
WILLIAMSON COUNTY MAJOR CORRIDORS STUDY

DRAFT REPORT

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Prepared by



In cooperation with



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1.0 INTRODUCTION

Williamson County is one of the fastest growing counties in middle Tennessee. The growth in population and economic activity has had a significant impact on vehicular travel demand in the region over the past decade and will continue to be an issue for the foreseeable future. In an effort to address the impact of the growth on major transportation corridors in the county, the Williamson County Highway Commission (WCHC) identified four county roadways for detailed study. The corridors are:

- Sneed Road – Hillsboro Road (SR 106) to the Williamson County line (Pasquo Road),
- Lynnwood Way / S. Berrys Chapel Road – Franklin Road (SR 6) to Hillsboro Road (SR 106),
- Clovercroft Road – Murfreesboro Road (SR 96) to the Nolensville Town Limits, and
- Arno Road – Murfreesboro Road (SR 96) to Horton Highway (SR 11).

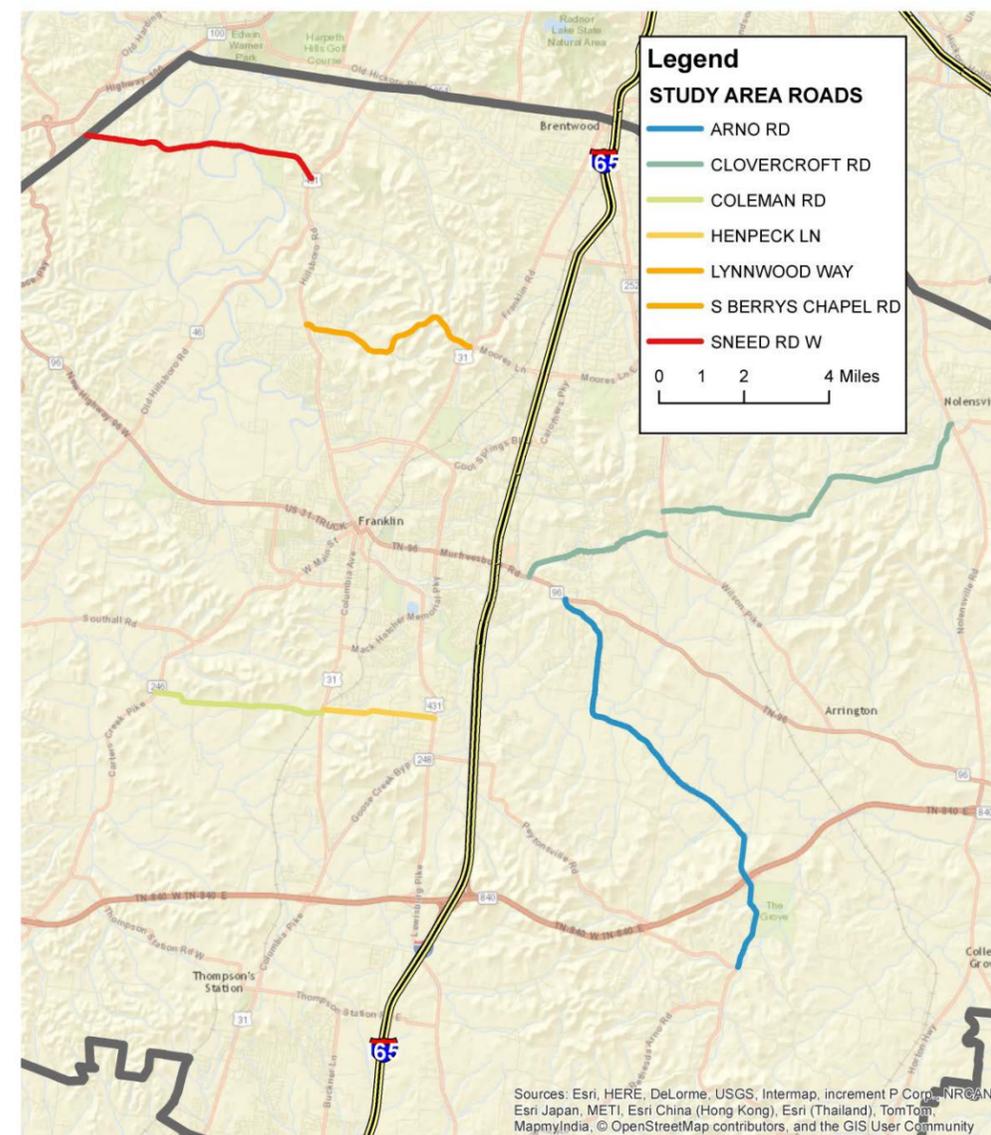
In addition to the corridors above, WCHC also identified three intersections for analysis. Those intersections are:

- Coleman Road / Columbia Pike (SR 6),
- Henpeck Lane / Columbia Pike (SR 6), and
- Henpeck Lane / Lewisburg Pike (SR 106).

Specifically, the goals of the study are to:

- Determine specific concerns regarding traffic flow, operations and safety issues associated with the four corridors and three intersections.
- Review previous traffic studies conducted in the area as well as other local planning initiatives from neighboring jurisdictions, which might impact the study corridors and intersections.
- Review previous traffic counts conducted for the study roadways and intersections and collect traffic data where none exists.
- Develop a microsimulation traffic model for all studied intersections and corridors. This model will be used to perform existing and future capacity analyses.
- Conduct capacity analyses of the existing traffic volumes and laneage of the study corridors and intersections. Existing levels of service and delay will be identified for the roadway segments and intersections.
- Develop future traffic projections for the study roads. Traffic projections for a future design year will be developed.
- Conduct capacity analyses of the projected traffic volumes on the study area roadways. Projected levels of service and delay will be identified for the roadway segments and intersections.
- Evaluate the safety statistics of the study corridors to identify areas with a higher than expected crash experience.
- Identify existing roadway deficiencies that have a negative impact on mobility, and safety.
- Recommend roadway improvements to help mitigate congestion and improve safety through the planning horizon.

The study area is bounded by Williamson County Limits. It incorporates approximately 29 study intersections. The corridors and intersections under study are located in all sectors of Williamson County.



Study Area Roads

2.0 EXISTING CONDITIONS

The existing conditions analysis provides an assessment of the current mobility of the Major Corridors within the study area. This assessment helps to set an operational baseline and to identify existing deficiencies in the transportation infrastructure. The analysis includes evaluation of data collected on roadway infrastructure, safety, traffic volumes, and traffic capacity of the study area. The following sections provide detailed information on each of these areas.

2.1 Existing Roadway Network

As mentioned previously, the study area of this report includes four Major Corridors: Sneed Road, Lynnwood Way / S. Berrys Chapel Road, Clovercroft Road, and Arno Road. At the request of WCHC, additional study was done on Henpeck Lane. During site visits conducted to the study locations, various roadway inventory information provided by the Regional MPO was field verified for all the roadways in the study area. The table to the right provides key roadway inventory data.

All of the roadways in the study area are generally classified as two-lane roadways. However, some sections have separate right and/or left turn lanes. Curbs and sidewalks do not exist for the vast majority of the roadways. There are no bike lanes provided on any of the roadways in the study area.

The following section provides brief descriptions of the roadways in the study area.

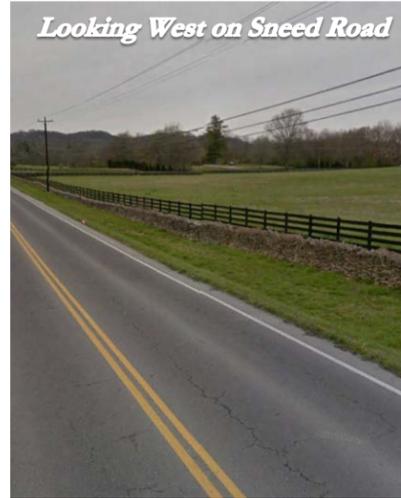
Major Corridor Inventory

Intersection	Section	Total Pavement Width	Shoulder Width	Number of Lanes	Lane Width (ft)	Pavement Mile	Speed Limit (mph)	Curb	Parallel Parking	Sidewalk	Bike Lane
Sneed Road	Pasquo Rd to Temple Rd	24	2	2	10	0.91	40	No	No	No	No
Sneed Road	Temple Rd to Vaughn Rd	24	2	2	10	2.0	40	No	No	No	No
Sneed Road	Vaughn Rd to Hillsboro Rd	24	2	2	10	1.92	40	No	No	No	No
Clovercroft Road	Murfreesboro Rd to Wilson Pike	26	2	2	11	2.87	40	No	No	No	No
Clovercroft Road	Wilson Pike to Nolensville Pike	24	2	2	10	5.67	30/40	No	No	No	No
Lynnwood Way / South Berrys Chapel Road	Hillsboro Rd to S Berrys Chapel Rd	28	3	2	11	1.7	30/40	No	No	No	No
Lynnwood Way / South Berrys Chapel Road	S Berrys Chapel Rd to Sawyer Rd	36	6	2	12	1.1	40	No	No	No	No
Lynnwood Way / South Berrys Chapel Road	Sawyer Rd to Franklin Rd	36	6	2	12	0.98	40	No	No	No	No
Arno Road	Murfreesboro Rd to Middle School	26	2	2	11	5.25	50	No	No	No	No
Arno Road	Middle School to Stags Leap Way	34	5	2	12	0.4	40	No	No	No	No
Arno Road	Stags Leap Way to SR 840	24	2	2	10	1.35	40	No	No	No	No
Arno Road	SR 840 to Peytonsville Arno Rd	32	4	2	12	1.72	40	No	No	No	No
Arno Road	Peytonsville Arno Rd to Horton Hwy	23	1.5	2	10	6.31	50	No	No	No	No
Henpeck Lane	Columbia Pike to Durham Manor Dr	24	2	2	10	1.29	40	No	No	No	No
Henpeck Lane	Durham Manor Dr to Lewisburg Pk	24	2	2	10	0.85	40	No	No	No	No

Sneed Road

Sneed Road is classified as a collector roadway in the 2011 Major Thoroughfare Plan for Williamson County and provides regional east/west connectivity from Hillsboro Pike (SR 106) to Pasquo Road/Williamson County line. There are no bike lanes or sidewalks on Sneed Road.

Sneed Road is a two-lane two-way roadway with a posted speed limit of 40 mph. The pavement width is approximately 24 feet in the study area.



Looking West on Sneed Road

Arno Road

Arno Road is classified as a collector roadway in the 2011 Major Thoroughfare Plan for Williamson County. Arno Road travels generally in a north/south direction and provides a connection between Murfreesboro Road (SR 96), SR 840, and Horton Highway (SR 11). Along the way, the roadway provides access to single family homes, as well as to Page Middle School and Page High School.

