

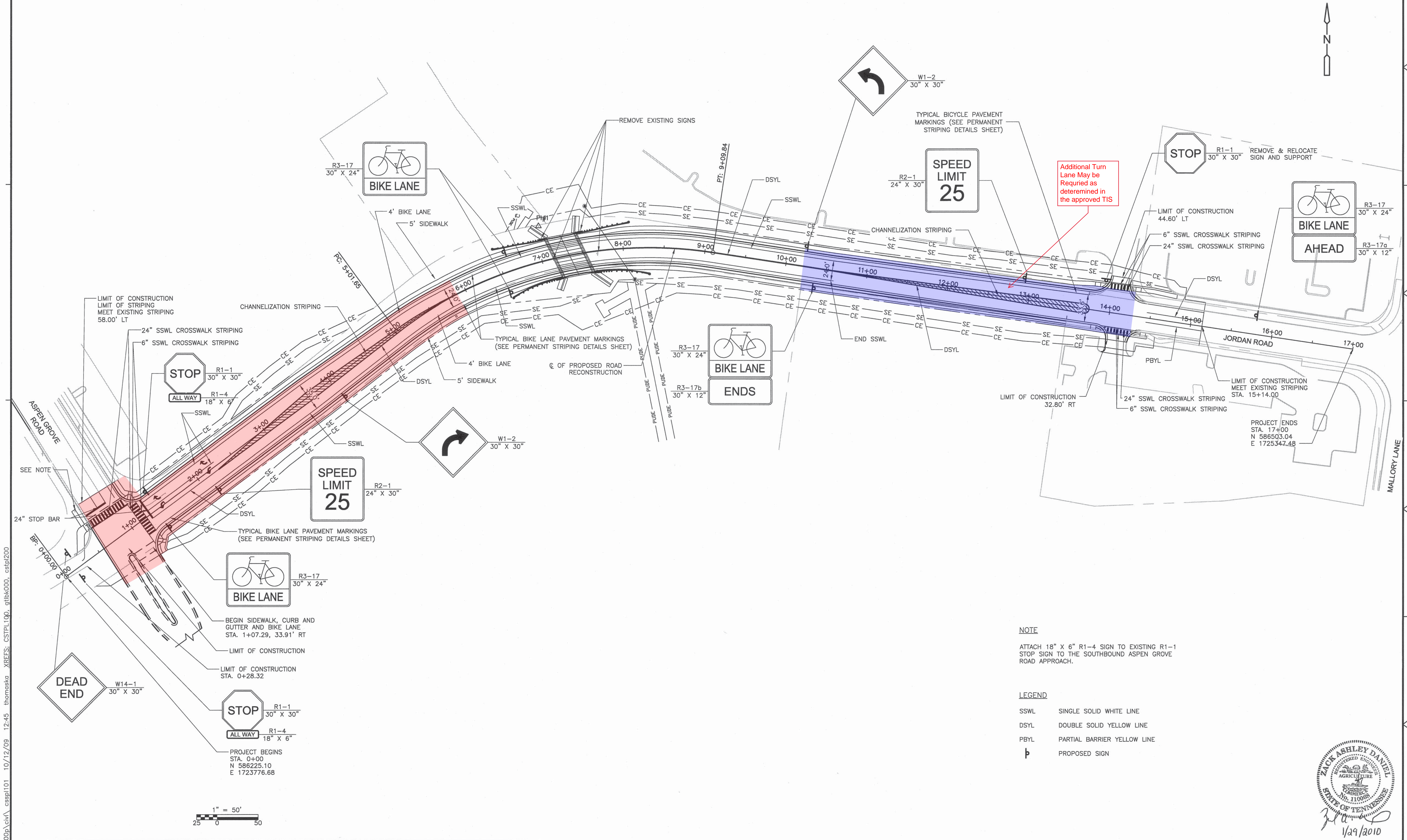





DISCLAIMER
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Legend

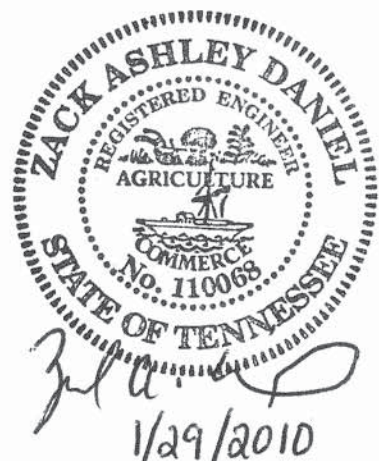
