

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE: NHS00-0001-00(585) Glynn County
PI No.: 0001585
I-95 @ SR 99

OFFICE: Program Delivery
DATE: March 14, 2012

FROM:  Bobby K. Hilliard, P.E, State Program Delivery Engineer

TO: Lisa Myers, Acting State Project Review Engineer
Attn: Matt Sanders

SUBJECT: **Value Engineering Study-Reversal**

Attached is a request to reverse VE Study implementation of Alternate's B3 & B4. Please see the attached documentation and justification for the request.

This Office concurs with the request and respectfully requests your review, approval and further handling.

If you have any questions, please contact Matt Bennett at (912) 271-7404.

BKH: MAH: JMB
Attachments

Approved: 
State Review Engineer

Date: 3/14/12

Approved: 
Director of Engineering

Date: 3/19/12

Approved: 
Chief Engineer

Date: 4/2/12

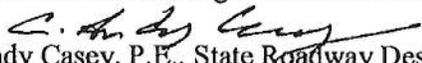
Approved: PROJECT IS NO LONGER FOS
FHWA

Date: _____

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE NHS00-0001-00(585), Glynn County **OFFICE** Atlanta, Georgia
P.I. No.: 0001585
I-95 at SR 99 Interchange Reconstruction **DATE** March 13, 2012

FROM 
C. Andy Casey, P.E., State Roadway Design Engineer

TO Bobby K. Hilliard, P.E., State Program Delivery Engineer
Attention: Matt Bennett, Project Manager

SUBJECT **Value Engineering Implementation Reversal Request**

A Value Engineering Study was held on October 19-23, 2009, on the above subject project. The recommendations were approved and distributed to study participants on December 15, 2009. The Office of Roadway Design requests Alternative Numbers B3 and B4 not be implemented for the following reasons:

Alternative Number B3 - potential savings of \$324,000 if the northbound and southbound 12-foot paved shoulders along I-95 were eliminated.

- The proposed typical section along I-95 includes a continuously-reinforced PCC auxiliary lane (future fourth travel lane) in each direction. Continuous ground-in-place rumble strips would need to be constructed in the auxiliary lanes. When I-95 is widened to provide four travel lanes in each direction, the auxiliary lanes would require reconstruction; the continuous ground-in-place rumble strips would be relocated to the future shoulder. The future value of the asphaltic concrete shoulder-only option would be reduced to zero resulting in lower life cycle costs.
- The area under the SR 99 overpass structure where the future shoulder would be constructed would need to be paved with concrete median paving reducing the potential savings. The concrete median paving would be placed between the outside shoulder and the MSE walls in both directions.
- Eliminating the 12-foot paved shoulder in the vicinity of the SR 99 Interchange would result in I-95 typical section discontinuity along the 10-mile segment between Milepost 39 and Milepost 49.

Alternative Number B4 - potential savings of \$1,600,000 if ramp reconstruction/widening were eliminated.

- The response provided to the recommendation was to implement the alternative provided updated build/design-year traffic volumes (2014_{ADT}/2034_{ADT}) did not warrant the additional pavement width. A capacity analysis was performed using updated 2034 am/pm DHV traffic volumes. The results of the analysis indicate additional pavement area is required along the ramps at the terminal intersections with SR 99 to provide an acceptable level of service. The exit ramp terminals would need to be widened to provide separate left- and right-turn lanes.

Mr. Hilliard - VE Implementation Reversal Request, NHS00-0001-00(585), Glynn County
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The entrance ramp terminals would need to be widened to provide concurrent turning movements for eastbound and westbound traffic along SR 99. This widening results in approximately 2 hrs / vehicle reduction of delay during the AM and PM peak hours.

- To correct the Design Exception for Lateral Offset to Obstruction approved for the built typical section under Project NH-IM-95-1(117); P.I. No. 511100-, the profile grade of SR 99 will be raised due to longer beam span lengths over I-95, while maintaining a minimum vertical clearance of 17'-0". The raised profile for SR 99 will tie into the existing profile beyond the ramp terminal intersections, requiring reconstruction of a portion of the ramps.
- Commercial/industrial development is proposed along the SR 99 corridor. The updated traffic volumes account for the development. Separation of left- and right-turning traffic from the exit ramps and concurrent turning movements onto the entrance ramps accommodates the planned development.