Arno Road is a two-lane two-way roadway with an approximate 23-34 foot wide pavement width. Sidewalks are not provided on either side of the roadway for the majority of the route. Generally, there are no curbs on the roadway. In addition, bike lanes are not provided on any section of Arno Road.



Looking North on Arno Road



Looking West on Clovercroft Road

Clovercroft Road

Clovercroft Road is classified as a collector roadway in the 2011 Major Thoroughfare Plan for Williamson County. Clovercroft Road travels generally in an east/west direction and provides a connection between Nolensville Pike and Murfreesboro Road (SR 96). Along its way, the roadway provides access to single family homes, as well as to Clovercroft Elementary School.

Clovercroft Road is a two-lane two-way roadway with an approximate 24-26 foot wide pavement width. Sidewalks are not provided on either side of the roadway for the majority of the section in the study area. Generally, there are no curbs on the roadway. In addition, bike lanes are not provided on any section of Clovercroft Road.

Lynnwood Way / South Berrys Chapel Road

Lynnwood Way / South Berrys Chapel Road is classified as a local roadway in the 2011 Major Thoroughfare Plan for Williamson County. Lynnwood Way travels generally in an east/west direction and provides a connection between Franklin Road (SR 6) and Hillsboro Road (SR 106). The roadway generally provides access to single family homes and also serves as a connection to I-65 and the Cool Springs area.

Lynnwood Way is a two-lane two-way roadway with an approximate 28-36 foot wide pavement width. The Lynnwood Way corridor has a rolling to hilly terrain, with a nine percent slope in some sections. Sidewalks are not provided on either side of the roadway for the majority of the section in the study area. Generally, there are no curbs on the roadway. In addition, bike lanes are not provided on any section of Lynnwood Way.



Looking West on Lynnwood Way



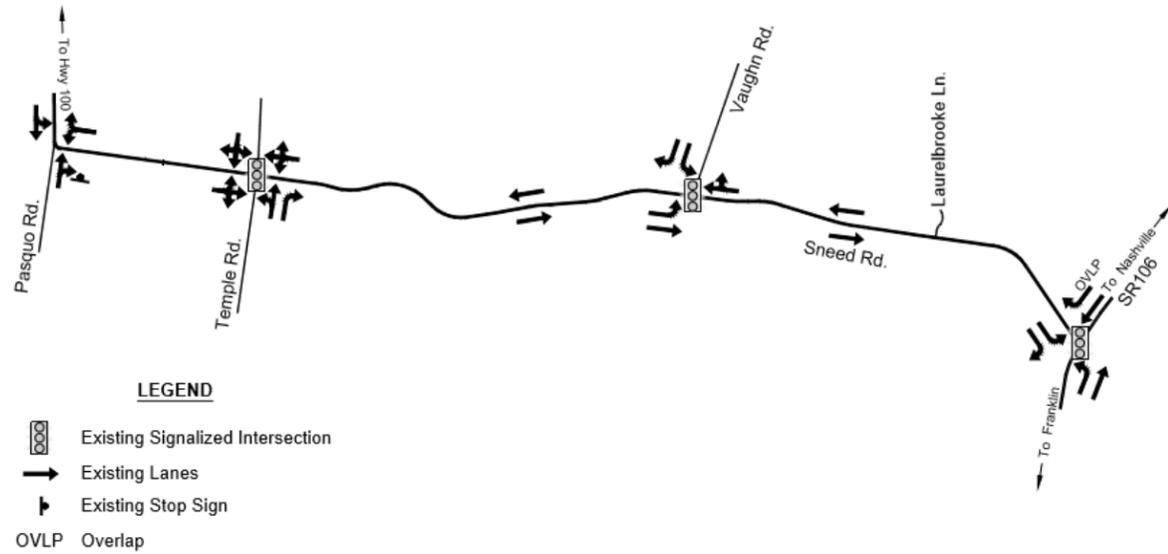
Looking East on Henpeck Lane

Henpeck Lane

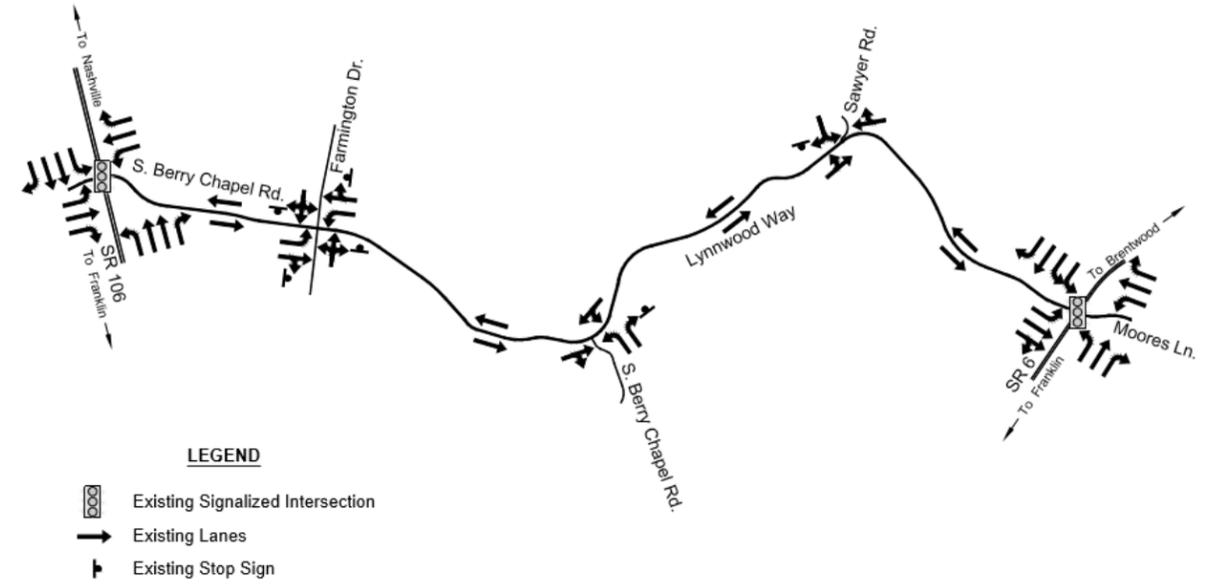
Henpeck Lane is classified as a local roadway in the 2011 Major Thoroughfare Plan for Williamson County. Henpeck Lane travels generally in an east/west direction and provides a connection between Columbia Pike (SR 6) and Lewisburg Pike (SR 106). Along the way, the roadway provides access to single family homes and some commercial development at Lewisburg Pike. Along this corridor, only key intersections will be analyzed.

2.2 Existing Laneage

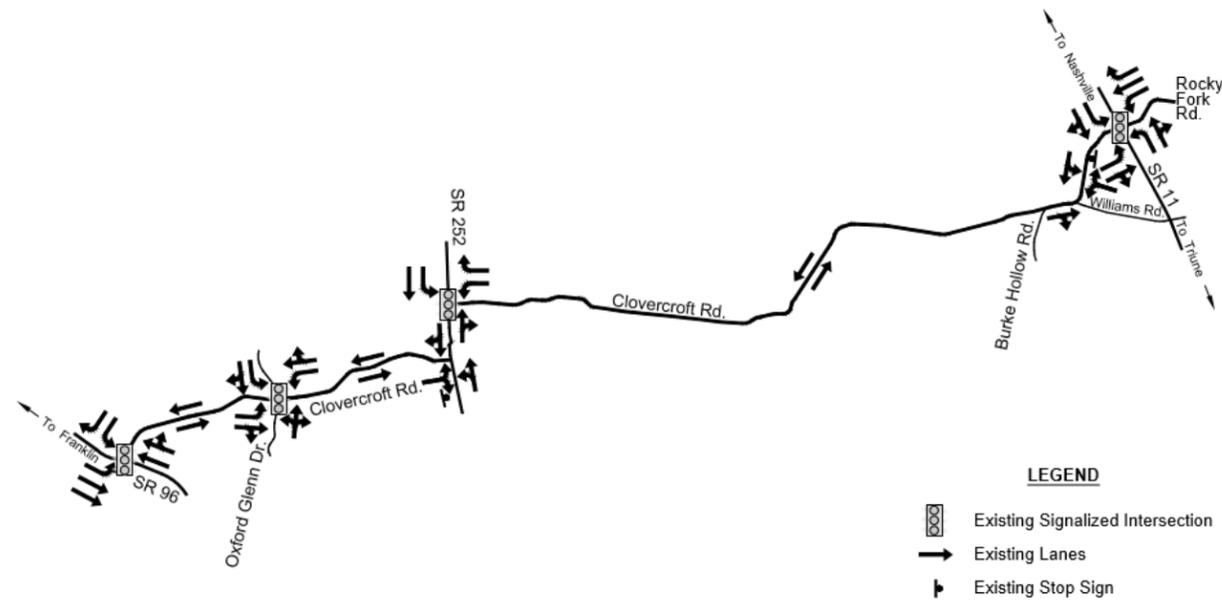
The existing laneage for each corridor is as shown in the figures below:



