	$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
$D = v_p / S$	14.8 pc/mi/ln	S	mi/h
LOS	B	$D = v_p / S$	pc/mi/ln
		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	$E_R$ - Exhibits 23-8, 23-10	$f_{LW}$ - Exhibit 23-4
V - Hourly volume	D - Density	$E_T$ - Exhibits 23-8, 23-10, 23-11	$f_{LC}$ - Exhibit 23-5
$v_p$ - Flow rate	FFS - Free-flow speed	$f_p$ - Page 23-12	$f_N$ - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, $v_p$ - Exhibits 23-2, 23-3	$f_{ID}$ - Exhibit 23-7
DDHV - Directional design hour volume			

## BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, $v_p$	LOS, S, D
Design (N)	FFS, LOS, $v_p$	N, S, D
Design ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D

General Information		Site Information	
Analyst	C. Andy Casey	Highway/Direction of Travel	East-West
Agency or Company	GDOT	From/To	Ala. State Line to SR 61
Date Performed	10/7/04	Jurisdiction	Haralson County
Analysis Time Period	am	Analysis Year	2007
Project Description Pavement Rehab and Guardrail Upgrade			

Oper.(LOS)
  Des.(N)
  Planning Data

Flow Inputs			
Volume, V	1367 veh/h	Peak-Hour Factor, PHF	0.88
AADT	35500 veh/day	%Trucks and Buses, $P_T$	25
Peak-Hr Prop. of AADT, K	0.07	%RVs, $P_R$	3
Peak-Hr Direction Prop, D	55	General Terrain:	Rolling
DDHV = AADT x K x D	1367 veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

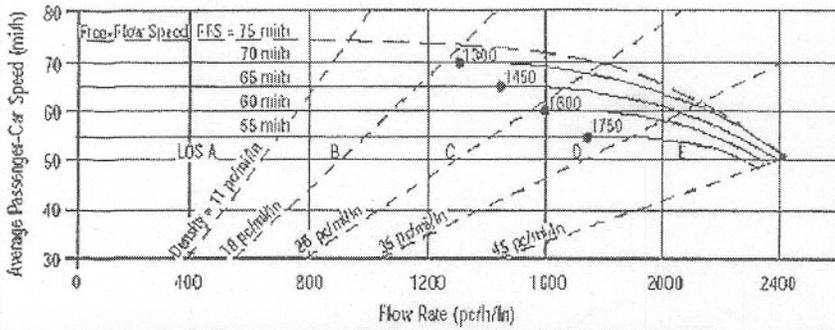
Calculate Flow Adjustments			
$f_p$	1.00	$E_R$	2.0
$E_T$	2.5	$f_{HV} = 1/(1+P_T(E_T-1) + P_R(E_R-1))$	0.712

Speed Inputs		Calc Speed Adj and FFS	
Lane Width	12.0 ft	$f_{LW}$	mi/h
Rt-Shoulder Lat. Clearance	6.0 ft	$f_{LC}$	mi/h
Interchange Density	0.50 1/mi	$f_{ID}$	mi/h
Number of Lanes, N	2	$f_N$	mi/h
FFS (measured)	70.0 mi/h	FFS	70.0 mi/h
Base free-flow Speed, BFFS	mi/h		

LOS and Performance Measures		Design (N)	
Operational (LOS)		Design (N)	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	1091 pc/h/ln	Design LOS	
S	70.0 mi/h	$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
$D = v_p / S$	15.6 pc/mi/ln	S	mi/h
LOS	B	$D = v_p / S$	pc/mi/ln
		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	$E_R$ - Exhibits 23-8, 23-10	$f_{LW}$ - Exhibit 23-4
V - Hourly volume	D - Density	$E_T$ - Exhibits 23-8, 23-10, 23-11	$f_{LC}$ - Exhibit 23-5
$v_p$ - Flow rate	FFS - Free-flow speed	$f_p$ - Page 23-12	$f_N$ - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, $v_p$ - Exhibits 23-2, 23-3	$f_{ID}$ - Exhibit 23-7
DDHV - Directional design hour volume			

## BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, $v_p$	LOS, S, D
Design (N)	FFS, LOS, $v_p$	N, S, D
Design ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D

General Information		Site Information	
Analyst	C. Andy Casey	Highway/Direction of Travel	East-West
Agency or Company	GDOT	From/To	Ala. State Line to SR 61
Date Performed	10/7/04	Jurisdiction	Haralson
Analysis Time Period	am	Analysis Year	2027
Project Description: Pavement Rehab and Guardrail Upgrade			

