W. L. BURLE
ENGINEERS, P. A.

July 1, 2022

City of Tupelo, MS
Attention: Ms. Jenny Savely
71 East Troy Street
Tupelo, MS 38804

Re: Unrelated Third Party Concurrence of "Flowerdale Commons" Traffic Impact Analysis

Ms. Savely and Members of the Planning Committee,

I am pleased to present for you a second review of the Traffic Impact Analysis (TIA) conducted by Engineering Solutions, Inc. (ESI) of Tupelo, MS for the Flowerdale Commons development. I am a registered professional engineer (MS #32827) with experience in traffic engineering and have no other interest in the subject project. It is my finding that the additional traffic flow generated by the subject development will not have a significant impact on the quality and level of service of Colonial Estates Road and that additional capacity will remain on the road after construction.

The initial TIA was provided by ESI in May of 2022 at the request of McCarty Architects, P.A. (McCARTY) for the subject development. It is my professional conclusion that this report applied objective, standard, and appropriate methods in order to determine impacts due to additional traffic.

W. L. Burle Engineers, P.A. was retained in June of 2022 by McCARTY to provide a supplemental review of the original TIA in order to eliminate any concerns about the objectivity and/or accuracy of the analysis.

Although I have no concerns about ESI's ability to provide an objective and accurate analysis, I was able to independently recreate the findings of the original report. These findings include determining Level of Service (LOS) values, for both AM and PM peak hours, of the pre and post construction two-lane roadway and the two proposed intersections that will be created once the development is complete (hence referred to as the North Intersection and the South Intersection). Findings are included as Attachment A of this letter.

Summary of LOS results are as follows:

1. During the peak AM hour, the Percent Time Spent Following (PTSF) on Colonial Estates Rd will increase from 57.6% to 58.7% allowing the road to maintain its existing LOS rating of C after construction has completed, with 21 additional vehicles per hour.
2. During the peak PM hour, PTSF on Colonial Estates Rd will increase from 61.6% to 63.4% allowing the road to maintain its existing LOS rating of C after construction has completed with 26 additional vehicles per hour.
3. During the peak AM hour, the proposed intersection of Colonial Estates Rd and the North Entrance will have a Control Delay (CD) value of 8 seconds, giving it a LOS rating of A.
4. During the peak PM hour, the proposed intersection of Colonial Estates Rd and the North Entrance will have a CD value of 7 seconds, giving it a LOS rating of A.

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5. During the peak AM hour, the proposed intersection of Colonial Estates Rd and the South Entrance will have a CD value of 8 seconds, giving it a LOS rating of A.
6. During the peak PM hour, the proposed intersection of Colonial Estates Rd and the South Entrance will have a CD value of 7 seconds, giving it a LOS rating of A.

It should be noted that the main focus of this review was placed on the generation of new traffic from the development. BURLE did not conduct any additional traffic counts of the existing road. It is my hope that this supplemental review will eliminate any concerns about the objectivity and/or accuracy of the original analysis. Please feel free to reach out to me with any concerns or questions in regards to these findings.

Sincerely,

W. L. Burle Engineers, P.A.

Scotty W. Swindle

ATTACHMENT “A”

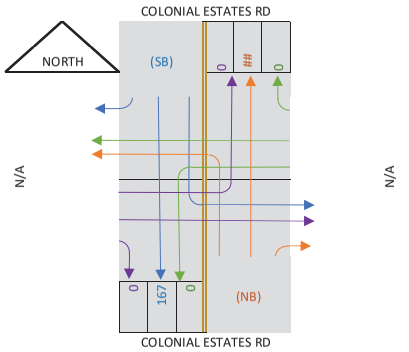
W. L. Burle Calculations

W. L. BURLE
ENGINEERS, P. A.

PROJECT: FLOWERDALE TRAFFIC ANALYSIS REVIEW
PROJECT NO.: 04717-1-0122
DATE: 6/23/2022
CALCULATIONS BY: SWS
COUNT LOCATION: BY OTHERS

NB Sreet: COLONIAL ESTATES RD
SB Street: COLONIAL ESTATES RD
WB Street:
NB Street: NORTH ENTRANCE

EXISTING TRAFFIC COUNT



EXISTING TRAFFIC COUNT (A.M. PERIOD)

