



**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: December 14, 2010

**SUBJECT: RSAR STATE ROUTE 76 INTERSECTION WITH I-24 EASTBOUND
RAMPS, L.M. 17.53 TO L.M. 17.57, MONTGOMERY COUNTY, PIN
114720.00**

This project was identified through the Tennessee Department of Transportation (TDOT) safety needs planning process. The intersection of State Route 76 and I-24 eastbound ramps from log mile 17.53 to log mile 17.57 is a four (4) lane divided urban minor arterial, with lane widths of twelve (12) feet and ten (10) feet shoulders. State Route 76 appears on the Highway Safety Improvement Program (HSIP) list and qualifies for Hazard Elimination Safety Program (HESP) funds, because the crash ratio (actual crash rate divided by the critical crash rate) was 3.89, which is greater than 3.50 (the minimum threshold).

The following guidance was provided as shown in Figure 1, Figure 1A, and Figure 2 within the report:

- **Figure 1 (L.M. 17.41 - L.M. 17.64)**
 1. Remove three (3) No Parking on Shoulder signs (Mod R8-1) on State Route 76.
 2. Install traffic signal at intersection of Sango Road and State Route 76. The eastbound U-turn lane shall remain with a protected signal phase and a U-turn signal head face. (See Appendix for traffic analysis for this intersection.)
 3. Remove the existing Stop sign (R1-1) on Sango Road at State Route 76.
 4. Remove and replace three (3) Wrong Way signs (R5-1a) at their existing locations on State Route 76.
 5. Remove and replace one (1) Directional Arrow Auxiliary sign (M6-3) on existing sign.

6. Remove and replace five (5) light standards (per standard drawing T-L-1SA) as shown along I-24 eastbound on and off-ramps.
7. Install two (2) No Turn On Red signs (R10-11a) on the span wire to prohibit right turns on red from the I-24 eastbound off-ramp.
8. Install traffic signal at intersection of I-24 eastbound ramps and State Route 76. (See Appendix for traffic analysis at this intersection.)
9. Install one (1) area drain and approximately fifty-six (56) feet of eighteen (18) inch reinforced concrete pipe with Concrete Endwall Type "U" (per standard drawings D-PE-6B(1) & D-PE-6B(2)).
10. Remove two (2) Stop signs (R1-1) on the I-24 eastbound off-ramp at State Route 76.
11. Remove two (2) and replace one (1) combination of one (1) Do Not Enter sign (R5-1), one (1) One Way sign (R6-1R), and one (1) One Way sign (R6-1L) approximately twenty (20) feet from the end of the ramp and offset per TDOT standard drawing T-S-20.
12. Cap one (1) existing area drain.
13. Remove and replace (2) Wrong Way signs (R5-1a) on I-24 eastbound off-ramp approximately 200 feet from the end of the ramp and offset per TDOT standard drawing T-S-20.
14. Install overhead sign assembly with two steel poles and wire (structure to be approved by TDOT Structures Division). Signs to include one (1) Mandatory Movement Lane Control Left Arrow Only sign (R3-5L), two (2) Mandatory Movement Lane Control Right Arrow Only signs (R3-5R), and one (1) Mandatory Movement Lane Control Sango Rd sign (R3-5 Mod.) on I-24 eastbound off-ramp located approximately 325 feet from the end of the ramp.
15. Remove and replace one (1) Directional Sign Assembly (D1-2a, M3-4, M3-2, (2) Tn-6a, M6-1R, M6-1L) approximately 350 feet from the end of the ramp and offset per TDOT standard drawing T-S-9.
16. Remove and replace one (1) Destination Sign (D1-1) approximately 450 feet from the end of the ramp and offset per TDOT standard drawing T-S-9.
17. Remove and replace one (1) Directional Arrow Auxiliary sign (M6-3), one (1) Primary State Route sign (TN-6c), and one (1) Cardinal Directional Auxiliary Sign (M3-2) at their existing locations.
18. Install four (4) street name signs (D3-1) on the span wire as per City of Clarksville's requirements.

Note: All removed signs are to become property of City of Clarksville Street Department.

- **Figure 1A (L.M. 17.64 – L.M. 17.82)**

1. Install twelve (12) inch yellow diagonal pavement markings to prohibit use of the existing acceleration lane, westbound, on State Route 76 at Sango Road.
2. Overlay pavement to a depth of 1.25 inches and install four (4) inch thermoplastic pavement markings, twelve (12) inch white plastic diagonal traverse channelization markings and turn arrows as shown on existing pavement from L.M. 17.41 to L.M. 17.63 on the westbound lanes and from L.M. 17.41 to L.M. 17.58 on the eastbound lanes.
3. Install thirty-eight (38) feet of stop bar on both State Route 76 eastbound and westbound at Sango Road.

4. Reconstruct the I-24 eastbound off-ramp with concrete lanes and asphalt shoulders based on the lane configuration shown. Install six (6) inch thermoplastic pavement markings as shown. Install five (5) snowplowable mono-directional markers on lane lines at 80 feet spacing per TDOT Standard Drawing T-M-6.
5. Scarify existing pavement on I-24 eastbound off-ramp.
6. Install thirty-eight (38) feet of stop bar on State Route 76 westbound and install twenty-six (26) feet of stop bar on State Route 76 eastbound.
7. Relocate the existing median on State Route 76 at the I-24 eastbound ramps and scarify existing pavement as shown.
8. Reconstruct the I-24 eastbound on-ramp with concrete lanes and asphalt shoulders as shown.
9. Scarify the existing pavement on I-24 eastbound on-ramp as shown.

- **Figure 2 (L.M. 17.64 – L.M. 17.82)**

1. Widen the existing asphalt shoulder to a total width of ten (10) feet for a length of 100 feet from L.M. 17.72 to L.M. 17.74. Install four (4) inch thermoplastic pavement markings edge line as shown.
2. Install four (4) inch thermoplastic pavement markings on existing pavement and install ten (10) feet of stop bar and install turn arrows as shown.

The total estimated cost of the improvements is \$1,465,000. These improvements will be let to contract.

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

SLA/ ar
Attachment

CC: Mr. Joe Carpenter, Mr. Brian Hurst, Mr. Mike Tugwell, Mr. Winston Gaffron, Mr. Phil Trammel, Mr. Jim Moore, file

