

### STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION SUITE 1000, JAMES K. POLK BUILDING 505 DEADERICK STREET

505 DEADERICK STREET NASHVILLE, TENNESSEE 37243-0334

John Schroer COMMISSIONER Bill Haslam GOVERNOR

# **MEMORANDUM**

To: Mr. Paul Degges, Chief Engineer and Deputy Commissioner

From: Steve Allen, Director Project Planning Division

Date: July 19, 2013

# Subject: ROAD SAFETY AUDIT REVIEW (RSAR) ROUTE 01861 (USSERY ROAD, PALMYRA ROAD, VERNON CREEK ROAD AND BUDDS CREEK ROAD) FROM STATE ROUTE 149 TO STATE ROUTE 13 LOG MILE 0.00 TO 7.09, MONTGOMERY COUNTY, PIN 118469.00

This project was identified through the Tennessee Department of Transportation (TDOT) safety needs planning process. The section of Route 01861 (Ussery Road, Palmyra Road, Vernon Creek Road and Budds Creek Road) from log mile 0.00 to log mile 7.09 is a two (2) lane rural minor collector with lane widths of ten (10) feet, and variable width shoulders. Route 01861 appears on the Highway Safety Improvement Program (HSIP) list and qualifies for the High Risk Rural Roads (HRRR) program because Route 01861 has a severe crash rate of 0.35, which exceeds the statewide average severe crash rate of 0.162 for a rural minor collector.

The total estimated cost of improvements listed in the report is \$353,800. Right-of-way acquisition is not required. A maintenance agreement is required (Montgomery County). A local match is required (\$3,200 – Montgomery County). These improvements will be let to contract.

If you should need any further information, please contact me at (615) 741-2208 or email me at Steve.Allen@tn.gov.

# SA/BT

Attachment

CC: Adetokunbo Omishakin, David Lahew, Jim Moore, Brian Hurst, Mike Tugwell, Phil Trammel, Stan Williams, FILE



# **ROAD SAFETYAUDIT REPORT**

ROUTE 01861 (USSERY ROAD, PALMYRA ROAD, VERNON CREEK ROAD AND BUDDS CREEK ROAD) FROM STATE ROUTE 149 TO STATE ROUTE 13 L.M. 0.00 – 7.09 MONTGOMERY COUNTY PIN 118469.00

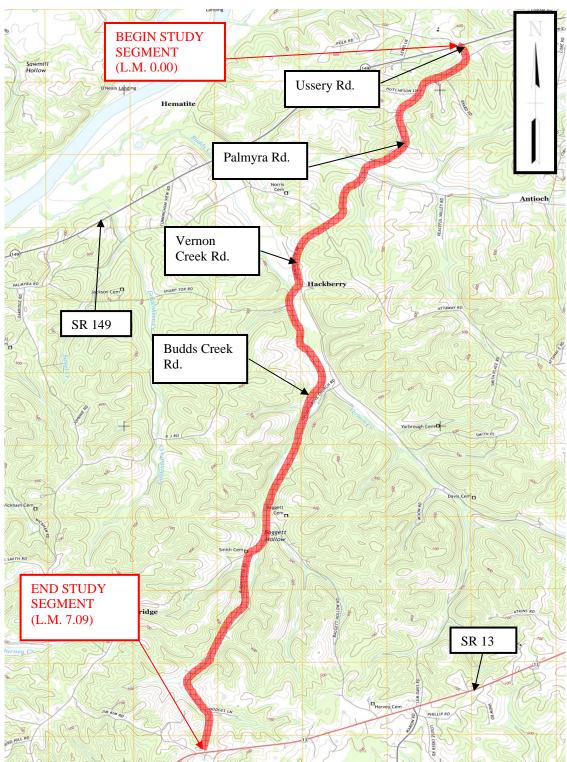


### PREPARED BY RPM TRANSPORTATION CONSULTANTS, LLC FOR THE TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION

Approved by:	Signature	DATE
DIRECTOR Project Planning Division		

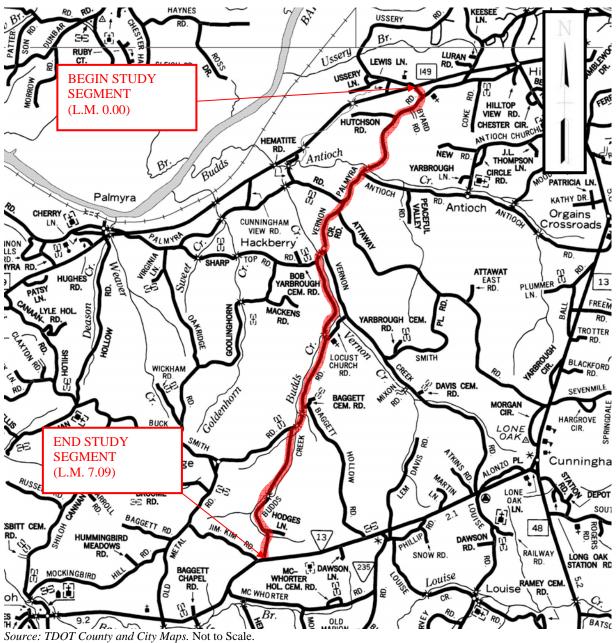
This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.





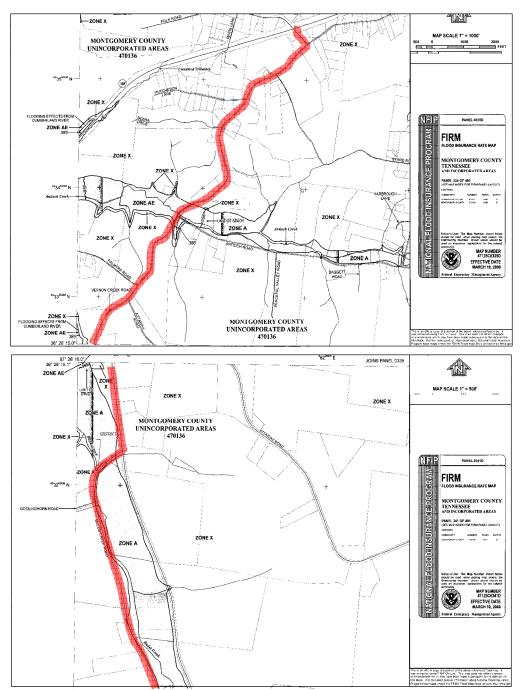
Source: United States Geological Survey (USGS). Not to Scale. Vicinity Map Route 01861, Montgomery County L.M. 0.00 – 7.09

DRAFT



**Location Map Route 01861, Montgomery County** L.M. 0.00 - 7.09

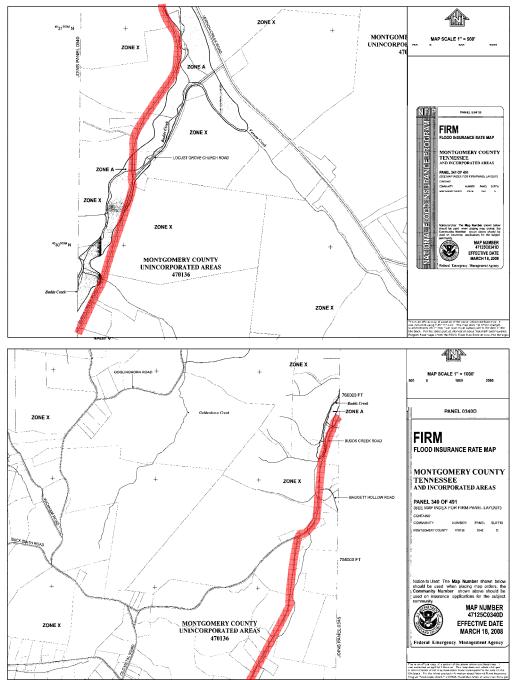




Source: Federal Emergency Management Agency (FEMA). Not to Scale.

Flood Maps (1 and 2 of 5) Route 01861, Montgomery County L.M. 0.00 – 2.30 and L.M. 2.30 – 3.40

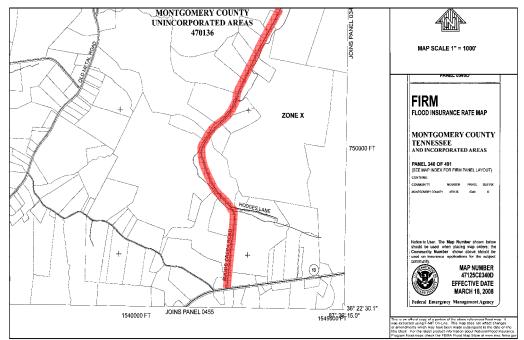
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Source: Federal Emergency Management Agency (FEMA). Not to Scale.

Flood Maps (3 and 4 of 5) Route 01861, Montgomery County L.M. 3.40 – 4.40 and L.M. 4.40 – 5.40





Source: Federal Emergency Management Agency (FEMA). Not to Scale.

Flood Maps (5 of 5) Route 01861, Montgomery County L.M. 5.40 – 7.09



# **Road Safety Audit Review**

# **Description of Project and Background**

This project was identified through the Tennessee Department of Transportation (TDOT) safety needs planning process. The section of Route 01861 (Ussery Road, Palmyra Road, Vernon Creek Road and Budds Creek Road) from log mile 0.00 to log mile 7.09 is a two (2) lane rural minor collector with lane widths of ten (10) feet, and variable width shoulders. Route 01861 appears on the Highway Safety Improvement Program (HSIP) list and qualifies for the High Risk Rural Roads (HRRR) program because Route 01861 has a severe crash rate of 0.35, which exceeds the statewide average severe crash rate of 0.162 for a rural minor collector.

# **RSAR Team Members**

A RSAR team was assembled to evaluate the segment of Route 01861 from State Route 149 (L.M. 0.00) to State Route 13 (L.M. 7.09) in Montgomery County to determine appropriate safety measures.

Name	Organization	Title	Phone	Email
Gena Gilliam	TDOT	Project Planning	615-253-7692	gena.gilliam@tn.gov
Mike Gilbert	TDOT	Project Planning	615-741-0772	mike.gilbert@tn.gov
Antonio Johnson	Middle Tennessee RPO	Rural Planning Coordinator	615-850-3937	ajohnson@mchra.com
Mike Frost	Montgomery County	Highway Department	931-648-5740	rmfrost@montgomerycountytn.org
Stan Williams	City of Clarksville	MPO Director	615-645-7448	stanwilliams@cityofclarksville.com
Eric Jackson	TDOT	Traffic	615-741-0802	eric.jackson@tn.gov
Scott Johnson	TDOT	Region 3 Design	615-350-4263	scott.johnson@tn.gov
Terry Arnold	TDOT	Region 3 Design	615-350-4274	terry.arnold@tn.gov
Stanley Sumner	TDOT	Region 3 Traffic	615-350-4383	stanley.sumner@tn.gov
Blake Turner	RPM	Engineer	615-370-8410	blaketurner@rpmtraffic.net
Tyler Fosnes	RPM	E.I.T.	615-370-8410	tylerfosnes@rpmtraffic.net
Najmeh Jami	RPM	E.I.T.	615-370-8410	najmehjami@rpmtraffic.net

# **Team Members**



## Information used in the Review

- Montgomery County highway map
- Montgomery County functional classification map
- TRIMS Route Feature Description Listing
- TRIMS Highway Log Report
- TRIMS Traffic Report
- TRIMS Road Segment Report
- Aerial photography
- Crash rate summary (included in appendix)
- Select crash reports
- Field Review Comments

### **Pre-Brief Summary**

A pre-brief meeting was held at 1:00 PM on Tuesday, May 28, 2013 at TDOT headquarters in Nashville. The following aspects of the roadway section under study were discussed:

- The majority of crashes involved multiple vehicles negotiating horizontal curves.
- Almost half (43%) of the crashes occurred during nighttime hours.

The study section had fifty-three (53) crashes from 2004-2009. The fifty-three (53) crashes included thirty-eight (38) property damage crashes, ten (10) non-incapacitating injury crashes, four (4) incapacitating injury crashes resulting in nine (9) incapacitating injuries, and one (1) fatal crash resulting in one (1) fatality. Forty-eight (48) (91%) of these crashes were single vehicle crashes. The existing annual average daily traffic (AADT) on the study segment is 920 vehicles per day.



## Observations

An onsite field review was held at 10:00 AM CDT on Thursday, May 30, 2013. The following observations and input from the field review are provided concerning the location:

- Speed and road curvature are believed to be the primary causes for crashes along the segment.
- No centerline delineation (pavement markers) exists along the study corridor.
- The stop signs, stop bars and edgelines of side streets intersecting the study segment are worn and/or non-existent.
- The intersection of Palmyra Road and Antioch Road is in need of Intersection Action Plan (IAP) treatments.
- The intersection of Vernon Creek Road and Palmyra needs to be realigned into a 90 degree angle.
- Channelization striping is needed in the southeast quadrant of the intersection of Budds Creek Road and Locust Grove Church Road.
- The existing painted island at the intersection of Budds Creek Road and Buck Smith Road is in need of channelization striping.
- Some locations along the study segment are in need of guardrail repair and extensions.
- Signing around horizontal curves needs to be reevaluated for appropriateness.
- The intersection of Budds Creek Road and State Route 13 is in need of IAP treatments.
- The speed limit along this study segment is 45 MPH.

Specific improvements guidance is found on the attached figures. The total estimated cost of improvements listed in the report is \$353,800. Right-of-way acquisition is not required. A maintenance agreement is required (Montgomery County). A local match is required (\$3,200 – Montgomery County). These improvements will be let to contract.





5/30/13: Looking west on Antioch Road at the intersection of Route 01861 and Antioch Road (L.M. 1.519).



5/30/13: Looking south on Route 01861 from the intersection of Route 01861 and Antioch Road. (L.M. 1.519).

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5/30/13: Looking east on Palmyra Road at the intersection of Route 01861 and Palmyra Road (L.M. 2.00).