If you have any questions or comments, please contact David Acree at (404) 631-1627.

CAC:CAH:rda
Attachments

Approach delay comparison between without and with ramp construction			
	Without Ramp lanes s/veh	With Ramp lanes s/veh	
Ramp A/B - PM	1250	189	
Ramp A/B - AM	10630	7813	
Ramp C/D -PM	670	380	
Ramp C/D -AM	12929	10179	
Total	25479	18561	
Difference in delay per veh			
seconds	6918		
Delay (minutes)	115.3		
Hours	1.9		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	David Acree			Intersection	SR 99 @ Ramp A/B			
Agency/Co.	GDOT			Jurisdiction	District 5			
Date Performed	2/17/2012			Analysis Year	2034			
Analysis Time Period	PM peak DHV							
Project Description 0001585 Without Ramp construction								
East/West Street: SR 99				North/South Street: Ramp A /B (Southbound ramps)				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		450	865	220	410			
Peak-Hour Factor, PHF	1.00	0.88	0.88	0.88	0.88	1.00		
Hourly Flow Rate, HFR (veh/h)	0	511	982	250	465	0		
Percent Heavy Vehicles	0	--	--	16	--	--		
Median Type	Undivided							
RT Channelized			1			0		
Lanes	0	1	1	1	1	0		
Configuration		T	R	L	T			
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				85		400		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.88	1.00	0.88		
Hourly Flow Rate, HFR (veh/h)	0	0	0	96	0	454		
Percent Heavy Vehicles	0	0	0	16	0	16		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L					LR	
v (veh/h)		250					550	
C (m) (veh/h)		986					151	
v/c		0.25					3.64	
95% queue length		1.01					53.71	
Control Delay (s/veh)		9.9					1250	
LOS		A					F	
Approach Delay (s/veh)	--	--					1250	
Approach LOS	--	--					F	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	David Acree			Intersection	SR 99 at I-95 SB ramps			
Agency/Co.	GDOT			Jurisdiction	District 5			
Date Performed	2/17/2012			Analysis Year	2034			
Analysis Time Period	PM DHV							
Project Description <i>PI 0001585 - With Ramp construction (proposed)</i>								
East/West Street: SR 99				North/South Street: Southbound ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		450	865	220	410			
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00		
Hourly Flow Rate, HFR (veh/h)	0	500	961	244	455	0		
Percent Heavy Vehicles	0	--	--	16	--	--		
Median Type	Raised curb							
RT Channelized			1			0		
Lanes	0	1	1	1	1	0		
Configuration		T	R	L	T			
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				85		400		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90		
Hourly Flow Rate, HFR (veh/h)	0	0	0	94	0	444		
Percent Heavy Vehicles	0	0	0	16	0	16		
Percent Grade (%)		0			3			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L				L		R
v (veh/h)		244				94		444
C (m) (veh/h)		996				37		556
v/c		0.24				2.54		0.80
95% queue length		0.96				10.49		7.68
Control Delay (s/veh)		9.8				929.9		32.3
LOS		A				F		D
Approach Delay (s/veh)	--	--				189.2		
Approach LOS	--	--				F		