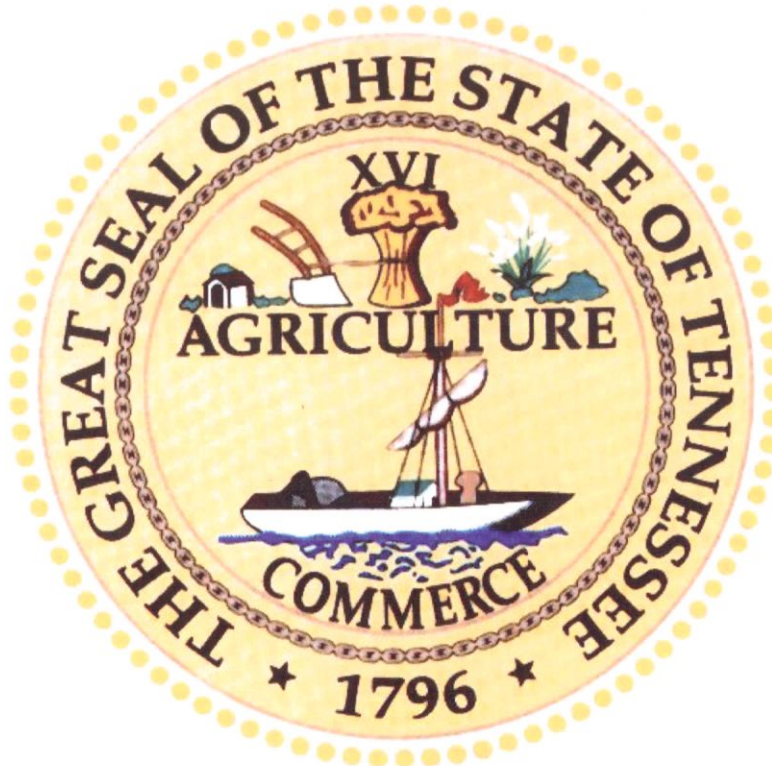
ROAD SAFETY AUDIT REPORT

Intersection of SR-76 and I-24 Eastbound Ramps


L.M. 17.53 to L.M. 17.57

MONTGOMERY COUNTY

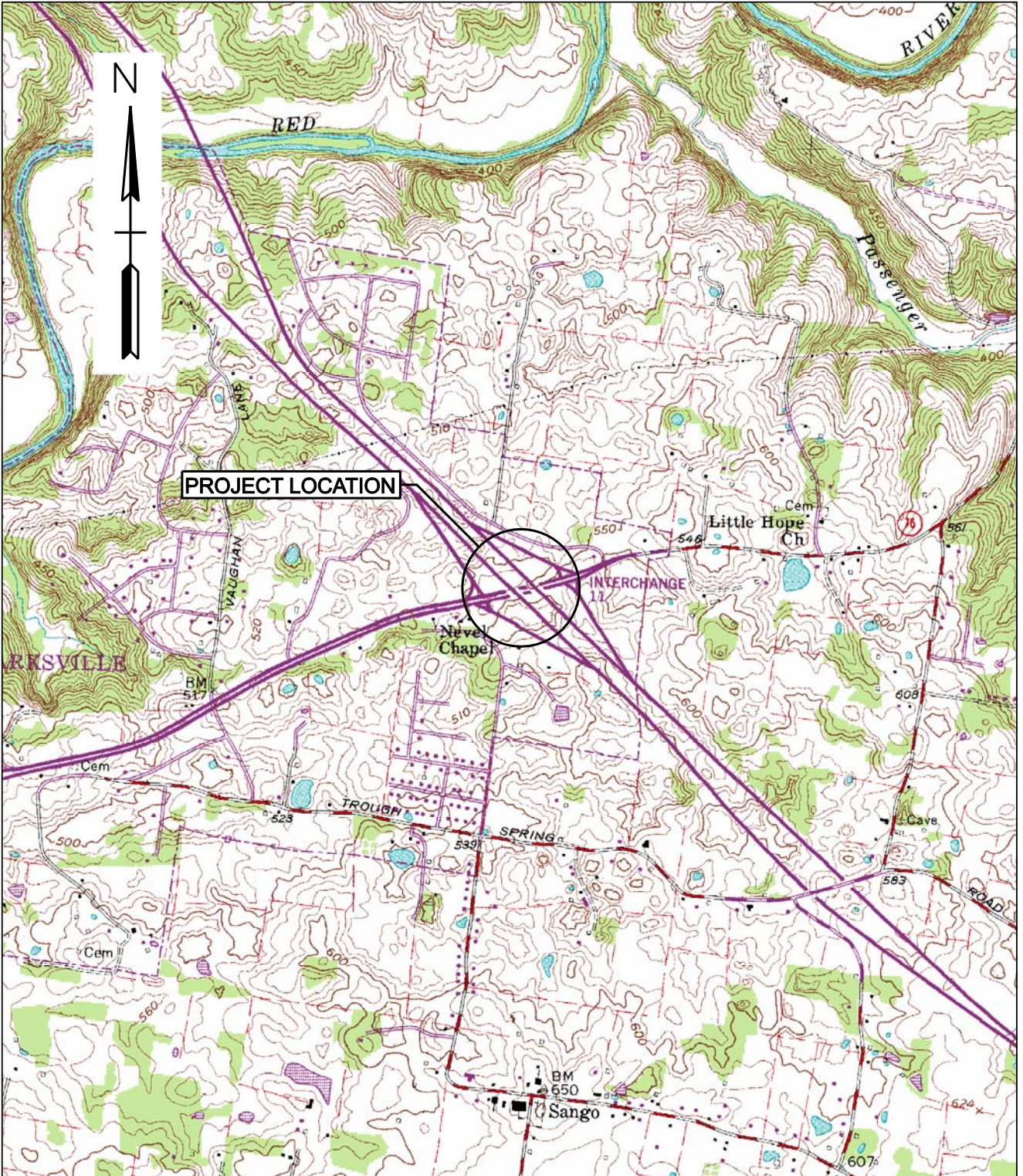
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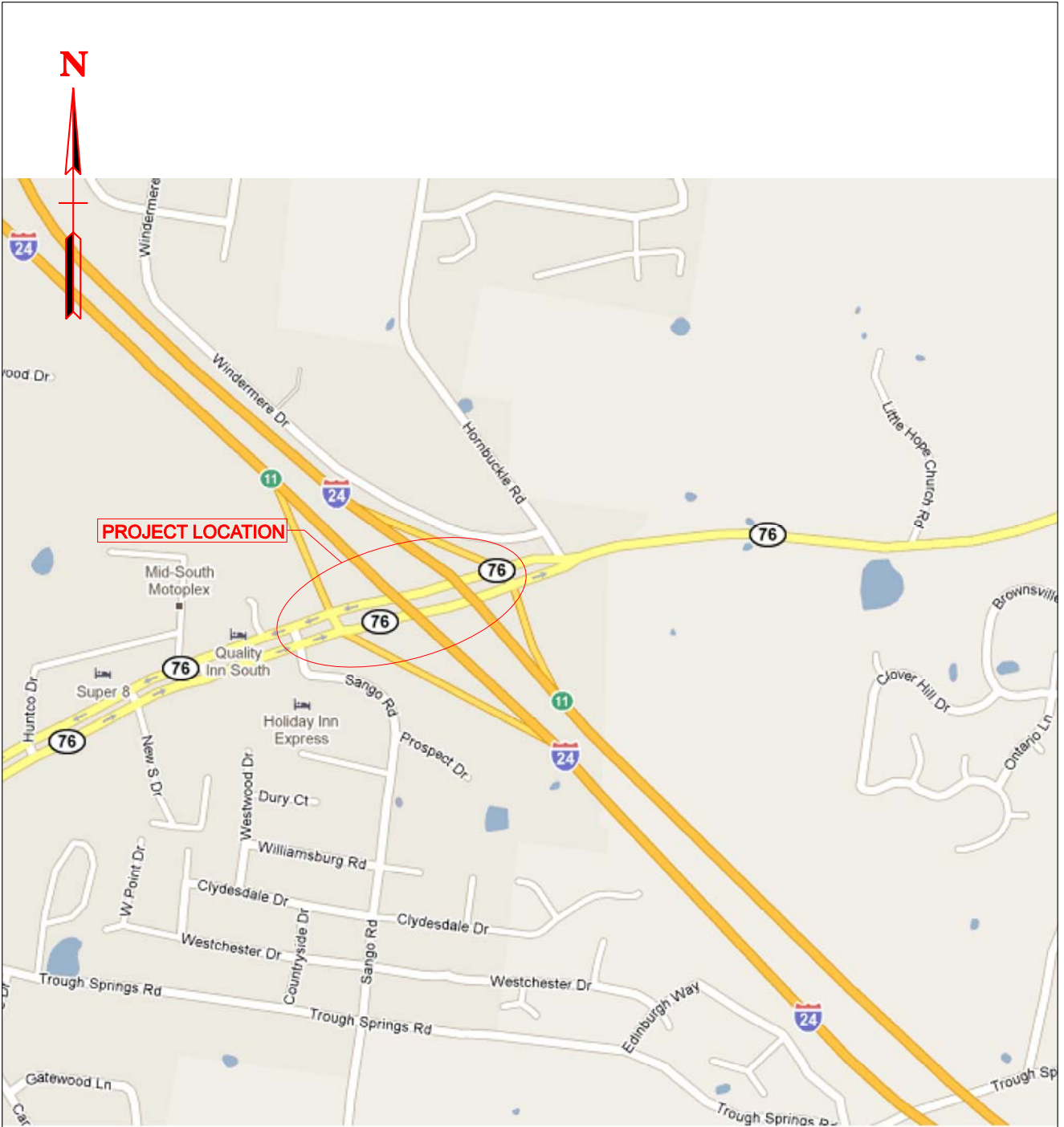
*PREPARED BY
AECOM TECHNICAL SERVICES, INC.
FOR THE
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION*

Approved by:	Signature	DATE
DIRECTOR PROJECT PLANNING DIVISION		12-15-10

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



	VICINITY MAP		DRAWN BY: AR	CHECKED BY: SMC
	PIN# 114720.00		SCALE: NOT TO SCALE	DATE: 10-22-10



LOCATION MAP

DRAWN BY:

AR

CHECKED BY:

SMC

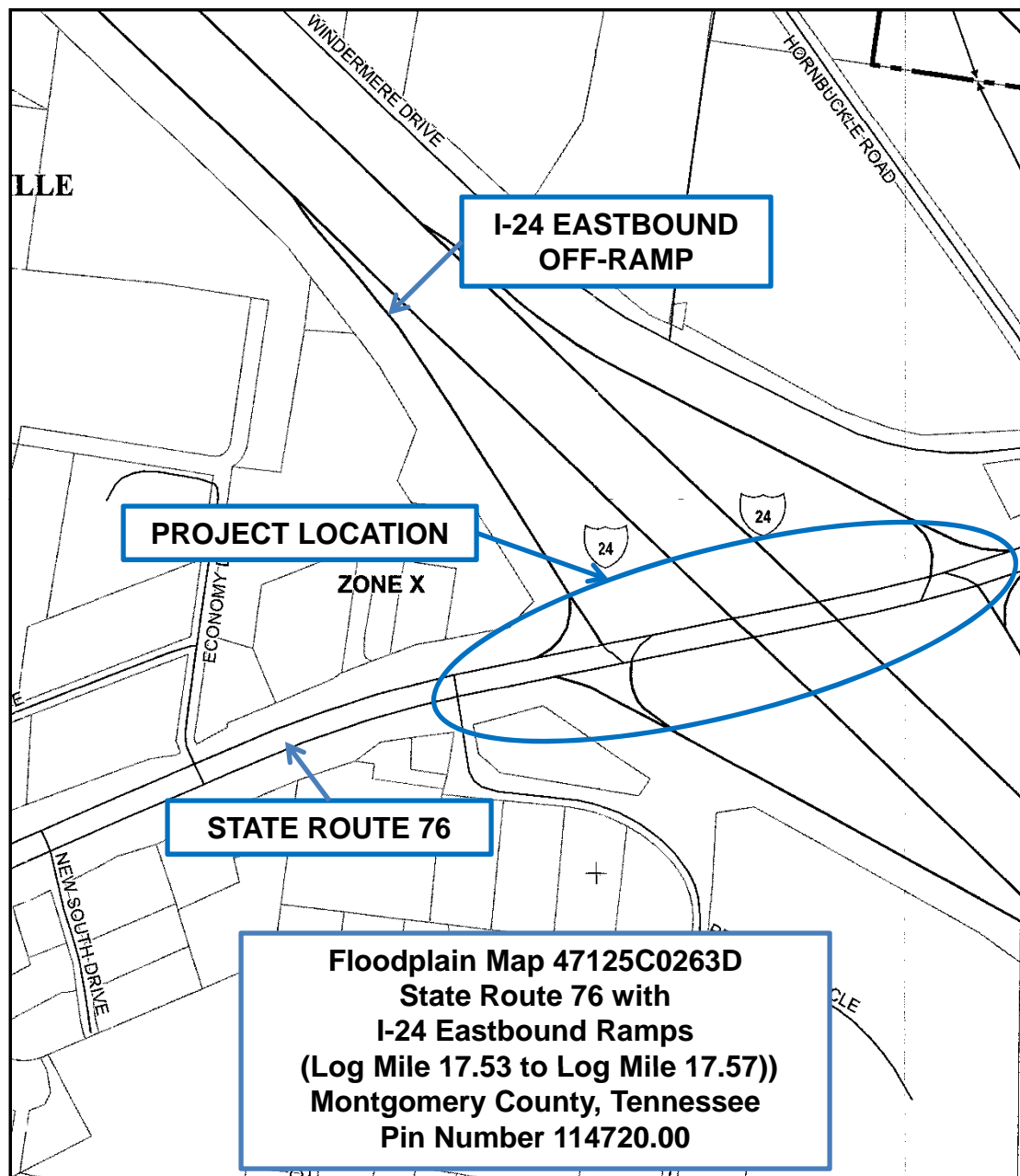
PIN# 114720.00

SCALE:

NOT TO SCALE

DATE:

10-05-10



MAP SCALE 1" = 500'

PANEL 0263D

FIRM

FLOOD INSURANCE RATE MAP

MONTGOMERY COUNTY
TENNESSEE
AND INCORPORATED AREAS

PANEL 263 OF 491

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLARKSVILLE, CITY OF	470137	0263	D
MONTGOMERY COUNTY	470135	0263	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
47125C0263D
EFFECTIVE DATE
MARCH 18, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

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 intersection of State Route 76 and I-24 eastbound ramps from log mile 17.53 to log mile 17.57 is a four (4) lane divided urban minor arterial, with lane widths of twelve (12) feet and ten (10) feet shoulders. State Route 76 appears on the **Highway Safety Improvement Program (HSIP)** list and qualifies for **Hazard Elimination Safety Program (HESP)** funds, because the crash ratio (actual crash rate divided by the critical crash rate) was 3.89, which is greater than 3.50 (the minimum threshold).

Traffic data from 2008 shows the Average Annual Daily Traffic (AADT) for this section of State Route 76 to be 20,341 vehicles per day (vpd). Crash data was reviewed for the years 2006 through 2008. A total of forty-five (45) crashes occurred at the intersection during that period with one (1) fatality, one (1) incapacitating injury, fourteen (14) non-incapacitating injuries and twenty-nine (29) property damage crashes. The posted speed for State Route 76 is fifty-five (55) miles per hour (MPH) at the study area.

RSAR Team Members:

Name	Organization	Title	Phone	E-mail
Chris Armstrong	TDOT Planning, Nashville	Transportation Manager I	615-741-3216	Christopher.Armstrong@tn.gov
Tyler King	TDOT Planning, Nashville	Roadway Specialist Supervisor	615-253-2781	Tyler.King@tn.gov
Michelle Powell	TDOT Traffic, Nashville	Operations Specialist 2	615-741-0894	Michelle.Powell@tn.gov
Stanley Sumner	TDOT Traffic, Region 3	Operations Specialist 2	615-350-4046	Stanley.Sumner@tn.gov
Scott Johnson	TDOT Design, Region 3	Roadway Specialist 2	615-350-4263	Scott.Johnson@tn.gov
David Duncan	TDOT Planning	GTA	615-532-6131	David.Duncan@tn.gov
Matt Givens	TDOT Planning	Planner 3	615-532-4802	Mathew.Givens@tn.gov
Rayburn Bugg Jr	TDOT Maintenance	Highway Maintenance Specialist 1	931-648-5570	Rayburn.Bugg@tn.gov
Chris Cowan	Clarksville Street	Engineer	931-645-7464	Chris.Cowan@cityofclarksville.com
Stan Williams	Clarksville MPO		931-645-7448	Stanwilliams@cityofclarksville.com
Scott McKinney	AECOM, Nashville	Project Engineer	615-714-0914	Scott.McKinney@aecom.com
Aswini Rajagopalan	AECOM, Nashville	Transportation Planner	615-313-0353	Aswini.Rajagopalan@aecom.com

Information used in the Review

- State Route 76 Location Map
- Aerial Photographs (Supplied by TDOT)
- TRIMS Geometric Report for State Route 76
- TRIMS Traffic Report for State Route 76
- TRIMS Route Feature Description Listing for State Route 76
- TRIMS Crash Data (2006,2007,and 2008)
- Crash Reports (45 Reports total: Numbers 8906334, 9302885, 9460706, 9461475, 9461889, 9461922, 9302978, 9461328, 9302876, 9302079, 9302998, 9186524, 9186716, 9186745, 10129134, 10207184, 9777589, 9186702, 10284827, 9778084, 9186704, 8906118, 10207118, 9552472, 10284472, 10207177, 10128599, 10004191, 8449897, 10129031, 10070453, 9187066, 9552049, 10237941, 10003780, 10237840, 10237829, 10310947, 9551932, 10070660, 10237357, 10237426, 10237595, 8449893, 10237368)
- Collision Diagram
- Crash Rate Calculation Sheet
- Pre-Brief Comments from 09/28/2010
- On-site Field Review comments held at 9:00 AM CST on 10/1/2010

Pre-Briefing Summary

A pre-brief meeting was held on September 28, 2010 at 9:00 AM CST at TDOT Headquarters' 10th floor conference room in Nashville. This project was identified through the Tennessee Department of Transportation (TDOT) safety needs planning process. The intersection of State Route 76 and I-24 eastbound ramps from log mile 17.53 to log mile 17.57 is a four (4) lane divided urban minor arterial, with lane widths of twelve (12) feet and ten (10) feet shoulders. State Route 76 appears on the **Highway Safety Improvement Program (HSIP)** list and qualifies for **Hazard Elimination Safety Program (HESP)** funds, because the crash ratio (actual crash rate divided by the critical crash rate) was 3.89, which is greater than 3.50 (the minimum threshold).

Traffic data from 2008 shows the Average Annual Daily Traffic (AADT) for this section of State Route 76 to be 20,341 vehicles per day (vpd). Crash data was reviewed for the years 2006 through 2008. A total of forty-five (45) crashes occurred at the intersection during that period with one (1) fatality, one (1) incapacitating injury and fourteen (14) non-incapacitating injuries and twenty-nine (29) property damage crashes.

Crash Data Summary

Condition	Frequency	Percentage of Total
Property Damage	29	65%
Non-Incap. Injury	14	31%
Incapacitating	1	2%
Fatality	1	2%
Type of Crashes	Frequency	Percentage of Total
Rear-End	37	83%
Angle	5	11%
Sideswipe	2	4%
Deer	1	2%
Time of Crashes	Frequency	Percentage of Total
6 AM to 9 AM	3	7%
9 AM to 11 AM	3	7%
11 AM to 1 PM	5	11%
1 PM to 3 PM	6	13%
3 PM to 6 PM	21	47%
6 PM to 6 AM	7	15%

Items discussed during the pre-brief meeting include:

- Based on crash reports, thirty-eight (38) out of forty-five (45) crashes occurred at the right turn lane of the eastbound off-ramp and were rear-end collisions.
- The intersection of I-24 eastbound off-ramp and State Route 76 is 250' downstream from a major unsignalized intersection (Sango Road at State Route 76). South of Sango Road are multiple residential developments which serve as major traffic generators to and from the I-24 ramps.

Observations

An on-site field review was held at 9:00 AM CST on October 1, 2010. The following discussions/observations are provided concerning the location:

- The team discussed the possibility that the interchange geometry is a major contributor to the large percentage of crashes at the intersection of I-24 eastbound off-ramps and State Route 76.
- Sango Road is currently a two (2) lane roadway. The City of Clarksville has plans to widen Sango Road to a three (3) lane cross-section.
- It was reported that eastbound off-ramp traffic backs up to the interstate two (2) to three (3) days a week.
- Currently the intersection of I-24 eastbound off-ramp and State Route 76 and the intersection of Sango Road and State Route 76 are unsignalized.
- Two (2) incorrect directional auxiliary signs were noted.

Montgomery County
State Route 76- Intersection with I-24 Eastbound Ramps
L.M. 17.53 to L.M. 17.57

- The eastbound off-ramp currently provides one (1) left turn lane and one (1) right turn lane.
- Due to the lack of weaving length between the intersection of Sango Road at State Route 76 and the intersection of I-24 eastbound off-ramp at State Route 76, a large percentage of vehicles travel past Sango Road and make a U-turn at the adjacent intersection.
- The condition of the asphalt shoulders on the eastbound off-ramp was poor. Also, there were segments of existing concrete pavement that showed signs of distress.
- TDOT's Maintenance Division implemented intersection improvements, including an eastbound right turn lane, at Sango Road in September of 2009.
- There is excessive queuing caused by the vehicles turning left from State Route 76 onto the westbound on-ramps during the morning peak hours.
- Vehicles turning left from eastbound off-ramp onto State Route 76 queue in the median.

Guidance

Guidance recommended by the RSAR Team is shown on the attached figure and described below.

