



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

SUITE 1000, JAMES K. POLK BUILDING
505 Deaderick Street
NASHVILLE, TENNESSEE 37243-0344

Gerald F. Nicely
Commissioner

Phil Bredesen
Governor

MEMORANDUM

TO: Mr. Paul Degges, Chief Engineer

FROM: ~~Mr.~~ Steve Allen, Director
Project Planning Division

DATE: July 17, 2006

SUBJECT: **RSAR SR-245 in Maury County**

The Roadway Safety Audit Review for SR-245 at intersection of Southport Road in Maury County has been completed and the report is attached. The following guidance was provided:

- Relocate intersection warning signs (W2-2) on State Route 245 currently located approximately 700' in advance of this intersection on both approaches. Current MUTCD guidelines recommend 175'. The sign on the southbound approach should be relocated to a point approximately 175' from the intersection. The sign on the northbound approach should be relocated to a point approximately 250' from the intersection. This extra distance on the northbound approach is necessary to accommodate the bridge located just south of the intersection on State Route 245.
- Replace the recently upgraded stop sign on the east side of the intersection with a double arrow intersection warning sign (W1-7). The existing small arrow sign (M6-4) and State Route 245 marker sign should be removed.
- Two State Route 245 route signs with auxiliary M5-1 and M5-1R directional arrow signs and with auxiliary M3-1 (NORTH) and M3-3 (SOUTH) signs should be installed on Southport Road approximately (but no less than) 300' from State Route 245 edge of traveled way .
- A State Route 245 route sign and auxiliary M2-1 (JCT) sign should be installed on Southport Road, approximately (but no less than) 400' from State Route 245 edge of traveled way.
- Remove the existing stop sign on the west side of the intersection and replace with two oversized stop signs (one on each side of eastbound approach) with high intensity sign facing. Signs should be placed approximately eight (8) feet from State Route 245 edge of traveled way.
- A Reflective sleeve should be installed on the post of both proposed stop signs to increase visibility.

- Install a stop bar on the eastbound approach, approximately eight (8) feet from State Route 245 edge of traveled way.
- Install reflective delineators on the existing guardrail on the east side of the intersection.
- Remove the existing stop ahead (W3-1) signs on Southport Road approximately 1700' from intersection and replace with two oversized stop ahead (W3-1) signs (one on each side of eastbound approach) with high intensity sign facing. Sign position should be relocated to approximately 175' from intersection. Existing W3-1 signs located on Southport Road approximately 500' from intersection should remain.
- The words "STOP AHEAD" should be painted with reflective paint on the eastbound approach of Southport Road, approximately 175' from intersection.

Total estimated cost for these improvements is \$5,400.

If you should need any further information, please contact me @ (615) 741-2208.