Oper. (LOS)                     
  Des. (N)                     
  Planning Data

Flow Inputs			
Volume, V	1848 veh/h	Peak-Hour Factor, PHF	0.88
AADT	48000 veh/day	% Trucks and Buses, $P_T$	25
Peak-Hr Prop. of AADT, K	0.07	% RVs, $P_R$	3
Peak-Hr Direction Prop, D	55	General Terrain:	Rolling
DDHV = AADT x K x D	1848 veh/h	Grade %    Length	mi
Driver type adjustment	1.00	Up/Down %	

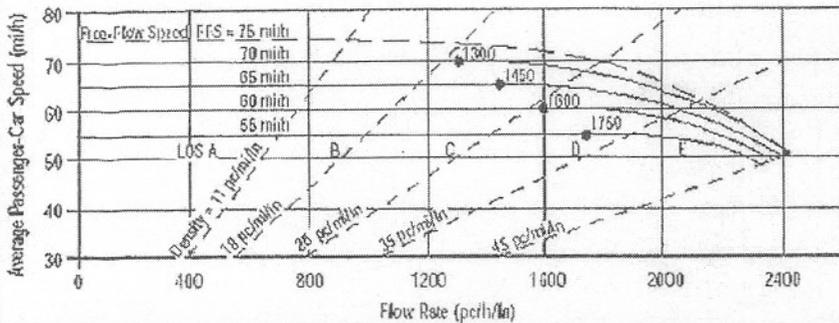
Calculate Flow Adjustments			
$f_p$	1.00	$E_R$	2.0
$E_T$	2.5	$f_{HV} = 1/(1+P_T(E_T-1) + P_R(E_R-1))$	0.712

Speed Inputs		Calc Speed Adj and FFS	
Lane Width	12.0 ft	$f_{LW}$	mi/h
RI-Shoulder Lat. Clearance	6.0 ft	$f_{LC}$	mi/h
Interchange Density	0.50 1/mi	$f_{ID}$	mi/h
Number of Lanes, N	2	$f_N$	mi/h
FFS (measured)	70.0 mi/h	FFS	70.0 mi/h
Base free-flow Speed, BFFS	mi/h		

LOS and Performance Measures		Design (N)	
Operational (LOS)		Design (N)	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	1475 pc/h/ln	Design LOS	
S	69.9 mi/h	$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
$D = v_p / S$	21.1 pc/mi/ln	S	mi/h
LOS	C	$D = v_p / S$	pc/mi/ln
		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	$E_R$ - Exhibits 23-8, 23-10	$f_{LW}$ - Exhibit 23-4
V - Hourly volume	D - Density	$E_T$ - Exhibits 23-8, 23-10, 23-11	$f_{LC}$ - Exhibit 23-5
$v_p$ - Flow rate	FFS - Free-flow speed	$f_p$ - Page 23-12	$f_N$ - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, $v_p$ - Exhibits 23-2, 23-3	$f_{ID}$ - Exhibit 23-7
DDHV - Directional design hour volume			

## BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, $v_p$	LOS, S, D
Design (N)	FFS, LOS, $v_p$	N, S, D
Design ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (ft)	FFS, LOS, AADT	N, S, D
Planning ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D

General Information		Site Information	
Analyst	C. Andy Casey	Highway/Direction of Travel	East-West
Agency or Company	GDOT	From/To	Ala. State Line to SR 61
Date Performed	10/7/04	Jurisdiction	Carroll County
Analysis Time Period	am	Analysis Year	2004

Project Description Pavement Rehab and Guardrail Upgrade

Oper.(LOS)       Des.(N)       Planning Data

### Flow Inputs

Volume, V	1821 veh/h	Peak-Hour Factor, PHF	0.88
AADT	47300 veh/day	%Trucks and Buses, $P_T$	25
Peak-Hr Prop. of AADT, K	0.07	%RVs, $P_R$	3
Peak-Hr Direction Prop., D	55	General Terrain:	Rolling
DDHV = AADT x K x D	1821 veh/h	Grade %    Length	mi
Driver type adjustment	1.00	Up/Down %	

### Calculate Flow Adjustments

$f_p$	1.00	$E_R$	2.0
$E_T$	2.5	$f_{HV} = 1 / (1 + P_T(E_T - 1) + P_R(E_R - 1))$	0.712

### Speed Inputs

Lane Width	12.0	ft	$f_{LW}$	mi/h
Rt-Shoulder Lat. Clearance	6.0	ft	$f_{LC}$	mi/h
Interchange Density	0.50	1/mi	$f_{ID}$	mi/h
Number of Lanes, N	2		$f_N$	mi/h
FFS (measured)	70.0	mi/h	FFS	70.0
Base free-flow Speed, BFFS		mi/h		