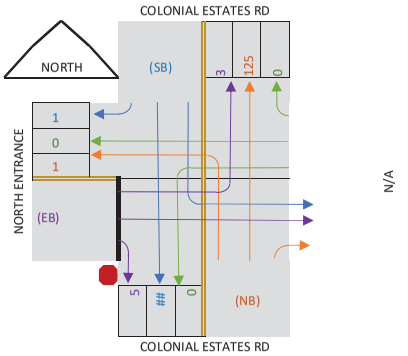
Time Frame	COLONIAL ESTATES RD (NB)				COLONIAL ESTATES RD (SB)				N/A (WB)				N/A (EB)			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
6:00 AM - 6:15 AM	0	7	0	7	0	10	0	10	0	0	0	0	0	0	0	0
6:15 AM - 6:30 AM	0	17	0	17	0	13	0	13	0	0	0	0	0	0	0	0
6:30 AM - 6:45 AM	0	20	0	20	0	20	0	20	0	0	0	0	0	0	0	0
6:45 AM - 7:00 AM	0	23	0	23	0	28	0	28	0	0	0	0	0	0	0	0
TOTALS	0	67	0	67	0	71	0	71	0	0	0	0	0	0	0	0
7:00 AM - 7:15 AM	0	22	0	22	0	32	0	32	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	33	0	33	0	33	0	33	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	29	0	29	0	45	0	45	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	41	0	41	0	57	0	57	0	0	0	0	0	0	0	0
TOTALS	0	125	0	125	0	167	0	167	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	24	0	24	0	39	0	39	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	16	0	16	0	21	0	21	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	21	0	21	0	20	0	20	0	0	0	0	0	0	0	0
8:45 AM - 8:00 AM	0	22	0	22	0	19	0	19	0	0	0	0	0	0	0	0
TOTALS	0	83	0	83	0	99	0	99	0	0	0	0	0	0	0	0
PERIOD TOTALS	0	275	0	275	0	337	0	337	0	0	0	0	0	0	0	0

PEAK

COLONIAL ESTATES RD $PHF_{N/S}$: 0.74
DIRECTIONAL SPLIT (A.M.): 43% - 57%
%NB Right Turn: 0% %NB Left Turn: 0%
%WB Right Turn: N/A %WB Left Turn: N/A

N/A $PHF_{E/W}$: N/A
DIRECTIONAL SPLIT (A.M.): 0% - 0%
%SB Right Turn: 0% %SB Left Turn: 0%
%EB Right Turn: N/A %EB Left Turn: N/A

ESTIMATED FUTURE TRAFFIC COUNT



1 125 0 0 167 1 0 0 0 3 0 5

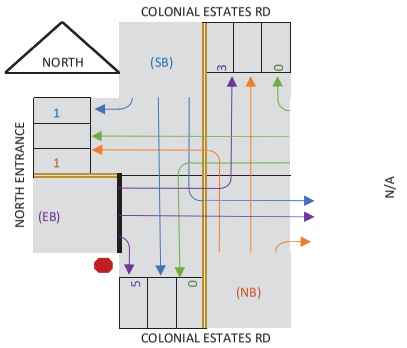
FUTURE TRAFFIC GENERATION (A.M. PERIOD)

Time Frame	COLONIAL ESTATES RD (NB)				COLONIAL ESTATES RD (SB)				NORTH ENTRANCE (WB)				NORTH ENTRANCE (EB)			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
7:00 AM - 7:15 AM	0	22	0	22	0	32	0	32	0	0	0	0	1	0	1	2
7:15 AM - 7:30 AM	0	33	0	33	0	33	0	33	0	0	0	0	1	0	1	2
7:30 AM - 7:45 AM	0	29	0	29	0	45	0	45	0	0	0	0	1	0	1	2
7:45 AM - 8:00 AM	0	41	0	41	0	57	0	57	0	0	0	0	1	0	1	2
TOTALS	1	125	0	126	0	167	1	168	0	0	0	0	3	0	5	8

COLONIAL ESTATES RD $PHF_{N/S}$: 0.75
NORTH ENTRANCE $PHF_{E/W}$: 0.74

PHF_{lane}: 0.76 0.76 0.00 0.00 0.73 0.73 0.00 0.00 0.00 1.00 0.00 1.00

ADDITIONAL GENERATED TRAFFIC



N/A

TRIP END GENERATION CALCULATIONS (A.M. PERIOD)

STREET: NORTH ENTRANCE

ST. LOCATION IN INTERSECTION (SINGLE LEG): WEST

SOURCE INFO: TRIP GENERATION MANUAL, 10th ED.
MULTIFAMILY HOUSING (LOW RISE)
WEEKDAY A.M. PEAK HOUR

NO. OF UNTIS= 46

TRIP ENDS= 21

TRIP ENTER= 23% / 5

TRIP EXIT= 77% / 16

What percentage of traffic will use this intersection? 50%

RIGHT TURN		LEFT TURN	
ENTER SB (VEH/HR)=	57% / 1	ENTER NB (VEH/HR)=	43% / 1
EXIT SB (VEH/HR)=	57% / 5	EXIT NB (VEH/HR)=	43% / 3