SLA/cba

Attachment


CC: Ed Cole
Mike Tugwell
Winston Gaffron
Jimmy Moore
Gary Olgetree
File

ROAD SAFETY AUDIT REPORT

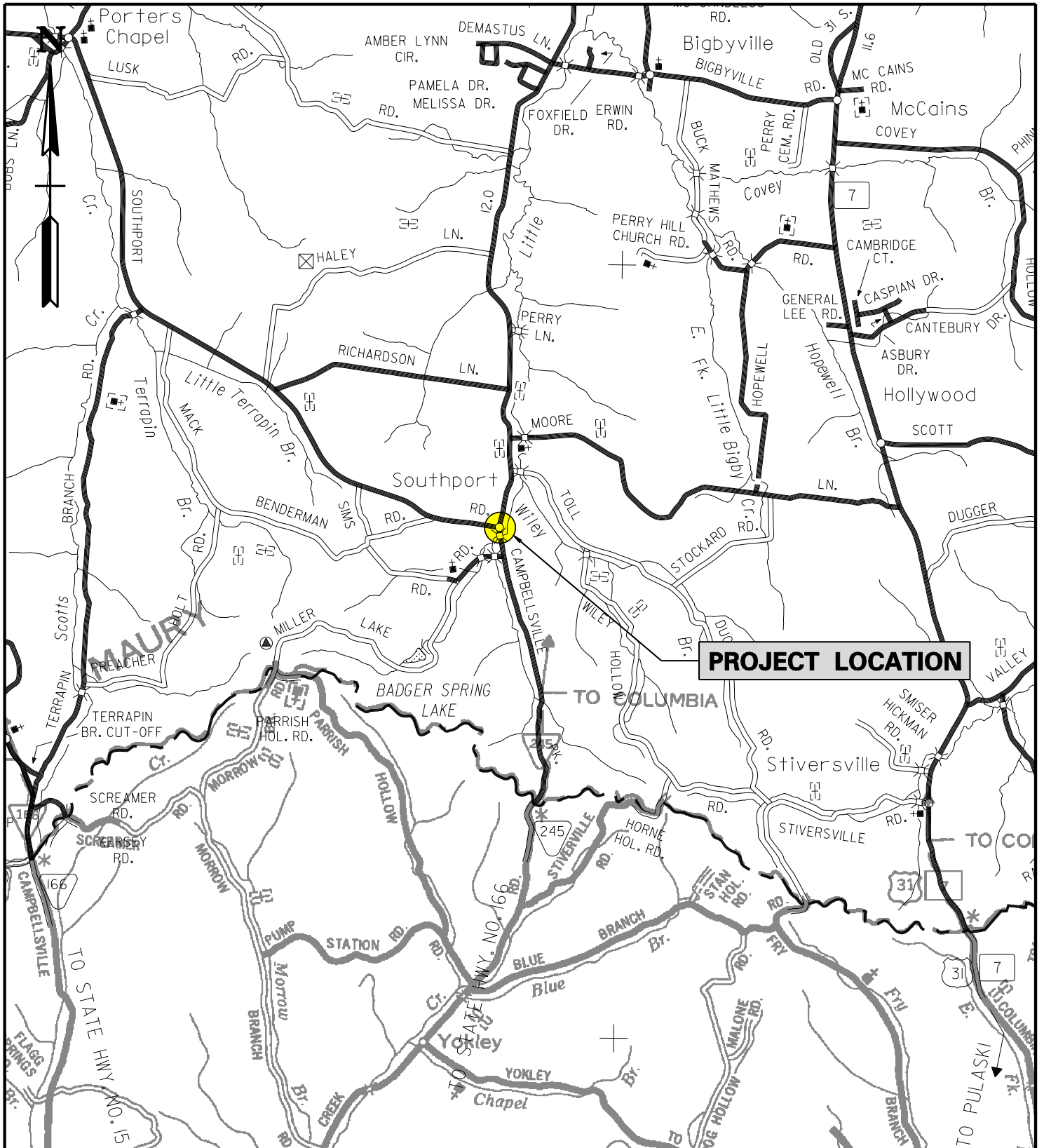
**STATE ROUTE 245
AT INTERSECTION OF SOUTHPORT ROAD
MAURY COUNTY
PIN # 107870.00**



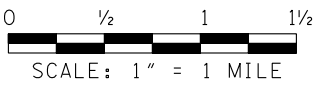
**PREPARED BY
CLINARD ENGINEERING ASSOCIATES, LLC
FOR THE TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION**

Approved by:	Signature:	Date:
DIRECTOR Project Planning Division		7-14-06

This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.