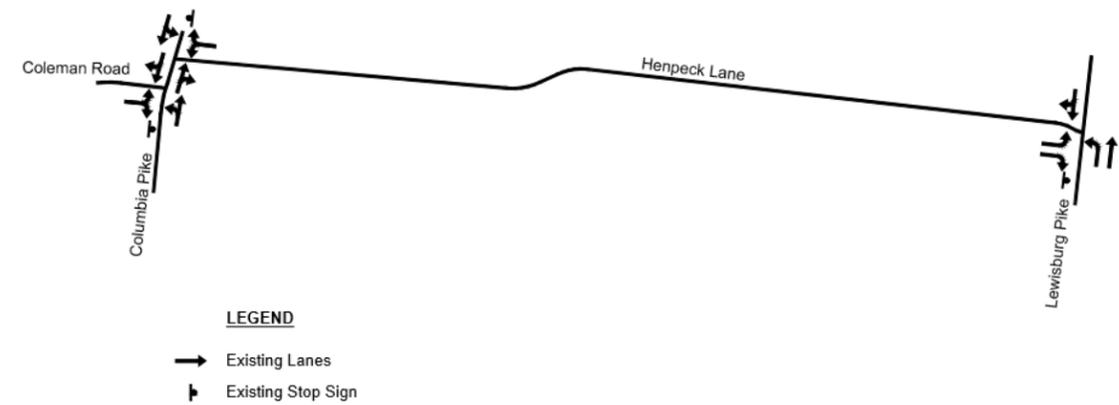
Sneed Road Corridor Existing Laneage



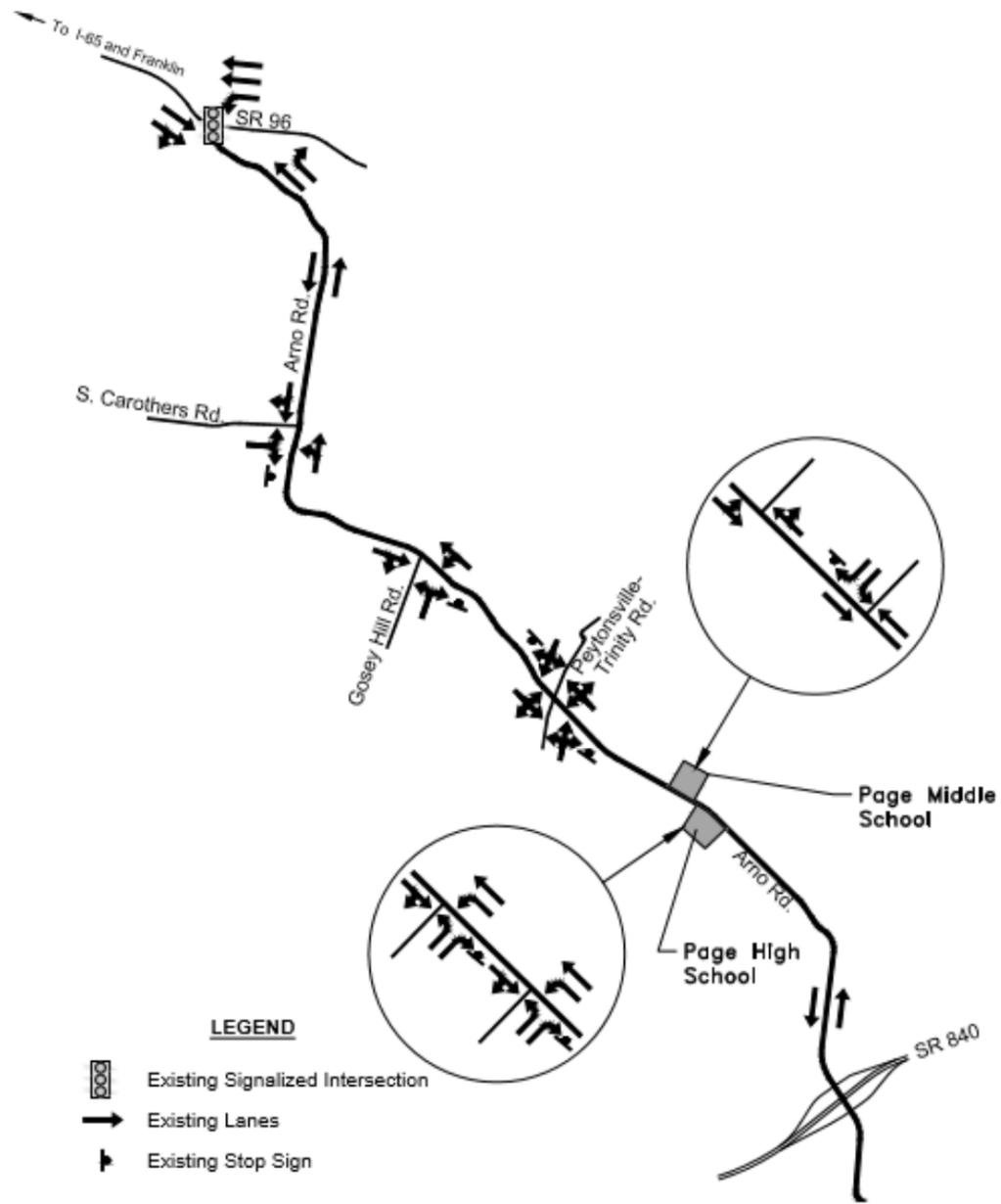
Lynnwood Way / South Berrys Chapel Road Corridor Existing Laneage



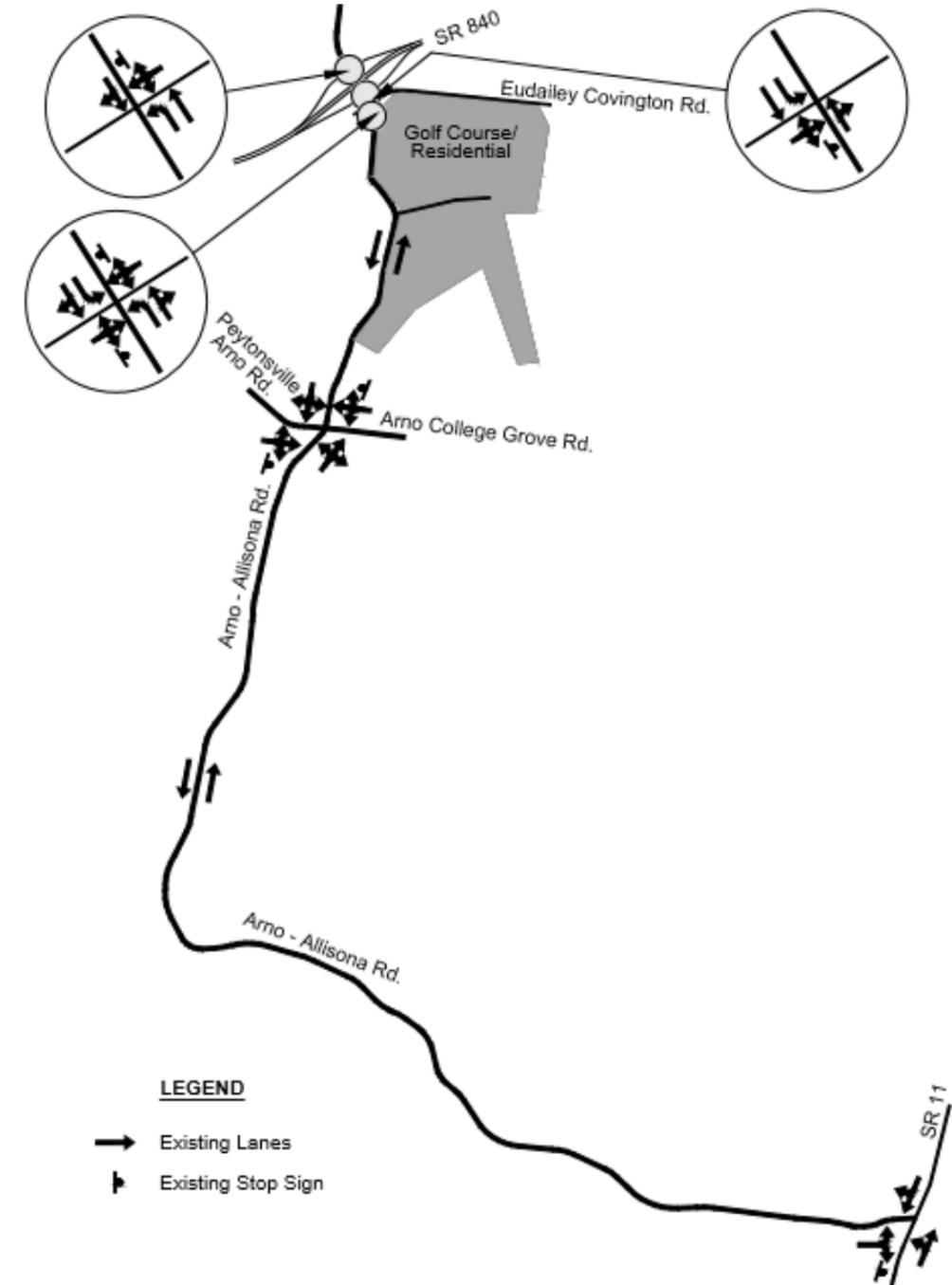
Clovercraft Road Corridor Existing Laneage



Henpeck Lane Corridor Existing Laneage



Arno Road Corridor (North) Existing Laneage



Arno Road Corridor (South) Existing Laneage

2.3 Existing Traffic Volumes

In order to analyze the existing vehicular operations and conduct intersection and roadway capacity analyses, weekday a.m. and p.m. peak hour turning movement counts and average daily traffic volumes were collected.

Turning movement counts were sourced from recent traffic impact studies or field collected by Collier Engineering on typical weekdays. The intersection counts were used to develop peak hour turning movements at each study intersection. The counts were analyzed and balanced along each corridor.

Average daily traffic (ADT) was also collected from applicable Tennessee Department of Transportation (TDOIT) count stations and/or field collected by Collier Engineering on typical weekdays. The table below provides ADT data for the study segments. Existing ADT and peak hour turning movement count diagrams for all study corridors are provided in the appendix.

Corridor Traffic Data

Roadway	Segment	Segment Length (miles)	Speed Limit (mph)	ADT (vpd)
Sneed Road	Pasquo Rd to Temple Rd	0.91	40	3,176
	Temple Rd to Vaughn Rd	2	40	13,915
	Vaughn Rd to Hillsboro Rd	1.92	40	13,915
Clovercroft Road	Murfreesboro Rd to Wilson Pike	2.87	40	3,488
	Wilson Pike to Nolensville Town Limits	5.67	30/40	10,079
Lynnwood Way	Hillsboro Rd to S Berrys Chapel Rd	1.7	30/40	9,552
	S Berrys Chapel Rd to Sawyer Rd	1.1	40	9,552
	Sawyer Rd to Franklin Rd	0.98	40	10,078
Arno Road	Murfreesboro Rd to Middle School	5.25	50	10,311
	Middle School to Stags Leap Way	0.4	40	5,424
	Stags Leap Way to SR 840	1.35	40	5,424
	SR 840 to Peytonsville Arno Rd	1.72	40	2,902
	Peytonsville Arno Rd to Horton Hwy	6.31	50	1,444
Henpeck Ln	Columbia Pike to Lewisburg Pike	2.14	40	3,355

2.4 Existing Traffic Operations

In order to analyze the existing vehicular patterns and conduct intersection capacity analyses, weekday a.m. and p.m. peak hour turning movement counts and average daily traffic was collected along each corridor. The tables below show the specific intersections and roadway segments analyzed.