TWO-WAY STOP CONTROL SUMMARY										
General Information					Site Information					
Analyst	David Acree				Intersection	SR 99 @ Ramp A/B				
Agency/Co.	GDOT				Jurisdiction	District 5				
Date Performed	2/17/2012				Analysis Year	2034				
Analysis Time Period	AM peak DHV									
Project Description 0001585 - Without Ramps										
East/West Street: SR 99					North/South Street: Southbound Ramps (A&B)					
Intersection Orientation: East-West					Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments										
Major Street	Eastbound			Westbound						
	1	2	3	4	5	6				
Movement	L	T	R	L	T	R				
Volume (veh/h)		515	295	145	1215					
Peak-Hour Factor, PHF	1.00	0.88	0.88	0.88	0.88	1.00				
Hourly Flow Rate, HFR (veh/h)	0	585	335	164	1380	0				
Percent Heavy Vehicles	0	--	--	16	--	--				
Median Type	Two Way Left Turn Lane									
RT Channelized			1			0				
Lanes	0	1	1	1	1	0				
Configuration		T	R	L	T					
Upstream Signal		0			0					
Minor Street	Northbound			Southbound						
	7	8	9	10	11	12				
Movement	L	T	R	L	T	R				
Volume (veh/h)				320		100				
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.88	1.00	0.88				
Hourly Flow Rate, HFR (veh/h)	0	0	0	363	0	113				
Percent Heavy Vehicles	0	0	0	16	0	16				
Percent Grade (%)		0			3					
Flared Approach		N			N					
Storage		0			0					
RT Channelized			0			0				
Lanes	0	0	0	0	0	0				
Configuration					LR					
Delay, Queue Length, and Level of Service										
Approach	Eastbound	Westbound	Northbound			Southbound				
	1	4	7	8	9	10	11	12		
Movement		L					LR			
Lane Configuration		164					476			
v (veh/h)		924					20			
C (m) (veh/h)		0.18					23.80			
v/c		0.64					59.98			
95% queue length		9.7					10630			
Control Delay (s/veh)		A					F			
LOS							10630			
Approach Delay (s/veh)	--	--					F			
Approach LOS	--	--								

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	David Acree			Intersection	SR 99 at I-95 SB ramps			
Agency/Co.	GDOT			Jurisdiction	District 5			
Date Performed	2/17/2012			Analysis Year	2034			
Analysis Time Period	AM DHV							
Project Description								
East/West Street: SR 99				North/South Street: Southbound ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		515	295	145	1215			
Peak-Hour Factor, PHF	1.00	0.88	0.88	0.88	0.88	1.00		
Hourly Flow Rate, HFR (veh/h)	0	585	335	164	1380	0		
Percent Heavy Vehicles	0	--		16	--	--		
Median Type	Undivided							
RT Channelized			1			0		
Lanes	0	1	1	1	1	0		
Configuration		T	R	L	T			
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				320		100		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.88	1.00	0.88		
Hourly Flow Rate, HFR (veh/h)	0	0	0	363	0	113		
Percent Heavy Vehicles	0	0	0	16	0	16		
Percent Grade (%)		0			3			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	1	0	1		
Configuration				L		R		
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L				L		R
v (veh/h)		164				363		113
C (m) (veh/h)		924				16		147
v/c		0.18				22.69		0.77
95% queue length		0.64				46.31		4.72
Control Delay (s/veh)		9.7				10219		83.2
LOS		A				F		F
Approach Delay (s/veh)	--	--				7813		
Approach LOS	--	--				F		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	David Acree			Intersection	SR 99 at NB ramps			
Agency/Co.	GDOT			Jurisdiction	District 5			
Date Performed	2/17/2012			Analysis Year	2034			
Analysis Time Period	PM							
Project Description 0001585 Without Ramp construction				North/South Street: Ramps C & D Northbound ramps				
East/West Street: SR 99				Study Period (hrs): 0.25				
Intersection Orientation: East-West								
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
	1	2	3	4	5	6		
Movement	L	T	R	L	T	R		
Volume (veh/h)	100	435			335	320		
Peak-Hour Factor, PHF	0.88	0.88	0.90	0.90	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	113	494	0	0	380	363		
Percent Heavy Vehicles	0	--		16	--	--		
Median Type	Raised curb							
RT Channelized			1				0	
Lanes	1	1	0	0	1	1		
Configuration	L	T			T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
	7	8	9	10	11	12		
Movement	L	T	R	L	T	R		
Volume (veh/h)	295		145					
Peak-Hour Factor, PHF	0.88	1.00	0.88	0.90	1.00	0.90		
Hourly Flow Rate, HFR (veh/h)	335	0	164	0	0	0		
Percent Heavy Vehicles	0	0	0	16	0	16		
Percent Grade (%)		0			3			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Movement	L			LR				
v (veh/h)	113			499				
C (m) (veh/h)	873			210				
v/c	0.13			2.38				
95% queue length	0.44			40.72				
Control Delay (s/veh)	9.7			669.7				
LOS	A			F				
Approach Delay (s/veh)	--	--		669.7				
Approach LOS	--	--		F				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	David Acree			Intersection	SR 99 at NB ramps			
Agency/Co.	GDOT			Jurisdiction	District 5			
Date Performed	2/17/2012			Analysis Year	2034			
Analysis Time Period	PM							
Project Description 0001585 With Ramp construction (proposed)								
East/West Street: SR 99				North/South Street: Northbound ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	100	435			335	320		
Peak-Hour Factor, PHF	0.88	0.88	0.90	0.90	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	113	494	0	0	380	363		
Percent Heavy Vehicles	0	--	--	16	--	--		
Median Type	Raised curb							
RT Channelized			1				0	
Lanes	1	1	0	0	1	1		
Configuration	L	T			T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	295		145					
Peak-Hour Factor, PHF	0.88	1.00	0.88	0.90	1.00	0.90		
Hourly Flow Rate, HFR (veh/h)	335	0	164	0	0	0		
Percent Heavy Vehicles	0	0	0	16	0	16		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L		R			
v (veh/h)	113		335		164			
C (m) (veh/h)	873		160		579			
v/c	0.13		2.09		0.28			
95% queue length	0.44		26.60		1.16			
Control Delay (s/veh)	9.7		559.5		13.7			
LOS	A		F		B			
Approach Delay (s/veh)	--	--	380.1					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	David Acree			Intersection	SR 99 at NB ramps			
Agency/Co.	GDOT			Jurisdiction	District 5			
Date Performed	2/17/2012			Analysis Year	2034			
Analysis Time Period	AM							
Project Description 0001585 Without Ramp construction								
East/West Street: SR 99				North/South Street: Ramps C & D Northbound ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	400	435			495	85		
Peak-Hour Factor, PHF	0.88	0.88	0.90	0.90	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	454	494	0	0	562	96		
Percent Heavy Vehicles	0	--	--	16	--	--		
Median Type	Raised curb							
RT Channelized			1			0		
Lanes	1	1	0	0	1	1		
Configuration	L	T			T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	865		220					
Peak-Hour Factor, PHF	0.88	1.00	0.88	0.90	1.00	0.90		
Hourly Flow Rate, HFR (veh/h)	982	0	250	0	0	0		
Percent Heavy Vehicles	0	0	0	16	0	16		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L			LR				
v (veh/h)	454			1232				
C (m) (veh/h)	939			42				
v/c	0.48			29.33				
95% queue length	2.69			151.79				
Control Delay (s/veh)	12.4			12929				
LOS	B			F				
Approach Delay (s/veh)	--	--		12929				
Approach LOS	--	--		F				