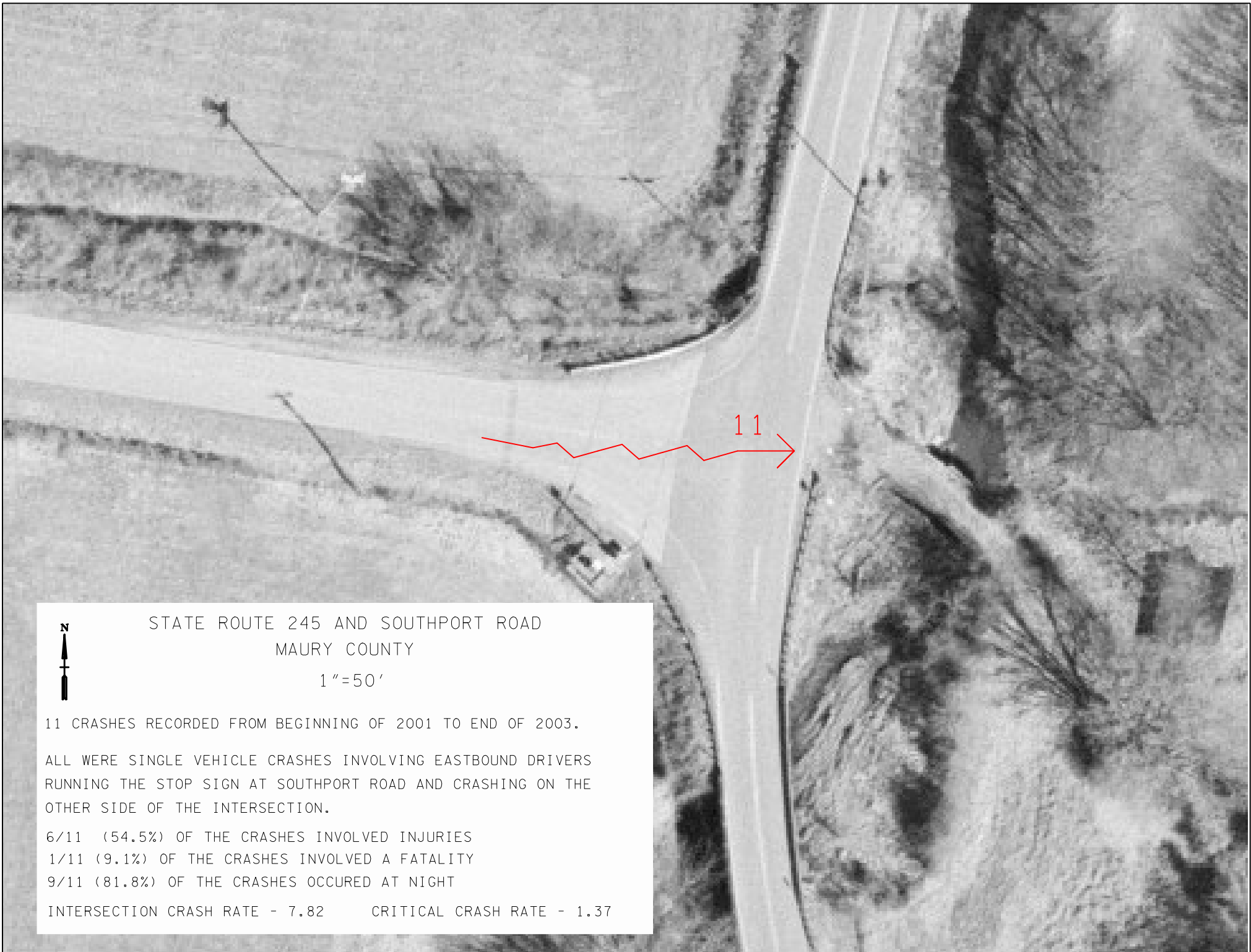


PROJECT LOCATION



LOCATION MAP

STATE ROUTE 245 L.M. 2.13
 INTERSECTION @ SOUTHPORT ROAD
 MAURY COUNTY



STATE ROUTE 245 AND SOUTHPORT ROAD
MAURY COUNTY

1"=50'

11 CRASHES RECORDED FROM BEGINNING OF 2001 TO END OF 2003.

ALL WERE SINGLE VEHICLE CRASHES INVOLVING EASTBOUND DRIVERS
RUNNING THE STOP SIGN AT SOUTHPORT ROAD AND CRASHING ON THE
OTHER SIDE OF THE INTERSECTION.

6/11 (54.5%) OF THE CRASHES INVOLVED INJURIES

1/11 (9.1%) OF THE CRASHES INVOLVED A FATALITY

9/11 (81.8%) OF THE CRASHES OCCURED AT NIGHT

INTERSECTION CRASH RATE - 7.82 CRITICAL CRASH RATE - 1.37

Description of Project and Background

This project involves an area of concern at the intersection of State Route 245 (Campbellsville Pike) and Southport Road in Maury County that was brought to the department's attention by a review of crash records. Consequently, Clinard Engineering Associates, LLC was asked to evaluate this intersection to determine the need for appropriate safety measures.

State Route 245 at this location is a two-lane highway with eleven (11) foot travel lanes and two (2) foot shoulders within an existing sixty (60) foot right-of-way. Based upon ADT counts performed by TDOT in 2005, approximately 1,070 vehicles per day traveled along SR-245 near this intersection. Southport Road at this location is a two-lane local road with eleven (11) foot travel lanes and one (1) foot shoulders. Based upon ADT counts performed by TDOT in 2005, approximately 470 vehicles per day traveled along Southport Road. State Route 245 and Southport Road intersect to form a T intersection at State Route 245 at approximately Log Mile 2.13.

See attached for Project Location photographs.

Information Used in this Review

- Maury County General Highway Map
- TRIMS Traffic Report
- TRIMS Geometric Report
- TRIMS Route Feature Description Listing
- TRIMS Photolog
- TRIMS Crash Data
- TRIMS Crash Rate Report (for crashes occurring 2001-2003)
- Additional Crash Reports from 2004 - 2005
- Site visits made by consultant
- Field Review held June 9, 2006

Crash Data

A review of the available crash data shows eleven (11) crashes occurring at this intersection from the beginning of 2001 to the end of 2003. All were single vehicle crashes involving east-bound drivers running the stop sign at Southport Road and crashing on the other side of the intersection.