Key Intersections Analyzed:

Corridor	Intersection	
Sneed Road	Pasquo Rd	
	Temple Rd	
	Vaughn Rd	
	Hillsboro Rd	
Clovercroft Road	Murfreesboro Rd	
	Oxford Glen Dr	
	Wilson Pike, South	
	Wilson Pike, North	
Lynnwood Way	Hillsboro Rd	
	Farmington Dr	
	S. Berrys Chapel Rd	
	N. Berrys Chapel Rd Connection	
	Franklin Rd	
Arno Road	Murfreesboro Rd	
	S. Carothers Rd	
	Gosey Hill Rd	
	Peytonsville - Trinity Rd	
	Middle School Exit	
	High School Exit	
	SR 840 WB Ramps	
	SR 840 EB Ramps	
	Eudailey-Covington Rd	
	Peytonsville - Arno Rd	
	Horton Hwy	
	Coleman Road	Columbia Pike
	Henpeck Ln	Columbia Pike
Lewisburg Pike		

Key Road Segments Analyzed

Road:	Sneed Road Corridor
Segment #	Description
1	Pasquo Rd to Temple Rd
2	Temple Rd to Vaughn Rd
3	Vaughn Rd to Hillsboro Rd
Road:	Clovercroft Road Corridor
Segment #	Description
1	Murfreesboro Rd to Wilson Pike
2	Wilson Pike to Nolensville Town Limits
Road:	Lynnwood Way / South Berrys Chapel Road Corridor
Segment #	Description
1	Hillsboro Rd to S Berrys Chapel Rd
2	S Berrys Chapel Rd to Sawyer Rd
3	Sawyer Rd to Franklin Rd
Road:	Arno Road Corridor
Segment #	Description
1	Murfreesboro Rd to Middle School Driveway
2	Middle School to Stags Leap Way
3	Stags Leap Way to SR 840
4	SR 840 to Peytonsville Arno Rd
5	Peytonsville Arno to Horton Hwy

Existing Capacity Analysis

To determine the current operation of the study area intersections and roadways, capacity analyses were performed for the weekday a.m. and p.m. peak hours and the average daily traffic volumes. The intersection capacity calculations were performed according to the methods outlined in the *Highway Capacity Manual*, TRB 2010 using Synchro 9 software. The roadway capacity analyses were performed using mainline ADT capacity tables developed by RPM. The capacity analyses result in the determination of a level-of-service (LOS) for an intersection and roadway segment. The LOS is a concept used to describe how well an intersection or roadway operates. LOS A is the best, while LOS F is the worst. Tables below present the descriptions of LOS for unsignalized intersections and signalized intersections, respectively. Generally, an unsignalized intersection with a critical movement operating with a low volume at LOS F or better and a signalized intersection operating with overall intersection operating at LOS D or better are considered acceptable. The following table acts as a reference for the lane assignment and movement abbreviations used throughout the study.

Descriptions of LOS for Unsignalized Intersections

LEVEL OF SERVICE	DESCRIPTION	CONTROL DELAY (sec/veh)
A	Little or no delay	≤ 10.0
B	Short traffic delay	>10 and ≤ 15
C	Average traffic delay	>15 and ≤ 25
D	Long traffic delay	>25 and ≤ 35
E	Very long traffic delay	>35 and ≤ 50
F	Extreme traffic delay	> 50.0

Description of LOS for Signalized Intersections

LEVEL OF SERVICE	DESCRIPTION	CONTROL DELAY (sec/veh)
A	Operations with very low delay. This occurs when progression is extremely favorable. Most vehicles do not stop at all.	≤ 10
B	Operations with stable flows. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	>10 and ≤ 20
C	Operations with stable flow. Occurs with fair progression and/or longer cycle lengths. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	>20 and ≤ 35
D	Approaching unstable flow. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop.	>35 and ≤ 55
E	Unstable flow. This is considered to be the limit for acceptable delay. These high delays generally indicate poor progression, long cycle lengths, and high V/C ratios.	>55 and ≤ 80
F	Unacceptable delay. This condition often occurs with over saturation or with high V/C ratios. Poor progression and long cycle lengths may also cause such delay levels.	>80.0

Abbreviation Descriptions

Abbreviation	Movement/Lane Assignment
WB, EB, NB, SB	Westbound, Eastbound, Northbound, Southbound
R, T, L	Right, Through, Left
TR	Shared Through/Right
LR	Shared Left/Right
LT	Shared Left/Through
LTR	Shared Left/Through/Right
TWCTL	Two-way center turn lane

The table below includes the existing intersection capacity analysis results. As shown in the table, all of the study signalized intersections are currently operating at an acceptable level-of-service with the exception of the signalized intersection of Clovercroft Road at Wilson Pike, North which operates at LOS F during the AM peak hour. As expected, all of the critical turning movements at the unsignalized intersections operate at varying levels of service. Capacity analyses worksheets are included in the appendix.

Existing Intersection Capacity Results

2015 Existing Intersection LOS and Delay (sec)						
Corridor	Intersection	Critical Movement	AM		PM	
			LOS	Delay	LOS	Delay
Sneed Road	Pasquo Rd	NB-TR	A	8.4	A	8.4
	Temple Rd	Overall	B	17.6	B	17.8
	Vaughn Rd	Overall	B	11.8	B	13.1
	Hillsboro Rd	Overall	C	24.7	C	22.6
Clovercroft Road	Murfreesboro Rd	Overall	C	26.6	B	11.5
	Oxford Glen Dr	Overall	B	14.2	B	12.9
	Wilson Pike, South	EB-LR	C	22.4	C	18.7
	Wilson Pike, North	Overall	F	84.5	C	23.3
Lynnwood Way	Hillsboro Rd	Overall	B	18.8	B	17.8
	Farmington Dr	EB-LTR	F	59.2	E	38.3
	S. Berrys Chapel Rd	NB-LR	C	19.9	C	24.3
	N. Berrys Chapel Rd Connection	SB-LR	E	39.4	C	22.7
	Franklin Rd	Overall	C	31.4	D	34.7
Arno Road	Murfreesboro Rd	Overall	C	23.7	D	52.1
	S. Carothers Rd	EB-LR	B	13.7	C	22.9
	Gosey Hill Rd	EB-LR	D	31.1	E	34.4
	Peytonsville - Trinity Rd	EB-LTR	F	91.1	D	28.1
		WB-LTR	F	53.5	E	35.7
	Middle School Exit	WB-L	D	34.9	C	22.3
		WB-R	C	18.9	A	9.8
	High School Exit	EB-L	C	21	D **	26
		EB-R	B	12.1	C *	20.9
	SR 840 WB Ramps	WB-LTR	E	38.4	B	13.8
	SR 840 EB Ramps	EB-LTR	B	11.8	D	30
Eudailey-Covington Rd	EB L	B	13.8	B	12.7	
	WB L	A	10	A	9.4	
Peytonsville - Arno Rd	EB-LTR	B	12.9	B	10.8	
	WB-LTR	B	13.3	B	11.1	
Horton Hwy	EB-LTR	B	11.3	B	10.7	
Coleman Road	Columbia Pike	EB-LR	E	47.9	E	40.3
Henpeck Ln	Columbia Pike	WB-LR	D	31.4	D	31.6
	Lewisburg Pike	EB-L	F	>100	E	46.7

* South Exit
** North Exit

A capacity analysis was also conducted for the roadway segments for each study corridor. Mainline capacity lookup tables were used in this analysis. The results of the roadway capacity analysis are given in the table below.

2015 Corridor Capacity Analysis

2015 Corridor Capacity Analysis								
Sneed Road Corridor								
Road:								
Segment #	Description	Shoulder Width (ft)	Lane Width (ft)	Segment Length (miles)	Speed Limit (mph)	Access-Point Density	ADT	LOS
1	Pasquo Rd to Temple Rd	2	10	0.91	40	15	3,176	A
2	Temple Rd to Vaughn Rd	2	10	2	40	22	13,915	C
3	Vaughn Rd to Hillsboro Rd	2	10	1.92	40	17	13,915	C
Clovercroft Road Corridor								
Road:								
Segment #	Description	Shoulder Width (ft)	Lane Width (ft)	Segment Length (miles)	Speed Limit (mph)	Access-Point Density	ADT	LOS
1	Murfreesboro Rd to Wilson Pike	2	11	2.87	40	24	3,488	A
2	Wilson Pike to Nolensville Town Limits	2	10	5.67	30/40	19	10,079	C
Lynnwood Way / South Berrys Chapel Road Corridor								
Road:								
Segment #	Description	Shoulder Width (ft)	Lane Width (ft)	Segment Length (miles)	Speed Limit (mph)	Access-Point Density	ADT	LOS
1	Hillsboro Rd to S Berrys Chapel Rd	3	11	1.7	30 / 40	16	9,552	B
2	S Berrys Chapel Rd to Sawyer Rd	6	12	1.1	40	8	9,552	B
3	Sawyer Rd to Franklin Rd	6	12	0.98	40	8	10,078	C
Arno Road Corridor								
Road:								
Segment #	Description	Shoulder Width (ft)	Lane Width (ft)	Segment Length (miles)	Speed Limit (mph)	Access-Point Density	ADT	LOS
1	Murfreesboro Rd to Middle School	2	11	5.25	50	22	10,311	C
2	Middle School to Stags Leap Way	5	12	0.4	40	30	5,424	A
3	Stags Leap Way to SR 840	2	10	1.35	40	24	5,424	A
4	SR 840 to Peytonsville Arno Rd	4	12	1.72	40	18	2,902	A
5	Peytonsville Arno Rd to Horton Hwy	1.5	10	6.31	50	17	1,444	A

2.5 Crash Data

Three years of corridor-specific crash data was obtained from TDOT and evaluated as crash rates (# crashes/travel exposure). A general analysis of crash severity was performed for each corridor to determine where the recent crash experience has exceeded the statewide average for similar roadways. The results of the crash analysis are summarized in the following table.

Crash location maps are included in the appendix.

Crash Analysis Summary

Road	Segment	2013-2015 Stats	Total	Fatal	Incapacitating	Other
Sneed Road	Williamson County Line to Old Natchez Trace	Number of Crashes	31	0	0	5
		Crash Rate	4.559	0	0	0.735
		SW Avg Rate	2.895	0.011	0.072	0.706
	Crash Rate/SW Avg Rate	1.575	0	0	1.042	
	Old Natchez Trace to Hillsboro Road	Number of Crashes	22	0	0	4
		Crash Rate	0.726	0	0	0.132
SW Avg Rate		2.553	0.034	0.139	0.701	
Crash Rate/SW Avg Rate	0.284	0	0	0.188		
Clovercroft Road	Murfreesboro Road to Wilson Pike	Number of Crashes	26	0	0	2
		Crash Rate	0.824	0	0	0.063
		SW Avg Rate	2.895	0.011	0.072	0.706
	Crash Rate/SW Avg Rate	0.285	0	0	0.09	
	Wilson Pike to Williams Road	Number of Crashes	74	0	1	17
		Crash Rate	1.193	0	0.016	0.274
		SW Avg Rate	2.553	0.034	0.139	0.701
	Crash Rate/SW Avg Rate	0.467	0	0.115	0.391	
	Williams Road to Nolensville Pike	Number of Crashes	8	1	0	1
		Crash Rate	1.225	0.153	0	0.153
		SW Avg Rate	2.895	0.011	0.072	0.706
	Crash Rate/SW Avg Rate	0.423	13.91	0	0.217	
Lynnwood Way / South Berrys Chapel Road	Hillsboro Road to Farmington Dr	Number of Crashes	3	0	0	1
		Crash Rate	0.402	0	0	0.134
		State Wide (SW) Avg Rate	2.895	0.011	0.072	0.706
	Crash Rate/SW Avg Rate	0.139	0	0	0.19	
	Farmington Dr to Lynnwood Way	Number of Crashes	26	0	1	7
		Crash Rate	2.439	0	0.094	0.657
		SW Avg Rate	2.553	0.034	0.139	0.701
	Crash Rate/SW Avg Rate	0.955	0	0.676	0.937	
	Treemont Lane to Franklin Pike	Number of Crashes	17	0	0	5
		Crash Rate	0.55	0	0	0.162
		SW Avg Rate	2.895	0.011	0.072	0.706
	Crash Rate/SW Avg Rate	0.19	0	0	0.229	
Arno Road	Murfreesboro Road to Horton Highway	Number of Crashes	226	0	0	58
		Crash Rate	3.121	0	0	0.801
		SW Avg Rate	2.553	0.034	0.139	0.701
Crash Rate/SW Avg Rate	1.222	0	0	1.143		