- **Figure 1 (L.M. 17.41 - L.M. 17.64)**
 1. Remove three (3) No Parking on Shoulder signs (Mod R8-1) on State Route 76.
 2. Install traffic signal at intersection of Sango Road and State Route 76. The eastbound U-turn lane shall remain with a protected signal phase and a U-turn signal head face. (See Appendix for traffic analysis for this intersection.)
 3. Remove the existing Stop sign (R1-1) on Sango Road at State Route 76.
 4. Remove and replace three (3) Wrong Way signs (R5-1a) at their existing locations on State Route 76.
 5. Remove and replace one (1) Directional Arrow Auxiliary sign (M6-3) on existing sign.
 6. Remove and replace five (5) light standards (per standard drawing T-L-1SA) as shown along I-24 eastbound on and off-ramps.
 7. Install two (2) No Turn On Red signs (R10-11a) on the span wire to prohibit right turns on red from the I-24 eastbound off-ramp.
 8. Install traffic signal for intersection of I-24 eastbound ramps and State Route 76. (See Appendix for traffic analysis at this intersection.)
 9. Install one (1) area drain and approximately fifty-six (56) feet of eighteen (18) inch reinforced concrete pipe with Concrete Endwall Type "U" (per standard drawings D-PE-6B(1) & D-PE-6B(2)).
 10. Remove two (2) Stop signs (R1-1) on the I-24 eastbound off-ramp at State Route 76.
 11. Remove two (2) and replace one (1) combination of one (1) Do Not Enter sign (R5-1), one (1) One Way sign (R6-1R), and one (1) One Way sign (R6-1L) approximately twenty (20) feet from the end of the ramp and offset per TDOT standard drawing T-S-20.
 12. Cap one (1) existing area drain.

Montgomery County
State Route 76- Intersection with I-24 Eastbound Ramps
L.M. 17.53 to L.M. 17.57

13. Remove and replace two (2) Wrong Way signs (R5-1a) on I-24 eastbound off-ramp approximately 200 feet from the end of the ramp and offset per TDOT standard drawing T-S-20.
14. Install overhead sign assembly with two steel poles and wire (structure to be approved by TDOT Structures Division). Signs to include one (1) Mandatory Movement Lane Control Left Arrow Only sign (R3-5L), two (2) Mandatory Movement Lane Control Right Arrow Only signs (R3-5R), and one (1) Mandatory Movement Lane Control Sango Road sign (R3-5 Mod.) on I-24 eastbound off-ramp located approximately 325 feet from the end of the ramp.
15. Remove and replace one (1) Directional Sign Assembly (D1-2a, M3-4, M3-2, (2) Tn-6a, M6-1R, M6-1L) approximately 350 feet from the end of the ramp and offset per TDOT standard drawing T-S-9.
16. Remove and replace one (1) Destination Sign (D1-1) approximately 450 feet from the end of the ramp and offset per TDOT standard drawing T-S-9.
17. Remove and replace one (1) Directional Arrow Auxiliary sign (M6-3), one (1) Primary State Route sign (TN-6c), and one (1) Cardinal Directional Auxiliary Sign (M3-2) at their existing locations.
18. Install four (4) street name signs (D3-1) on the span wire as per City of Clarksville's requirements.

Note: All removed signs are to become property of City of Clarksville Street Department.

- **Figure 1A (L.M. 17.64 – L.M. 17.82)**

1. Install twelve (12) inch yellow diagonal pavement markings to prohibit use of the existing acceleration lane, westbound, on State Route 76 at Sango Road.
2. Overlay pavement to a depth of 1.25 inches and install four (4) inch thermoplastic pavement markings, twelve (12) inch white plastic diagonal traverse channelization markings and turn arrows as shown on existing pavement from L.M. 17.41 to L.M. 17.63 on the westbound lanes and from L.M. 17.41 to L.M. 17.58 on the eastbound lanes.
3. Install thirty-eight (38) feet of stop bar on both State Route 76 eastbound and westbound at Sango Road.
4. Reconstruct the I-24 eastbound off-ramp with concrete lanes and asphalt shoulders based on the lane configuration shown. Install six (6) inch thermoplastic pavement markings as shown. Install five (5) snowplowable mono-directional markers on lane lines at 80 feet spacing per TDOT Standard Drawing T-M-6.
5. Scarify existing pavement on I-24 eastbound off-ramp.
6. Install thirty-eight (38) feet of stop bar on State Route 76 westbound and install twenty-six (26) feet of stop bar on State Route 76 eastbound.
7. Relocate the existing median on State Route 76 at the I-24 eastbound ramps and scarify the existing pavement as shown.

Montgomery County
State Route 76- Intersection with I-24 Eastbound Ramps
L.M. 17.53 to L.M. 17.57

8. Reconstruct the I-24 eastbound on-ramp with concrete lanes, asphalt shoulders and scarify the existing pavement as shown.
9. Scarify the existing pavement on I-24 eastbound on-ramp as shown.

- **Figure 2 (L.M. 17.64 – L.M. 17.82)**

1. Widen the existing asphalt shoulder to a total width of ten (10) feet for a length of 100 feet from L.M. 17.72 to L.M. 17.74. Install four (4) inch thermoplastic pavement markings edge line as shown.
2. Install four (4) inch thermoplastic pavement markings on existing pavement, install ten (10) feet of stop bar and install turn arrows as shown.

The estimated cost of improvements listed in this report is \$1,465,000. A contract will be let to implement the recommended improvements. Federal funds can be used for 100% of the total cost of the improvements, \$1,465,000.

Montgomery County
State Route 76- Intersection with I-24 Eastbound Ramps
L.M. 17.53 to L.M. 17.57

Site Photos



Photograph 1

10/01/2010
View looking south on
I-24 Eastbound off-
ramp toward SR-76



Photograph 2

10/01/2010
View looking west on
SR-76 toward I-24
Eastbound off-ramp

Montgomery County
State Route 76- Intersection with I-24 Eastbound Ramps
L.M. 17.53 to L.M. 17.57



Photograph 3

10/01/2010
View looking east on
SR-76 East toward I-24
overpass



Photograph 4

10/01/2010
View looking across
SR-76 toward I-24
Eastbound off-ramp

Montgomery County
State Route 76- Intersection with I-24 Eastbound Ramps
L.M. 17.53 to L.M. 17.57



Photograph 5

10/17/2010
View looking west on
SR-76 toward Sango
Road crossover



Photograph 6

10/17/2010
View looking east on
SR-76 toward Sango
Road

Montgomery County
State Route 76- Intersection with I-24 Eastbound Ramps
L.M. 17.53 to L.M. 17.57



Photograph 7

10/17/2010
View looking north
from Sango Road to
SR-76 Intersection



Photograph 8

10/17/2010
View looking west on
SR-76 toward I-24
overpass

Route:	State Route 76	
Description:	Intersection with I-24 Eastbound Ramps	
	L.M. 17.41 to L.M. 17.82	
County:	Montgomery	Fund Source: Federal/State (100% Items)
Length:	Approximately 0.41 Miles	
Date:	11/30/2010	

RIGHT-OF-WAY	\$	0
CLEAR AND GRUBBING	\$	1,000
EARTHWORK	\$	219,600
PAVEMENT REMOVAL	\$	0
DRAINAGE	\$	7,800
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	360,400
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	50,000
TOPSOIL	\$	29,200
SEEDING	\$	7,900
SODDING	\$	700
SIGNING	\$	35,900
PAVEMENT MARKINGS AND MARKERS	\$	23,800
LIGHTING	\$	25,000
SIGNALIZATION	\$	240,000
FENCE	\$	0
GUARDRAIL	\$	0
RIP-RAP OR SLOPE PROTECTION	\$	0
OTHER CONSTRUCTION ITEMS (15%)	\$	150,200
MOBILIZATION	\$	57,600
CONSTRUCTION COST (RND)	\$	1,210,000
10% ENG. & CONT.	\$	121,000
TOTAL CONSTRUCTION COST	\$	1,331,000
10% PRELIMINARY ENGINEERING	\$	134,000
TOTAL PROJECT COST *	\$	1,465,000

* For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
201-01	Clear and Grubbing	LS	LS	\$ 1,000.00	\$ 1,000
CLEAR AND GRUBBING TOTAL (ROUNDED)					\$ 1,000
203-01	Road & Drainage Excavation (Unclassified)	CY	1436	\$ 10.00	\$ 14,361
203-03	Borrow Excavation (Unclassified)	CY	20523	\$ 10.00	\$ 205,234
EARTHWORK TOTAL (ROUNDED)					\$ 219,600
PAVEMENT REMOVAL TOTAL (ROUNDED)					\$ -
607-03.02	18" Conc. Pipe Culvert (Class III)	LF	56	\$ 40.00	\$ 2,240
611-07.01	Class A Concrete (Pipe Endwalls)	CY	2	\$ 600.00	\$ 1,200
611-07.02	Steel Bar Reinforcing (Pipe Endwalls)	LB	193	\$ 1.50	\$ 290
611-42.01	Catch Basins, Type 42, 0' - 4' Depth	EA	1	\$ 2,500.00	\$ 2,500
611-09.03	Capping Existing Catchbasin	EA	1	\$ 1,500.00	\$ 1,500
DRAINAGE TOTAL (ROUNDED)					\$ 7,800
STRUCTURES TOTAL (ROUNDED)					\$ -
RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)					\$ -
303-01	Mineral Aggregate, Type A Base, Grading D	TON	3028.2	\$ 20.00	\$ 60,565
307-03.06	Asphalt Conc. Mix (PG76-22) (BPMB-HM) Gr B	TON	544.9	\$ 85.00	\$ 46,317
313-03	Treated Permeable Base	SY	2532	\$ 10.00	\$ 25,322
411-01.07	ACS Mix (PG64-22) Grading E Shoulder	TON	139.8	\$ 85.00	\$ 11,882
411-01.10	ACS Mix (PG 64-22) Grading "D"	TON	693.73	\$ 95.00	\$ 65,904
501-01.03	Portland Cement Concrete Pavement (Plain) 10"	SY	2532	\$ 50.00	\$ 126,611
604-36	Scarifying	SY	1396.11	\$ 17.00	\$ 23,734
PAVING TOTAL (ROUNDED)					\$ 360,400