- Intersection Crash Rate: 7.82
- Critical Crash Rate: 1.37

The crash ratio (actual crash rate divided by the critical crash rate) is 5.72, which exceeds the minimum value of 3.50 required to make this intersection eligible for Hazard Elimination Safety Program (HESP) funds. Of the eleven crashes that occurred during this time period:

- 2/11 (18.2%) occurred in 2001
- 2/11 (18.2%) occurred in 2002
- 7/11 (63.6%) occurred in 2003
- 9/11 (81.8%) occurred at night
- 6/11 (54.5%) involved injuries
- 1/11 (9.1%) involved a fatality

A review of available crash records after 2003 indicated that one crash has occurred at this location since the start of 2004. This crash occurred in a manner consistent with the other crashes.

RSAR Pre-Meeting

A pre-meeting was held at TDOT Headquarters on June 6, 2006 to discuss this project. The following is a list of attendees:

- Tom Clinard / Clinard Engineering Associates
- Brady Griggs / Clinard Engineering Associates
- Brian Gaffney / Clinard Engineering Associates
- Cynthia Allen / TDOT Project Planning Division
- Chris Armstrong / TDOT Project Planning Division
- Marcie Nelson / TDOT Safety Planning Division
- Michelle Powell / TDOT Headquarters Traffic Office
- Eric Jackson / TDOT Headquarters Traffic Office
- Michelle Williams / South Central RPO Coordinator (by teleconference)
- Tasha Johnson / TDOT Region 3 Traffic (by teleconference)

At this meeting, the consultant discussed the crash history at this location and discussed possible measures to improve stop condition awareness and other safety improvements.

RSAR Field Review

A field review was held at the project site on June 9, 2006. The following is a list of attendees:

- Tom Clinard / Clinard Engineering Associates
- Brady Griggs / Clinard Engineering Associates
- Clay Fitzgerald / TDOT Region 3
- Glen Turner / TDOT Region 3
- Wayne Yocom / TDOT Region 3
- Larry Venable / TDOT Region 3
- Michelle Williams / SC West RPO
- Dudley E. Daniel / TDOT Conceptual Planning
- Tasha Johnson / TDOT Region 3 Traffic
- Michelle Powell / TDOT Headquarters Traffic Office
- Eric Jackson / TDOT Headquarters Traffic Office
- Chris Armstrong / TDOT Project Planning Division
- Joe Robinson / TDOT Region 3

Post-Field Review Improvements

TDOT District personnel began making immediate improvements to this location based on the findings of the field review. These improvements included:

- Installation of a intersection warning sign (W2-2) in advance of both State Route 245 approaches
- Installation of a horizontal alignment warning sign (W1-4) in advance of the southbound approach
- Installation of four (4) stop ahead signs (W3-1) in advance of the eastbound approach
- Replacement of stop sign (R1-1) on east side of intersection with oversized stop sign. An auxiliary double arrow sign (M6-4) and State Route 245 marker sign were installed under the stop sign.
- Clearing of right-of-way on the southbound approach to facilitate better sight distance

Guidance

Based upon all available evidence, the following guidance is provided at this location:

- Intersection warning signs (W2-2) were installed on State Route 245 after the field review approximately 700' in advance of this intersection on both approaches, however current MUTCD guidelines recommend 175'. The sign on the southbound approach should be relocated to a point approximately 175' from the intersection. The sign on the northbound approach should be relocated to a point approximately 250' from the intersection. This extra distance on the northbound approach is necessary to accommodate the bridge located just south of the intersection on State Route 245.
- Replace the recently upgraded stop sign on the east side of the intersection with a double arrow intersection warning sign (W1-7). The existing small arrow sign (M6-4) and State Route 245 marker sign should be removed.
- Two State Route 245 route signs with auxiliary M5-1 and M5-1R directional arrow signs and with auxiliary M3-1 (NORTH) and M3-3 (SOUTH) signs should be installed on Southport Road approximately (but no less than) 300' from State Route 245 edge of traveled way .
- A State Route 245 route sign and auxiliary M2-1 (JCT) sign should be installed on Southport Road, approximately (but no less than) 400' from State Route 245 edge of traveled way.
- Remove the existing stop sign on the west side of the intersection and replace with two oversized stop signs (one on each side of eastbound approach) with high intensity sign facing. Signs should be placed approximately eight (8) feet from State Route 245 edge of traveled way.
- A Reflective sleeve should be installed on the post of both proposed stop signs to increase visibility.
- Install a stop bar on the eastbound approach, approximately eight (8) feet from State Route 245 edge of traveled way.
- Install reflective delineators on the existing guardrail on the east side of the intersection.
- Remove the existing stop ahead (W3-1) signs on Southport Road approximately 1700' from intersection and replace with two oversized stop ahead (W3-1) signs (one on each side of eastbound approach) with high intensity sign facing. Sign position should be relocated to approximately 175' from intersection. Existing W3-1 signs located on Southport Road approximately 500' from intersection should remain.
- The words "STOP AHEAD" should be painted with reflective paint on the eastbound approach of Southport Road, approximately 175' from intersection.