The shaded boxes in the table indicate segments where the statewide average crash rate by severity was exceeded. Overall, these four primary corridors were found to have typical crash experiences with most corridor segments well below the statewide average for all crash severities. Some exceptions do exist, these are as follow:

- The western segment of Sneed Road was documented as having 31 crashes along its length. Given the length of the segment and the volume of traffic it carries, the resulting crash rate is 4.6 crashes per million vehicle miles. Thus, the segment exceeds the statewide average by almost 60%. The non-incapacitating injury crash rate was just slightly over the statewide average. This segment had a safety study performed by TDOT recently and signing and marking improvements should be implemented in the near future.
- The eastern end of Clovercroft Road (partially within Nolensville Town Limits) experienced one fatal crash in three years' worth of data. This one event significantly raised the segment crash rate. Although tragic and potentially worthy of further engineering investigation, this does not appear to be a pattern.
- Arno Road was found to have the most significant crash history. The route had 226 documented crashes over the past three years with 58 of them resulting in injuries. Fortunately, none were incapacitating and no fatalities occurred. Crash rates for all crashes and non-incapacitating injuries were above the statewide average. Closer inspection shows that most (about 84%) of these crashes occurred in the segment north of SR 840. Nine crashes were noted to have occurred near the Page School campus.

3.0 PROJECTED CONDITIONS

The anticipated growth within Williamson County and adjacent counties is expected to have a significant effect on travel demand and, consequently, congestion within the study area. The corridors under investigation may bear a higher-than-average share of this traffic growth. This is because these corridors access lands that remain available for new development or higher density redevelopment. This section details the forecasted traffic on the study routes, the impacts of this traffic growth, and the need for roadway improvements to mitigate these impacts.

3.1 Projected Traffic Volumes

To estimate future traffic volumes for the study corridors and intersections, a combination of sources were used including, existing traffic data, TDOT’s historic traffic data, traffic estimates from known major new developments, and outputs from the regional travel demand model. The travel demand model is helpful in making longer-term projections because of its basis on demographic (population and employment) forecasts made on a regional level. It also assigns expected trips to lower-classified routes like the ones in this study based on congestion which might be present or expected on the higher-classified interstate and arterial routes. Therefore, the current travel demand model developed by the Nashville Area MPO is the primary source for traffic growth information used in the projections of this study.

The model-based estimates were used in conjunction with the data collected by RPM by growing the actual traffic volumes in accordance with model outputs. This growth was applied to both turning movement counts and mainline ADT volumes. The result is an estimate of near-term (Year 2020) and long-term (Year 2030) traffic volumes that have been used to estimate future operational conditions as well as improvement needs.

Projected Daily Traffic Volumes

Roadway	Road Segment	2015 ADT	2020 ADT	2030 ADT	2015 -2030 Change
Sneed Road	Pasquo Rd to Temple Rd	3,176	3,652	4,605	45%
	Temple Rd to Vaughn Rd	13,915	16,002	20,177	45%
	Vaughn Rd to Hillsboro Rd	13,915	16,002	20,177	45%
Clovercroft Road	Murfreesboro Rd to Wilson Pk	3,488	4,593	6,802	95%
	Wilson Pk to Nolensville Town Limits	10,079	13,439	20,158	100%
Lynnwood Way	Hillsboro Rd to S Berrys Chapel Rd	9,552	12,895	19,582	105%
	S Berrys Chapel Rd to Sawyer Rd	9,552	12,895	19,582	105%
	Sawyer Rd to Franklin Rd	10,078	13,605	20,660	105%
Arno Road	Murfreesboro Rd to Middle School	10,311	13,748	20,622	100%
	Middle School to Stags Leap Way	5,424	7,232	10,848	100%
	Stags Leap Way to SR 840	5,424	7,232	10,848	100%
	SR 840 to Peytonsville Arno Rd.	2,902	4,837	8,706	200%
	Peytonsville Arno Rd to Horton Hwy	1,444	2,407	4,332	200%

The table above shows ADT growth by study segment. Detailed turning movement and ADT figures for future horizon years are provided in the appendix.

3.2 Recommended Laneage

As shown in the general traffic growth table, mainline volumes are expected to increase by rates varying from 45% to 200% through the 2030 horizon year. When these rates are applied to the specific intersection turning movement volumes, various roadway deficiencies become apparent. The following short-term roadway improvements were found to be needed based on traffic projections for 2020:

Short-Term Improvements (Year 2020)

Corridor	Intersection	2020 Improvement
Sneed Road	Temple Rd	Add second EBT lane, add EBL lane, add separate NBL lane, add WBL and WBR lane, add SBL and SBR lane, modify signal to accommodate new signal phases
	Timberline Dr	Add EBL and WBL lanes, intersection to remain stop-controlled
Clovercroft Road	Oxford Glen	Add NBL, reconfigure existing SB lanes, add WBR lane
	Wilson Pike, South	Add EBL and NBL lanes
	Wilson Pike, North	Add second WBR and SBL lanes, add NBT lane on Wilson Pike, and EBT lane on Clovercroft
Lynnwood Way	Hillsboro Rd	Add a second SBL turn lane, extend existing SBL turn lane, add EBT lane on Lynnwood Way
	Farmington Dr	Construct two-lane roundabout
	Franklin Rd	Add SBT, add second WBR, WBT, and WBL lanes, add NBT, add second EBL lane
Arno Road	Murfreesboro Rd	Add EBR and second NBL lanes
	S. Carothers Rd	Add EBR and NBL lanes
	Gosey Hill Rd	Add NBL (on Gosey Hill), EBT, and WBL lanes
	Peytonsville – Trinity Rd	Add EBL and WBL (on Peytonsville-Trinity), add NBL, add SBL and SBR lanes
	Middle and High School Drs	Reconstruct Arno as a three-lane cross-section through school limits
	SR 840 WB Ramps	Add SBT, WBR lanes
	SR 840 EB Ramps	Add SBL, EBR lanes, and EB on-ramp lane
Peytonsville-Arno Rd	Realign east leg. Add WBL	
Coleman Road	Columbia Pike	Add NBL & extend NBL as a through lane north of the Henpeck Ln intersection, add shared SBT/R lane
Henpeck Ln	Columbia Pike	Add NBT lane, add SBL, WBL and SBT lane. Signalize
	Lewisburg Pike	Add NBT and SBT lanes. Signalize

Over the next 15-20 years, it is expected that traffic growth on the study corridors will make more comprehensive roadway capacity improvements desirable. This means that improvements will not be limited to specific spots or individual intersections, but that broader, larger-scale road widenings should be considered. Sneed Road, Arno Road, and Lynnwood Way will all operate more efficiently with a four-lane cross-section with turning lanes at primary intersections. Clovercroft Road, too, should be widened, with a cross-section varying from three to five lanes in various segments. Projected 2030 intersection turning movements indicate the need for other intersection improvements, as well. The recommended lane modifications for 2030 are shown in the following table.

Long-Term Improvements (Year 2030)

Corridor	Intersection	2030 Improvement	
Sneed Road	Timberline Drive	Add 2 nd EBT and 2 nd WBT	
	Temple Road	Modify WBR to 2 nd WBT, modify existing SBR to SBT, modify existing SBT to SBL, and add EBR	
	Old Natchez Trace	Realign intersection with Trace End Drive, add 2 nd EBT, 2 nd WBT, EBL, WBL, NBL, and SBL	
	Sawyer Bend Road	Add EBL, 2 nd WBT, and 2 nd EBT	
	Vaughn Road	Modify SBLR to SBL, add SBR, 2 nd EBT, and WBR	
	Laurelbrooke Ln	Add EBL, 2 nd WBT, and 2 nd EBT	
	Gardengate Drive	Add WBL, 2 nd WBT, and 2 nd EBT	
	Foxhaven Drive	Add WBL, 2 nd WBT, and 2 nd EBT	
	SR. 106/ Hillsboro Road	Add 2 nd EBL, add 2 nd SBT, add 2 nd NBT, and 2 nd NBL	
Franklin Road	Add EBR		
Clovercroft Road	John Williams Road	Add EBL	
	Kirkwood Drive	Add EBL	
	Verde Meadow Drive	Add WBL	
	Oxford Glen Drive	No additional improvements	
	Market Street	Add EBL and WBL	
	Wilson Pike, South	Signalize	
	Wilson Pike, North	Add NBR	
	Chardonnay Trace/Elementary School to Breezeway Lane	Reconstruct Clovercroft as 5 lane with left turn lanes through school limits - see concept plan	
	John Court	Add EBL	
	Tulloss Road	Add WBL	
	Belle Brook Drive	Add WBL	
	Pleasant Hill Road	Add EBL	
	Artesian Drive	Add WBL	
Lynnwood Way	Burke Hollow Road	Add WBL	
	SR 106/Hillsboro Road	Add 2 nd EBL, 2 nd EBT, and 2 nd WBL	
	Legends Ridge Drive	Add EBL	
	Farmington Drive	Add 2 nd NB, and 2 nd SB lanes at roundabout	
	S. Berrys Chapel Road	Signalize. Add 2 nd EBT, EBR, second WBT, and WBL	
Arno Road	Sawyer Road/N. Berrys Chapel Road Connection	Add 2 nd EBT and 2 nd WBT	
	Murfreesboro Road	Add 2 nd EBR lane	
	Pate Road	Add SBL lane, add WBR lane, add 2 nd NBT, and 2 nd SBT	
	S. Carothers Road	Signalize. Add 2 nd SBT lane, 2 nd NBT lane, SBR, and NBL	
	Gosey Hill Road	Add 2 nd NBT and SBR	
	Peytonsville - Trinity Road	Add 2 nd SBT and 2 nd NBT	
	Middle and High School Drives	Reconstruct Arno as a 5 lane cross section through school limits	
	McDaniel Road/Meeks Road	Align Meeks Road and McDaniel Road. Add EBR, WBR, 2 nd SBT, SBL, NBL, and 2 nd NBT	
	SR 840 WB Ramps	Signalize. Add SBR, 2 nd NBL, 2 nd NBT, and 2 nd WBR	
	SR 840 EB Ramps	Add 2 nd SBT, 2 nd NBT, and NBR	
	Eudailey Covington Road	Add SBL, 2 nd SBT, WBR, 2 nd NBT, and NBL	
	Wildings Blvd	Add 2 nd SBT, and 2 nd NBT, and remove NBR	
	Peytonsville-Arno Road	Realign intersection. Signalize. Add EBL, SBL, NBL, SBR, 2 nd NBT, and 2 nd SBT	
	Bethesda- Arno Road	Add NBL and EBL	
	Horton Highway	Add EBL and NBL	
	Coleman Rd	Columbia Pike	Realign Intersection with Henpeck Lane
	Henpeck Ln	Columbia Pike	Add WBR, EBL, and NBL
Lewisburg Pike		Add second EBL, second NBL, and SBR	