RETAINING WALLS TOTAL (ROUNDED)					\$	-
712-01	Traffic Control	LS	LS	\$	50,000.00	\$ 50,000
MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)					\$	50,000
203-07	Furnishing & Spreading Topsoil	CY	2917	\$	10.00	\$ 29,167
TOPSOIL TOTAL (ROUNDED)					\$	29,200
801-01	Seeding (With Mulch)	UNIT	197	\$	40.00	\$ 7,875
SEEDING TOTAL (ROUNDED)					\$	7,900
803-01	Sodding (New Sod)	SY	161	\$	4.00	\$ 644
SODDING TOTAL (ROUNDED)					\$	700
713-15.09	Steel Overhead Sign Structure (Span 80 ft.)	EA	2	\$	15,000.00	\$ 30,000
713-99.91	Signs	SF	133	\$	40.00	\$ 5,300
713-15.41	Sign Removal	EA	20	\$	30.00	\$ 600
SIGNING TOTAL (ROUNDED)					\$	35,900
716-01.10	Snowplowable Reflective Marker	EA	5	\$	45.00	\$ 225
716-02.04	Plastic Pavement Marking (Channel. Striping)	SY	348	\$	25.00	\$ 8,700
716-02.05	Plastic Pavement Marking (Stop Line)	LF	348	\$	15.00	\$ 5,220
716-02.06	Plastic Pavement Marking (Turn Lane Arrow)	EA	11	\$	50.00	\$ 550
716-02.08	Plastic Pavement Marking (8" Dotted Line)	LF	348	\$	4.00	\$ 1,392
716-04.04	Plastic Pavement Marking (Transverse shoulder)	LF	229	\$	10.00	\$ 2,290
716-08.20	Removal of Pavement Marking (line)	LM	0.1	\$	5,000.00	\$ 299
716-12.01	Enhanced flatline Thermo Pvmt Mrkng(4 in Line)	LM	1.0	\$	3,300.00	\$ 3,218
716-12.02	Enhanced flatline Thermo Pvmt Mrkng(6 in Line)	LM	0.6	\$	3,300.00	\$ 1,878
PAVEMENT MARKINGS AND MARKERS TOTAL (ROUNDED)					\$	23,800

714-01.36	Roadway Lighting	LS	LS	\$ 25,000.00	\$ 25,000
LIGHTING TOTAL (ROUNDED)					\$ 25,000
730-01	Traffic Signals	LS	LS	\$ 240,000.00	\$ 240,000
SIGNALIZATION TOTAL (ROUNDED)					\$ 240,000
FENCE TOTAL (ROUNDED)					\$ -
GUARDRAIL TOTAL (ROUNDED)					\$ -
RIP-RAP OR SLOPE PROTECTION TOTAL (ROUNDED)					\$ -

Quantity Breakdown

Clear and Gr State Route 76							Lump Sum		
201-01	Clearing & Grubbing						\$1,000.00	\$	1,000.00
sub-total =								\$	1,000
Earthwork		Lgth. (ft.)	Width (ft.)	Avg. Fill (ft.)	Factor	C.Y.	Cost/c.y.		
203-03	Borrow Exc. (Uncl.)	530	148	4.75	27	13800	\$10.00	\$137,996.30	
203-03	Borrow Exc. (Uncl.)	530	62	5.35	27	6511	\$10.00	\$65,111.48	
203-03	Borrow Exc. (Uncl.)	70	41	2	27	213	\$10.00	\$2,125.93	
203-01	Road & Drainage Excavation (U	530	40	1.5	27	1178	\$10.00	\$11,777.78	
203-01	Road & Drainage Excavation (U	150	31	1.5	27	258	\$10.00	\$2,583.33	
sub-total =								\$	219,600
Pavement Removal				Area(sq.ft.)	Factor	S.Y.	Cost/s.y.		
sub-total =								\$	-
Drainage			Lin. Ft.	Cost/L.F.	Lump Sum	Each	Cost/ea.		
607-03.02	18" Conc. Pipe Culvert (Class III)		56	\$40.00				\$	2,240
611-07.01	Class A Concrete (Pipe Endwalls)					2	\$600.00	\$	1,200
611-07.02	Steel Bar Reinforcing (Pipe Endwalls)					193	\$1.50	\$	290
611-42.01	Catch Basins, Type 42, 0' - 4' Depth					1	\$2,500.00	\$	2,500
611-09.03	Capping Existing Catchbasin					1	\$1,500.00	\$	1,500
sub-total =								\$	7,800
Structures					Lump Sum				
sub-total =								\$	-

Railroad Crossing or Separation										Lump Sum		
										sub-total =		\$ -
Paving (Asphalt)		Area(s.f.)	Thk. (ft.)	Factor	S.Y.	C.Y.	Factor	lb/ton	Tons	\$ /Ton or S.Y.		
303-01	Stone	18725	1.229166667	27		852.45	2.03		1730.5	\$	20.00	\$ 34,609
303-01	Stone	9870	0.979166667	27		357.94	2.03		726.6	\$	20.00	\$ 14,532
307-03.06	Asph. Base	18725	0.166666667	27		115.59	4068	2000	235.1	\$	85.00	\$ 19,984
307-03.06	Asph. Base	9870	0.416666667	27		152.31	4068	2000	309.8	\$	85.00	\$ 26,334
411-01.07	Shldr. Paving	18725	0.104166667	27		72.24	3870	2000	139.8	\$	85.00	\$ 11,882
411-01.10	ACS Mix (PG 6+	9870	0.104166667	27		38.08	3816	2000	72.7	\$	95.00	\$ 6,902
411-01.10	ACS Mix (PG 6+	84372	0.104166667	27		325.51	3816	2000	621.1	\$	95.00	\$ 59,002
										sub-total =		\$ 173,300
Paving (Concrete)		Area(s.f.)	Thk. (ft.)	Factor	S.Y.	C.Y.	Factor	lb/ton	Tons	\$ /Ton or S.Y.		
501-01.03	Surf.(Conc.)	22790	0.833333333	9	2532	[Asphalt shld'rs.]		[Asphalt shld'rs.]		\$	50.00	\$ 126,611
303-01	Stone	22790	0.333333333	27		281.36	2.03		571.2	\$	20.00	\$ 11,423
313-03	Treat. Base	22790	0.333333333	9	2532					\$	10.00	\$ 25,322
										sub-total =		\$ 163,400
Scarification of Pavement		Area(s.f.)		Factor	S.Y.					\$ /SY		
604-36	Scarifying	12565		9	1396					\$	17.00	\$ 23,734
										sub-total =		\$ 23,800

Montgomery County

State Route 76 Intersection with I-24 Eastbound Ramps

Quantity Breakdown

Misc. Pavement Items		Lgth.(ft.)	Width (ft.)	C.Y.	\$/c.y.	Sq.Ft.	\$/s.f.	
sub-total = \$ -								
Retaining Walls		Lgth.(ft.)	Avg. Ht. (ft.)	Sq.Ft.	\$/s.f.			
sub-total = \$ -								
Maintenance of Traffic		Quantity (LS)				Lump Sum		
712-01	Traffic Control	1				\$50,000.00		\$50,000.00
sub-total = \$ 50,000								
Topsoil	Area (sf)	L.F.	Width (ft.)	Depth (ft.)	Factor	C.y.	\$/c.y.	
203-07		750	210	0.5	27	2917	\$ 10.00	\$ 29,167
sub-total = \$ 29,200								
Seeding	Area (sf)	L.F.	Width (ft.)	S.F.	Factor	Unit	\$/unit	
801-01		750	210	1000	1.25	196.88	\$ 40.00	\$ 7,875
sub-total = \$ 7,900								
Sodding	Area (sf)	L.F.	Width (ft.)	S.F.	Factor	S.Y.	\$/SY	
803-01	1450				9	161.11	\$ 4.00	\$ 644
sub-total = \$ 700								
Signing		LS	S.F.	\$/sf	Each	\$/ea.	Total	
713-99.91	Signs		132.50	\$40.00	[Cost incl. Posts]			\$ 5,300
713-15.41	Remove existing signs					20	\$30.00	\$ 600
713-15.09	Steel Overhead Sign Structure (Span 80 ft.)					2	\$ 15,000.00	\$ 30,000

								sub-total =	\$	35,900
Pavement Markings / Markers		Lin. Mi.	Cost/L.M.	S.Y.	Cost/S.Y.	Lgth.(ft.)	Cost/l.f.	Each	\$/ea.	
716-08.20	Removal of Pavement Marking (0.060	5000						\$	299
716-12.01	Enhanced flatline Thermo Pvmt	0.975	\$3,300.00						\$	3,218
716-12.02	Enhanced flatline Thermo Pvmt	0.569	\$3,300.00						\$	1,878
716-02.04	Channel. marking			348	\$25.00				\$	8,700
716-02.05	Stop Lines					348	\$15.00		\$	5,220
716-02.06	Turn Lane Arrow							11	\$50.00	\$ 550
716-04.04	Plastic Pavement Marking (Transverse shoulder)					229	\$10.00		\$	2,290
716-02.08	8" Dotted Line					348	\$4.00		\$	1,392
716-01.10	Snowplowable RPMs							5	\$45.00	\$ 225
								sub-total =	\$	23,800
Lighting						Lump Sum				
714-01.36	Roadway Lighting						\$25,000.00			\$25,000.00
								sub-total =	\$	25,000
Traffic Signals						Lump Sum				
730-01	Signal SR 76 @ Sango Rd						\$120,000.00			\$120,000.00
730-01	Signal SR 76 @ I-24 EB Ramps						\$120,000.00			\$120,000.00
								sub-total =	\$	240,000
Fence					Lin. Ft.	Cost/L.F.				
								sub-total =	\$	-