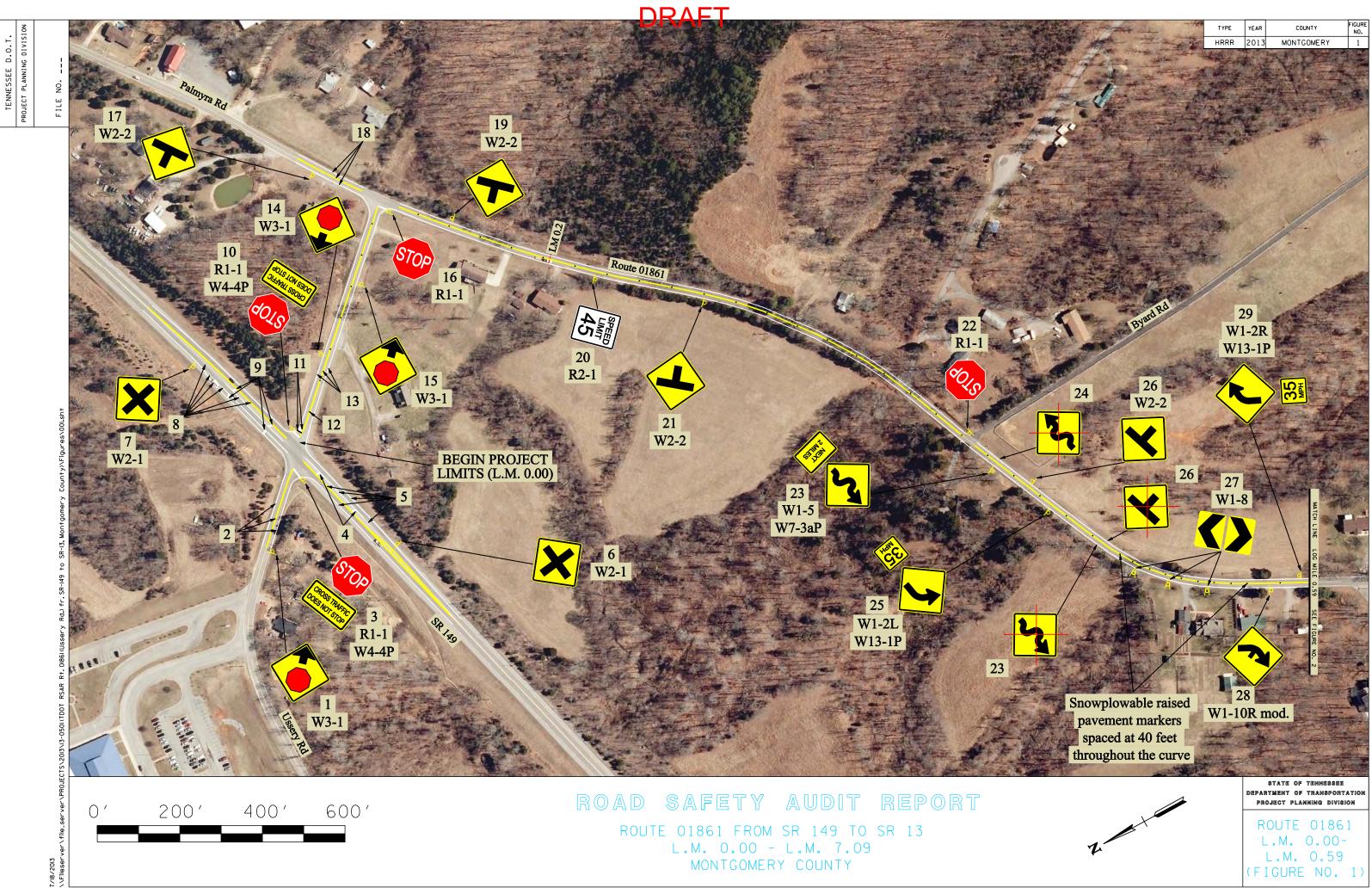
5/30/13: Looking west on Route 01861 at the intersection of Route 01861 and Buck Smith Road (L.M.5.228).



## COST DATA SHEET TOTAL PROJECT COST

	Route 01861 (Ussery Rd, Palmyra Rd, Vernon Creek Rd and Budds Creek Rd) L.M. 0.00 to L.M. 7.09							
County: Montgomery Coun	ty							
Length: 7.09 miles								
Date: July 19, 2013	July 19, 2013							
DESCRIPTION		OCAL		TATE	-	EDERAL	_	TOTAL
Right-of-Way	\$		\$		\$	LDLIKAL -	\$	
Clearing and Grubbing	\$	-	\$	-	\$	-	\$	
Earthwork	\$	_	\$	_	\$	-	\$	
Railroad Crossing or Separation	\$	-	\$	-	\$	-	\$	-
Drainage	\$	-	\$	-	\$	-	\$	-
Utilities	\$	-	\$	-	\$	-	\$	-
Structures	\$	-	\$	-	\$	-	\$	-
Pavement Removal	\$	-	\$	-	\$	-	\$	-
Paving	\$	3,210	\$	-	\$	28,890	\$	32,100
Roadway and Pavement	\$	-	\$	-	\$	-	\$	-
Retaining Walls	\$	-	\$	-	\$	-	\$	-
Topsoil	\$	-	\$	-	\$	-	\$	-
Seeding	\$	-	\$	-	\$	-	\$	-
Sodding	\$	-	\$	-	\$	-	\$	-
Rip-Rap or Slope Protection	\$	-	\$	-	\$	-	\$	-
Fencing	\$	-	\$	-	\$	-	\$	-
Signing <sup>1</sup>					\$	45,800	\$	45,800
Pavement Markings <sup>1</sup>					\$	109,400	\$	109,400
Lighting <sup>1</sup>					\$	-	\$	-
Signalization <sup>1</sup>					\$	-	\$	-
Guardrail <sup>1</sup>					\$	44,400	\$	44,400
Other Construction Items (15%)			\$	-	\$	34,750	\$	34,755
Maintenance of Traffic			\$	1,200	\$	10,800	\$	12,000
Mobilization (5%)			\$	60	\$	13,860	\$	13,920
CONSTRUCTION COST (rounded)			\$	1,260	\$	291,110	\$	292,380
Engineering and Contingency			\$	130	\$	29,110	\$	29,240
TOTAL CONSTRUCTION COST			\$	1,390	\$	320,220	\$	321,620
Preliminary Engineering (10%)			\$	140	\$	32,020	\$	32,160
PROJECT COST <sup>2</sup> (rounded)	\$	3,200	\$	1,600	\$	352,200	\$	353,800

<sup>1</sup> This safety item is 100% eligible and does not require a 10% funding match by the local agency. <sup>2</sup> For estimating future project costs, a compounded inflation rate of 10% should be applied from the date of this estimate.



**DRAFT** GUIDANCE

1. Install one (1) Stop Ahead (W3-1) (36"x36") sign with a 2" strip of yellow retroreflective sheeting mounted on the post facing eastbound traffic on Ussery Road approximately 2 State Route 149 and Ussery Road. (See Figure 14 - Inset 2)

2. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline approximately 200 feet west of th The proposed striping shall be installed in accordance with the existing striping.

3. Remove and replace one (1) existing STOP sign located on Ussery Road at the intersection of State Route 149 and Ussery Road with one (1) STOP (R1-1) (36"x36") sign and or STOP" (W4-4P) (24"x12") plaque mounted below with a 2" strip of red retroreflective sheeting mounted on the post on the south side of Ussery Road, and install a thermoplastic 2 (See Figure 14 - Inset 1) (Existing Street Name signs to be reused and mounted above the proposed STOP sign.)

4. Install two (2) thermoplastic left turn arrow pavement markings in the northbound State Route 149 left turn lane approximately 75 and 200 feet south, respectively, of the interse 5. Install enhanced flatline thermoplastic 4" single solid white edgelines, an enhanced flatline thermoplastic 4" double solid yellow centerline, enhanced flatline thermoplastic 4" single broken white lane lines, and enhanced flatline thermoplastic 12" diagonal yellow transverse channelization markings along State Route 149 approximately and Route 01861. The proposed striping shall be installed in accordance with the existing striping.

6. Install one (1) Cross Road (W2-1) (36"x36") sign facing northbound traffic on the east side of State Route 149 approximately 325 feet south of the intersection of State Route 147. Install one (1) Cross Road (W2-1) (36"x36") sign facing southbound traffic on the west side of State Route 149 approximately 325 feet north of the intersection of State Route 148. Install enhanced flatline thermoplastic 4" single solid white edgelines, an enhanced flatline thermoplastic 4" double solid yellow centerline, and enhanced flatline thermoplastic 4" single broken white lane lines along State Route 149 approximately 530 feet south of the intersection of State Route 01861. The proposed striping striping.

9. Install two (2) thermoplastic left turn arrow pavement markings and two (2) thermoplastic right turn arrow pavement markings in the southbound State Route 149 left and right trespectively, of the intersection of State Route 149 and Route 01861.

10. Remove and replace one (1) existing STOP sign located on Route 01861 at the intersection of State Route 149 and Route 01861 with one (1) STOP (R1-1) (36"x36") sign and o (W4-4P) (24"x12") plaque mounted below with a 2" strip of red retroreflective sheeting mounted on the post on the north side of Route 01861, and install a thermoplastic 20' long a (See Figure 14 - Inset 1) (Existing Street Name signs to be reused and mounted above the proposed STOP sign.)

11. Install one (1) thermoplastic word pavement marking (STOP) and six (6) snowplowable, bi-directional white pavement markers spaced at 2 feet across the southbound lane on east of the intersection of Route 01861 and State Route 149.

12. Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 01861 from 13. Install enhanced flatline thermoplastic 4" single solid white edgelines and enhanced flatline thermoplastic 4" double solid yellow centerlines along Route 01861 from log mile installed in accordance with the existing striping.

14. Install one (1) Stop Ahead (W3-1) (36"x36") sign with a 2" strip of yellow retroreflective sheeting mounted on the post facing westbound traffic on Route 01861 approximately Route 01861. (See Figure 14 - Inset 2)

15. Install one (1) Stop Ahead (W3-1) (36"x36") sign with a 2" strip of yellow retroreflective sheeting mounted on the post facing eastbound traffic on Route 01861 approximately Palmyra Road. (See Figure 14 - Inset 2)

16. Remove and replace one (1) existing STOP sign located on Route 01861 at the intersection of Route 01861 and Palmyra Road with one (1) STOP (R1-1) (36"x36") sign with a post on the south side of Route 01861, and install a thermoplastic 20' long and 24" wide stop line on Route 01861. (See Figure 14 - Inset 1) (Existing Street Name signs to be reuse 17. Install one (1) Side Road (W2-2) (36"x36") sign facing southbound traffic on the west side of Palmyra Road approximately 175 feet north of the intersection of Route 01861 at 18. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Palmyra Road approximately Palmyra Road. The proposed striping shall be installed in accordance with the existing striping.

19. Install one (1) Side Road (W2-1) (36"x36") sign facing northbound traffic on the east side of Route 01861 approximately 175 feet south of the intersection of Route 01861 and 20. Remove and replace one (1) existing Speed Limit sign located approximately 555 feet south of the intersection of Route 01861 and Palmyra Road with one (1) (45 MPH) Speed on the west side of Route 01861.

21. Remove and replace one (1) existing Side Road sign approximately 740 feet north of the intersection of Route 01861 and Byard Road with one (1) Side Road (W2-2) (36"x36" Route 01861.

22. Remove and replace one (1) existing STOP sign located on Byard Road at the intersection of Route 01861 and Byard Road with one (1) STOP (R1-1) (36"x36") sign with a 2" post on the north side of Byard Road. (See Figure 14 - Inset 1) (Existing Street Name signs to be reused and mounted above the proposed STOP sign.)

23. Remove, replace and relocate one (1) existing Winding Road sign approximately 400 feet south of the intersection of Route 01861 and Byard Road with one (1) Winding Road (W7-3aP) (24"x18") plaque mounted below facing southbound traffic on the west side of Route 01861 approximately 80 feet south of the intersection of Route 01861 and Byard R 24. Remove one (1) existing Winding Road sign located approximately 80 feet south of the intersection of Route 01861 and Byard Road.

25. Install one (1) Curve (W1-2L) (36"x36") sign and one (1) (35 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing southbound traffic on the west side of l intersection of Route 01861 and Byard Road.

26. Remove, replace and relocate one (1) existing Side Road sign approximately 415 feet south of the intersection of Route 01861 and Byard Road with one (1) Side Road (W2-2) of Route 01861 approximately 175 feet south of the intersection of Route 01861 and Byard Road.

27. Install three (3) sets of double sided Chevron Alignment signs [six (6) total - three (3) W1-8L and three (3) W1-8R] (18"x24") mounted on adjustable brackets with a 2" strip of 80 foot spacing for 160 feet along the east side of the horizontal curve approximately 505 feet south of the intersection of Route 01861 and Byard Road. (See Figure 14 - Inset 3)

28. Install one (1) Combination Horizontal Alignment/Intersection (W1-10R mod.) (36"x36") sign facing southbound traffic on the west side of Route 01861 approximately 835 fe 29. Install one (1) Curve (W1-2R) (36"x36") sign and one (1) (35 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on the east side of F intersection of Route 01861 and Byard Road.

\*\*All warning signs shall be fluorescent yellow material.\*\*

# ROAD SAFETY AUDIT REPORT

ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

. NO.