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	David Acree			Intersection	SR 99 at NB ramps			
Agency/Co.	GDOT			Jurisdiction	District 5			
Date Performed	2/17/2012			Analysis Year	2034			
Analysis Time Period	AM							
Project Description 0001585 With Ramp construction (proposed)								
East/West Street: SR 99				North/South Street: Northbound ramps				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	400	435			495	85		
Peak-Hour Factor, PHF	0.88	0.88	0.90	0.90	0.88	0.88		
Hourly Flow Rate, HFR (veh/h)	454	494	0	0	562	96		
Percent Heavy Vehicles	0	--	--	16	--	--		
Median Type	Raised curb							
RT Channelized			1			0		
Lanes	1	1	0	0	1	1		
Configuration	L	T			T	R		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	865		220					
Peak-Hour Factor, PHF	0.88	1.00	0.88	0.90	1.00	0.90		
Hourly Flow Rate, HFR (veh/h)	982	0	250	0	0	0		
Percent Heavy Vehicles	0	0	0	16	0	16		
Percent Grade (%)	0			3				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	1	0	1	0	0	0		
Configuration	L		R					
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L		L		R			
v (veh/h)	454		982		250			
C (m) (veh/h)	939		34		579			
v/c	0.48		28.88		0.43			
95% queue length	2.69		121.53		2.17			
Control Delay (s/veh)	12.4		12767		15.9			
LOS	B		F		C			
Approach Delay (s/veh)	--	--	10179					
Approach LOS	--	--	F					