****RESULTS FOR SOUTH ENTRANCE ARE THE SAME SINCE 50% USE EACH

PROJECT: FLOWERDALE TRAFFIC ANALYSIS REVIEW
PROJECT NO.: 04717-1-0122
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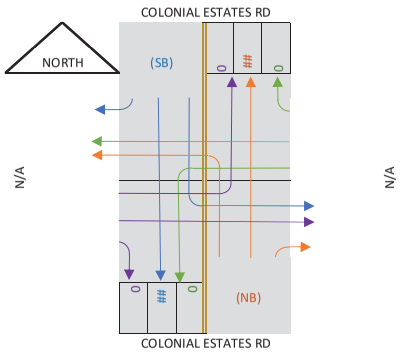
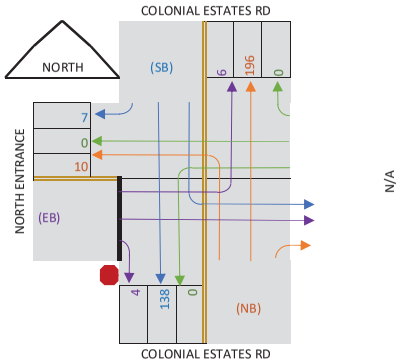


ESTIMATED FUTURE TRAFFIC COUNT



EXISTING TRAFFIC COUNT (P.M. PERIOD)

Time Frame	COLONIAL ESTATES RD (NB)				COLONIAL ESTATES RD (SB)				N/A (WB)				N/A (EB)			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
3:00 PM - 3:15 PM	0	27	0	27	0	27	0	27	0	0	0	0	0	0	0	0
3:15 PM - 3:30 PM	0	19	0	19	0	26	0	26	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	44	0	44	0	40	0	40	0	0	0	0	0	0	0	0
3:45 PM - 4:00 PM	0	31	0	31	0	24	0	24	0	0	0	0	0	0	0	0
TOTALS	0	121	0	121	0	117	0	117	0	0	0	0	0	0	0	0
4:00 PM - 4:15 PM	0	32	0	32	0	26	0	26	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	31	0	31	0	33	0	33	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	58	0	58	0	32	0	32	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	52	0	52	0	39	0	39	0	0	0	0	0	0	0	0
TOTALS	0	173	0	173	0	130	0	130	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	81	0	81	0	49	0	49	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	39	0	39	0	41	0	41	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	51	0	51	0	30	0	30	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	25	0	25	0	18	0	18	0	0	0	0	0	0	0	0
TOTALS	0	196	0	196	0	138	0	138	0	0	0	0	0	0	0	0
PERIOD TOTALS	0	490	0	490	0	385	0	385	0	0	0	0	0	0	0	0

PEAK

COLONIAL ESTATES RD $PHF_{N/S}$: 0.64
DIRECTIONAL SPLIT (P.M.): 59% - 41%
%NB Right Turn: 0% %NB Left Turn: 0%
%WB Right Turn: N/A %WB Left Turn: N/A

N/A $PHF_{E/W}$: N/A
DIRECTIONAL SPLIT (P.M.): 0% - 0%
%SB Right Turn: 0% %SB Left Turn: 0%
%EB Right Turn: N/A %EB Left Turn: N/A

10 196 0 0 138 7 0 0 0 0 0 4

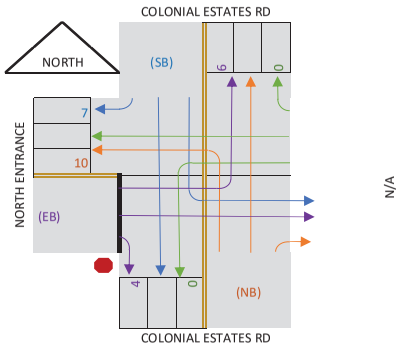
FUTURE TRAFFIC GENERATION (P.M. PERIOD)

Time Frame	COLONIAL ESTATES RD (NB)				COLONIAL ESTATES RD (SB)				NORTH ENTRANCE (WB)				NORTH ENTRANCE (EB)			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total
5:00 PM - 5:15 PM	4	81	0	85	0	49	2	51	0	0	0	0	0	0	1	1
5:15 PM - 5:30 PM	2	39	0	41	0	41	2	43	0	0	0	0	0	0	1	1
5:30 PM - 5:45 PM	3	51	0	54	0	30	1	31	0	0	0	0	0	0	1	1
5:45 PM - 6:00 PM	1	25	0	26	0	18	1	19	0	0	0	0	0	0	1	1
TOTALS	10	196	0	206	0	138	7	145	0	0	0	0	0	0	4	4