	TYPE HRRR	YEAR 2013	COUNT		FIGURE NO.
200 feet west of the intersection of		<u> </u>			
he intersection of State Route 149 and U	ssery R	oad.			
one (1) "CROSS TRAFFIC DOES NOT 26' long and 24" wide stop line on Usser	ry Road				
ection of State Route 149 and Route 018 single solid white lane lines, enhanced flat 530 feet south of the intersection of Sta	atline	e 149			
49 and Route 01861. 149 and Route 01861. 4" single solid white lane lines, enhance shall be installed in accordance with the					
turn lanes approximately 90 and 200 fee	et north,				
one (1) "CROSS TRAFFIC DOES NOT and 24" wide stop line on Route 01861.		Ŧ			
Route 01861 approximately approxima	tely 25	feet			
m log mile 0.00 to log mile 0.59. 0.00 to log mile 0.59. The proposed stri	ping sha	all be			
y 200 feet east of the intersection of Stat	te Route	e 149 a	nd		
y 200 feet west of the intersection of Rou	ite 0186	il and			
a 2" strip of red retroreflective sheeting r ed and mounted above the proposed STC and Palmyra Road. ately 200 feet west of the intersection of	OP sign.	)			
l Palmyra Road. ed Limit (R2-1) (24"x30") sign facing so	outhbou	nd traf	fic		
") sign facing southbound traffic on the	west sid	e of			
' strip of red retroreflective sheeting more	unted or	the			
d (W1-5) (36"x36") sign and one (1) "NI Road.	EXT 2 N	AILES	"		
f Route 01861 approximately 245 feet so	outh of t	he			
) (36"x36") sign facing northbound traff	ic on the	e east s	ide		
of yellow retroreflective sheeting mounte	ed on the	e posts	at		
eet south of the intersection of Route 018 Route 01861 approximately 910 feet so			Road.		
			TATE OF TE MENT OF TE		
		PROJ	ECT PLANNI	ING DIVI	SION
		L.	UTE ( .M. 0 .M. ( .URE 1	.00 0.59	-
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# DRAFT **GUIDANCE**

1. Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 01861 from log mile 0.59 2. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from log mile 0.59 to log n proposed striping shall be installed in accordance with the existing striping.

3. Remove and replace one (1) existing STOP sign located on Hutcheson Lane at the intersection of Route 01861 and Hutcheson Lane with one (1) STOP (R1-1) (36"x36") sign with a 2" strip of red retroreflective

sheeting mounted on the post on the south side of Hutcheson Lane, and install a thermoplastic 15' long and 24" wide stop line on Hutcheson Lane. (See Figure 14 - Inset 1) (Existing Street Name signs to be reused and mounted above the proposed STOP sign.)

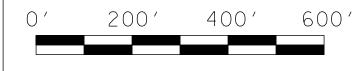
4. Install one (1) Combination Horizontal Alignment/Intersection (W1-10L mod.) (36"x36") sign facing northbound traffic on the east side of Route 01861 approximately 335 feet south of the intersection of Route 01861 and Hutcheson Lane.

5. Remove one (1) existing Winding Road sign and one (1) (35 MPH) Advisory Speed plaque mounted below located approximately 2,205 feet south of the intersection of Route 01861 and Hutcheson Lane. 6. Remove one (1) existing Winding Road sign located approximately 2,255 feet south of the intersection of Route 01861 and Hutcheson Lane.

7. Install one (1) Curve (W1-2R) (36"x36") sign and one (1) (35 MPH) Advisory Speed (W13-1P) (18"x18") plague mounted below facing southbound traffic on the west side of Route 01861 approximately 2,340 feet south of the intersection of Route 01861 and Hutcheson Lane.

8. Install four (4) sets of double sided Chevron Alignment signs [eight (8) total - four (4) W1-8L and four (4) W1-8R] (18"x24") mounted on adjustable brackets with a 2" strip of yellow retroreflective sheeting mounted on the posts at 80 foot spacing for 240 feet along the east side of the horizontal curve approximately 2,620 feet south of the intersection of Route 01861 and Hutcheson Lane. (See Figure 14 - Inset 3) \*\*All warning signs shall be fluorescent yellow material.\*\*





AUDIT REPORT SAFETY ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

NESSEE D.O.T. PLANNING DIVISION

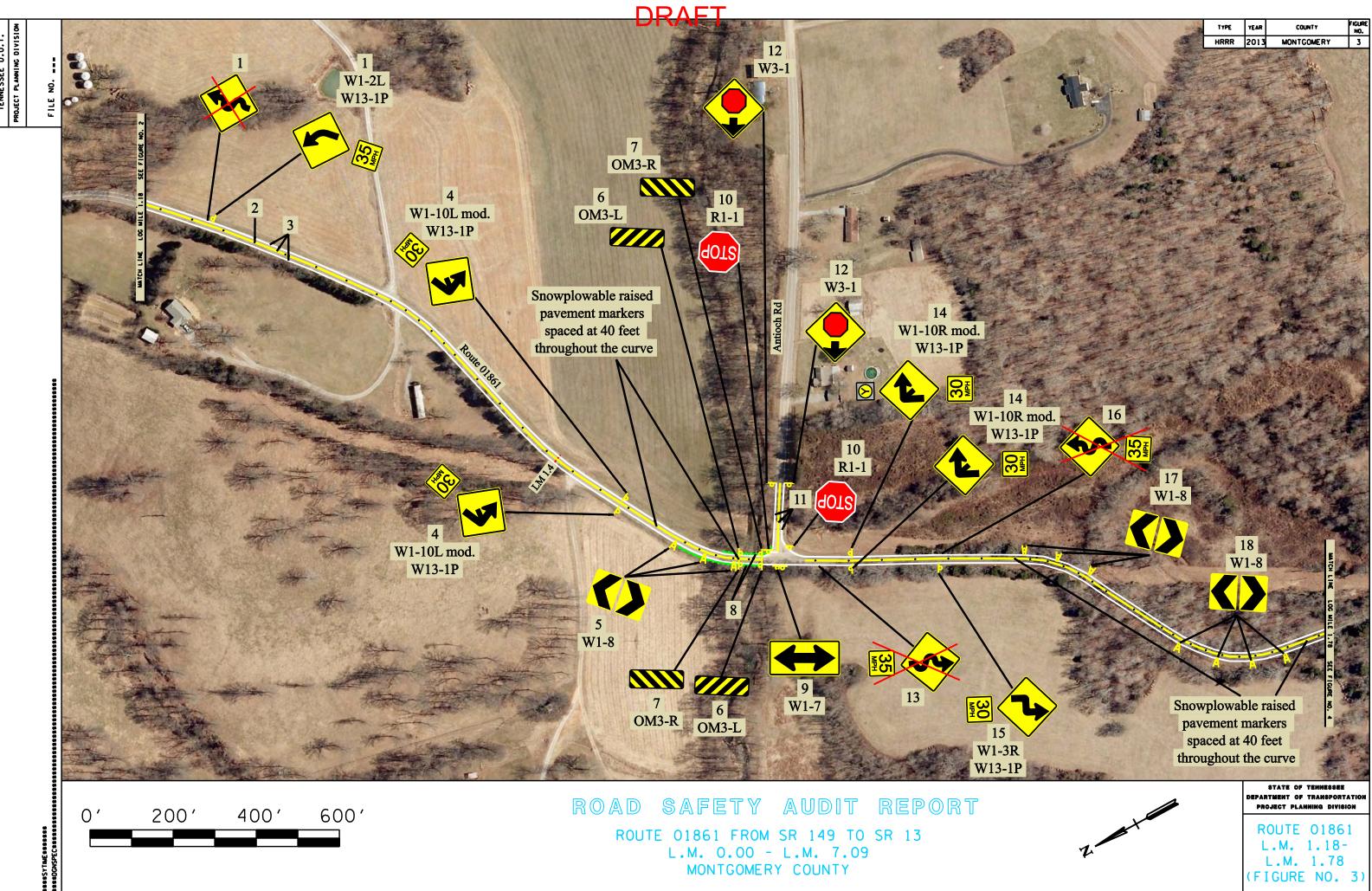
9 to	log mile 1.18.
nile	1.18. The

	TYPE	YEAR	COUNTY	FIGURE NO.
a could	HRRR	2013	MONTGOMERY	2
1	Service's	Service of	STOCKS STOCKS	100 million

Snowplowable raised pavement markers spaced at 40 feet throughout the curve

W1-2R W13-1P







. NO.

**GUIDANCE** 1. Remove and replace one (1) existing Winding Road sign located approximately 1,620 feet north of the intersection of Route 01861 and Antioch Road with one (1) Curv (1) (35 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on the east side of Route 01861.

Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 018
 Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from proposed striping shall be installed in accordance with the existing striping.

4. Install two (2) Combination Horizontal Alignment/Intersection (W1-10L mod.) (36"x36") signs and two (2) (35 MPH) Advisory Speed (W13-1P) (18"x18") plaques models of Route 01861 approximately 410 feet north of the intersection of Route 01861 and Antioch Road.

5. Install three (3) sets of double sided Chevron Alignment signs [six (6) total - three (3) W1-8L and three (3) W1-8R] (18"x24") mounted on adjustable brackets with yello posts at 80 foot spacing for 160 feet along the west side of the horizontal curve approximately 110 feet north of the intersection of Route 01861 and Antioch Road. (See Fi 6. Install two (2) Object Marker (OM3-L) (12"x36") signs on the northeast and southwest bridge ends located approximately 65 feet north of the intersection of Route 01861.

7. Install two (2) Object Marker (OM3-R) (12"x36") signs on the southeast and northwest bridge ends located approximately 65 feet north of the intersection of Route 018 and southbound traffic, respectively, on either side of Route 01861.

8. Install white continuous guardrail delineation enhancement to the existing guardrail on either side of Route 01861 beginning at the intersection of Route 01861 and Ant 9. Install one (1) Two-Direction Large Arrow (W1-7) (48"x24") sign with 2" yellow retroreflective sheeting mounted on the posts facing westbound traffic directly across Figure 14 - Inset 4)

10. Remove and replace one (1) existing STOP sign located on Antioch Road at the intersection of Route 01861 and Antioch Road with two (2) STOP (R1-1) (36"x36") sign sheeting mounted on the posts on either side of Antioch Road, and install a thermoplastic 18' long and 24" wide stop line on Antioch Road. (See Figure 14 - Inset 1) (Exist mounted above the proposed STOP sign.)

11. Install enhanced flatline thermoplastic 4" single solid white edgelines, an enhanced flatline thermoplastic 4" double solid yellow centerline approximately 175 feet ease Road. The proposed striping shall be installed in accordance with the existing striping.

12. Install two (2) Stop Ahead (W3-1) (36"x36") signs with a 2" strip of yellow retroreflective sheeting mounted on the posts facing westbound traffic on Antioch Road ap Route 01861 and Antioch Road. (See Figure 14 - Inset 2)

13. Remove one (1) existing Winding Road sign and one (1) (35 MPH) Advisory Speed plaque mounted below located approximately 95 feet south of the intersection of H 14. Install two (2) Combination Horizontal Alignment/Intersection (W1-10R mod.) (36"x36") signs and two (2) (30 MPH) Advisory Speed (W13-1P) (18"x18") plaques n flashing yellow beacon mounted above the sign on the east side of Route 01861 facing northbound traffic on either side of Route 01861 approximately 175 feet south of th Road. (See Standard Drawing T-S-24 - Details of Sign with Solar Flashing Assembly)

15. Install one (1) Reverse Turn (W1-3R) (36"x36") sign and one (1) (30 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing southbound traffic on feet south of the intersection of Route 01861 and Antioch Road.

16. Remove one (1) existing Winding Road sign and one (1) (35 MPH) Advisory Speed plaque mounted below located approximately 395 feet south of the intersection of 17. Install three (3) sets of double sided Chevron Alignment signs [six (6) total - three (3) W1-8L and three (3) W1-8R] (18"x24") mounted on adjustable brackets with a 2 mounted on the posts at 80 foot spacing for 160 feet along the east side of the horizontal curve approximately 590 feet south of the intersection of Route 01861 and Antioc 18. Install four (4) sets of double sided Chevron Alignment signs [eight (8) total - four (4) W1-8L and four (4) W1-8R] (18"x24") mounted on adjustable brackets with a 2 mounted on the posts at 80 foot spacing for 160 feet along the west side of the horizontal curve approximately 1,020 feet south of the intersection of Route 01861 and Antioc \*\*All warning signs shall be fluorescent yellow material.\*\*

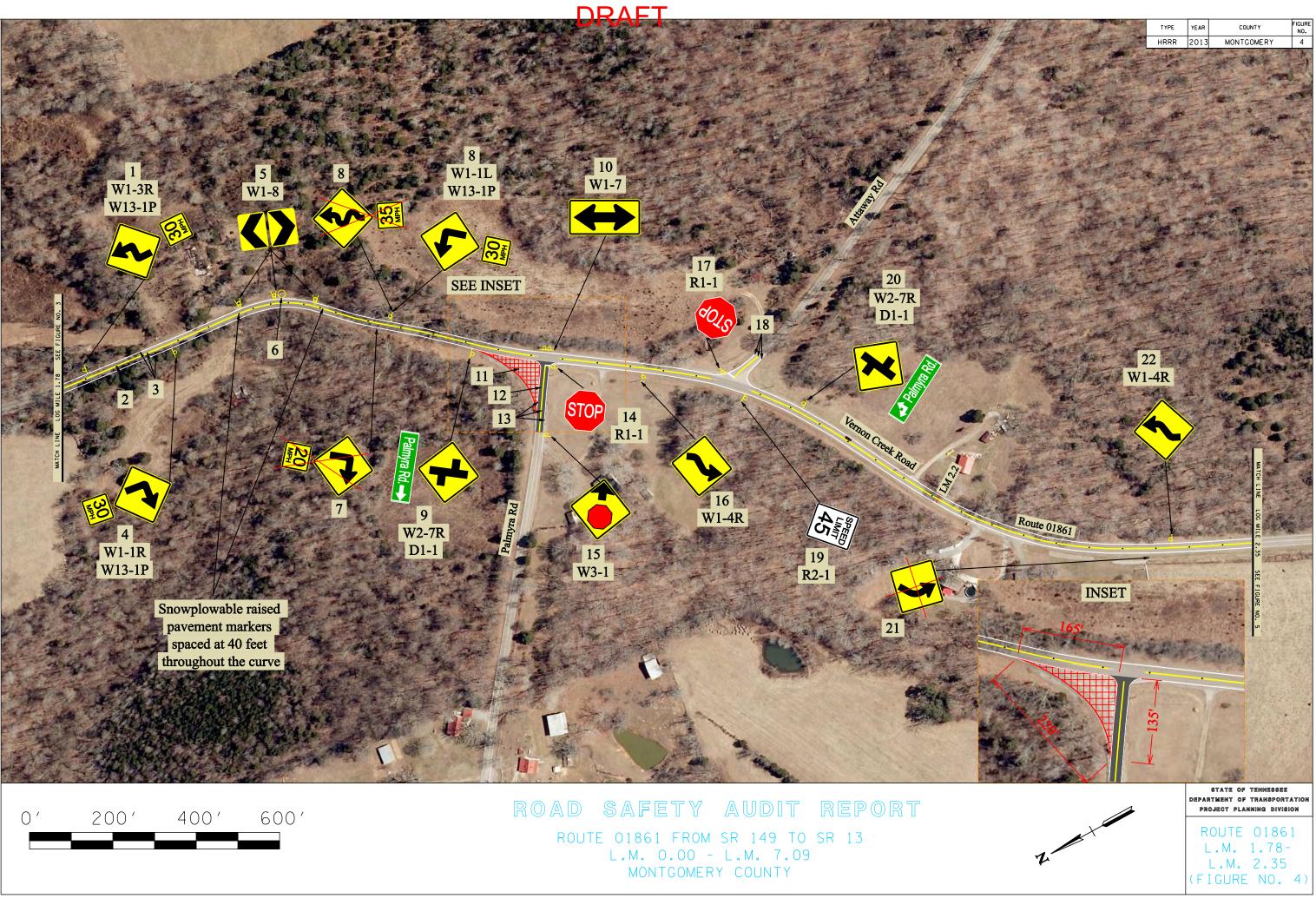
ROAD SAFETY AUDIT REPORT

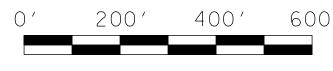
ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