Montgomery County

State Route 76 Intersection with I-24 Eastbound Ramps

Quantity Breakdown

Guardrail				Lin. Ft.	Cost/L.F.		Each	Cost/ea.	
								sub-total =	\$ -
Rip-Rap/Slope Protection	L.F.	Width (ft.)	S.F.	Factor	C.y.	Factor	Tons	\$/ton	
								sub-total =	\$ -

DESIGNATION	State Route 76	NO. OF SIGNS	SIZE (in.)	SIZE (sq. ft.)	SQ.FT. (by type)
	L.M. 17.41 to L.M. 17.82				
D1-1	DR MARTAIN LUTHER KING JR PKY	1	120" x 48"	40	40.00
D1-2a	ADAMS/CLARKSVILLE	1	120" x 48"	40	40.00
D3-1	STREET NAME SIGN	4	12" x 30"	2.50	10.00
OM-3L	OBJECT MARKER		12" x 36"	3.00	0.00
OM-3R	OBJECT MARKER		12" x 36"	3.00	0.00
M3-2	EAST	1	24" x 12"	2.00	2.00
M3-2	EAST	1	30" x 15"	3.13	3.13
M3-4	WEST	1	30" x 15"	3.13	3.13
M6-1L	ARROW	1	21" x 15"	2.19	2.19
M6-1R	ARROW	1	21" x 15"	2.19	2.19
M6-3	AHEAD ARROW	2	21" x 15"	2.19	4.38
R1-1	STOP		36" x 36"	9.00	0.00
R1-2	YIELD		36" x 36"	9.00	0.00
R2-1	SPEED LIMIT 45 MPH		24" x 30"	5.00	0.00
R3-5 (Mod.)	SANGO RD	1	30" x 12"	2.50	2.50
R3-5L	MANDATORY MOVEMENT ARROW - LT	1	30" x 36"	7.50	7.50
R3-5R	MANDATORY MOVEMENT ARROW - RT	2	30" x 36"	7.50	15.00
R5-1	DO NOT ENTER	1	30" x 30"	6.25	6.25
R5-1A	WRONG WAY	5	30" x 30"	6.25	31.25
R6-1L	ONE WAY	1	36" x 12"	3.00	3.00
R6-1R	ONE WAY	1	36" x 12"	3.00	3.00
R10-11a	NO TURN ON RED	2	36" x 48"	12.00	24.00
TN-6a		2	24" x 24"	4.00	8.00
TN-6c	PRIMARY STATE ROUTE	1	30" x 24"	5.00	5.00
W1-1	TURN		36" x 36"	9.00	0.00
W1-2	CURVE		36" x 36"	9.00	0.00
W1-2L	CURVE LEFT		36" x 36"	9.00	0.00
W1-2R	CURVE RIGHT		36" x 36"	9.00	0.00
W1-10	COMBO HOR. ALIGN./INTER.		36" x 36"	9.00	0.00
W1-10A	COMBO HOR. ALIGN./INTER.		36" x 36"	9.00	0.00
W2-1	CROSS ROAD		36" x 36"	9.00	0.00
W2-2	SIDE ROAD		36" x 36"	9.00	0.00
W3-1	STOP AHEAD		36" x 36"	9.00	0.00
W3-3	SIGNAL AHEAD		36" x 36"	9.00	0.00
W3-5(45)	SPEED REDUCTION AHEAD		36" x 36"	9.00	0.00
W11-2	PEDESTRIAN SYMBOL		36" x 36"	9.00	0.00
W13-1P	ADVISORY SPEED PLAQUE		18" x 18"	2.25	0.00
W16-7P	SUPP. ARROW PLAQUE		24" x 12"	2.00	0.00
TOTALS		30			132.50

GUIDANCE

1. Remove three (3) No Parking on Shoulder signs (Mod R8-1) on State Route 76.
2. Install traffic signal at intersection of Sango Road and State Route 76. The eastbound U-turn lane shall remain with a protected signal phase and a U-turn signal head face. (See Appendix for traffic analysis for this intersection.)
3. Remove the existing Stop sign (R1-1) on Sango Road at State Route 76.
4. Remove and replace three (3) Wrong Way signs (R5-1a) at their existing locations on State Route 76.
5. Remove and replace one (1) Directional Arrow Auxiliary sign (M6-3) on existing sign.
6. Remove and replace five (5) light standards (per standard drawing T-L-1SA) as shown along I-24 eastbound on and off-ramps.
7. Install two (2) No Turn On Red signs (R10-11a) on the span wire to prohibit right turns on red from the I-24 eastbound off-ramp.

11. Remove two (2) and replace one (1) combination of one (1) Do Not Enter sign (R5-1), one (1) One Way sign (R6-1R), and one (1) One Way sign (R6-1L) approximately twenty (20) feet from the end of the ramp and offset per TDOT standard drawing T-S-20.
12. Cap one (1) existing area drain.
13. Remove and replace (2) Wrong Way signs (R5-1a) on I-24 eastbound off-ramp approximately 200 feet from the end of the ramp and offset per TDOT standard drawing T-S-20.
14. Install overhead sign assembly with two steel poles and wire (structure to be approved by TDOT Structures Division). Signs to include one (1) Mandatory Movement Lane Control Left Arrow Only sign (R3-5L), two (2) Mandatory Movement Lane Control Right Arrow Only signs (R3-5R), and one (1) Mandatory Movement Lane Control Sango Rd sign (R3-5 Mod.) on I-24 eastbound off-ramp located approximately 325 feet from the end of the ramp.

8. Install traffic signal at intersection of I-24 eastbound ramps and State Route 76. (See Appendix for traffic analysis for this intersection.)
9. Install one (1) area drain and approximately fifty-six (56) feet of eighteen (18) inch reinforced concrete pipe with Concrete Endwall Type "U" (per standard drawings D-PE-6B(1) & D-PE-6B(2)).
10. Remove two (2) Stop signs (R1-1) on the I-24 eastbound off-ramp at State Route 76.

15. Remove and replace one (1) Directional Sign Assembly (D1-2a, M3-4, M3-2, (2) Tn-6a, M6-1R, M6-1L) approximately 300 feet from the end of the ramp and offset per TDOT standard drawing T-S-9.
16. Remove and replace one (1) Destination Sign (D1-1) approximately 450 feet from the end of the ramp and offset per TDOT standard drawing T-S-9.
17. Remove and replace one (1) Directional Arrow Auxiliary sign (M6-3), one (1) Primary State Route sign (TN-6c), and one (1) Cardinal Directional Auxiliary Sign (M3-2) at their existing locations.
18. Install four (4) street name signs (D3-1) on the span wire as per City of Clarksville's requirements.

Note: All removed signs are to become property of City of Clarksville Street Department.



ROAD SAFETY AUDIT REVIEW

STATE ROUTE 76
L.M. 17.41 TO L.M. 17.82
MONTGOMERY COUNTY

- GUIDANCE
1. Install twelve (12) inch yellow diagonal pavement markings to prohibit use of the existing acceleration lane, westbound on State Route 76 at Sango Road.

2. Overlay pavement to a depth of 1.25 inches and install four (4) inch thermoplastic pavement markings, twelve (12) inch white plastic diagonal traverse channelization markings and turn arrows as shown on existing pavement from L.M. 17.41 to L.M. 17.63 on the westbound lanes and from L.M. 17.41 to L.M. 17.58 on the eastbound lanes.

3. Install thirty-eight (38) feet of stop bar on both State Route 76 eastbound and westbound at Sango Road.

4. Reconstruct the I-24 eastbound off-ramp with concrete lanes and asphalt shoulders based on the lane configuration shown. Install six (6) inch thermoplastic pavement markings. Install five (5) snowplowable mono-directional markers on lane lines at 80 feet spacing per TDOT Standard Drawing T-M-6.