COLONIAL ESTATES RD $PHF_{N/S}$: 0.65
NORTH ENTRANCE $PHF_{E/W}$: 0.64

PHF_{lane}: 0.60 0.60 0.00 0.00 0.70 0.70 0.00 0.00 0.00 0.00 0.00 1.00

ADDITIONAL GENERATED TRAFFIC



TRIP END GENERATION CALCULATIONS (P.M. PERIOD)

STREET: NORTH ENTRANCE

ST. LOCATION IN INTERSECTION (SINGLE LEG): WEST

SOURCE INFO: TRIP GENERATION MANUAL, 10th ED.
MULTIFAMILY HOUSING (LOW RISE)
WEEKDAY A.M. PEAK HOUR

NO. OF UNTIS= 46

TRIP ENDS= 26

TRIP ENTER= 63% / 16

TRIP EXIT= 37% / 10

RIGHT TURN

ENTER SB (VEH/HR)= 41% / 7

EXIT SB (VEH/HR)= 41% / 4

LEFT TURN

ENTER NB (VEH/HR)= 59% / 10

EXIT NB (VEH/HR)= 59% / 6

****RESULTS FOR SOUTH ENTRANCE ARE THE SAME SINCE 50% USE EACH

TWO-LANE HIGHWAY L.O.S. (COLONIAL ESTATES RD - PRE-CON. AM)

V (veh/hr)= 292 | BFFS (mph)= 30 | PHF= 0.74 | P_t (%)= 0% | P_r (%)= 0%

$V_{directional}$ (veh/hr)= 126 | Terrain: Rolling | $W_{sholder}$ (ft)= 2 | W_{lane} (ft)= 10 | No Pass (%)= 100%

Access (Point/Mile)= 20 | Class: II | Split: 43% \ 57%

TRAVEL SPEED CALCULATIONS

f_g= 0.71 | E_t= 2.5

f_{hv}= 1 | E_r= 1.1

V_p (veh/hr)= 556

$V_{p\text{-directional}}$ (veh/hr)= 317

f_{ls} (mph)= 3.7 | f_{np} (mph)= 4

f_A (mph)= 5 | ATS (mph)= 13

FFS (mph)= 21

PERCENT FOLLOWING CALCULATIONS

f_g= 0.77 | E_t= 1.8

f_{hv}= 1 | E_r= 1

V_p (veh/hr)= 512

$V_{p\text{-directional}}$ (veh/hr)= 292

BPTSF (%)= 36.3

$f_{d/np}$ (%)= 21.36

PTSF (%)= 57.6

LOS CALCULATIONS

FROM EX. 20-4 OF HCM2000, LOS OF **C** WAS DETERMINED

Exh. 20-4 from HCM2000

LOS	PTSF
A	<=40
B	>40-55
C	>55-70
D	>70-85
E	>85

TWO-LANE HIGHWAY L.O.S. (COLONIAL ESTATES RD - PRE-CON. PM)

V (veh/hr)= 334 | BFFS (mph)= 30 | PHF= 0.74 | P_t (%)= 0% | P_r (%)= 0%

$V_{directional}$ (veh/hr)= 144 | Terrain: Rolling | $W_{sholder}$ (ft)= 2 | W_{lane} (ft)= 10 | No Pass (%)= 100%

Access (Point/Mile)= 20 | Class: II | Split: 43% \ 57%

TRAVEL SPEED CALCULATIONS

f_g= 0.71 | E_t= 2.5

f_{hv}= 1 | E_r= 1.1

V_p (veh/hr)= 636

$V_{p\text{-directional}}$ (veh/hr)= 362

f_{ls} (mph)= 3.7 | f_{np} (mph)= 4

f_A (mph)= 5 | ATS (mph)= 12

FFS (mph)= 21

PERCENT FOLLOWING CALCULATIONS

f_g= 0.77 | E_t= 1.8

f_{hv}= 1 | E_r= 1

V_p (veh/hr)= 586

$V_{p\text{-directional}}$ (veh/hr)= 334

BPTSF (%)= 40.3

$f_{d/np}$ (%)= 21.36

PTSF (%)= 61.6

LOS CALCULATIONS

FROM EX. 20-4 OF HCM2000, LOS OF **C** WAS DETERMINED

Exh. 20-4 from HCM2000

LOS	PTSF
A	<=40
B	>40-55
C	>55-70
D	>70-85
E	>85

TWO-LANE HIGHWAY L.O.S. (COLONIAL ESTATES RD - POST-CON. AM)