3.3 Projected Traffic Operations

To determine the 2020 and 2030 projected operation of the study area, an appropriate growth factor was applied to each corridor to reach a 2020 and 2030 projection. Intersections and roadway capacity analyses were performed for the projected weekday a.m. and p.m. peak hours, and the projected average daily traffic. The intersection capacity calculations were performed according to the methods outlined in the *Highway Capacity Manual*, TRB 2010 using Synchro 9 software. The roadway capacity analyses were performed using mainline capacity lookup tables.

2020 and 2030 Key Intersection Capacity Analysis

The table below includes the 2020 projected intersection capacity analysis results. As shown in the table, with the short term recommendations implemented, all of the study signalized intersections will operate at acceptable level-of-service.

2020 With Improvements LOS and Delay (sec)

Corridor	Intersection	Critical Movement	AM		PM	
			LOS	Delay	LOS	Delay
Sneed Road	Pasquo Rd	NB-TR	A	8.4	A	8.4
	Temple Rd	Overall	B	17.2	B	10.4
	Vaughn Rd	Overall	B	13.6	B	13.1
	Hillsboro Rd	Overall	C	24.9	C	20.3
Clovercroft Road	Murfreesboro Rd	Overall	C	23.9	B	17.4
	Oxford Glen	Overall	B	12.3	B	16.1
	Wilson Pike, South	EB-L	F	65.6	C	22.8
	Wilson Pike, North	Overall	C	23.8	C	21.1
Lynnwood Way	Hillsboro Rd	Overall	C	31	C	26.1
	Farmington Drive	Overall (Roundabout)	A	9.0	A	9.1
	S. Berrys Chapel Rd	NB-L	D	32.3	F	62.6
	N. Berrys Chapel Rd Connection	Overall	A	9.4	A	8.5
Arno Road	Franklin Rd	Overall	C	29.3	C	27.6
	Murfreesboro Rd	Overall	B	16.5	C	26.5
	S. Carothers Rd	EB-L	F	83.7	E	45.1
	Gosey Hill Rd	Overall	B	18.4	B	14.2
	Peytonsville - Trinity Rd	Overall	B	13.9	A	7.3
	Middle School Exit	WB L	D	30.9	C	21.4
	High School Exit	EB-L **	C	19.3	D	26
		EB L*	F	91	C	20.8
	SR 840 WB Ramps	WB L	C	17.6	D	30.8
	SR 840 EB Ramps	Overall	B	16.8	C	23
	Eudailey-Covington Rd	EB LTR	C	21.7	C	17.2
WB LT		B	12.2	B	10.5	
Peytonsville - Arno Rd	EB-LT	C	21.4	B	14.1	
	WB-L	C	23.8	C	17.5	
Horton Hwy	EB-LR	C	16.7	B	14.1	
Coleman Road	Columbia Pike	EB-L	E	44.8	D	29.8
Henpeck Lane	Columbia Pike	Overall	A	9.8	A	7.6
	Lewisburg Pike	Overall	B	12.5	B	19.9

* South Exit
 ** North Exit

The table below includes the 2030 projected intersection capacity analysis results. As shown in the table, with the long term recommendations implemented, all of the study signalized intersections will operate at acceptable level-of-service. As expected, all of the critical turning movements at the unsignalized intersections operate at varying levels of service. Capacity analyses worksheets are included in the appendix.

2030 With Improvements LOS and Delay (sec)

Corridor	Intersection	Critical Movement	AM		PM	
			LOS	Delay	LOS	Delay
Sneed Road	Pasquo Rd	NB-TR	A	8.4	A	8.5
	Temple Rd	Overall	C	21.1	C	21
	Vaughn Rd	Overall	A	8.9	A	8.8
	Hillsboro Rd	Overall	C	25.2	C	21.6
Clovercroft Road	Murfreesboro Rd	Overall	C	20.7	B	10.5
	Oxford Glen	Overall	C	28.9	B	18.8
	Wilson Pike, South	Overall	B	11.6	B	12.3
	Wilson Pike, North	Overall	C	32.2	C	22.9
Lynnwood Way	Hillsboro Rd	Overall	D	36.1	D	41
	Farmington Drive	Overall (Roundabout)	B	14.8	C	19.7
	S. Berrys Chapel Rd	Overall	A	3.8	A	6.8
	N. Berrys Chapel Rd Connection	Overall	B	11.2	A	6.8
Arno Road	Franklin Rd	Overall	D	36.5	C	34.4
	Murfreesboro Rd	Overall	D	41.3	C	21.1
	S. Carothers Rd	Overall	A	9.7	B	17.9
	Gosey Hill Rd	Overall	B	10.1	A	5.9
	Peytonsville - Trinity Rd	Overall	B	11.7	A	5.3
	Middle School Exit	WB L	F	>100	C	19.4
	High School Exit	EB-L **	C	21.4	F	80.3
		EB L*	F	>100	E	43.6
	SR 840 WB Ramps	Overall	C	23.7	B	19.4
	SR 840 EB Ramps	Overall	B	14.2	C	20.1
	Eudailey-Covington Rd	EB LTR	E	38.2	C	23.9
		WB LT	D	28.9	C	19.3
Peytonsville - Arno Rd	Overall	A	8.7	A	9.7	
Horton Hwy	EB-LR	F	>100	D	27	
Henpeck Lane	Columbia Pike	Overall	C	20.1	C	20.5
	Lewisburg Pike	Overall	B	13.8	C	23.3

* South Exit
** North Exit

2020 and 2030 Mainline Corridor Capacity Analysis

A 2020 and 2030 projected capacity analysis was also conducted on the roadway mainlines for each study corridor. These results show acceptable LOS will be achieved with the 2020 short-term improvements and the 2030 mainline laneage improvements implemented. The results of the roadway capacity analysis are in the following table.

Corridor Capacity Analysis Summary

Road	Williamson County Major Corridor Results	Mainline Laneage Recommendation			Level of Service		
		2015	2020	2030	2015 LOS	2020 LOS	2030 LOS
Segment #	Sneed Road Corridor						
1	Pasquo Rd to Temple Rd	2	2	4 lane undivided	A	A	A
2	Temple Rd to Vaughn Rd	2	2	4 lane undivided	C	C	C
3	Vaughn Rd to Hillsboro Rd	2	2	4 lane undivided	C	C	C
Segment #	Clovercroft Road Corridor						
1	Murfreesboro Rd to Wilson Pike	2	2	3 lane, TWCTL Divided (Murfreesboro to Oxford Glenn Dr), 2 lane undivided (Oxford Glenn Dr to Wilson Pike)	A	A	A,B
2	Wilson Pike to Nolensville Town Limits	2	2	5 lane' TWCTL divided	C	D	B
Segment #	Lynnwood Way / South Berrys Chapel Road Corridor						
1	Hillsboro Rd to S Berrys Chapel Rd.	2	2	4 lane undivided	B	D	C
2	S Berrys Chapel Rd to Sawyer Rd	2	2	4 lane undivided	B	D	C
3	Sawyer Rd to Franklin Rd	2	4 lane undivided	4 lane undivided	C	B	C
Segment #	Arno Road Corridor						
1	Murfreesboro Rd to Middle School	2	2	4 lane undivided	C	D	C
2	Middle School to Stags Leap Way	2	2	5 lane TWCTL divided	A	B	A
3	Stags Leap Way to SR 840	2	2	4 lane undivided	A	B	B
4	SR 840 to Peytonsville Arno Rd	2	2	4 lane undivided	A	A	A
5	Peytonsville Arno to Horton Hwy	2	2	2 lane improved	A	A	A

4.0 RECOMMENDATIONS

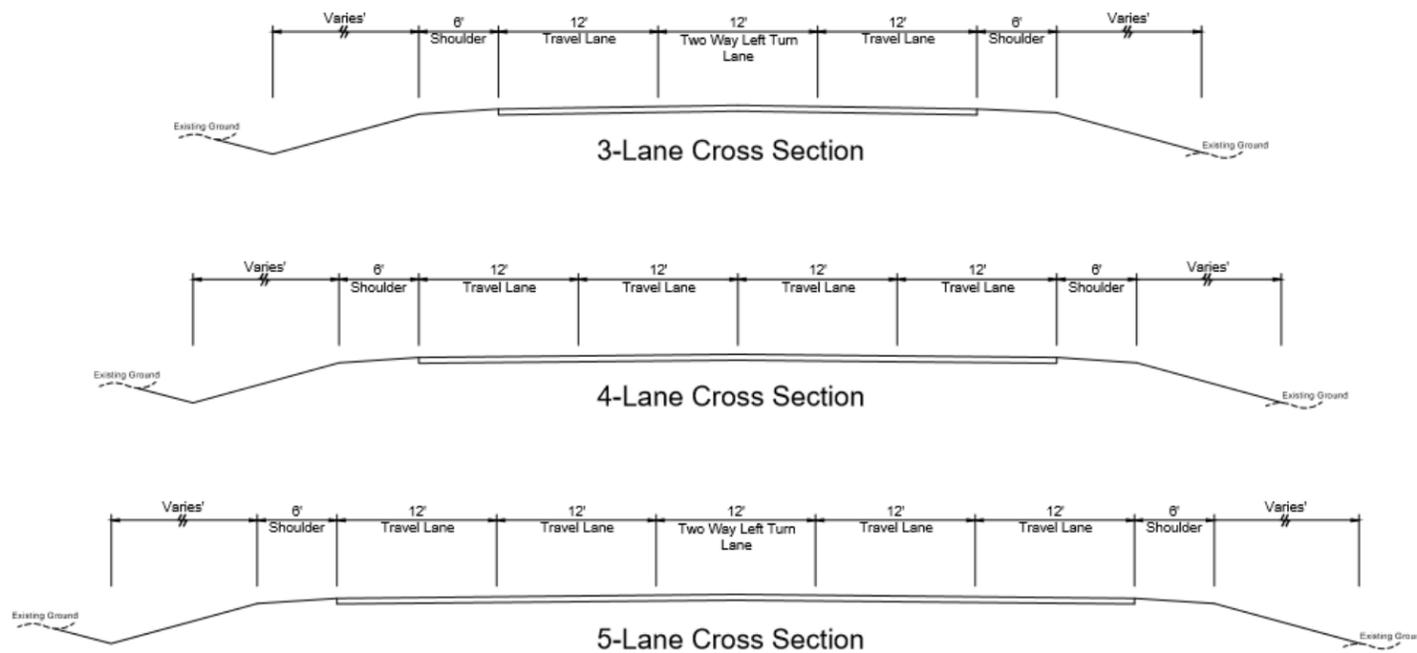
4.1 Recommendation and Thoroughfare Plan Comparison

In 2011, the Williamson County Major Thoroughfare Plan was updated and adopted to outline the forecasted need for roadway improvements throughout the county. The thoroughfare plan update included improvement recommendations for three of the four major corridors included in this current study. Sneed Road, Arno Road, and Clovercroft Road were all recommended to be widened to a three-lane cross-section in the latest thoroughfare plan.