IVPE       VEAR       COUNTY       FURME NO.         HRRR       2013       MONTCOMERY       3A    ve (W1-2L) (36"x36") sign and one .861 from log mile 1.18 to log mile 1.7810 g mile 1.18 to log mile 1.78. The .0 unted below facing southbound traffic on either .0 unted below facing southbound traffic on either .0 unted below facing southbound traffic on either .0 unted below facing southbound .861 and Antioch Road facing northbound .861 and Antioch Road facing northbound .161 and Antioch Road facing northbound .175 feet east of the intersection of .1861 and Antioch Road175 feet east of the intersection of .180 Route 01861 and Antioch .175 feet east of the intersection of .181 Route 01861 and Antioch Road185 rip of yellow retroreflective sheeting .185 rip of yellow retroreflective sheeting .185 rip of yellow retroreflective sheeting .185 rip of yellow retroreflective sheeting .186 rip of yellow retroreflective sheeting .187 rip of yellow retroreflective sheeting .186 rip of yellow retroreflective sheeting .186 rip of yellow retroreflective sheeting .197 rip of yellow retroreflective sheeting .198 rip of yel					
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F TRANSPORTATION	STATE OF TENNESSEE Department of transportatio project planning division
01861	ROUTE 01861
1.18-	L.M. 1.18-
1.78	L.M. 1.78
NO. 3A	(FIGURE NO. 3A







//19/2013

. NO.

1. Install one (1) Reverse Turn (W1-3R) (36"x36") sign and one (1) (30 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on feet north of the intersection of Route 01861 and Palmyra Road.

2. Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 01 3. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from proposed striping shall be installed in accordance with the existing striping.

4. Install one (1) Turn (W1-1R) (36"x36") sign and one (1) (30 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing southbound traffic on the west feet north of the intersection of Route 01861 and Palmyra Road.

5. Install three (3) sets of double sided Chevron Alignment signs [six (6) total - three (3) W1-8L and three (3) W1-8R] (18"x24") mounted on adjustable brackets with a 2 the posts at 80 foot spacing for 160 feet along the east side of the horizontal curve approximately 570 feet north of the intersection of Route 01861 and Palmyra Road. (Se 6. Install 6" yellow roadside obstacle delineation strips around the existing utility pole on the east side of Route 01861 approximately 650 feet north of the intersection of Figure 14 - Inset 5)

7. Remove one (1) Turn sign and one (1) (20 MPH) Advisory Speed plaque mounted below on the west side of Route 01861 located approximately 415 feet north of the intersection 8. Remove and replace one (1) existing Winding Road sign and one (1) (35 MPH) Advisory Speed plaque mounted below approximately 382 feet north of the intersection Turn (W1-1L) (36"x36") sign and one (1) (30 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on the east side of Route 0186 9. Install one (1) Offset Side Roads (W2-7R) (36"x36") sign and one (1) "Palmyra Rd" Destination (D1-1) (36"x18") sign mounted below facing southbound traffic on the north of the intersection of Route 01861 and Palmyra Road.

10. Install one (1) Two-Direction Large Arrow (W1-7) (48"x24") sign with a 2" strip of yellow retroreflective sheeting mounted on the posts facing eastbound traffic dire (See Figure 14 - Inset 4)

11. Scarify and sod approximately 11,140 square feet of the existing paved area on Palmyra Road at the intersection of Route 01861 and Palmyra Road.

12. Cold plane and repave approximately 1,440 square feet of pavement and construct approximately 2,640 square feet of roadway with full depth pavement to realign th Road to form a 90 degree angle with the centerline of Palmrya Road intersecting Route 01861 approximately 450 feet north of the intersection of Route 01861 and Attaw 13. Install enhanced flatline thermoplastic 4" single solid white edgelines and enhanced flatline thermoplastic 4" double solid yellow centerline along the proposed alignm of the intersection of Route 01861 and Palmyra Road.

14. Install one (1) STOP (R1-1) (36"x36") sign with a 2" strip of red retroreflective sheeting mounted on the post on the south side of the proposed alignment of Palmyra wide stop line on Route 01861.. (See Figure 14 - Inset 1)

15. Install one (1) Stop Ahead (W3-1) (36"x36") sign with a 2" strip of yellow retroreflective sheeting mounted on the post facing eastbound traffic on Palmyra Road app intersection of Route 01861 and Palmyra Road. (See Figure 14 - Inset 2)

16. Remove and replace one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve fragility of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road with one (1) Reverse Curve sign located approximately 235 feet south of the intersection of Route 01861 and Palmyra Road wit

17. Remove and replace one (1) existing STOP sign located on Attaway Road at the intersection of Route 01861 and Attaway Road with one (1) STOP (R1-1) (36"x36") sheeting mounted on the post on the north side of Attaway Road, and install a thermoplastic 20' long and 24" wide stop line on Attaway Road. (See Figure 14 - Inset 1) (I mounted above the proposed STOP sign.)

18. Install enhanced flatline thermoplastic 4" single solid white edgelines and enhanced flatline thermoplastic 4" double solid yellow centerline along Attaway Road appr Route 01861 and Attaway Road.

19. Remove and replace one (1) existing Speed Limit sign located approximately 40 feet south of the intersection of Route 01861 and Attaway Road with one (1) (45 MP southbound traffic on the west side of Route 01861.

20. Install one (1) Offset Side Roads (W2-7R) (36"x36") sign and one (1) "Palmyra Rd" Destination (D1-1) (36"x18") sign mounted below facing northbound traffic on south of the intersection of Route 01861 and Attaway Road.

21. Remove one (1) Curve sign on the west side of Route 01861 located approximately 1,095 feet south of the intersection of Route 01861 and Attaway Road.

22. Remove and replace one (1) Reverse Curve sign located approximately 1,150 feet south of the intersection of Route 01861 and Attaway Road with one (1) Reverse C traffic on the east side of Route 01861.

\*\*All warning signs shall be fluorescent yellow material.\*\*

# ROAD SAFETY AUDIT REPORT ROUTE 01861 FROM SR 149 TO SR 13

L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

	TYPE	YEAR	COUNTY	FIGURE NO.
	HRRR	2013	MONTGOMERY	4A
the east side of Route 01861 approxim	ately 1,1	45		
1861 from log mile 1.78 to log mile 2.3 m log mile 1.78 to log mile 2.35. The	35.			
t side of Route 01861 approximately 94	0			
2" strip of yellow retroreflective sheetin See Figure 14 - Inset 3) f Route 01861 and Palmyra Road. (See	-	ted on		
intersection of Route 01861 and Palmy on of Route 01861 and Palmyra Road w 361.				
he west side of Route 01861 approxima	tely 175	feet		
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he intersection of Route 01861 and Pala way Road. (See Figure 15 - Paving Deta ment of Palmyra Road approximately 1	uls)	west		
a Road, and install a thermoplastic 12' l	ong and	24"		
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urve (W1-4R) (36"x36") sign facing sou	ithbound	l		
sign with a 2" strip of red retroreflecti Existing Street Name signs to be reuse	ve d and			
roximately 100 feet east of the intersec	tion of			
PH) Speed Limit (R2-1) (24"x30") sign	facing			
the east side of Route 01861 approximation	ately 175	feet		
Curve (W1-4R) (36"x36") sign facing n	orthbou	nd		
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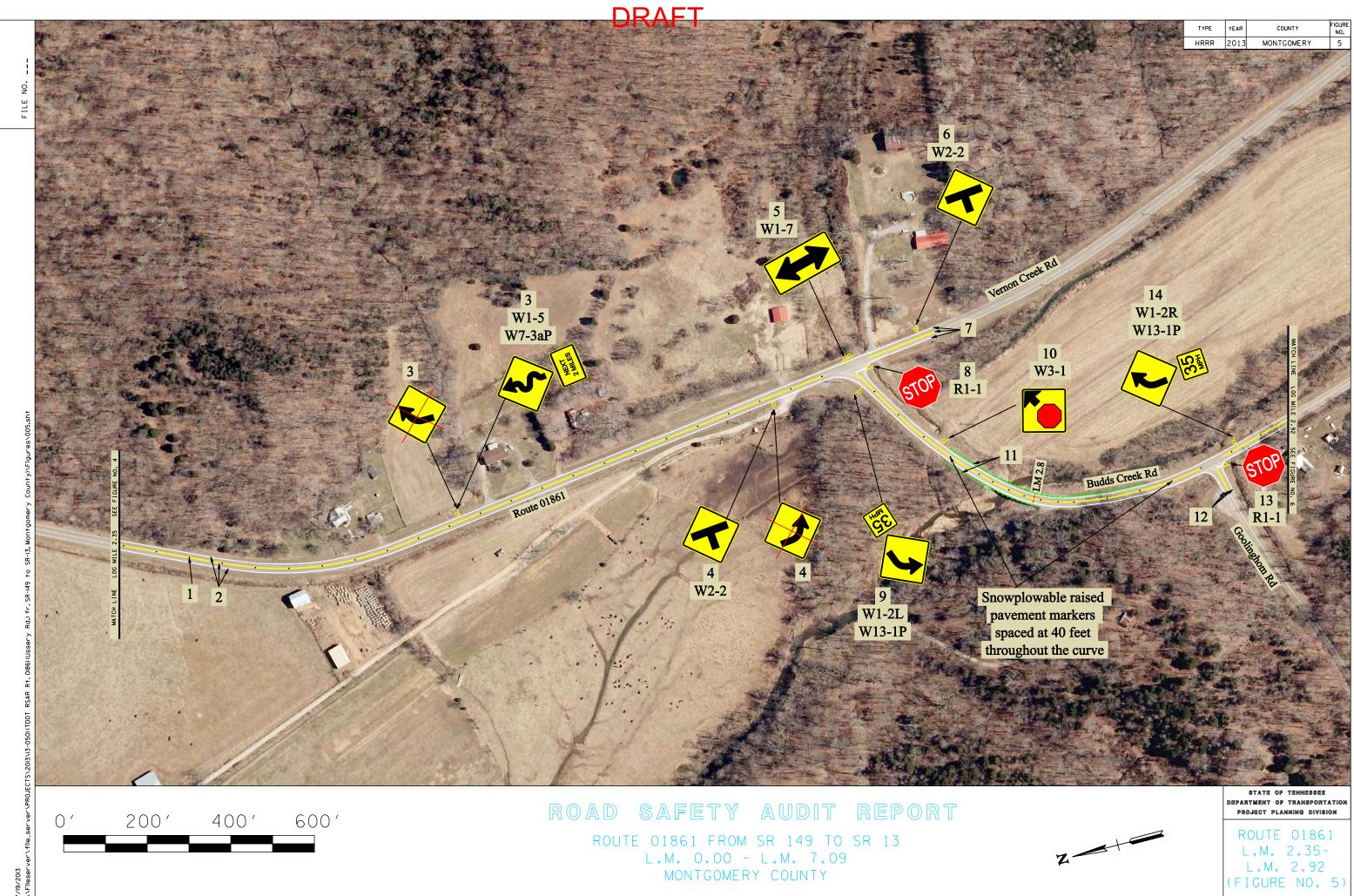
STATE	OF	TENN	e\$\$ee
DEPARTMENT	OF	TRAN	SPORTATION
PROJECT	PLAP	INING	DIVISION

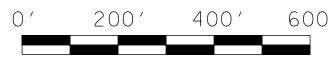
ROUTE 01861

L.M. 1.78-

L.M. 2.35

FIGURE NO. 4A





# **GUIDANCE**

1. Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 01861 fr 2. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from log n proposed striping shall be installed in accordance with the existing striping.

3. Remove and replace one (1) existing Curve sign approximately 1,000 feet north of the intersection of Route 01861 and Vernon Creek Road with one (1) Winding Road (W1-NEXT 2 MILES (W7-3aP) (24"x18") plaque mounted below facing northbound traffic on the east side of Route 01861.

4. Remove and replace one (1) existing Curve sign approximately 200 feet north of the intersection of Route 01861 and Vernon Creek Road with one (1) Side Road (W2-2) (36 traffic on the west side of Route 01861.