V (veh/hr)= 303 | BFFS (mph)= 30 | PHF= 0.74 | P_t (%)= 0% | P_r (%)= 0%

$V_{directional}$ (veh/hr)= 130 | Terrain: Rolling | $W_{sholder}$ (ft)= 2 | W_{lane} (ft)= 10 | No Pass (%)= 100%

Access (Point/Mile)= 20 | Class: II | Split: 43% \ 57%

TRAVEL SPEED CALCULATIONS

f_g= 0.71 | E_t= 2.5

f_{hv}= 1 | E_r= 1.1

V_p (veh/hr)= 577

$V_{p\text{-directional}}$ (veh/hr)= 329

f_{ls} (mph)= 3.7 | f_{np} (mph)= 4

f_A (mph)= 5 | ATS (mph)= 13

FFS (mph)= 21

PERCENT FOLLOWING CALCULATIONS

f_g= 0.77 | E_t= 1.8

f_{hv}= 1 | E_r= 1

V_p (veh/hr)= 532

$V_{p\text{-directional}}$ (veh/hr)= 303

BPTSF (%)= 37.3

$f_{d/np}$ (%)= 21.36

PTSF (%)= 58.7

LOS CALCULATIONS

FROM EX. 20-4 OF HCM2000, LOS OF **C** WAS DETERMINED

Exh. 20-4 from HCM2000

LOS	PTSF
A	<=40
B	>40-55
C	>55-70
D	>70-85
E	>85

TWO-LANE HIGHWAY L.O.S. (COLONIAL ESTATES RD - POST-CON. PM)

V (veh/hr)= 354 | BFFS (mph)= 30 | PHF= 0.74 | P_t (%)= 0% | P_r (%)= 0%

$V_{directional}$ (veh/hr)= 152 | Terrain: Rolling | $W_{sholder}$ (ft)= 2 | W_{lane} (ft)= 10 | No Pass (%)= 100%

Access (Point/Mile)= 20 | Class: II | Split: 43% \ 57%

TRAVEL SPEED CALCULATIONS

f_g= 0.71 | E_t= 2.5

f_{hv}= 1 | E_r= 1.1

V_p (veh/hr)= 674

$V_{p\text{-directional}}$ (veh/hr)= 384

f_{ls} (mph)= 3.7 | f_{np} (mph)= 4

f_A (mph)= 5 | ATS (mph)= 12

FFS (mph)= 21

PERCENT FOLLOWING CALCULATIONS

f_g= 0.77 | E_t= 1.8

f_{hv}= 1 | E_r= 1

V_p (veh/hr)= 621

$V_{p\text{-directional}}$ (veh/hr)= 354

BPTSF (%)= 42.1

$f_{d/np}$ (%)= 21.36

PTSF (%)= 63.4

LOS CALCULATIONS

FROM EX. 20-4 OF HCM2000, LOS OF **C** WAS DETERMINED

Exh. 20-4 from HCM2000

LOS	PTSF
A	<=40
B	>40-55
C	>55-70
D	>70-85
E	>85

2-WAY STOP INTERSECTION (NORTH INTERSECTION AM)

Which direction is the primary street running? NORTH-SOUTH

VEHICLE VOLUME CALCULATIONS

Movement:	1	2	3	4	5	6	7	8	9	10	11	12
V (veh/hr):	1	125	0	0	167	1	0	0	0	3	0	5
PHF:	0.76	0.76	0.00	0.00	0.73	0.73	0.00	0.00	0.00	1.00	0.00	1.00
V_{hourly} (veh/hr):	1	95	0	0	122	1	0	0	0	3	0	5
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

PEDESTRIAN VOLUME CALCULATIONS

Movement:	13	14	15	16								
V_x (ped/hr):	0	0	0	0								
W_{lane} (ft):												
S_p (ft/sec):												
f_p (%):												

Does Movement 9 have flared approach? NO

Does Movement 12 have flared approach? NO

Do movements 7 and 8 have median storage? NO

Do movements 10 and 11 have median storage? NO

Single or Double? SINGLE

CRITICAL GAP CALCULATIONS

Movement:	1	4	9	12	8	11	7	10
$t_{c,base}$ (s):	4.1			6.2				7.1
$t_{c,hv}$ (s):	1			1				1
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%
$t_{c,G}$ (s):			0.1	0.1	0.2	0.2	0.2	0.2
Grade:	0	0	0	0	0	0	0	0
$t_{3,LT}$ (s):		0	0					0.7
$t_{c,T}$ (s) [SINGLE]:								

$t_{c,T}$ (s) [TWO]:								
t_c (s) [SINGLE]:	4.1	0	0	6.2	0	0	0	6.4
t_c (s) [TWO]:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