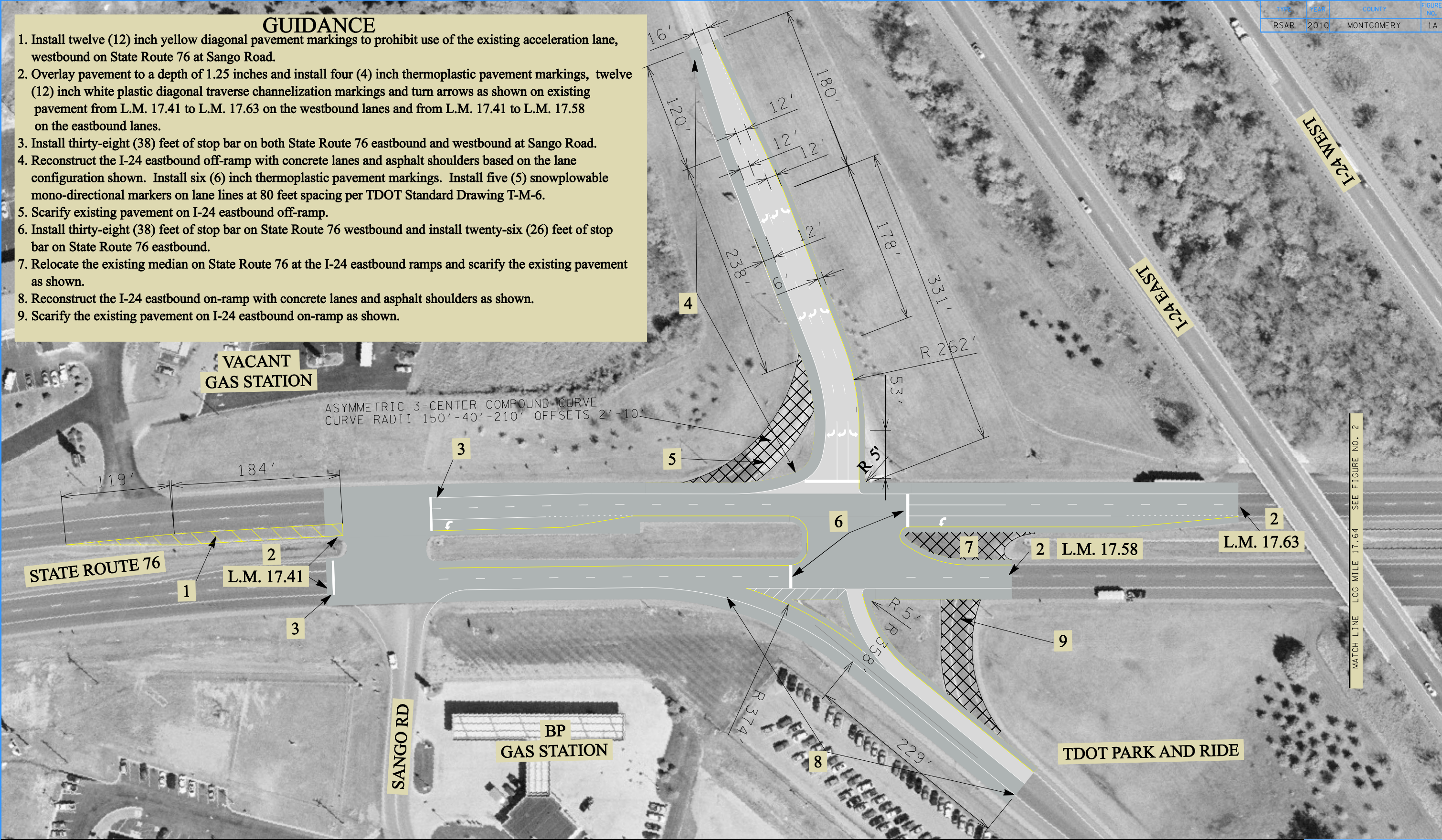
5. Scarify existing pavement on I-24 eastbound off-ramp.

6. Install thirty-eight (38) feet of stop bar on State Route 76 westbound and install twenty-six (26) feet of stop bar on State Route 76 eastbound.

7. Relocate the existing median on State Route 76 at the I-24 eastbound ramps and scarify the existing pavement as shown.

8. Reconstruct the I-24 eastbound on-ramp with concrete lanes and asphalt shoulders as shown.

9. Scarify the existing pavement on I-24 eastbound on-ramp as shown.



ROAD SAFETY AUDIT REVIEW

STATE ROUTE 76
L.M. 17.41 TO L.M. 17.82
MONTGOMERY COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

FIGURE 1A
S.R. 76
L.M. 17.41 to
L.M. 17.64

GUIDANCE

1. Widen the existing asphalt shoulder to a total width of ten (10) feet for a length of 100 feet from L.M. 17.72 to L.M. 17.74. Install four (4) inch thermoplastic pavement markings edge line as shown.
2. Install four (4) inch thermoplastic pavement markings on existing pavement, install ten (10) feet of stop bar and install turn arrows as shown.



ROAD SAFETY AUDIT REVIEW

STATE ROUTE 76
L.M. 17.41 TO L.M. 17.82
MONTGOMERY COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

FIGURE 2
S.R. 76
L.M. 17.64 to
L.M. 17.82

APPENDIX

TENNESSEE DEPARTMENT OF TRANSPORTATION

COUNTY	= Montgomery
Route	= SR 76
Location	= intersection with ramps I 24 east bound

Date: 8/31/2010

Highway Type = Urban divided
FUNCTIONAL CLASS Urban other principal arterial

DATA YEARS = 2006 - 2008

ADT YEARS USED= Adam 2008/trim

COMMENTS	= stop sign HESP add on / 2006 had fatal crash
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ANALYZED BY = DH

SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN OR EQUAL TO 0.10 MILE

BLM	ELM	Length	Average AADT	VMT
0.00		0.00		0
0.00		0.00		0
0.00		0.00		0
0.00	0.00	0.00	0	0
0.00	0.00	0.00	0	0
0.00	0.00	0.00	0	0
0.00	0.00	0.00	0	0
		0.00	0	0

INTERSECTION

Log Mile = 17.53/17.57

PRODUCED PURSUANT TO

PUBLIC RECORDS REQUEST

This document is covered by 23 USC §409

and its production pursuant to a public

document records request does not

waive the provisions of §409

Urban Divided 2006 - 2008

Leg	Traffic AADT
-----	--------------

North = 20,341

East = 5,343

South = 20,341

West = 6,406

Entering AADT = 26,216

Adam 2008/Trims

		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	45	1	1	2	14
No. of Years	=	3				
SW avg. rate	=	0.194	0.001	0.005	0.006	0.048
03-05 S/W Rates						
Exposure (E)	=	28.7060				
Crash Rate (A)	=	1.568	0.035	0.035	0.070	0.488
Critical Rate (C)	=	0.403				
Severity Index (SI)	=	0.4444				
Actual Rate/SW Average	=	8.08	34.84	6.97	11.61	10.16
Ratio of A/C	=	3.89				

* Severe Crashes are the sum of fatal and incapacitating injury crashes

Revised 4/3/2007

Crash Report Summary for Montgomery County - SR-76, Intersection with ramps from and to I-24 east (LM 17.53 to 17.57)

Crash Report #	L.M.	Crash Location	Driver Condition	Alcohol/ Drugs	Light Conditions	Weather Conditions	Driver Age	Fixed/ Not fixed Object	Collision	Driver Actions	Time of Crash	Type of crash
8906334	17.56	EB off-ramp (LT lane)	Unknown	Alcohol	Dark-Lighted	Snow	43	Motor veh in Transport	Angle	Failure to use lights	17:20	Fatal
9302885	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	22	Motor veh in Transport	Rear-end	Inattentive	10:50	Property Damage
9460706	17.56	EB on-ramp close to	Normal	None	Daylight	No Adverse Conditions	74	Motor veh in Transport	Sideswipe	Failure to yield right of way	9:01	Non-Incap Injury
9461475	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	24	Motor veh in Transport	Rear-end	Following Improperly	13:18	Property Damage
9461889	17.53	EB off-ramp (RT Lane)	Normal	None	Dark-Not Lighted	No Adverse Conditions	29	Motor veh in Transport	Rear-end	Reckless or Negligent driving	21:25	Incap Injury
9461922	17.56	Turning left from EB off-ramp	Normal	None	Daylight	No Adverse Conditions	35	Motor veh in Transport	Rear-end	Following Improperly & Inattentive	17:30	Property Damage
9302978	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	20	Motor veh in Transport	Rear-end	Following Improperly	14:47	Non-Incap Injury
9461328	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	30	Motor veh in Transport	Rear-end	Following Improperly	12:02	Property Damage
9302876	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	22	Motor veh in Transport	Rear-end	Others	13:00	Property Damage
9302079	17.53	WB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	27	Motor veh in Transport	Rear-end	Following Improperly	17:03	Non-Incap Injury
9302998	17.56	EB off-ramp (LT Lane)	Normal	None	Dusk	No Adverse Conditions	62	Motor veh in Transport	Angle	Failure to yield right of way	16:33	Property Damage
9186524	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	20	Motor veh in Transport	Rear-end	Inattentive	15:20	Property Damage
9186716	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	36	Motor veh in Transport	Rear-end	Following Improperly	18:55	Non-Incap Injury
9186745	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	45	Motor veh in Transport	Rear-end	Following Improperly	16:56	Non-Incap Injury
10129134	17.53	EB off-ramp (RT Lane)	Normal	None	Dark- Lighted	No Adverse Conditions	24	Deer(Animal)	Not collision with Motor Veh	No contributing Actions	21:00	Property Damage
10207184	17.56	EB off-ramp (LT Lane)	Normal	None	Daylight	No Adverse Conditions	20	Motor veh in Transport	Rear-end	Following Improperly	17:38	Non-Incap Injury
9777589	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	Rain	41	Motor veh in Transport	Rear-end	Following Improperly	16:50	Property Damage
9186702	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	21	Motor veh in Transport	Rear-end	Following Improperly	17:53	Property Damage
10284827	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	34	Motor veh in Transport	Rear-end	Following Improperly	15:22	Property Damage
9778084	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	Snow	47	-	Angle	No contributing Actions	7:00	Property Damage