5. Install one (1) Two-Direction Large Arrow (W1-7) (48"x24") sign with a 2" strip of yellow retroreflective sheeting mounted on the posts facing northbound traffic directly ac 01861. (See Figure 14 - Inset 4)

6. Install one (1) Side Road (W2-2) (36"x36") sign facing northbound traffic on the east side of Route 01861 approximately 175 feet south of the intersection of Route 01861 ar 7. Install enhanced flatline thermoplastic 4" single solid white edgelines and enhanced flatline thermoplastic 4" double solid yellow centerline along Vernon Creek Road approx intersection of Route 01861 and Vernon Creek Road.

8. Remove and replace one (1) existing STOP sign located on Route 01861 at the intersection of Route 01861 and Vernon Creek Road with one (1) STOP (R1-1) (36"x36") sign sheeting mounted on the post on the south side of Route 01861, and install a thermoplastic 25' long and 24" wide stop line on Attaway Road. (See Figure 14 - Inset 1) (Existing mounted above the proposed STOP sign.)

9. Remove and replace one (1) existing Curve sign approximately 40 feet south of the intersection of Route 01861 and Vernon Creek Road with one (1) Curve (W1-2L) (36"x30 Speed (W13-1P) (18"x18") plaque mounted below facing southbound traffic on the west side of Route 01861.

10. Install one (1) Stop Ahead (W3-1) (36"x36") sign with a 2" strip of yellow retroreflective sheeting mounted on the post facing northbound traffic on the east side of Route 0 intersection of Route 01861 and Vernon Creek Road. (See Figure 14 - Inset 2)

11. Install white continuous delineation enhancement to the existing guardrail and barrier wall on either side of the bridge located on Route 01861 approximately 315 feet south Vernon Creek Road.

12. Install enhanced flatline thermoplastic 4" single solid white edgelines and enhanced flatline thermoplastic 4" double solid yellow centerline along Goolinghom Road approx Route 01861 and Goolinghom Road.

13. Remove and replace one (1) existing STOP sign located on Goolinghom Road at the intersection of Route 01861 and Goolinghom Road with one (1) STOP (R1-1) (36"x36" sheeting mounted on the post on the south side of Goolinghom Road, and install a thermoplastic 16' long and 24" wide stop line on Goolinghom Road. (See Figure 14 - Inset 1) mounted above the proposed STOP sign.)

14. Remove and replace one (1) existing Curve sign located approximately 65 feet south of the intersection of Route 01861 and Goolinghom Road with one (1) Curve (W1-2R) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on the east side of Route 01861.

\*\*All warning signs shall be fluorescent yellow material.\*\*

# ROAD SAFETY AUDIT REPORT

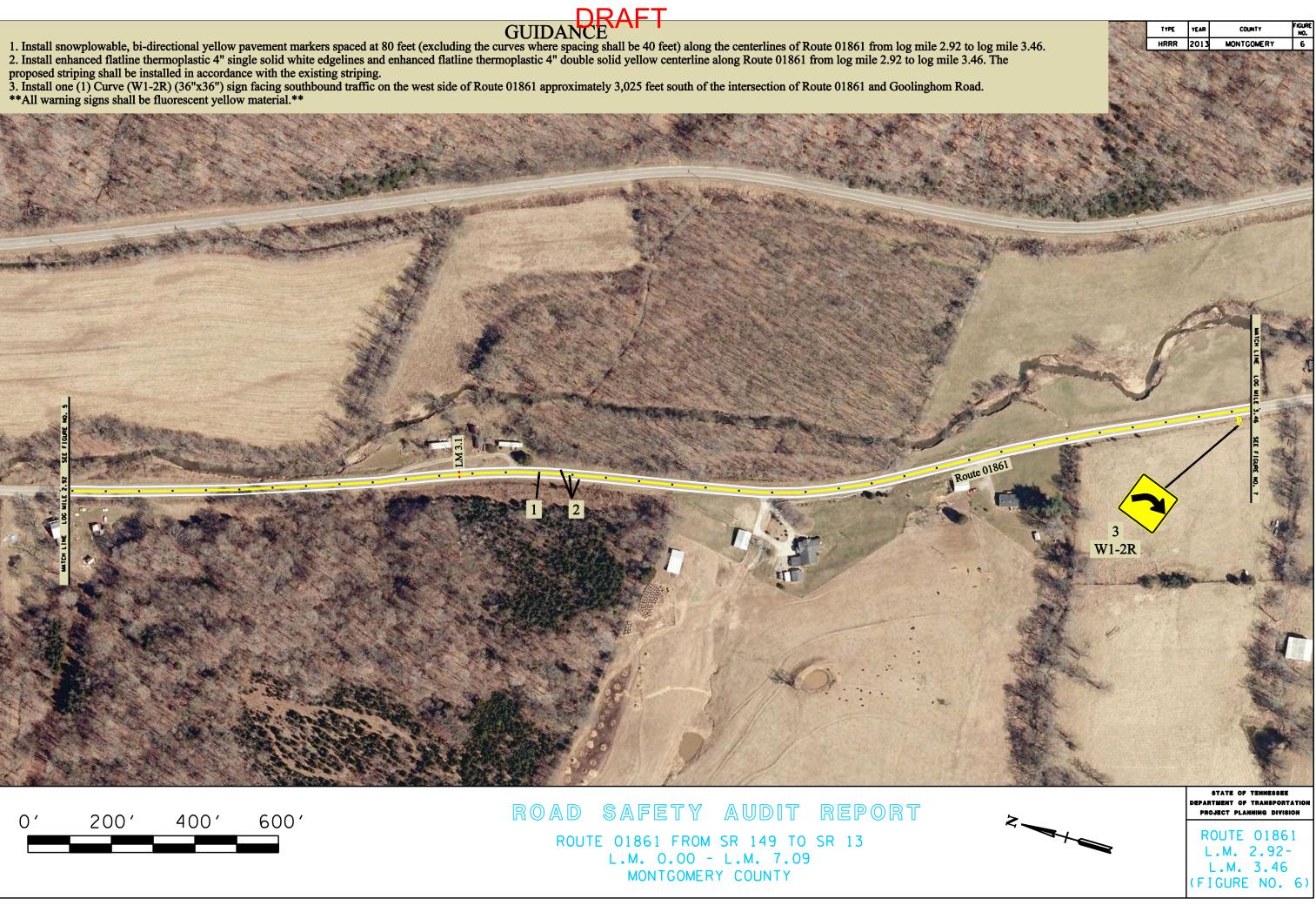
ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

TENNESSEE D.O.T. ROJECT PLANNING DIVISION

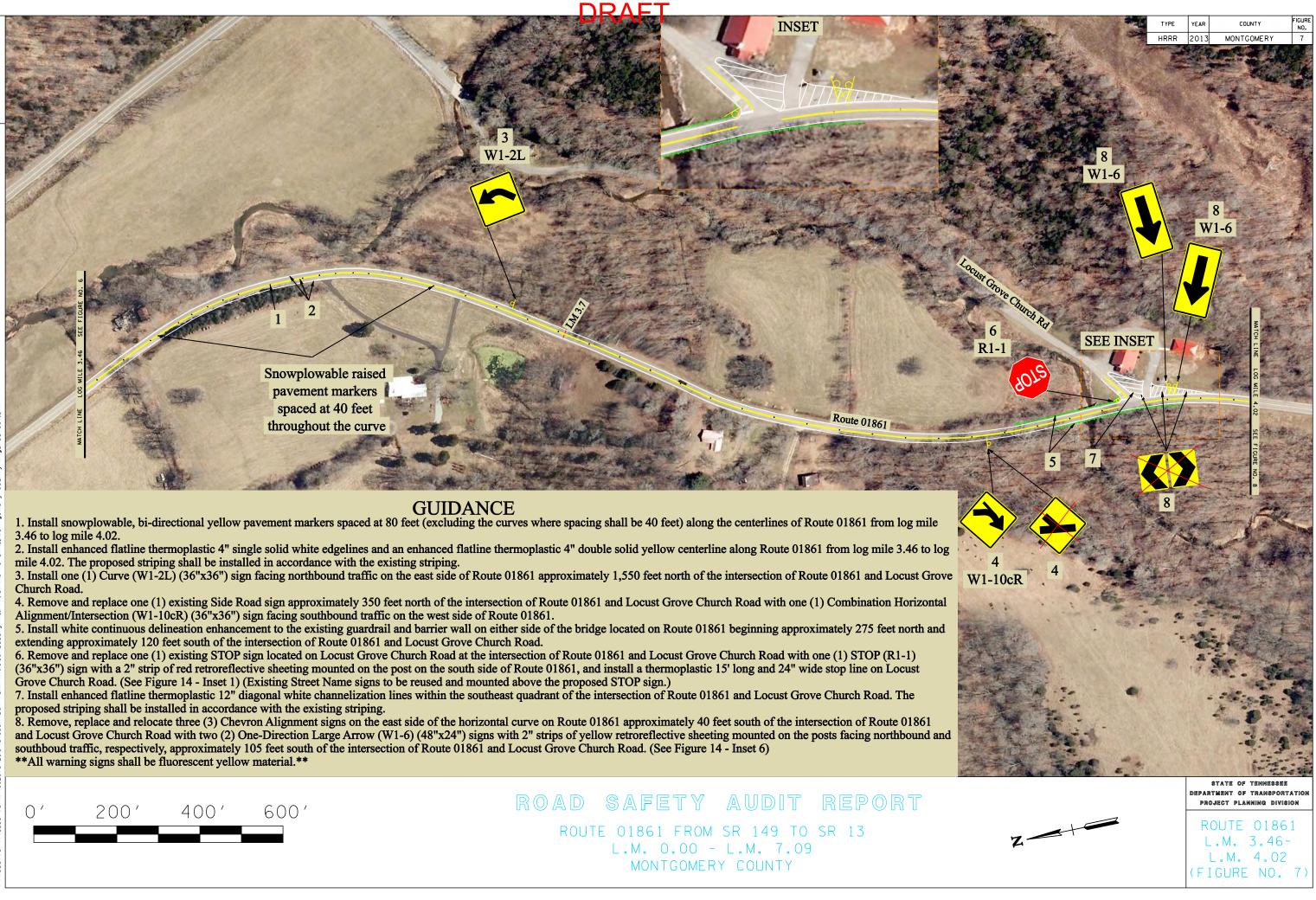
NO.

	TYPE	YEAR	COUNTY	FIGURE NO.
	HRRR	2013	MONTGOMERY	5A
rom log mile 2.35 to log mile 2.9	2.			
nile 2.35 to log mile 2.92. The				
-5) (36"x36") sign and one (1)				
5"x36") sign facing southbound				
cross from and perpendicular to I	Route			
nd Vernon Creek Road. ximately 200 feet south of the				
n with a 2" strip of red retrorefled 3 Street Name signs to be reused				
6") sign and one (1) (35 MPH) A	dvisory			
01861 approximately 280 feet so	uth of the	Ð		
h of the intersection of Route 018	61 and			
ximately 50 feet west of the inter	section o	of		
") sign with a 2" strip of red retro ) (Existing Street Name signs to )				
) (36"x36") sign and one (1) (35	MPH)			