FOLLOW UP TIME CALCULATIONS

$t_{f,\ base}$ (s):	2.2			3.3				3.5
$t_{f,hv}$ (s):	0.9			0.9				0.9
t_f (s):	2.2	0	0	3.3	0	0	0	3.5

IMPEDANCE AND CAPACITY CALCULATIONS

		v_9	v_{12}	v_4	v_1	v_7	v_{10}		
		N/A	Minor RT	N/A	Major LT	N/A	Minor LT		
$V_{C,X}$ (veh/hr):		0	123	0	123	0	220		
	$C_{p,x}$ (s):	0	934	0	1,476	0	773		
	$P_{p,x}$:	1	1	1	1	1	1		
	f_x:					0.000	0.999		
	$c_{m,x}$ (s):	0	934	0	1,476	0	773		
	$P_{0,x}$:	0.000	0.995	0.000	0.999				
	P_{0x,x^*}:			0.000	0.999				

No. Thru Lns: 1
s (veh/hr)= 1,900
Is major st multi-lane? NO
Does major st have right turn lane? NO
Is minor st multi-lane? NO
Is nimor st single lane flaired? NO

SHARED-LANE CAPACITY

LANE	v (veh/hr)			c_m (veh/hr)			v/C_m			C_{SH} (veh/hr)
	mv7	mv8	mv9	mv7	mv8	mv9	mv7	mv8	mv9	
1	0		0	0		0	0.000	0.000	0.000	0
2										
3										

	mv10	mv11	mv12	mv10	mv11	mv12	mv10	mv11	mv12	
1	3		5	773		1,476	0.004	0.000	0.003	1,062
2										
3										

CONTROL DELAY/QUE LENGTH, LOS

LANE	V (veh/hr)	C_m (veh/hr)	v/c	Que (<2)	CD	LOS			
1 (7; 8; 9)	0	0	0.000	N/A	N/A				
2 (7; 8; 9)									
3 (7; 8; 9)									
1 (10; 11; 12)	8	1,062	0.008	-157.41	8	A			
2 (10; 11; 12)									
3 (10; 11; 12)									

t= 0.25

EXH 17-2

LOS	CD
A	: 0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

2-WAY STOP INTERSECTION (NORTH INTERSECTION PM)

Which direction is the primary street running? NORTH-SOUTH

VEHICLE VOLUME CALCULATIONS

Movement:	1	2	3	4	5	6	7	8	9	10	11	12
V (veh/hr):	10	196	0	0	138	7	0	0	0	6	0	4
PHF:	0.60	0.60	0.00	0.00	0.70	0.70	0.00	0.00	0.00	0.00	0.00	1.00
V_{hourly} (veh/hr):	6	119	0	0	97	5	0	0	0	0	0	4
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

PEDESTRIAN VOLUME CALCULATIONS

Movement:	13	14	15	16								
V_x (ped/hr):	0	0	0	0								
W_{lane} (ft):												
S_p (ft/sec):												
f_p (%):												

Does Movement 9 have flared approach? NO

Does Movement 12 have flared approach? NO

Do movements 7 and 8 have median storage? NO

Do movements 10 and 11 have median storage? NO

Single or Double? SINGLE

CRITICAL GAP CALCULATIONS

Movement:	1	4	9	12	8	11	7	10
$t_{c,base}$ (s):	4.1			6.2				7.1
$t_{c,hv}$ (s):	1			1				1
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%
$t_{c,G}$ (s):			0.1	0.1	0.2	0.2	0.2	0.2
Grade:	0	0	0	0	0	0	0	0
$t_{3,LT}$ (s):		0	0					0.7
$t_{c,T}$ (s) [SINGLE]:								

$t_{c,T}$ (s) [TWO]:								
t_c (s) [SINGLE]:	4.1	0	0	6.2	0	0	0	6.4
t_c (s) [TWO]:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

FOLLOW UP TIME CALCULATIONS

$t_{f,\ base}$ (s):	2.2			3.3				3.5
$t_{f,hv}$ (s):	0.9			0.9				0.9
t_f (s):	2.2	0	0	3.3	0	0	0	3.5

IMPEDANCE AND CAPACITY CALCULATIONS

		v_9	v_{12}	v_4	v_1	v_7	v_{10}		
		N/A	Minor RT	N/A	Major LT	N/A	Minor LT		
$V_{C,X}$ (veh/hr):		0	100	0	102	0	230		
	$C_{p,x}$ (s):	0	962	0	1,503	0	763		
	$P_{p,x}$:	1	1	1	1	1	1		
	f_x:					0.000	0.996		
	$c_{m,x}$ (s):	0	962	0	1,503	0	760		
	$P_{0,x}$:	0.000	0.996	0.000	0.996				
	P_{0x,x^*}:			0.000	0.996				