- 1 Mile Buffer
- Parcels



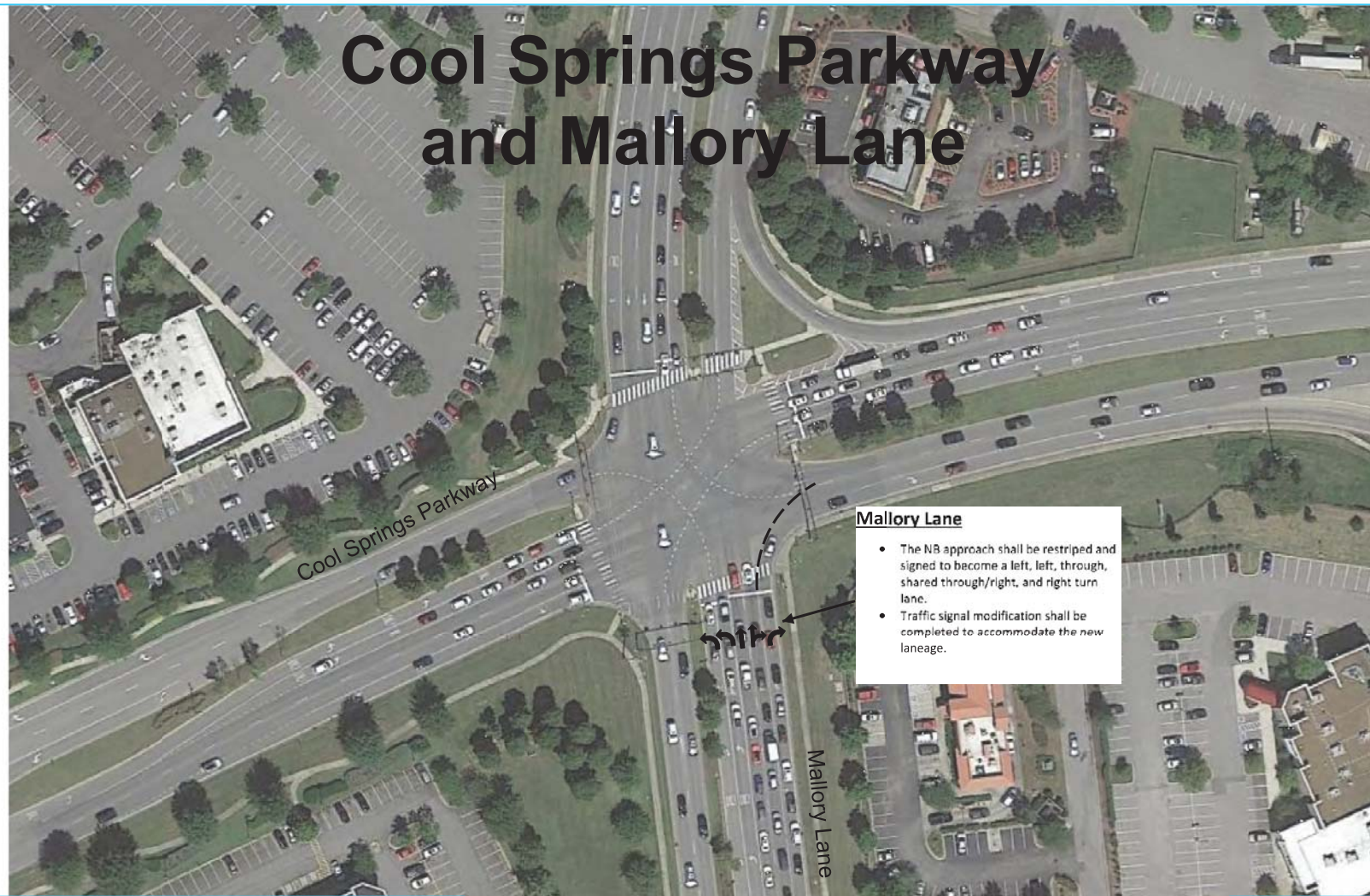
NOTE
ATTACH 18" X 6" R1-4 SIGN TO EXISTING R1-1 STOP SIGN TO THE SOUTHBOUND ASPEN GROVE ROAD APPROACH.