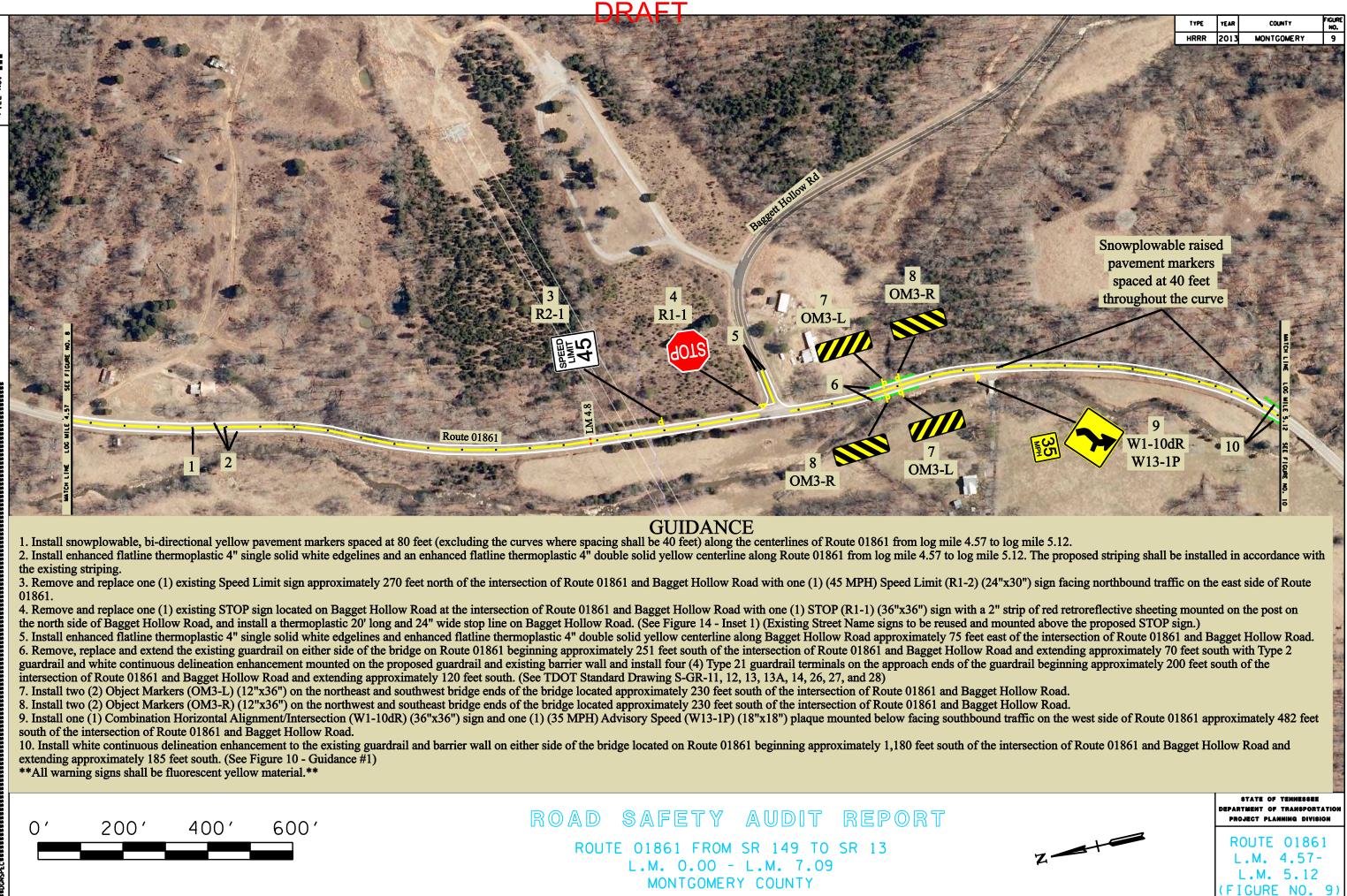




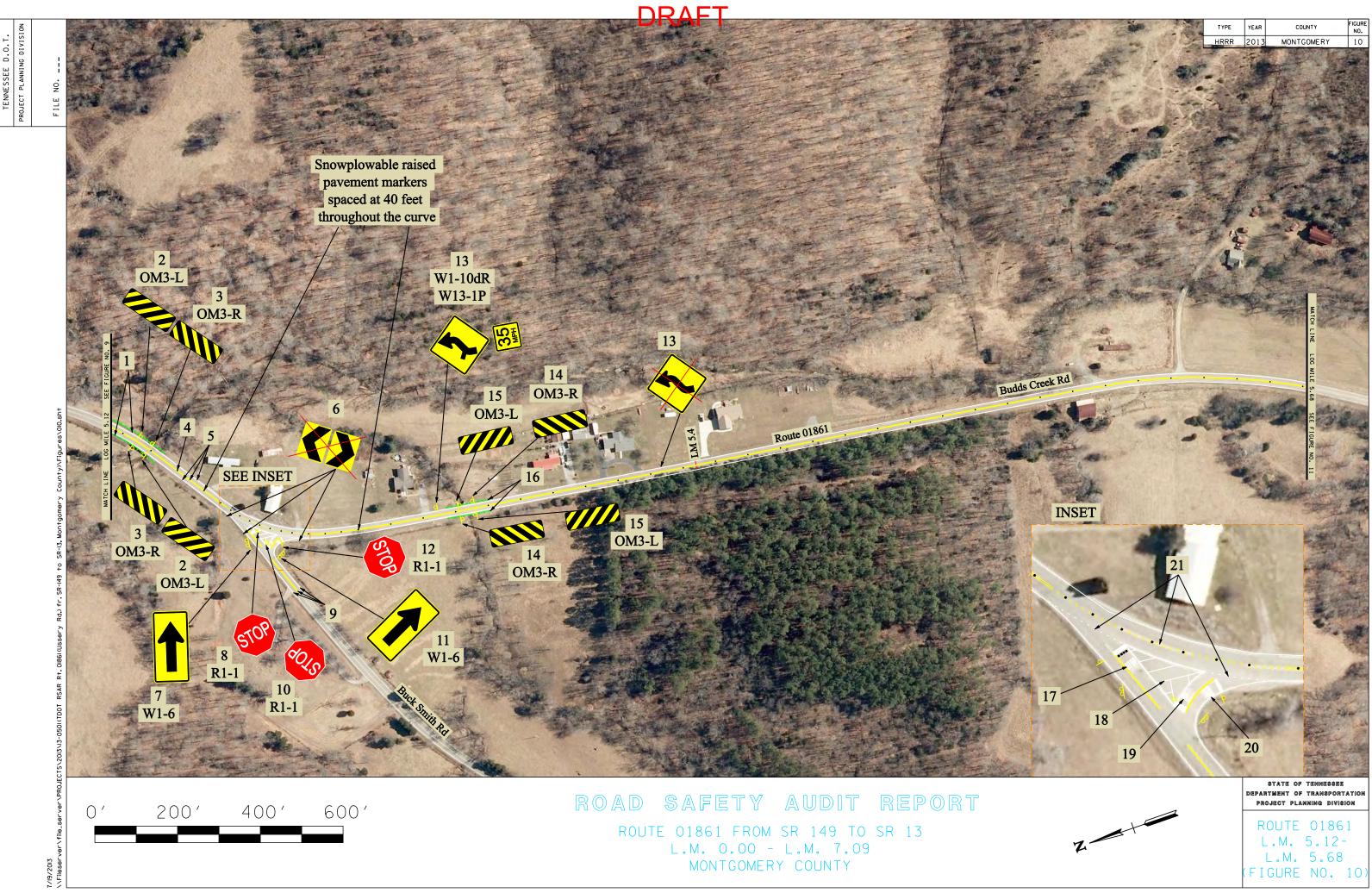


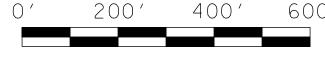






MONTGOMERY COUNTY





TENNE JECT P

. NO.

# GUIDANCE

1. Install white continuous delineation enhancement to the existing guardrail and barrier wall on either side of the bridge located on Route 01861 beginning approximately and Bagget Hollow Road and extending approximately 185 feet south. (See Figure 9 - Guidance #10)

2. Install two (2) Object Markers (OM3-L) (12"x36") on the northeast and southwest bridge ends of the bridge located approximately 265 feet north of the northernmost int 3. Install two (2) Object Markers (OM3-R) (12"x36") on the northwest and southeast bridge ends of the bridge located approximately 265 feet north of the northernmost int 4. Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 0186

5. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from 1 proposed striping shall be installed in accordance with the existing striping.

6. Remove three (3) existing sets of double sided Chevron Alignment signs located on the west side of the horizontal curve on Route 01861 in the northwest quadrant of the and Buck Smith Road and in the southwest quadrant of the southernmost intersection of Route 01861 and Buck Smith Road.

7. Install one (1) One-Direction Large Arrow (W1-6) (48"x24") sign with 2" strips of yellow retroreflective sheeting mounted on the posts facing northbound traffic on Rou northernmost intersection of Route 01861 and Buck Smith Road. (See Figure 14 - Inset 6)

8. Remove and replace one (1) existing STOP sign located on Buck Smith Road within the channelization island at the nothernmost intersection of Route 01861 and Buck S sign with a 2" strip of red retroreflective sheeting mounted on the post facing eastbound traffic on Buck Smith Road, and install a thermoplastic 12' long and 24" wide stop 1 white pavement markers on the west side of the stop line on Buck Smith Road. (See Figure 14 - Inset 1) (Existing Street Name signs to be reused and mounted above the pr 9. Install enhanced flatline thermoplastic 4" single solid white edgelines, enhanced flatline thermoplastic 4" double solid yellow centerlines approximately 220 feet west of a Road. The proposed striping shall be installed in accordance with the existing striping.

10. Install one (1) STOP (R1-1) (36"x36") sign with a 2" strip of red retroreflective sheeting mounted on the post within the channelization island on Buck Smith Road facin approximately 35 feet west of the southernmost intersection of Route 01861 and Buck Smith Road, and install a thermoplastic 10' long and 24" wide stop line on Buck Smit 11. Install one (1) One-Direction Large Arrow (W1-6) (48"x24") sign with 2" strips of yellow retroreflective sheeting mounted on the posts facing southbound traffic on Ro southernmost intersection of Route 01861 and Buck Smith Road. (See Figure 14 - Inset 6)

12. Remove and replace one (1) existing STOP sign located on Buck Smith Road at the souhernmost intersection of Route 01861 and Buck Smith Road with one (1) STOP retroreflective sheeting mounted on the post facing eastbound traffic on Buck Smith Road, and install a thermoplastic 10' long and 24" wide stop line on Buck Smith Road. 13. Remove, replace and relocate one (1) existing Reverse Curve sign located approximately 920 feet south of the southernmost intersection of Route 01861 and Buck Smit Alignment/Intersection (W1-10dR) (36"x36") sign and one (1) (35 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on the east of the southernmost intersection of Route 01861 and Buck Smith Road.

14. Install two (2) Object Markers (OM3-R) (12"x36") on the northwest and southeast bridge ends of the bridge located approximately 420 feet south of the southernmost in 15. Install two (2) Object Markers (OM3-L) (12"x36") on the northeast and southwest bridge ends of the bridge located approximately 420 feet south of the southernmost in 16. Remove, replace and extend the existing guardrail on either side of the bridge on Route 01861 beginning approximately 420 feet south of the southernmost intersection extending approximately 50 feet south with Type 2 guardrail and white continuous delineation enhancement mounted on the proposed guardrail and existing barrier wall an approach ends of the guardrail beginning approximately 370 feet south of the intersection of Route 01861 and Bagget Hollow Road and extending approximately 200 feet south 3, 13A, 14, 26, 27, and 28)

17. Install one (1) thermoplastic "STOP" word pavement marking facing eastbound traffic on Buck Smith Road approximately 95 feet west of the northernmost intersection 18. Install enhanced flatline thermoplastic 8" white barrier lines and enhanced flatline thermoplastic 12" diagonal white channelization lines within the existing painted island Smith Road. The proposed striping shall be installed in accordance with the existing barrier line striping.

19. Install one (1) thermoplastic "STOP" word pavement marking facing westbound traffic on Buck Smith Road approximately 80 feet west of the southernmost intersection 20. Install one (1) thermoplastic "STOP" word pavement marking facing eastbound traffic on Buck Smith Road approximately 55 feet west of the southernmost intersection 21. Install approximately 610 feet of an enhanced flatline thermoplastic 4" single dotted white edge line and an enhanced flatline thermoplastic 4" double dotted yellow cen 01861 at the southernmost intersection of Route 01861 and Buck Smith Road.

\*\*All warning signs shall be fluorescent yellow material.\*\*

ROAD SAFETY AUDIT REPORT

ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

TYPE	YEAR	COUNTY	FIGURE NO.
HRRR	2013	MONTGOMERY	10A

1,180 feet south of the intersection of Route 01861	
ntersection of Route 01861 and Buck Smith Road. Intersection of Route 01861 and Buck Smith Road. 861 from log mile 5.12 to log mile 5.68. log mile 5.12 to log mile 5.68. The	
e northernmost intersection of Route 01861	
ute 01861 in the northwest quadrant of the	
Smith Road with one (1) STOP (R1-1) (36"x36") b line and four (4) snowplowable, bi-directional proposed STOP sign.) f the intersection of Route 01861 and Buck Smith	
ing westbound traffic on Buck Smith Road hith Road. (See Figure 14 - Inset 1) oute 01861 in the southwest quadrant of the	
P (R1-1) (36"x36") sign with a 2" strip of red . (See Figure 14 - Inset 1) ith Road with one (1) Combination Horizontal st side of Route 01861 approximately 375 feet south	
intersection of Route 01861 and Buck Smith Road. intersection of Route 01861 and Buck Smith Road. a of Route 01861 and Buck Smith Road and nd install four (4) Type 21 guardrail terminals on the south. (See TDOT Standard Drawing S-GR-11, 12,	
on of Route 01861 and Buck Smith Road. and at the intersection of Route 01861 and Buck	
on of Route 01861 and Buck Smith Road. on of Route 01861 and Buck Smith Road. nterline throughout the horizontal curve on Route	

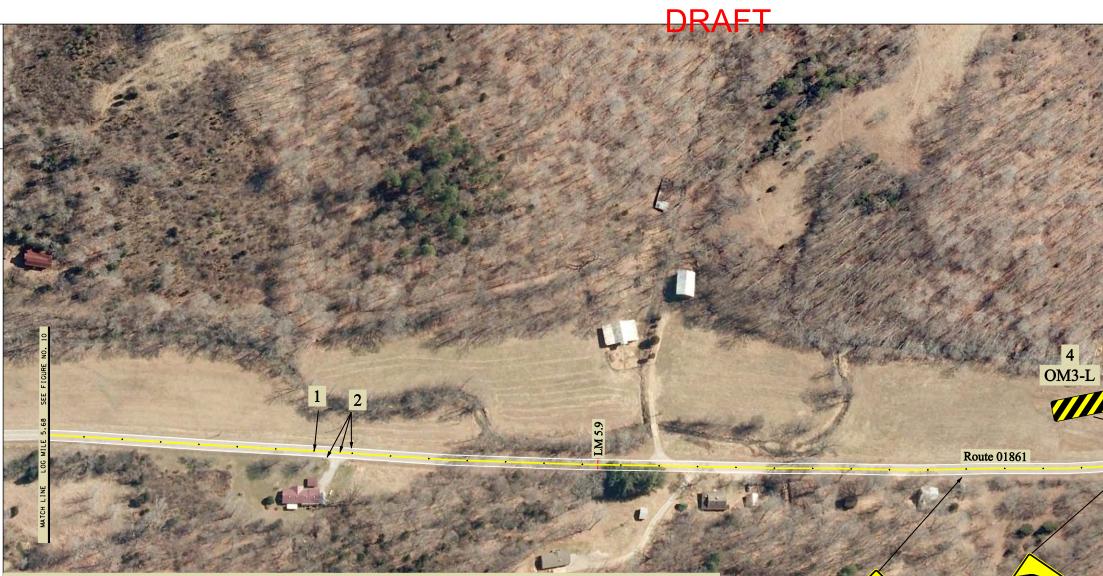
STATE OF TENNESSEE Department of transportation project planning division

ROUTE 01861

L.M. 5.12-

L.M. 5.68

FIGURE NO. 10A



GUIDANCE 1. Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 01861 from log mile 5.68 to log mile 6.24.

2. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from log mile 5.68 to log mile 6.24. The proposed striping shall be installed in accordance with the existing striping.

3. Remove, replace and relocate one (1) existing Reverse Curve sign located approximately 4,400 feet south of the southernmost intersection of Route 01861 and Buck Smith Road with one (1) Curve (W1-2) (36"x36") sign facing southbound traffic on the west side of Route 01861 approximately 4,720 feet south of the southernmost intersection of Route 01861 and Buck Smith Road.