No. Thru Lns: 1

s (veh/hr)= 1,900

Is major st multi-lane? NO

Does major st have right turn lane? NO

Is minor st multi-lane? NO

Is nimor st single lane flaired? NO

SHARED-LANE CAPACITY

LANE	v (veh/hr)			c_m (veh/hr)			v/C_m			C_{SH} (veh/hr)
	mv7	mv8	mv9	mv7	mv8	mv9	mv7	mv8	mv9	
1	0		0	0		0	0.000	0.000	0.000	0
2										
3										

	mv10	mv11	mv12	mv10	mv11	mv12	mv10	mv11	mv12		
1	0			4	760		1,503	0.000	0.000	0.003	1,503
2											
3											

CONTROL DELAY/QUE LENGTH, LOS

	LANE	V (veh/hr)	C_m (veh/hr)	v/c	Que (<2)	CD	LOS			
	1 (7; 8; 9)	0	0	0.000	N/A	N/A				
	2 (7; 8; 9)									
	3 (7; 8; 9)									
1	(10; 11; 12)	4	1,503	0.003	-130.724	7	A			
2	(10; 11; 12)									
3	(10; 11; 12)									

t= 0.25

EXH 17-2

LOS	CD
A	: 0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

2-WAY STOP INTERSECTION (SOUTH INTERSECTION AM)

Which direction is the primary street running? NORTH-SOUTH

VEHICLE VOLUME CALCULATIONS

Movement:	1	2	3	4	5	6	7	8	9	10	11	12
V (veh/hr):	1	125	0	0	167	1	0	0	0	3	0	5
PHF:	0.76	0.76	0.00	0.00	0.73	0.73	0.00	0.00	0.00	1.00	0.00	1.00
V_{hourly} (veh/hr):	1	95	0	0	122	1	0	0	0	3	0	5
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

PEDESTRIAN VOLUME CALCULATIONS

Movement:	13	14	15	16								
V_x (ped/hr):	0	0	0	0								
W_{lane} (ft):												
S_p (ft/sec):												
f_p (%):												

Does Movement 9 have flared approach? NO

Does Movement 12 have flared approach? NO

Do movements 7 and 8 have median storage? NO

Do movements 10 and 11 have median storage? NO

Single or Double? SINGLE

CRITICAL GAP CALCULATIONS

Movement:	1	4	9	12	8	11	7	10
$t_{c,base}$ (s):	4.1			6.2				7.1
$t_{c,hv}$ (s):	1			1				1
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%
$t_{c,G}$ (s):			0.1	0.1	0.2	0.2	0.2	0.2
Grade:	0	0	0	0	0	0	0	0
$t_{3,LT}$ (s):		0	0					0.7
$t_{c,T}$ (s) [SINGLE]:								

$t_{c,T}$ (s) [TWO]:								
t_c (s) [SINGLE]:	4.1	0	0	6.2	0	0	0	6.4
t_c (s) [TWO]:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

FOLLOW UP TIME CALCULATIONS

$t_{f,\ base}$ (s):	2.2			3.3				3.5
$t_{f,hv}$ (s):	0.9			0.9				0.9
t_f (s):	2.2	0	0	3.3	0	0	0	3.5

IMPEDANCE AND CAPACITY CALCULATIONS

		v_9	v_{12}	v_4	v_1	v_7	v_{10}		
		N/A	Minor RT	N/A	Major LT	N/A	Minor LT		
$V_{C,X}$ (veh/hr):		0	123	0	123	0	220		
	$C_{p,x}$ (s):	0	934	0	1,476	0	773		
	$P_{p,x}$:	1	1	1	1	1	1		
	f_x:					0.000	0.999		
	$c_{m,x}$ (s):	0	934	0	1,476	0	773		
	$P_{0,x}$:	0.000	0.995	0.000	0.999				
	P_{0x,x^*}:			0.000	0.999				

No. Thru Lns: 1
s (veh/hr)= 1,900
Is major st multi-lane? NO
Does major st have right turn lane? NO
Is minor st multi-lane? NO
Is nimor st single lane flaired? NO

SHARED-LANE CAPACITY

LANE	v (veh/hr)			c_m (veh/hr)			v/C_m			C_{SH} (veh/hr)
	mv7	mv8	mv9	mv7	mv8	mv9	mv7	mv8	mv9	
1	0		0	0		0	0.000	0.000	0.000	0
2										
3										

	mv10	mv11	mv12	mv10	mv11	mv12	mv10	mv11	mv12	
1	3		5	773		1,476	0.004	0.000	0.003	1,062
2										
3										