The use of a flashing red/yellow beacon was considered at this location. It was the consensus of those at the field review that maintenance of the beacon would be difficult in such a rural location and that this measure would not be necessary in light of the other proposed improvements. Rumble strips were also considered on Southport Road in advance of the intersection but it was decided that this extra measure would not be warranted at this time.

Project Photographs
Road Safety Audit Report
SR-245 (Campbellsville Pike) at Southport Road
Maury County



Photograph 1

Views looking east along Southport Road, approximately 1700' from intersection, showing stop ahead signs (W3-1) which were added since the field review for this project.



Photograph 2

Views looking east along Southport Road, approximately 500' from intersection, showing stop ahead signs (W3-1). The sign on the left was added since the field review for this project.

Project Photographs
Road Safety Audit Report
SR-245 (Campbellsville Pike) at Southport Road
Maury County



Photograph 3

Eastbound approach of intersection.



Photograph 4

Stop sign on east side of intersection has been upgraded since the field review for this project. State Route marker and double arrow sign were also added since the field review.

Project Photographs
Road Safety Audit Report
SR-245 (Campbellsville Pike) at Southport Road
Maury County



Photograph 5

View looking south along State Route 245, approximately 800' from intersection, showing W2-2 which was added since the field review for this project.



Photograph 6

View looking south along State Route 245 (Southport Road can be seen on the right).

Project Photographs
Road Safety Audit Report
SR-245 (Campbellsville Pike) at Southport Road
Maury County



Photograph 7

View looking north along State Route 245, approximately 700' from intersection, showing W2-2 which was added since the field review for this project.



Photograph 8

View looking north along State Route 245 (Southport Road can be seen on the left).

Project Photographs
Road Safety Audit Report
SR-245 (Campbellsville Pike) at Southport Road
Maury County



Photograph 9

View looking north at intersection. Right of way has been cut along the southbound approach since the field review for this project to improve intersection sight distance.



Photograph 10

View looking west at intersection.

Project Photographs
Road Safety Audit Report
SR-245 (Campbellsville Pike) at Southport Road
Maury County



Photograph 11
View looking south at intersection



Photograph 12
View looking south at intersection.

ROADWAY SAFETY AUDIT REPORT

ROUTE: State Route 245 (Campbellsville Pike)
DESCRIPTION: Intersection of Southport Road (LM 2.13)
COUNTY: Maury
DATE: June 21, 2006

One (1) W1-7 Double Arrow Sign including Posts	\$200
Three (3) State Route 245 route marker signs including Posts	\$200
One (1) M5-1 and One (1) M5-1R directional arrow sign	\$100
One (1) M3-1 (NORTH) and One (1) M3-3 (SOUTH) sign	\$100
One (1) M2-1 (JCT) sign	\$50
Two (2) R1-1 Oversized High Intensity Stop Signs and Posts	\$400
Two (2) Reflective Sleeves for R1-1 Posts	\$100
Two (2) W3-1 Oversized High Intensity Stop Ahead Signs and Posts	\$400
One (1) Stop Bar on Southport Road	\$200
One (1) "Stop Ahead" Painted Marking	\$300
Thirty (30) Reflective Delineators	\$300
Sign Removal	\$200
Relocation of Two (2) W2-2 Intersection Ahead Signs	\$100
8.5% OTHER CONSTRUCTION ITEMS	\$220
MOBILIZATION	\$2,000
10% ENGINEERING & CONTINGENCIES	\$500
TOTAL CONSTRUCTION COST	\$5,400
INFLATION 4% X 1 YR = 4%	\$0
TOTAL COST	\$5,400

Crash Rate Calculation

County: Maury **City:** near Columbia **Date:** 6/21/2006
Intersection of: State Route 245 and Southport Road
Crash History Start Date: 1/1/2001 **TO** 12/31/2003

number of Crashes =	11	ADT 1 =	1,313
number of years =	3.0	ADT 2 =	783
Number of Fatal Crashes =	1	ADT 3 =	472
Number of Injury Crashes =	6	ADT 4 =	0
Statewide Average Rate =		0.18	

Exposure Rate=	1.40
Average Crash Rate=	7.83
Critical Crash Rate=	1.37
Statewide Average Rate=	0.18
Severity Index=	0.64
Ratio=	5.72