4. Install two (2) Object Markers (OM3-L) (12"x36") on the northeast and southwest bridge ends of the bridge located approximately 4,580 feet south of the southernmost intersection of Route 01861 and Buck Smith Road.

5. Install two (2) Object Markers (OM3-R) (12"x36") on the northwest and southeast bridge ends of the bridge located approximately 4,580 feet south of the southernmost intersection of Route 01861 and Buck Smith Road.

6. Remove and replace the existing guardrail on either side of the bridge on Route 01861 beginning approximately 4,540 feet south of the southernmost intersection of Route 01861 and Buck Smith Road and extending approximately 110 feet south with Type 2 guardrail and white continuous delineation enhancement mounted on the proposed guardrail and existing barrier wall and install four (4) Type 21 guardrail terminals on the approach ends of the guardrail. (See TDOT Standard Drawing S-GR-11, 12, 13, 13A, 14, 26, 27, and 28)

\*\*All warning signs shall be fluorescent yellow material.\*\*

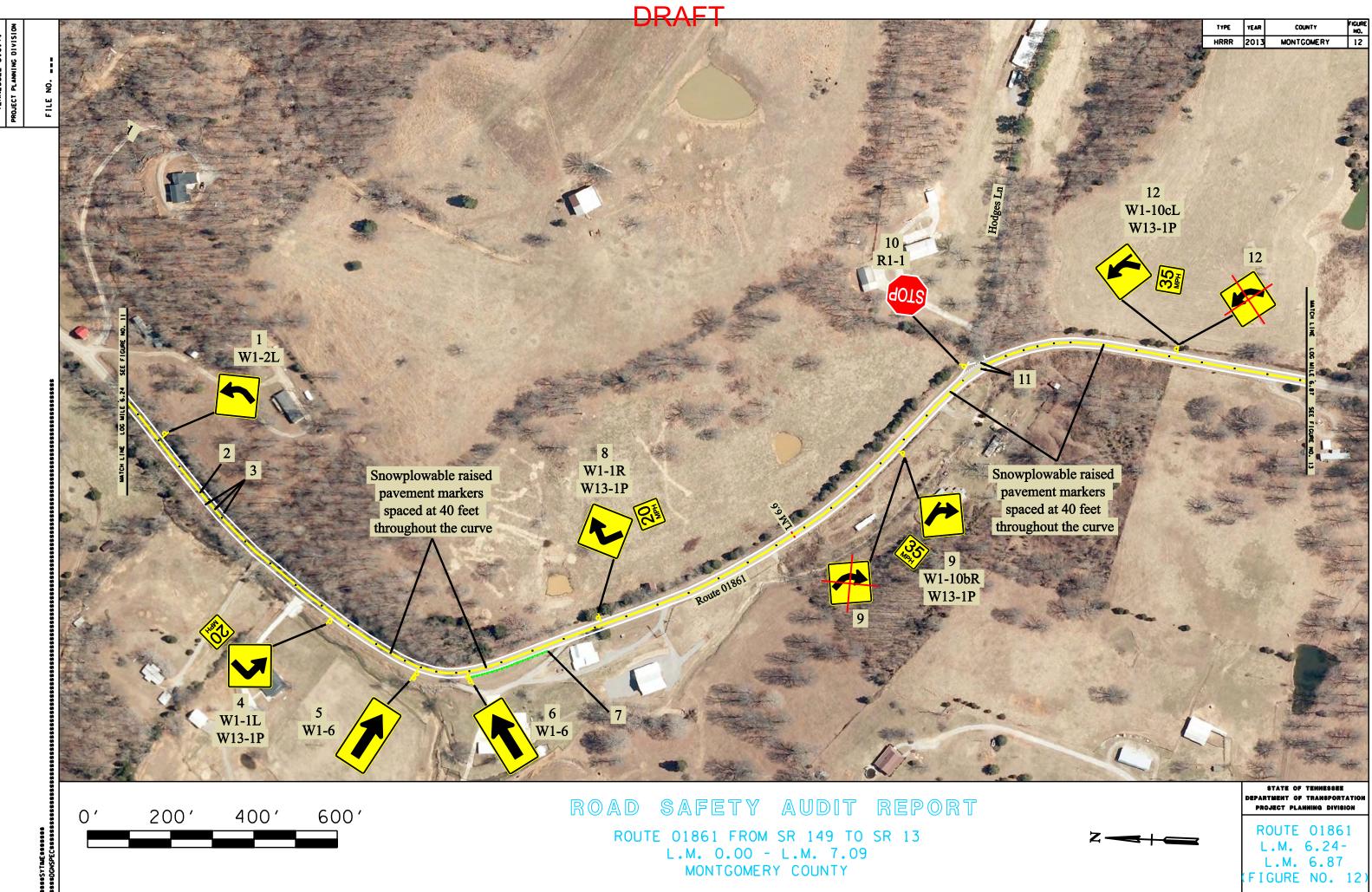


SAFETY AUDIT REPORT ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

W1-2R

No and the second	TYPE	YEAR	COUNTY	FIGURE NO.
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		DEPAR	STATE OF TENNESSEE Tment of transport	TATION
		PRC	JECT PLANNING DIVIS	ION
Z		R	OUTE 0186	1
			.M. 5.68	
2-			M. 6.24	
		'		

(FIGURE NO. 11)



## GUIDANCE

1. Install one (1) Curve (W1-2L) (48"x24") sign facing northbound traffic on the east side of Route 01861 approximately 2,400 feet north of the intersection of Route 01861 2. Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 01861 3. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from log shall be installed in accordance with the existing striping.

4. Remove and replace one (1) existing Turn sign and one (1) (20 MPH) Advisory Speed plaque located approximately 1,800 feet north of the intersection of Route 01861 and (36"x36") sign and one (1) (20 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing southbound traffic on the west side of Route 01861.

5. Install one (1) One-Direction Large Arrow (W1-6) (48"x24") sign with 2" strips of yellow retroreflective sheeting mounted on the posts facing southbound traffic on the w feet north of the intersection of Route 01861 and Hodges Lane. (See Figure 14 - Inset 6)

6. Install one (1) One-Direction Large Arrow (W1-6) (48"x24") sign with 2" strips of yellow retroreflective sheeting mounted on the posts facing northbound traffic on the w feet north of the intersection of Route 01861 and Hodges Lane. (See Figure 14 - Inset 6)

7. Remove and replace the existing guardrail on the west side of Route 01861 beginning approximately 1,245 feet north of the intersection of Route 01861 and Hodges Lane north with Type 2 guardrail and white continuous delineation enhancement mounted on the proposed guardrail and install two (2) Type 21 guardrail terminals on the approac Standard Drawing S-GR-11, 12, 13, 13A, 14, 26, 27, and 28)

8. Remove and replace one (1) existing Turn sign and one (1) (20 MPH) Advisory Speed plaque located approximately 1,100 feet north of the intersection of Route 01861 an (36"x36") sign and one (1) (20 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on the east side of Route 01861.

9. Remove and replace one (1) existing Curve sign located approximately 270 feet north of the intersection of Route 01861 and Hodges Lane with one (1) Combination Hori (36"x36") sign and one (1) (35 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing southbound traffic on the west side of Route 01861.

10. Remove and replace one (1) existing STOP sign located on Hodges Lane at the intersection of Route 01861 and Hodges Lane with one (1) STOP (R1-1) (36"x36") sign we mounted on the post facing westbound traffic on Hodges Lane, and install a thermoplastic 18' long and 24" wide stop line on Hodges Lane. (See Figure 14 - Inset 1)

11. Install approximately 100 feet of an enhanced flatline thermoplastic 4" single dotted white edgeline and an enhanced flatline thermoplastic 4" double dotted yellow center Route 01861 and Hodges Lane.

12. Remove and replace one (1) existing Curve sign located approximately 500 feet south of the intersection of Route 01861 and Hodges Lane with one (1) Combination Ho (36"x36") sign and one (1) (35 MPH) Advisory Speed (W13-1P) (18"x18") plaque mounted below facing northbound traffic on the east side of Route 01861. \*\*All warning signs shall be fluorescent yellow material.\*\*

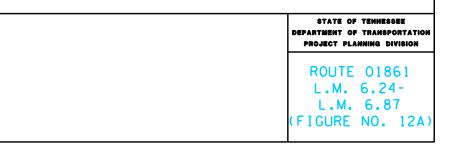
# ROAD SAFETY AUDIT REPORT

ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

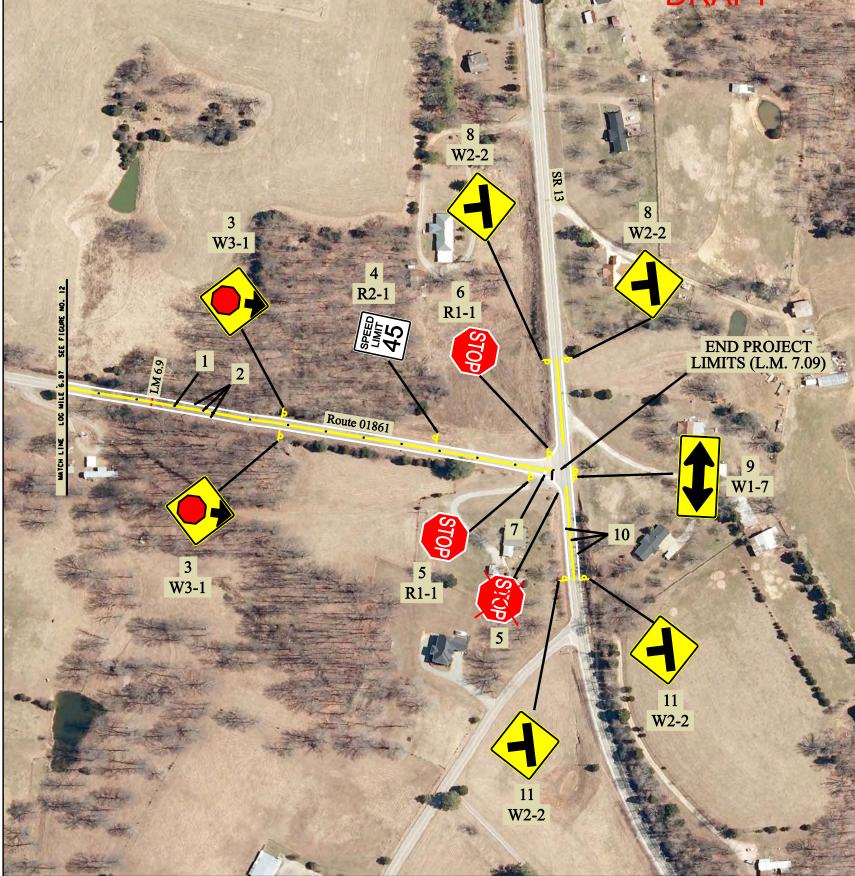
NESSEE D.O.T. PLANNING DIVISION

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	TYPE	YEAR	COUNTY	FIGURE
	HRRR	7EAR 2013	MONTGOMERY	NO.
and Hodges Lane.				
1 from log mile 6.24 to log mile 6.87. g mile 6.24 to log mile 6.87. The propo	osed stri	nino		
		ping		
nd Hodges Lane with one (1) Turn (W1	1L)			
vest side of Route 01861 approximately	7 1,565			
vest side of Route 01861 approximately	7 1 <b>,445</b>			
e and extending approximately 200 feet ch ends of the guardrail. (See TDOT				
nd Hodges Lane with one (1) Turn (W1	-1R)			
izontal Alignment/Intersection (W1-10	bR)			
with a 2" strip of red retroreflective she	eting			
erline along Route 01861 at the intersec	tion of			
prizontal Alignment/Intersection (W1-1	0cL)			







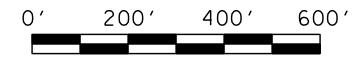
# GUI

Install snowplowable, bi-directional yellow pavement markers spaced at 80 feet (excluding the curves where spacing shall be 40 feet) along the centerlines of Route 01861 from log mile 6.87 to log mile 7.09.
 Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline along Route 01861 from log mile 6.87 to log mile 7.09. The proposed striping shall be installed in accordance with the existing striping.
 Remove and replace one (1) existing Stop Ahead sign located on Route 01861 approximately 590 feet north of the intersection of Route 01861 and State Route 13 with two (2) Stop Ahead (W3-1) (36"x36") sign with 2" strips of yellow retroreflective sheeting mounted on the posts facing southbound traffic on either side of Route 01861. (See Figure 14 - Inset 2)

4. Remove and replace one (1) existing (45 MPH) Speed Limit sign located on Route 01861 approximately 260 feet north of the intersection of Route 01861 and State Route 13 with one (1) (45 MPH) Speed Limit (R2-1) (36"x36") sign facing northbound traffic on the east side of Route 01861.
5. Remove, replace and relocate one (1) existing STOP sign located on Route 01861 at the intersection of Route 01861 and State Route 13 with one (1) STOP (R1-1) (36"x36") sign with a 2" strip of red retroreflective sheeting mounted on the post facing southbound traffic on the west side of Route 01861, and install a thermoplastic 23' long and 24" wide stop line and eight (8) snowplowable, bi-directional white pavement markers on the north side of the stop line on Route 01861. (See Figure 14 - Inset 1) (Existing Street Name signs to be reused and mounted above the proposed STOP sign.)
6. Install one (1) STOP (R1-1) (36"x36") sign with a 2" strip of red retroreflective sheeting mounted on the post facing sign with a 2" strip of red retroreflective sheeting mounted on the post facing southbound traffic on the west of Route 01861. (See Figure 14 - Inset 1) (Existing Street Name signs to be reused and mounted above the proposed STOP sign.)
6. Install one (1) STOP (R1-1) (36"x36") sign with a 2" strip of red retroreflective sheeting mounted on the post facing southbound traffic on the east side of Route 01861 and State Route 13.(See Figure 14 - Inset 1)