CONTROL DELAY/QUE LENGTH, LOS

LANE	V (veh/hr)	C_m (veh/hr)	v/c	Que (<2)	CD	LOS			
1 (7; 8; 9)	0	0	0.000	N/A	N/A				
2 (7; 8; 9)									
3 (7; 8; 9)									
1 (10; 11; 12)	8	1,062	0.008	-157.41	8	A			
2 (10; 11; 12)									
3 (10; 11; 12)									

t= 0.25

EXH 17-2

LOS	CD
A	: 0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

2-WAY STOP INTERSECTION (SOUTH INTERSECTION PM)

Which direction is the primary street running? NORTH-SOUTH

VEHICLE VOLUME CALCULATIONS

Movement:	1	2	3	4	5	6	7	8	9	10	11	12
V (veh/hr):	10	196	0	0	138	7	0	0	0	6	0	4
PHF:	0.60	0.60	0.00	0.00	0.70	0.70	0.00	0.00	0.00	0.00	0.00	1.00
V_{hourly} (veh/hr):	6	119	0	0	97	5	0	0	0	0	0	4
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

PEDESTRIAN VOLUME CALCULATIONS

Movement:	13	14	15	16								
V_x (ped/hr):	0	0	0	0								
W_{lane} (ft):												
S_p (ft/sec):												
f_p (%):												

Does Movement 9 have flared approach? NO

Does Movement 12 have flared approach? NO

Do movements 7 and 8 have median storage? NO

Do movements 10 and 11 have median storage? NO

Single or Double? SINGLE

CRITICAL GAP CALCULATIONS

Movement:	1	4	9	12	8	11	7	10
$t_{c,base}$ (s):	4.1			6.2				7.1
$t_{c,hv}$ (s):	1			1				1
P_{hv} (%):	0%	0%	0%	0%	0%	0%	0%	0%
$t_{c,G}$ (s):			0.1	0.1	0.2	0.2	0.2	0.2
Grade:	0	0	0	0	0	0	0	0
$t_{3,LT}$ (s):		0	0					0.7
$t_{c,T}$ (s) [SINGLE]:								

$t_{c,T}$ (s) [TWO]:								
t_c (s) [SINGLE]:	4.1	0	0	6.2	0	0	0	6.4
t_c (s) [TWO]:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

FOLLOW UP TIME CALCULATIONS

$t_{f,\ base}$ (s):	2.2			3.3				3.5
$t_{f,hv}$ (s):	0.9			0.9				0.9
t_f (s):	2.2	0	0	3.3	0	0	0	3.5

IMPEDANCE AND CAPACITY CALCULATIONS

		v_9	v_{12}	v_4	v_1	v_7	v_{10}		
		N/A	Minor RT	N/A	Major LT	N/A	Minor LT		
$V_{C,X}$ (veh/hr):		0	100	0	102	0	230		
	$C_{p,x}$ (s):	0	962	0	1,503	0	763		
	$P_{p,x}$:	1	1	1	1	1	1		
	f_x:					0.000	0.996		
	$c_{m,x}$ (s):	0	962	0	1,503	0	760		
	$P_{0,x}$:	0.000	0.996	0.000	0.996				
	P_{0x,x^*}:			0.000	0.996				

No. Thru Lns: 1

s (veh/hr)= 1,900

Is major st multi-lane? NO

Does major st have right turn lane? NO

Is minor st multi-lane? NO

Is nimor st single lane flaired? NO

SHARED-LANE CAPACITY

LANE	v (veh/hr)			c_m (veh/hr)			v/C_m			C_{SH} (veh/hr)
	mv7	mv8	mv9	mv7	mv8	mv9	mv7	mv8	mv9	
1	0		0	0		0	0.000	0.000	0.000	0
2										
3										

	mv10	mv11	mv12	mv10	mv11	mv12	mv10	mv11	mv12		
1	0			4	760		1,503	0.000	0.000	0.003	1,503
2											
3											

CONTROL DELAY/QUE LENGTH, LOS

	LANE	V (veh/hr)	C_m (veh/hr)	v/c	Que (<2)	CD	LOS			
	1 (7; 8; 9)	0	0	0.000	N/A	N/A				
	2 (7; 8; 9)									
	3 (7; 8; 9)									
1	(10; 11; 12)	4	1,503	0.003	-130.724	7	A			
2	(10; 11; 12)									
3	(10; 11; 12)									

t= 0.25

EXH 17-2

LOS	CD
A	: 0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50