- LEGEND
- SSWL SINGLE SOLID WHITE LINE
 - DSYL DOUBLE SOLID YELLOW LINE
 - PBYL PARTIAL BARRIER YELLOW LINE
 -  PROPOSED SIGN

					DESIGNED BY: <u>S. MURPHY</u>	 Camp Dresser & McKee Inc. Parkview Towers 210 25th Avenue North, Suite 1102 Nashville, TN 37203 Tel: (615) 320-3161 consulting • engineering • construction • operations	City of Franklin RECONSTRUCTION OF JORDAN ROAD	PERMANENT SIGNING AND STRIPING PLAN	PROJECT NO. 14915-62910 FILE NAME: CSSPL101 SHEET NO. SP-1		
					DRAWN BY: <u>S. MURPHY</u>						
					SHEET CHK'D BY: <u>C. LIGGETT</u>						
					CROSS CHK'D BY: <u>C. KINCAID</u>						
					APPROVED BY: <u>Z. DANIEL</u>						
REV. NO.	DATE	DRWN	CHKD	REMARKS	DATE: <u>JANUARY 2010</u>						



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VOLKERT

330 Mallory Station Road, Suite A-1
Franklin, TN 37067
Telephone: 615.656.1845
www.volkert.com

**Recommended Lane Configuration
Figure 10**

SCALE: NTS

Table 12 – Mallory Lane / Liberty Pike Analysis

	2015 Existing						2020 Background					
	AM		MD		PM		AM		MD		PM	
Overall	C (25.1 s)		F (85.8 s)		F (99.2 s)		C (28.0 s)		F (102.9 s)		F (118.0 s)	
EBL	B (13.0 s)	B (11.9 s)	C (21.9 s)	B (19.7 s)	C (27.8 s)	C (29.4 s)	B (17.7 s)	B (16.0 s)	C (23.8 s)	C (20.5 s)	C (34.7 s)	D (41.7 s)
EBT												
EBR		B (14.3 s)		C (24.3 s)		C (26.3 s)		B (19.3 s)		C (27.0 s)		C (29.4 s)
WBL	B (17.6 s)	B (14.5 s)	C (26.4 s)	C (23.0 s)	C (23.2 s)	C (20.6 s)	C (21.6 s)	B (17.6 s)	C (27.2 s)	C (23.0 s)	C (26.3 s)	C (27.7 s)
WBT		B (18.7 s)		C (27.9 s)		C (24.9 s)		C (23.3 s)		C (29.0 s)		C (26.7 s)
WBR		B (17.6 s)		C (27.4 s)		C (21.9 s)		C (21.6 s)		C (28.6 s)		C (22.7 s)
NBL	D (44.1 s)	D (37.0 s)	D (36.9 s)	D (35.6 s)	D (48.6 s)	F (82.9 s)	D (47.3 s)	D (38.7 s)	D (39.0 s)	D (36.5 s)	D (52.0 s)	F (98.2 s)
NBT		D (44.8 s)		D (37.0 s)		D (39.9 s)		D (48.2 s)		D (39.3 s)		D (40.2 s)
NBR												
SBL	D (36.4 s)	D (37.6 s)	F (159.1 s)	C (29.4 s)	F (190.9 s)	C (33.2 s)	D (36.7 s)	D (39.4 s)	F (201.8 s)	C (30.1 s)	F (240.2 s)	D (43.1 s)
SBT		D (43.1 s)		F (275.3 s)		F (290.3 s)		D (43.2 s)		F (362.7 s)		F (364.9 s)
SBR		C (29.1 s)		C (28.2 s)		F (131.9 s)		C (28.3 s)		C (29.1 s)		F (182.6 s)

	2020 Buildout (no improvements)						2020 Full Buildout (Improvements)					
	AM		MD		PM		AM		MD		PM	
Overall	C (28.9 s)		F (113.0 s)		F (199.7 s)		D (38.3 s)		D (38.5 s)		D (45.0 s)	
EBL	B (18.6 s)	B (18.1 s)	C (22.3 s)	C (20.2 s)	D (42.7 s)	E (58.4 s)	D (35.9 s)	D (52.7 s)	D (40.2 s)	E (57.3 s)	D (50.1 s)	E (67.4 s)
EBT								B (17.6 s)		C (20.5 s)		D (35.4 s)
EBR		B (19.2 s)		C (24.8 s)		C (29.4 s)						
WBL	C (22.1 s)	B (17.5 s)	C (26.8 s)	C (23.2 s)	C (26.3 s)	C (27.8 s)	C (24.6 s)	C (20.2 s)	C (25.9 s)	C (24.1 s)	D (38.2 s)	C (33.0 s)
WBT		C (23.9 s)		C (28.3 s)		C (26.8 s)		C (26.0 s)		C (26.7 s)		D (41.1 s)
WBR		C (22.3 s)		C (24.8 s)		C (22.9 s)		C (25.1 s)		C (26.2 s)		D (37.9 s)
NBL	D (47.2 s)	D (37.2 s)	D (37.9 s)	D (36.0 s)	D (51.7 s)	F (98.7 s)	D (46.9 s)	D (36.1 s)	D (38.7 s)	C (33.3 s)	D (39.1 s)	D (36.6 s)
NBT		D (48.1 s)		D (38.1 s)		D (41.2 s)		D (49.2 s)		D (40.1 s)		D (40.8 s)
NBR								D (41.2 s)		C (32.9 s)		D (35.5 s)
SBL	D (35.5 s)	D (36.4 s)	F (220.2 s)	C (30.0 s)	F (427.2 s)	E (57.6 s)	D (44.3 s)	E (57.3 s)	D (40.9 s)	E (55.1 s)	D (48.3 s)	E (74.4 s)
SBT		D (43.8 s)		F (389.9 s)		F (596.0 s)		D (41.2 s)		D (42.3 s)		D (46.7 s)
SBR		C (26.4 s)		C (29.4 s)		F (382.5 s)		D (39.9 s)		C (32.1 s)		C (34.1 s)