### Calc Speed Adj and FFS

### LOS and Performance Measures

Operational (LOS)		Design (N)	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	1454	Design LOS	
S	69.9	$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
$D = v_p / S$	20.8	S	mi/h
LOS	C	$D = v_p / S$	pc/mi/ln
		Required Number of Lanes, N	

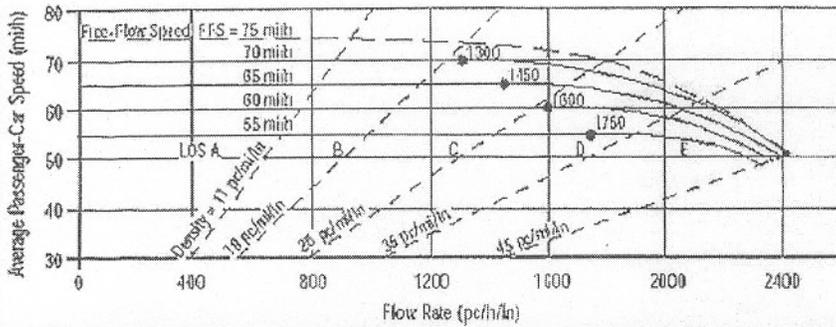
### Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
$v_p$ - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

### Factor Location

$E_R$ - Exhibits 23-8, 23-10	$f_{LW}$ - Exhibit 23-4
$E_T$ - Exhibits 23-8, 23-10, 23-11	$f_{LC}$ - Exhibit 23-5
$f_p$ - Page 23-12	$f_N$ - Exhibit 23-6
LOS, S, FFS, $v_p$ - Exhibits 23-2, 23-3	$f_{ID}$ - Exhibit 23-7

## BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, $v_p$	LOS, S, D
Design (N)	FFS, LOS, $v_p$	N, S, D
Design ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D

General Information		Site Information	
Analyst	C. Andy Casey	Highway/Direction of Travel	East-West
Agency or Company	GDOT	From/To	Ala. State Line to SR 61
Date Performed	10/7/04	Jurisdiction	Carroll County
Analysis Time Period	am	Analysis Year	2007
Project Description Pavement Rehab and Guardrail Upgrade			

<input checked="" type="checkbox"/> Oper.(LOS)	<input type="checkbox"/> Des.(N)	<input checked="" type="checkbox"/> Planning Data
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Flow Inputs			
Volume, V	1906 veh/h	Peak-Hour Factor, PHF	0.88
AADT	49500 veh/day	%Trucks and Buses, $P_T$	25
Peak-Hr Prop. of AADT, K	0.07	%RVs, $P_R$	3
Peak-Hr Direction Prop, D	55	General Terrain:	Rolling
DDHV = AADT x K x D	1906 veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

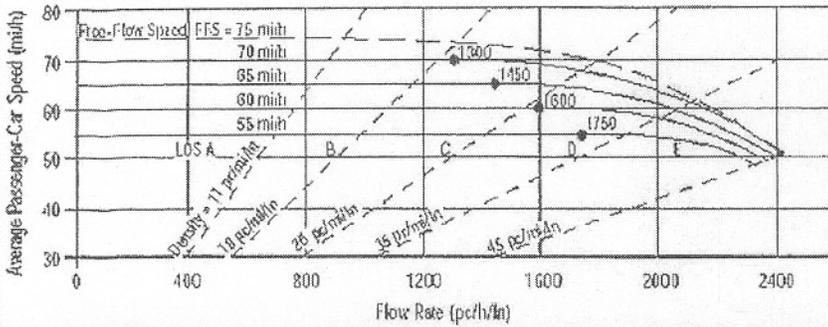
Calculate Flow Adjustments			
$f_p$	1.00	$E_R$	2.0
$E_T$	2.5	$f_{HV} = 1/[1+P_T(E_T-1) + P_R(E_R-1)]$	0.712

Speed Inputs		Calc Speed Adj and FFS	
Lane Width	12.0 ft	$f_{LW}$	mi/h
Rt-Shoulder Lat. Clearance	6.0 ft	$f_{LC}$	mi/h
Interchange Density	0.50 1/mi	$f_{ID}$	mi/h
Number of Lanes, N	2	$f_N$	mi/h
FFS (measured)	70.0 mi/h	FFS	70.0 mi/h
Base free-flow Speed, BFFS	mi/h		