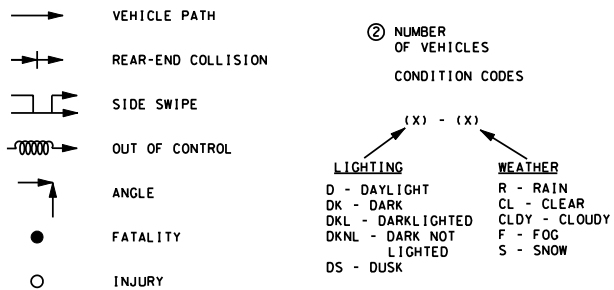
Crash Report Summary for Montgomery County - SR-76, Intersection with ramps from and to I-24 east (LM 17.53 to 17.57)

Crash Report #	L.M.	Crash Location	Driver Condition	Alcohol/ Drugs	Light Conditions	Weather Conditions	Driver Age	Fixed/ Not fixed Object	Collision	Driver Actions	Time of Crash	Type of crash
9186704	17.56	EB off-ramp (LT Lane)	Normal	None	Daylight	No Adverse Conditions	46	Motor veh in Transport	Rear-end	Following Improperly	16:58	Non-Incap Injury
8906118	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	17	Motor veh in Transport	Rear-end	Failure to yield right of way	17:51	Non-Incap Injury
10207118	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	40	Motor veh in Transport	Rear-end	Following Improperly	18:35	Property Damage
9552472	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	29	Motor veh in Transport	Rear-end	Following Improperly	11:52	Non-Incap Injury
10284472	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	48	Motor veh in Transport	Rear-end	Following Improperly	15:42	Non-Incap Injury
10207177	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	54	Motor veh in Transport	Rear-end	Following Improperly	17:02	Non-Incap Injury
10128599	17.53	EB off-ramp (RT Lane)	Normal	None	Dusk	No Adverse Conditions	34	Motor veh in Transport	Rear-end	Inattentive	16:50	Property Damage
10004191	17.56	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	49	Motor veh in Transport	Angle	Improper turn and careless or erratic driving	17:28	Property Damage
8449897	17.53	EB off-ramp (LT Lane)	Normal	None	Daylight	No Adverse Conditions	77	Motor veh in Transport	Rear-end	Careless or Erratic Driving	13:15	Property Damage
10129031	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	32	Motor veh in Transport	Rear-end	Following Improperly	9:00	Property Damage
10070453	17.53	EB off-ramp (RT Lane)	Normal	None	Dark-Lighted	No Adverse Conditions	27	Motor veh in Transport	Rear-end	Inattentive	20:55	Property Damage
9187066	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	22	Motor veh in Transport	Rear-end	Inattentive	14:35	Non-Incap Injury
9552049	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	19	Motor veh in Transport	Rear-end	Failure to yield right of way	19:00	Property Damage
10237941	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	20	Motor veh in Transport	Rear-end	Inattentive	11:30	Property Damage
10003780	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	34	Motor veh in Transport	Rear-end	Following Improperly	15:13	Property Damage
10237840	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	61	Motor veh in Transport	Rear-end	Following Improperly	16:58	Property Damage
10237829	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	59	Motor veh in Transport	Rear-end	Following Improperly	15:48	Property Damage
10310947	17.56	EB off-ramp (LT Lane)	Normal	None	Dark-lighted	No Adverse Conditions	66	Motor veh in Transport	Angle	Failure to Obey Traffic Controls	17:10	Property Damage
9551932	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	26	Motor veh in Transport	Rear-end	Following Improperly	14:09	Property Damage
10070660	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	47	Motor veh in Transport	Rear-end	Following Improperly	10:31	Non-Incap Injury
10237357	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	32	Motor veh in Transport	Rear-end	Following Improperly	17:38	Non-Incap Injury

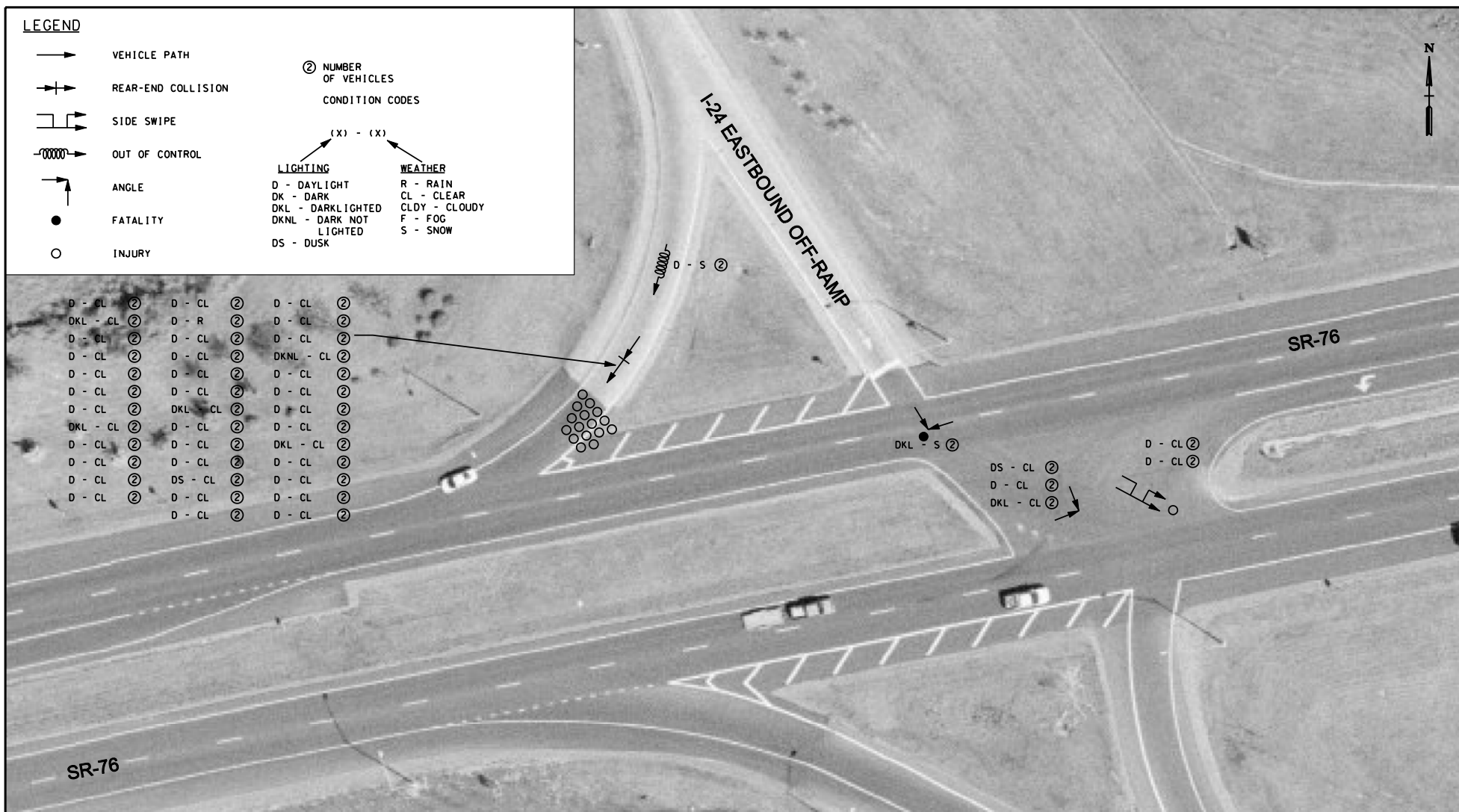
Crash Report Summary for Montgomery County - SR-76, Intersection with ramps from and to I-24 east (LM 17.53 to 17.57)

Crash Report #	L.M.	Crash Location	Driver Condition	Alcohol/ Drugs	Light Conditions	Weather Conditions	Driver Age	Fixed/ Not fixed Object	Collision	Driver Actions	Time of Crash	Type of crash
10237426	17.56	EB off-ramp (LT Lane)	Normal	None	Daylight	No Adverse Conditions	42	Motor veh in Transport	Sideswipe, same direction	Inattentive	14:45	Property Damage
10237595	17.53	EB off-ramp	Normal	None	Daylight	No Adverse Conditions	48	Motor veh in Transport	Rear-end	Following Improperly	7:20	Property Damage
8449893	17.53	EB off-ramp (RT Lane)	Normal	None	Daylight	No Adverse Conditions	42	Motor veh in Transport	Rear-end	Following Improperly & Careless or erratic driving	14:33	Property Damage
10237368	17.53	EB off-ramp (RT Lane)	Normal	None	Dark-Lighted	No Adverse Conditions	22	Motor veh in Transport	Rear-end	Following Improperly	20:40	Property Damage

LEGEND



D - CL ②	D - CL ②	D - CL ②
DKL - CL ②	D - R ②	D - CL ②
D - CL ②	D - CL ②	D - CL ②
D - CL ②	D - CL ②	DKNL - CL ②
D - CL ②	D - CL ②	D - CL ②
D - CL ②	D - CL ②	D - CL ②
D - CL ②	DKL - CL ②	D - CL ②
DKL - CL ②	D - CL ②	D - CL ②
D - CL ②	D - CL ②	DKL - CL ②
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D - CL ②	D - CL ②	D - CL ②



SCALE 1" = 20'

COLLISION DIAGRAM - I-24 EASTBOUND OFF-RAMP AT SR-76