DESCRIPTIONS OF LOS FOR SIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay per Vehicle (sec)
A	Operations with very low control delay. Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10
B	Operations with stable flows. This generally occurs with good progression, short cycle lengths, or both. 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, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. 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. In many cases, 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 oversaturation or with high v/c ratios. Poor progression and long cycle lengths may also cause such delay levels.	> 80

Source: Highway Capacity Manual 2010 (HCM2010)

Mallory Lane and Liberty Pike

Southbound Approach

- An additional right turn lane shall be constructed with a minimum of 200 feet of storage and taper per AASHTO standards.
- SB approach shall be widened to accommodate as a Left, Left, Through, Shared Through/Right, and Right.

Westbound Approach

- An additional right turn lane shall be constructed with a minimum of 400 feet of storage and taper per AASHTO standards.
- WB approach shall be widened to accommodate a Left, (future) Left, Through, Through, and Right.

Eastbound Departure

- Extend EB through lane to Stanwick Drive with lane drop.

Eastbound Approach

- An additional left lane and shared through/right turn lane shall be constructed with a minimum of 500 feet of storage and taper per AASHTO standards.
- EB approach shall be constructed as a Left, Left, Through, and Shared Through/Right.

Northbound Approach

- The NB approach shall be constructed as a Left, (future) Left, Through, Through, and Right.
- Extend two through lanes approaching the intersection northbound.
- Remove right turn lane channelization.
- Begin new NB lane taper at the end of the horizontal curve to the south of the intersection.

Southbound Departure

- Extend SB through lane past apartment entrance with taper ending at the beginning of the horizontal curve.



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**Recommended Lane Configuration
Figure 11**

SCALE: NTS

Project # ST16011
Project Name Mallory/N Royal Oaks & Liberty Intersection Imp.

Department Streets
Contact Engineering Director
Type Improvement
Useful Life 20+
Category Transportation
Priority 3 Star Project
Status Pending

Description **Total Cost** \$4,440,000

Intersection improvements to North Royal Oaks Boulevard, Liberty Pike and Mallory Lane. This intersection is projected to be at a failure level in the next 3-4 years based on the proposed development along Carothers Parkway. If this project is not completed, there will be significant delays at this key intersection.

Justification

Congestion Mitigation: It is anticipated that this roadway will reach failure levels within the next 5 years. The increased traffic is a result of all the development along Carothers Parkway and other areas within Cool Springs.

Safety: No existing safety concerns at this intersection. Pedestrian facilities should be incorporated to the intersection improvements to comply with the Cities master plan.

Economic Development: Redevelopment and future economic development in the Cool Springs area continues. This improvement is needed to maintain our high quality of life by reducing congestion and improving safety along this Major Arterial Roadway.

Expenditures	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	Total
Design/Planning (Professional Services)				216,000							216,000
ROW and Easements					1,200,000						1,200,000
Construction Engineering / Inspection						324,000					324,000
Construction						2,700,000					2,700,000
Total				216,000	1,200,000	3,024,000					4,440,000

Funding Sources	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	Total
Road Impact Fees				216,000	1,200,000	2,721,400					4,137,400
Stormwater						135,000					135,000
Water Capacity						55,000					55,000
Wastewater Renewal						112,600					112,600
Total				216,000	1,200,000	3,024,000					4,440,000

ST16011 - Mallory/N Royal Oaks & Liberty Intersection