LOS and Performance Measures		Design (N)	
Operational (LOS)		Design (N)	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	1522 pc/h/ln	Design LOS	
S	69.7 mi/h	$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
$D = v_p / S$	21.8 pc/mi/ln	S	mi/h
LOS	C	$D = v_p / S$	pc/mi/ln
		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	$E_R$ - Exhibits 23-8, 23-10	$f_{LW}$ - Exhibit 23-4
V - Hourly volume	D - Density	$E_T$ - Exhibits 23-8, 23-10, 23-11	$f_{LC}$ - Exhibit 23-5
$v_p$ - Flow rate	FFS - Free-flow speed	$f_p$ - Page 23-12	$f_N$ - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, $v_p$ - Exhibits 23-2, 23-3	$f_{ID}$ - Exhibit 23-7
DDHV - Directional design hour volume			

## BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, $v_p$	LOS, S, D
Design (N)	FFS, LOS, $v_p$	N, S, D
Design ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning ( $v_p$ )	FFS, LOS, N	$v_p$ , S, D

General Information		Site Information	
Analyst	C. Andy Casey	Highway/Direction of Travel	East-West
Agency or Company	GDOT	From/To	Ala. State Line to SR 61
Date Performed	10/7/04	Jurisdiction	Carroll County
Analysis Time Period	am	Analysis Year	2027
Project Description Pavement Rehab and Guardrail Upgrade			

Oper.(LOS)
  Des.(N)
  Planning Data

Flow Inputs			
Volume, V	2618 veh/h	Peak-Hour Factor, PHF	0.88
AADT	68000 veh/day	%Trucks and Buses, $P_T$	25
Peak-Hr Prop. of AADT, K	0.07	%RVs, $P_R$	3
Peak-Hr Direction Prop, D	55	General Terrain:	Rolling
DDHV = AADT x K x D	2618 veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments			
$f_p$	1.00	$E_R$	2.0
$E_T$	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.712

Speed Inputs		Calc Speed Adj and FFS	
Lane Width	12.0 ft	$f_{LW}$	mi/h
Rt-Shoulder Lat. Clearance	6.0 ft	$f_{LC}$	mi/h
Interchange Density	0.50 I/mi	$f_{ID}$	mi/h
Number of Lanes, N	2	$f_N$	mi/h
FFS (measured)	70.0 mi/h	FFS	70.0 mi/h
Base free-flow Speed, BFFS	mi/h		

LOS and Performance Measures		Design (N)	
Operational (LOS)		Design (N)	
$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	2090 pc/h/ln	Design LOS	
S	63.0 mi/h	$v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$	pc/h
$D = v_p / S$	33.2 pc/mi/ln	S	mi/h
LOS	D	$D = v_p / S$	pc/mi/ln
		Required Number of Lanes, N	

Glossary		Factor Location	
N - Number of lanes	S - Speed	$E_R$ - Exhibits 23-8, 23-10	$f_{LW}$ - Exhibit 23-4
V - Hourly volume	D - Density	$E_T$ - Exhibits 23-8, 23-10, 23-11	$f_{LC}$ - Exhibit 23-5
$v_p$ - Flow rate	FFS - Free-flow speed	$f_p$ - Page 23-12	$f_N$ - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, $v_p$ - Exhibits 23-2, 23-3	$f_{ID}$ - Exhibit 23-7
DDHV - Directional design hour volume			



DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

Office of Airport and Road Design

PROJECT CONCEPT REPORT

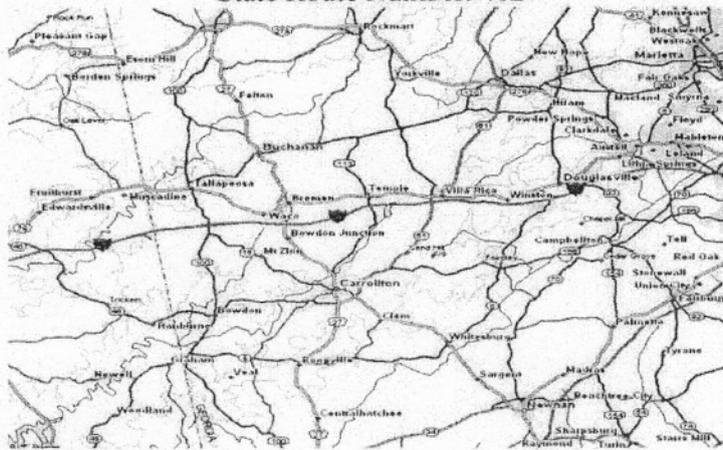
Project Number: CSNHS-M002-00(966)

County: Haralson/Carroll

P. I. Number: M002966

Federal Route Number: 20

State Route Number: 402



Recommendation for approval:

DATE 4-7-05

C. Andy Cany  
Project Manager

DATE 4-7-05

But A Se  
Office Head/District 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 the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Financial Management Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Environmental/Location Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Traffic Safety & Design Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
District Engineer  
David J. Mulling *djm*  
Project Review Engineer

DATE 4/22/05

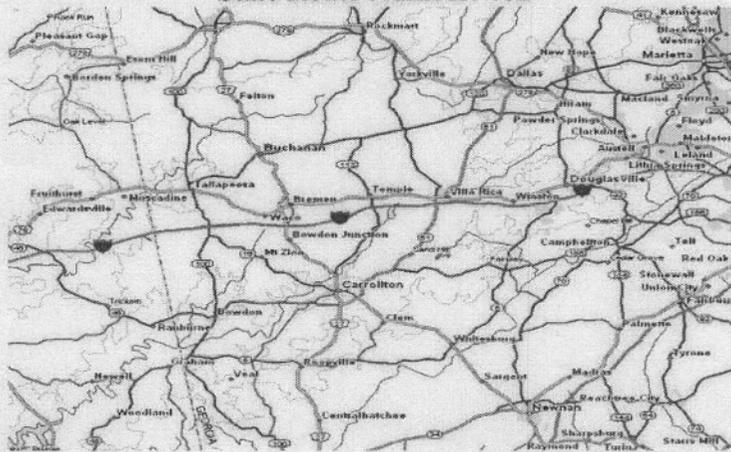
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STATE OF GEORGIA

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\_\_\_\_\_  
State Transportation Planning Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Financial Management  
Administrator

DATE 4.18.05

Shirley D. Ruppel  
State Environmental/Location Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Traffic Safety & Design Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
District Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

Office of Airport and Road Design

PROJECT CONCEPT REPORT

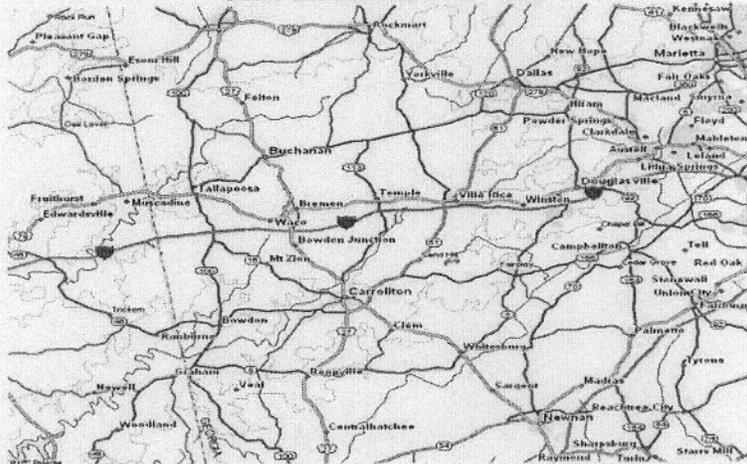
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\_\_\_\_\_  
State Environmental Location Engineer

DATE 5-6-05

Thud Sudd  
State Traffic Safety & Design Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
District Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

Office of Airport and Road Design

PROJECT CONCEPT REPORT

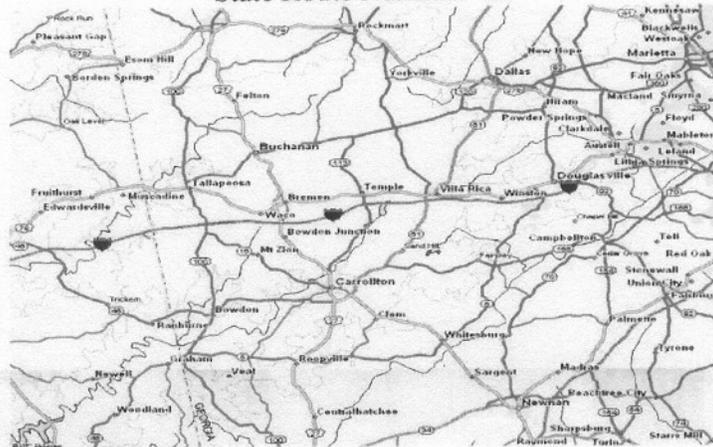
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[Signature]  
Project Manager

DATE 4-7-05

[Signature]  
Office Head/District Engineer

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DATE 4/11/05

[Signature]  
State Transportation Planning Administrator

DATE \_\_\_\_\_

State Transportation Financial Management Administrator

DATE \_\_\_\_\_

State Environmental/Location Engineer

DATE \_\_\_\_\_

State Traffic Safety & Design Engineer

DATE \_\_\_\_\_

District Engineer

DATE \_\_\_\_\_

Project Review Engineer