The results of this study have shown that slightly more capacity will likely be needed by the 2030 planning horizon than was anticipated five years ago during the development of the Major Thoroughfare Plan. The primary reason for this is the development of a new regional travel demand since that time which uses the latest demographic data and projections. These projections reflect more current growth trends and subsequently the traffic forecasts are slightly higher. It may be desirable to update the Major Thoroughfare Plan recommendations for these corridors based on the Major Corridors Study.

4.2 Recommended Cross Sections

Typical cross sections are recommended in the figure below. A typical lane width of 12 feet and a typical shoulder width of 6 feet are identified for these rural corridors, although lane widths of 11 feet may be appropriate in some situations.



Recommended Roadway Cross Sections

4.3 Recommended Improvements

As shown in Section 3.0, the Williamson County study corridors have various improvement needs that should be considered for implementation over the next 5-20 years. These are generally capacity related improvements which will be needed to mitigate traffic congestion as travel demands continue to grow across the county. The following table summarizes the laneage needs for the short and long-term planning horizons.

The future conditions analyses have shown that these improvements will allow acceptable levels of service and delays to largely be maintained. In general, all corridors were found to have capacity deficiencies and should be improved as recommended. In one case, other planning efforts might affect the widening recommendation. This case occurs on Clovercroft Road east of Wilson Pike. Here, the planned McEwen Drive extension project could have a significant impact on traffic volumes on Clovercroft Road. If McEwen Drive is not extended, traffic volumes on Clovercroft Road will continue to grow, and a five-lane widening project is recommended. If McEwen Drive is extended, this will likely divert vehicle trips off of Clovercroft Road, and a three lane cross section would be adequate.

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2020 and 2030 Recommended Improvements

Corridor	Intersection	2020 Improvement	2030 Improvement
Sneed Road	Temple Road	Add second EBT lane, add EBL lane, add separate NBL lane, add WBL and WBR lane, add SBL and SBR lane, modify signal to accommodate new phases	Add second EBT and second WBT
	Timberline Drive	Add EBL and WBL lanes, intersection to remain stop-controlled	Modify WBR to second WBT, modify existing SBR to SBT, modify existing SBT to SBL, and add EBR
	Old Natchez Trace	-	Realign intersection with Trace End Drive, add second EBT, second WBT, EBL, NBL, WBL, and SBL
	Sawyer Bend Road	-	Add EBL, second WBT, and second EBT
	Vaughn Road	-	Modify SBLR to SBL, add SBR, second EBT, and WBR
	Laurelbrooke Ln	-	Add EBL, second WBT, and second EBT
	Gardengate Drive	-	Add WBL, second WBT, and second EBT
	Foxhaven Drive	-	Add WBL, second WBT, and second EBT
Clovercroft Road	SR. 106/ Hillsboro Road	-	Add second EBL, add second SBT, add second NBT, and second NBL
	John Williams Road	-	Add EBL
	Kirkwood Drive	-	Add EBL
	Verde Meadow Drive	-	Add WBL
	Oxford Glen Drive	Add NBL, reconfigure existing SB lanes, add WBR lane	No additional improvements
	Market Street	-	Add EBL and WBL
	Wilson Pike, South	Add EBL and NBL lanes	Signalize
	Wilson Pike, North	Add second WBR and SBL lanes	Add NBR
	Chardonnay Trace/Elementary School to Breezeway Lane	-	Reconstruct Clovercroft as 5 lane with left turn lanes through school limits - see concept plan
	John Court	-	Add EBL
	Tulloss Road	-	Add WBL
	Belle Brook Drive	-	Add WBL
	Pleasant Hill Road	-	Add EBL
	Artesian Drive	-	Add WBL
Burke Hollow Road	-	Add WBL	
Lynnwood Way	SR 106/Hillsboro Road	Add a second SBL turn lane, extend existing SBL turn lane, add EBT lane on Lynnwood Way	Add second EBL, second EBT, and second WBL
	Legends Ridge Drive	-	Add EBL
	Farmington Drive	Construct two-lane roundabout	Add second NB, and second SB lanes at roundabout
	S. Berrys Chapel Road	-	Signalize. Add second EBT, EBR, second WBT, and WBL
	Sawyer Road/N. Berrys Chapel Road Connection	-	Add second EBT and second WBT
Arno Road	Franklin Road	Add SBT, add second WBR, WBT, and WBL lanes, add NBT, add second EBL lane	Add EBR
	Murfreesboro Road	Add EBR and second NBL lanes	Add second EBR lane
	Pate Road	-	Add SBL lane, add WBR lane, add second NBT, and second SBT
	S. Carothers Road	Add EBR and NBL lanes	Signalize. Add second SBT lane, second NBT lane, SBR, and NBL
	Gosey Hill Road	Add NBL (on Gosey Hill), EBT, and WBL lanes	Add second NBT and SBR
	Peytonsville - Trinity Road	Add EBL and WBL (on Peytonsville-Trinity), add NBL, add SBL and SBR lanes	Add second SBT and second NBT
	Middle and High School Drives	Reconstruct Arno as a three-lane cross-section through school limits	Reconstruct Arno as a 5 lane cross section through school limits
	McDaniel Road/Meeks Road	-	Align Meeks Road and McDaniel Road. Add EBR, WBR, second SBT, SBL, NBL, and second NBT
	SR 840 WB Ramps	Add SBT, WBR lanes	Signalize. Add SBR, second NBL, second NBT, and second WBR
	SR 840 EB Ramps	Add SBL, EBR lanes, and EB on-ramp lane	Add second SBT, second NBT, and NBR
	Eudailey Covington Road	-	Add SBL, second SBT, WBR, second NBT, and NBL
	Wildings Blvd	-	Add second SBT, and second NBT, and remove NBR
	Peytonsville-Arno Road	Realign east leg. Add WBL	Realign intersection. Signalize. Add EBL, SBL, NBL, SBR, second NBT, and second SBT
Coleman Road	Bethesda- Arno Road	-	Add NBL and EBL
	Horton Highway	-	Add EBL and NBL
Henpeck Ln	Columbia Pike	Add NBL & extend NBL as a through lane north of the Henpeck Ln intersection, add shared SBT/R lane.	Realign Intersection with Henpeck Lane
	Lewisburg Pike	Add NBT lane, add SBL, WBL and SBT lane. Signalize	Add WBR, EBL, and NBL
		Add NBT and SBT lanes. Signalize	Add second EBL, second NBL, and SBR

4.4 Cost Estimates

Cost estimates were calculated by Collier Engineering based on the recommended improvements. Cost estimates were separated into three categories as follows: 2020 improvements, 2030 intersection improvements, and 2030 corridor improvements.

The cost estimate calculations include the following assumptions:

- Project costs include: construction, right-of-way, 15% engineering design fee, and 15%-20% contingency fee
- Unit prices and project costs represent current contractor pricing
- Per acre right-of-way costs assumed as follows:
 - Sneed Road: \$150,000 per acre
 - Lynnwood Way: \$150,000 per acre
 - Arno Road: \$100,000 per acre
 - Clovercroft Road: \$75,000 per acre
 - Henpeck Lane: \$75,000 per acre
 - Coleman Road: \$75,000 per acre
- New signals bulk cost estimate: \$150,000 - \$200,000 each, depending on intersection size
- Signal modification bulk cost estimate: \$100,000 each
- The 2030 intersection and corridor improvement estimates assume that the 2020 improvements have been implemented

The following cost estimate tables are provided for planning purposes only. The figures following the cost estimates illustrate the recommended improvements for the 2020 and 2030 horizon years. Detailed engineering cost estimates with line items are provided with each recommended improvements figure.

As shown in the following tables, the total estimated cost for the 2020 improvements is approximately \$23,750,000, which includes intersection improvements. The total estimated cost for the 2030 improvements is approximately \$128,730,000, which includes both intersection improvements and corridor cross section improvements. Therefore, the total estimated cost of the recommended short-term and long-term improvements for the major corridors is approximately \$152,480,000.