7. Install one (1) thermoplastic "STOP" word pavement marking facing southbound traffic on Route 01861 approximately 30 feet north of the intersection of Route 01861 and State Route 01861.
8. Install two (2) Side Road (W2-2) (36"x36") signs facing westbound traffic on either side of State Route 13 approximately 225 feet east of the intersection of Route 01861 and State Route 13.
9. Install one (1) Two-Direction Large Arrow (W1-7) (48"x24") sign with 2" strips of yellow retroreflective sheeting mounted on the posts facing southbound traffic directly across from and perpindicular to Route 01861 at the intersection of Route 01861 and State Route 13. (See Figure 14 - Inset 4)
10. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" solid yellow centerline approximately 225 feet east of the intersection of Route 01861 and State Route 13. (See Figure 14 - Inset 4)
10. Install enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" single solid white edgelines and an enhanced flatline thermoplastic 4" double solid yellow centerline approximately 225 feet east and west of the intersection of Route 01861 and State Route 13. The proposed striping shall be installed in accordance with the existing striping.11. Install two (2) Side Road (W2-2) (36"x36") signs facing eastbound traffic on either side of State Route 13 approximately 225 feet west of the intersection of Route 01861 and State Route 13.
\*\*All warning signs shall be fluorescent yello

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ROAD SAFETY AUDIT REPORT ROUTE 01861 FROM SR 149 TO SR 13 L.M. 0.00 - L.M. 7.09 MONTGOMERY COUNTY

	TYPE	YEAR	COUNTY	FIGURE NO.
DANCE	HRRR	2013	MONTGOMERY	13

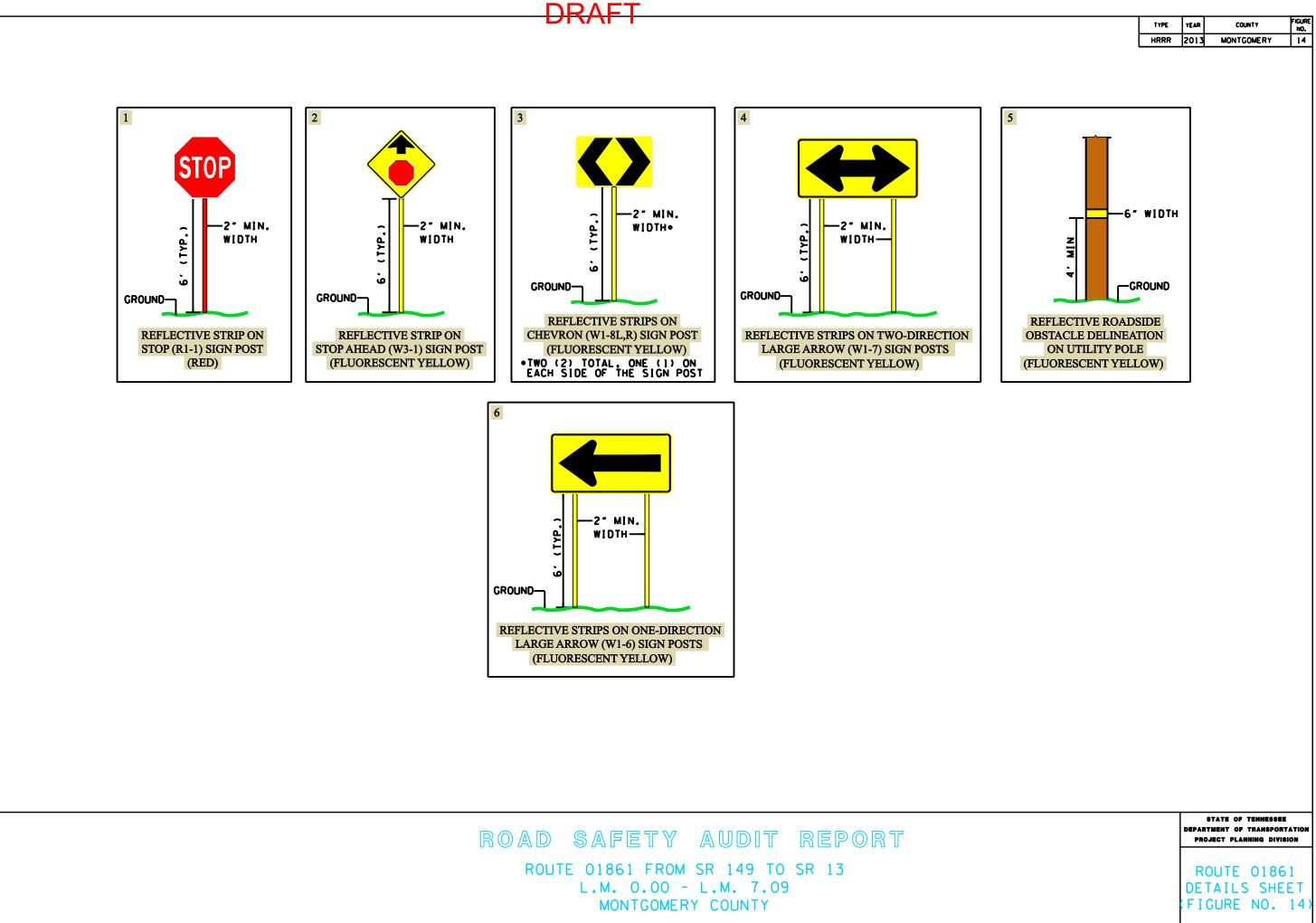
	STATE OF TENNESSEE Department of transportation project planning division
Z <del></del>	ROUTE 01861 L.M. 6.87- L.M. 7.09 (FIGURE NO. 13)

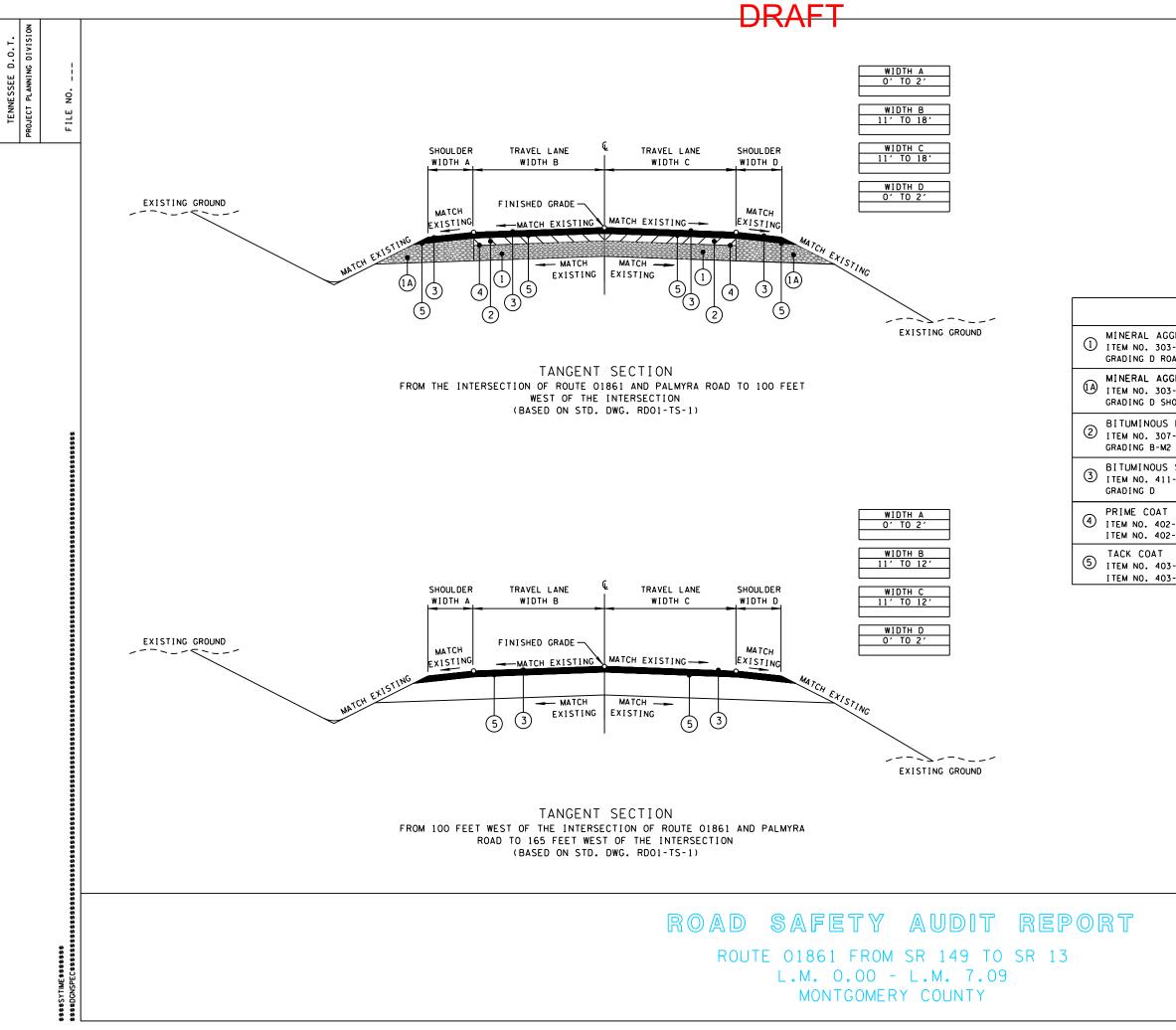
TENNESSEE D.O.T. PROJECT PLANNING DIVISION

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FILE NO.

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		TYPE	YEAR	COUNTY	FIGUE
PROPOSED PAVEMENT SCHEDULE GREGATE BASE -01 MINERAL AGGREGATE, TYPE A BASE, ADWAY @ 10.00° THICK GREGATE BASE -01 MINERAL AGGREGATE, TYPE A BASE, OULDER @ 11.75° THICK BINDER @ 2.00° THICK (APPROX. 226 LBS/S.Y.) -01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE @ 1.25° THICK (APPROX. 132.5 LBS/S.Y.)			+		NO.
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REGATE BASE 01 MINERAL AGGREGATE. TYPE A BASE. DWAY • 10.00" THICK REGATE BASE 01 MINERAL AGGREGATE. TYPE A BASE. DULDER • 11.75" THICK BINDER • 2.00" THICK (APPROX. 226 LBS/S.Y.) 01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE • 1.25" THICK (APPROX. 132.5 LBS/S.Y.)					
REGATE BASE 01 MINERAL AGGREGATE. TYPE A BASE. DWAY • 10.00" THICK REGATE BASE 01 MINERAL AGGREGATE. TYPE A BASE. DULDER • 11.75" THICK BINDER • 2.00" THICK (APPROX. 226 LBS/S.Y.) 01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE • 1.25" THICK (APPROX. 132.5 LBS/S.Y.)					
REGATE BASE 01 MINERAL AGGREGATE. TYPE A BASE. DWAY • 10.00" THICK REGATE BASE 01 MINERAL AGGREGATE. TYPE A BASE. DULDER • 11.75" THICK BINDER • 2.00" THICK (APPROX. 226 LBS/S.Y.) 01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE • 1.25" THICK (APPROX. 132.5 LBS/S.Y.)					
REGATE BASE OI MINERAL AGGREGATE. TYPE A BASE. DUWAY • 10.00" THICK REGATE BASE OI MINERAL AGGREGATE. TYPE A BASE. DULDER • 11.75" THICK BINDER • 2.00" THICK (APPROX. 226 LBS/S.Y.) OI.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE • 1.25" THICK (APPROX. 132.5 LBS/S.Y.)					
01 MINERAL AGGREGATE. TYPE A BASE. DWAY © 10.00" THICK REGATE BASE 01 MINERAL AGGREGATE. TYPE A BASE. DULDER © 11.75" THICK BINDER © 2.00" THICK (APPROX. 226 LBS/S.Y.) 01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE © 1.25" THICK (APPROX. 132.5 LBS/S.Y.)	PROPOSED PAVEMENT SCHEDL	JLE			
ADWAY © 10.00" THICK REGATE BASE OI MINERAL AGGREGATE, TYPE A BASE, DULDER © 11.75" THICK BINDER © 2.00" THICK (APPROX. 226 LBS/S.Y.) OI.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE © 1.25" THICK (APPROX. 132.5 LBS/S.Y.)					
OI MINERAL AGGREGATE. TYPE A BASE. DULDER @ 11.75" THICK BINDER @ 2.00" THICK (APPROX. 226 LBS/S.Y.) O1.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE @ 1.25" THICK (APPROX. 132.5 LBS/S.Y.)					
O1.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) SURFACE @ 1.25" THICK (APPROX. 132.5 LBS/S.Y.)	01 MINERAL AGGREGATE, TYPE A BASE,				
SURFACE @ 1.25" THICK (APPROX. 132.5 LBS/S.Y.)	BINDER © 2.00" THICK (APPROX. 226 L	_BS/S.Y.	)		
	01.08 ASPHALT CONCRETE MIX (PG64-22) (E	3PMB-HM)			
	SURFACE @ 1.25" THICK (APPROX, 132.	5   BS/S	.Y.)		
-O1 BITUMINOUS MATERIAL FOR PRIME COAT (PC) @ 0.30 - 0.35 GAL./S.Y.				35 GAL./S.Y.	
02 AGGREGATE FOR COVER MATERIAL (PC) @ 8-12 LBS./S.Y.	02 AGGREGATE FOR COVER MATERIAL (PC) @	8-12 LBS	./S.Y.		
01 BITUMINOUS MATERIAL FOR TACK COAT (TC)		C)			
02 ASPHALT CEMENT FOR TACK COAT (TC)	O1 BITUMINOUS MATERIAL FOR TACK COAT (T				
-O2 AGGREGATE FOR COVER MATERIAL (PC) @ 8-12 LBS./S.Y.		8-12 LBS		35 GAL./S.T.	

STATE OF TENNESSEE Department of transportation project planning division

FIGURE 15

PAVING DETAILS