2020 Total Cost Estimate				
Corridor	Intersection	2020 Improvement	Cost Estimate	Corridor Cost
Sneed Road	Temple Rd	Add second EBT Lane, add EBL lane, add separate NBL lane, add WBL and WBR lane, add SBL and SBR lane, modify signal to accommodate new signal phases	\$ 430,000	\$ 1,730,000
	Timberline Dr	Add EBL and WBL lanes, intersection to remain stop-controlled	\$ 1,300,000	
Clovercroft Road	Oxford Glen	Add NBL, reconfigure existing SB lanes, add WBR lane	\$ 1,100,000	\$ 3,720,000
	Wilson Pike, South	Add EBL and NBL lanes	\$ 820,000	
	Wilson Pike, North	Add second WBR and SBL lanes, add NBT lane on Wilson Pike, and EBT lane on Clovercroft	\$ 1,800,000	
Lynnwood Way	Hillsboro Rd	Add a second SBL turn lane, extend existing SBL turn lane, add EBT lane on Lynnwood Way	\$ 2,200,000	\$ 7,280,000
	Farmington Dr	Construct two-lane roundabout	\$ 680,000	
	Franklin Rd	Add SBT, add second WBR, WBT, and WBL lanes, add NBT, add second EBL lane	\$ 4,400,000	
Arno Road	Murfreesboro Rd	Add EBR and second NBL lanes	\$ 990,000	\$ 8,810,000
	S. Carothers Rd	Add EBR and NBL lanes	\$ 2,400,000	
	Gosey Hill Rd	Add NBL (on Gosey Hill), EBT, and WBL lanes	\$ 580,000	
	Peytonsville - Trinity Rd	Add EBL and WBL (on Peytonsville - Trinity), add NBL add SBL and SBR lanes	\$ 930,000	
	Middle and High School Drs	Reconstruct Arno as a three-lane cross-section through school limits	\$ 510,000	
	SR 840 WB Ramps	Add SBT, WBR lanes	\$ 1,800,000	
	SR 840 EB Ramps	Add SBL, EBR, lanes, and EB on-ramp lane		
	Peytonsville - Arno Rd	Realign east leg. Add WBL	\$ 1,600,000	
Coleman Road	Columbia Pike	Add NBL & extend NBL as a through lane north of the Henpeck Ln intersection, add shared SBT/R lane	\$ 1,400,000	\$ 1,400,000
Henpeck Ln	Columbia Pike	Add NBT lane, add SBL, WBL, and SBT lane. Signalize		
	Lewisburg Pike	Add NBT and SBT lanes. Signalize	\$ 810,000	\$ 810,000
			TOTAL COST	\$ 23,750,000

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2030 Intersection Improvements Cost Estimate				
Corridor	Intersection	2030 Improvement	Intersection Cost	Total Intersection Cost
Sneed Road	Timberline Drive	Add second EBT and second WBT	\$ 650,000	\$ 8,100,000
	Temple Road	Modify WBR to second WBT, modify existing SBR to SBT, modify existing SBT to SBL, and add EBR	\$ 1,300,000	
	Old Natchez Trace	Realign intersection with Trace End Drive, add second EBT, second WBT, EBL, WBL, NBL, and SBL	\$ 880,000	
	Sawyer Bend Road	Add EBL, second WBT, and second EBT	\$ 300,000	
	Vaughn Road	Modify SBLR to SBL, add SBR, second EBT, and WBR	\$ 1,600,000	
	Laurelbrooke Ln	Add EBL, second WBT, and second EBT	\$ 870,000	
	Gardengate Dr	Add WBL, second WBT, and second EBT	\$ 400,000	
	Foxhaven Dr	Add WBL, second WBT, and second EBT	\$ 400,000	
SR. 106/ Hillsboro Road	Add second EBL, add second SBT, add second NBT, and second NBL	\$ 2,100,000	\$ 9,540,000	
Clovercroft Road	John Williams Road	Add EBL		\$ 380,000
	Kirkwood Drive	Add EBL		\$ 480,000
	Verde Meadow Drive	Add WBL		\$ 2,100,000
	Oxford Glen Drive	No additional improvements		
	Market Street	Add EBL and WBL		\$ 410,000
	Wilson Pike, South	Signalize		\$ 450,000
	Wilson Pike, North	Add NBR		\$ 670,000
	Chardonnay Trace/Elementary School to Breezeway Lane	Reconstruct Clovercroft as 5 lane with left turn lanes through school limits - see concept plan		\$ 1,900,000
	John Court	Add EBL		\$ 400,000
	Tulloss Road	Add WBL		\$ 460,000
	Belle Brook Drive	Add WBL		\$ 460,000
	Pleasant Hill Drive	Add EBL		\$ 450,000
	Artesian Drive	Add WBL		\$ 410,000
	Burke Hollow Road	Add WBL		\$ 970,000
	Lynnwood Way	SR 106/ Hillsboro Road	Add second EBL, second EBT, and second WBL	\$ 2,100,000
Legends Ridge Drive		Add EBL		
Farmington Drive		Add second NB, and second SB lanes at roundabout	\$ 280,000	
S. Berrys Chapel Road		Signalize. Add second EBT, EBR, second WBT, and WBL	\$ 1,200,000	
Sawyer Road/N. Berrys Chapel Road Connection		Add Second EBT and Second WBT	\$ 360,000	
Franklin Road		Add EBR	\$ 1,000,000	
Arno Road	Murfreesboro Road	Add second EBR lane	\$ 700,000	\$ 14,350,000
	Pate Road	Add SBL lane, add WBR lane, add second NBT lane, SBR, and NBL	\$ 760,000	
	S. Carothers Road	Signalize. Add second SBT lane, second NBT lane, SBR, and NBL	\$ 3,600,000	
	Gosey Hill Road	Add second NBT and SBR	\$ 400,000	
	Peytonsville - Trinity Road	Add second SBT and second NBT	\$ 600,000	
	Middle and High School Drives	Reconstruct Arno as a 5 lane cross section through school limits	\$ 1,000,000	
	Stags Leap Way	Add Turn Lane	\$ 490,000	
	McDaniel Road/ Meeks Road	Align Meeks Road and McDaniel Road. Add EBR, WBR, second SBT, NBL, and second NBT	\$ 1,300,000	
	SR 840 WB Ramps	Signalize. Add SBR, second NBL, second NBT, and second WBR		
	SR 840 EB Ramps	Add second SBT, second NBT, and NBR	\$ 2,900,000	
	Eudaily Covington Road	Add SBL, second SBT, WBR, second NBT, and NBL		
	Wildings Blvd	Add second SBT, and second NBT, and second SBT	\$ 320,000	
	Peytonsville - Arno Road	Realign intersection. Signalize. Add EBL, SBL, NBL, SBR, second NBT, and second SBT	\$ 1,400,000	
Bethesda - Arno Road	Add NBL and EBL	\$ 460,000		
Horton Highway	Add EBL and NBL	\$ 420,000		
Coleman Road	Columbia Pike	Realign Intersection with Henpeck Lane	\$ 8,900,000	\$ 9,000,000
Henpeck Ln	Columbia Pike	Add WBR, EBL, and NBL		
	Lewisburg Pike	Add second EBL, second NBL, and SBR	\$ 2,000,000	\$ 2,000,000
			TOTAL COST	\$ 47,930,000

* ALL 2030 WORK ASSUMES THAT ALL 2020 IMPROVEMENTS HAVE ALREADY BEEN IMPLEMENTED

* ROW ESTIMATES FOR CORRIDORS ARE INCLUDED WITH CORRIDOR STUDY ESTIMATES

WILLIAMSON COUNTY MAJOR CORRIDORS STUDY

2030 Corridor Estimate			
Corridor	Limits	2030 Improvement	Corridor Cost
Sneed Road	Timberline Drive to Temple Road	Widen road from two lanes to four lanes	\$ 15,000,000
	Temple Road to Old Natchez Trace	Widen road from two lanes to four lanes	
	Old Natchez Trace to Sawyer Bend Road	Widen road from two lanes to five lanes (cost included in intersection estimate)	
	Sawyer Bend Road to Vaughn Road	Widen road from two lanes to four lanes	
	Vaughn Road to Laurelbrooke Lane	Widen road from two lanes to four lanes	
	Laurelbrooke Lane to Gardengate Drive	Widen road from two lanes to five lanes (cost included in intersection estimate)	
	Gardengate Drive to Foxhaven Drive	Widen road from two lanes to four lanes	
Foxhaven Drive to Hillsboro Road	Widen road from two lanes to four lanes		
Clovercroft Road	Murfreesboro Road to John Williams Road	Widen road from two lanes to three lanes	\$26,000,000
	John Williams Road to Kirkwood Drive	Widen road from two lanes to three lanes	
	Kirkwood Drive to Verde Meadow Drive	Widen road from two lanes to three lanes	
	Verde Meadow Drive to Oxford Glen Drive	Widen road from two lanes to three lanes (cost included in intersection estimate)	
	Oxford Glen Drive to Market Street	Widen road from 24' to 36' (including shoulders)	
	Market Street to Wilson Pike	Widen road from 24' to 36' (including shoulders)	
	Wilson Pike to Chardonay Trace	Widen road from two lanes to five lanes	
	Breezeway Lane to John Court	Widen road from two lanes to five lanes	
	John Court to Tulloss Road	Widen road from two lanes to five lanes	
	Tulloss Road to Belle Brook Drive	Widen road from two lanes to five lanes	
	Belle Brook Drive to Pleasant Hill Road	Widen road from two lanes to five lanes	
Pleasant Hill Road to Artesian Drive	Widen road from two lanes to five lanes		
Artesian Drive to Burke Hollow Road	Widen road from two lanes to five lanes		
Lynnwood Way	Hillsboro Road to Legends Ridge Drive	Intersection improvements (cost included in intersection estimate)	\$9,800,000
	Legends Ridge Drive to Farmington Drive	Widen road from two lanes to four lanes	
	Farmington Drive S. Berrys Chapel Road	Widen road from two lanes to four lanes	
	S. Berrys Chapel Road to Sawyer Road	Widen road from two lanes to four lanes	
Sawyer Road to Franklin Road	Widen road from two lanes to four lanes and repave section widened in 2020		
Arno Road	Murfreesboro Road to Pate Road	Widen road from two lanes to four lanes	\$ 30,000,000
	Pate Road to South Carothers Road	Widen road from two lanes to four lanes	
	South Carothers Road to Gosey Hill Road	Widen road from two lanes to four lanes	
	Gosey Hill Road to Peytonsville-Trinity Road	Widen road from two lanes to four lanes	
	Peytonsville - Trinity Road to Page Schools	Widen road from two lanes to four lanes	
	Page Schools To Stags Leap Way	Widen road from two lanes to four lanes	
	Stags Leap Way to Meeks Road/McDaniel Road	Widen road from two lanes to four lanes	
	Meeks Road/McDaniel Road to SR 840	Widen road from two lanes to four lanes	
	SR 840 to Eudaily Covington Road	Intersection improvements (cost included in intersection estimate)	
	Eudaily Covington Road to Wildings Boulevard	Widen road from two lanes to four lanes	
Wildings Boulevard to Peytonsville-Arno Road	Widen road from two lanes to four lanes		
TOTAL COST			\$80,800,000

2030 Total Cost Estimate			
Corridor	Total Intersection Cost	Additional Corridor Cost	Total Corridor Cost
Sneed Road	\$8,100,000	\$15,000,000	\$23,100,000
Clovercroft Road	\$9,540,000	\$26,000,000	\$35,540,000
Lynnwood Way	\$4,940,000	\$9,800,000	\$14,740,000
Arno Road	\$14,350,000	\$30,000,000	\$44,350,000
Coleman Road	\$9,000,000	N/A	\$9,000,000
Henpeck Ln	\$2,000,000	N/A	\$2,000,000
		TOTAL COST	\$128,730,000

* ALL 2030 WORK ASSUMES THAT ALL 2020 IMPROVEMENTS HAVE ALREADY BEEN IMPLEMENTED
 * ROW ESTIMATES FOR CORRIDORS ARE INCLUDED WITH CORRIDOR STUDY ESTIMATES