6-M-25-DP
TIL Version 1
10/20/2025

CANNON & CANNON INC

October 20, 2025

Mr. Jim Snowden
Chief Engineer
Knox County Engineering and Public Works
205 W Baxter Avenue
Knoxville TN 37917

RE: Transportation Impact Letter
Centerpoint Commons Office Buildings
Knoxville, Tennessee

Dear Mr. Snowden:

This correspondence provides a summary of conclusions reached regarding an assessment of the impact to traffic flow conditions at the signalized intersection of Lovell Road (SR 131) and Centerpoint Boulevard. The proposed Centerpoint Commons will be split into a Phase 1 Office Building and a Phase 2 Office Building with a combined total gross floor area of approximately 60,000 square feet. Specifically, the assessment will evaluate if the signalized intersection of Lovell Road (SR 131) and Centerpoint Boulevard will have any recommended improvements after the full buildout of the Centerpoint Commons Phase 1 and Phase 2 Office Buildings.

The current development plan, as shown in the attached Figure 1, proposes two office buildings with driveway access to Centerpoint Boulevard.

DATA COLLECTION AND BACKGROUND GROWTH

Intersection turning movement traffic counts were conducted in May 2025 at the study intersection of Lovell Road (SR 131) and Centerpoint Boulevard with the primary purpose of determining the current peak hour operating volumes. The 2025 traffic volumes are summarized in the attached FIGURE 2 for the A.M. and P.M. peak traffic hours.

It is assumed that buildout of the proposed Centerpoint Commons Phase 1 and Phase 2 Office Buildings will take approximately five years to complete. Based on the five-year assumption, the year 2030 was established as the study horizon. In order to determine traffic volumes resulting solely from background traffic growth to year 2030, it was necessary to establish an annual growth rate for existing traffic. Based on the available data, a background annual growth rate of 2.0% was assumed. Traffic volumes were grown with an annual growth rate of 2.0% from the year 2025 traffic volumes to the horizon year 2030. The attached FIGURE 3 contains the background traffic volumes that would result from a 2.0% annual growth from the year 2025 to the year 2030.

TRIP GENERATION AND DISTRIBUTION

In order to estimate the expected traffic volumes to be generated by the proposed development, the procedures of Trip Generation, Eleventh Edition (Institute of Transportation Engineers) were utilized. The generated traffic volumes were determined based on the weekday morning and evening peak hour of adjacent street traffic trip generation rates for General Office Building (Land Use Code 710). Trip generation projections for the proposed development are summarized in TABLE 1.

TABLE 1 TRIP GENERATION PROJECTIONS					
Land Use	**Land Use Code**	**Size**	**Daily Trips**	**AM Peak Hour**	**PM Peak Hour**
General Office					
Entering Trips	710	60,000 sf	372	95	18
Exiting Trips			372	13	91
TOTAL			744	108	109

Proposed site generated trips were distributed to the existing roadway network and analyses were conducted for the intersection of Lovell Road (SR 131) and Centerpoint Boulevard. FIGURE 4 provides a summary of the entering and exiting trip distribution patterns assumed for the study. FIGURE 5 shows the generated trips as assigned to the study intersection in accordance with the distribution patterns shown in FIGURE 4. FIGURE 6 shows the combined year 2030 volumes reflecting the existing traffic, the background traffic growth, and the newly generated traffic from the proposed development. These are the combined volumes used in the analysis of the future conditions.

CAPACITY ANALYSES

Signalized intersection capacity analyses were performed using the Synchro 12 Software at the intersection of Lovell Road (SR 131) and Centerpoint Boulevard in order to evaluate the AM and PM peak hours for the anticipated 2030 combined traffic conditions. The existing roadway geometry was used in the analysis and both the existing signal timing and the Synchro 12 optimized signal timing splits were documented.

The results from the analyses are expressed with a term “level of service” (LOS), which is based on the amount of delay experienced at the intersection. The LOS index ranges from LOS A, indicating excellent traffic conditions with minimal delay, to LOS F indicating very congested conditions with excessive delay. LOS D generally is considered the minimum acceptable condition in urban areas.

TABLE 2 may be referenced for tabular summaries of these analyses, while more detailed summaries are presented on the attached computer printouts.

TABLE 2 CAPACITY ANALYSES SUMMARY			
Intersection	**Time**	**Movement / Approach**	**Year 2030 Combined (LOS/Delay)**
Lovell Rd (SR 131) at Centerpoint Blvd Existing Signal Timing (Signalized)	A.M.	Intersection EB Approach WB Approach NB Approach SB Approach	B / 11.7 C / 28.3 D / 40.0 A / 9.1 B / 12.2
	P.M.	Intersection EB Approach WB Approach NB Approach SB Approach	C / 23.1 D / 42.3 D / 43.0 B / 13.9 C / 21.3
Lovell Rd (SR 131) at Centerpoint Blvd Optimized Splits (Signalized)	AM.	Intersection EB Approach WB Approach NB Approach SB Approach	B / 11.5 C / 28.3 D / 40.0 A / 9.2 B / 11.8
	P.M.	Intersection EB Approach WB Approach NB Approach SB Approach	C / 22.8 D / 41.5 D / 43.0 B / 13.7 C / 21.1

Signalized intersection capacity analyses were performed at the intersection of Lovell Road (SR 131) at Centerpoint Boulevard using the Synchro 12 software. The Synchro 12 capacity analysis reports for the optimized splits show only a negligible impact to the intersection and approach delay when compared to the existing signal timing.

The analysis indicates that the intersection of Lovell Road (SR 131) and Centerpoint Boulevard is anticipated to operate at a Level of-Service (LOS) “B” during the A.M. peak hour and a LOS “C” during the P.M. peak hour after the completion of the Centerpoint Commons Development.

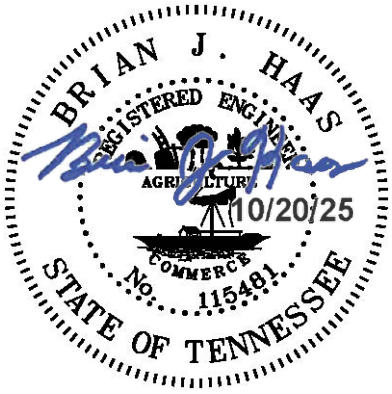
CONCLUSION

The primary conclusion of this evaluation is that the traffic generated from proposed development will not have a significant impact on intersection capacity and levels-of-service at the intersection of Lovell Road (SR 131) and Centerpoint Boulevard. The analyses show that the intersection is anticipated to operate a LOS “B” during the A.M. peak hour and a LOS “C” during the P.M. peak hour after the completion of the Centerpoint Commons Phase 1 and Phase 2 Office Buildings.

There are no recommended signal timing or roadway improvements to the signalized intersection of Lovell Road (SR 131) at Centerpoint Boulevard as a result of the Centerpoint Commons Phase 1 and Phase 2 Office Building development with a combined gross floor area of 60,000 square feet.

Please let us know if you have questions or need additional information.

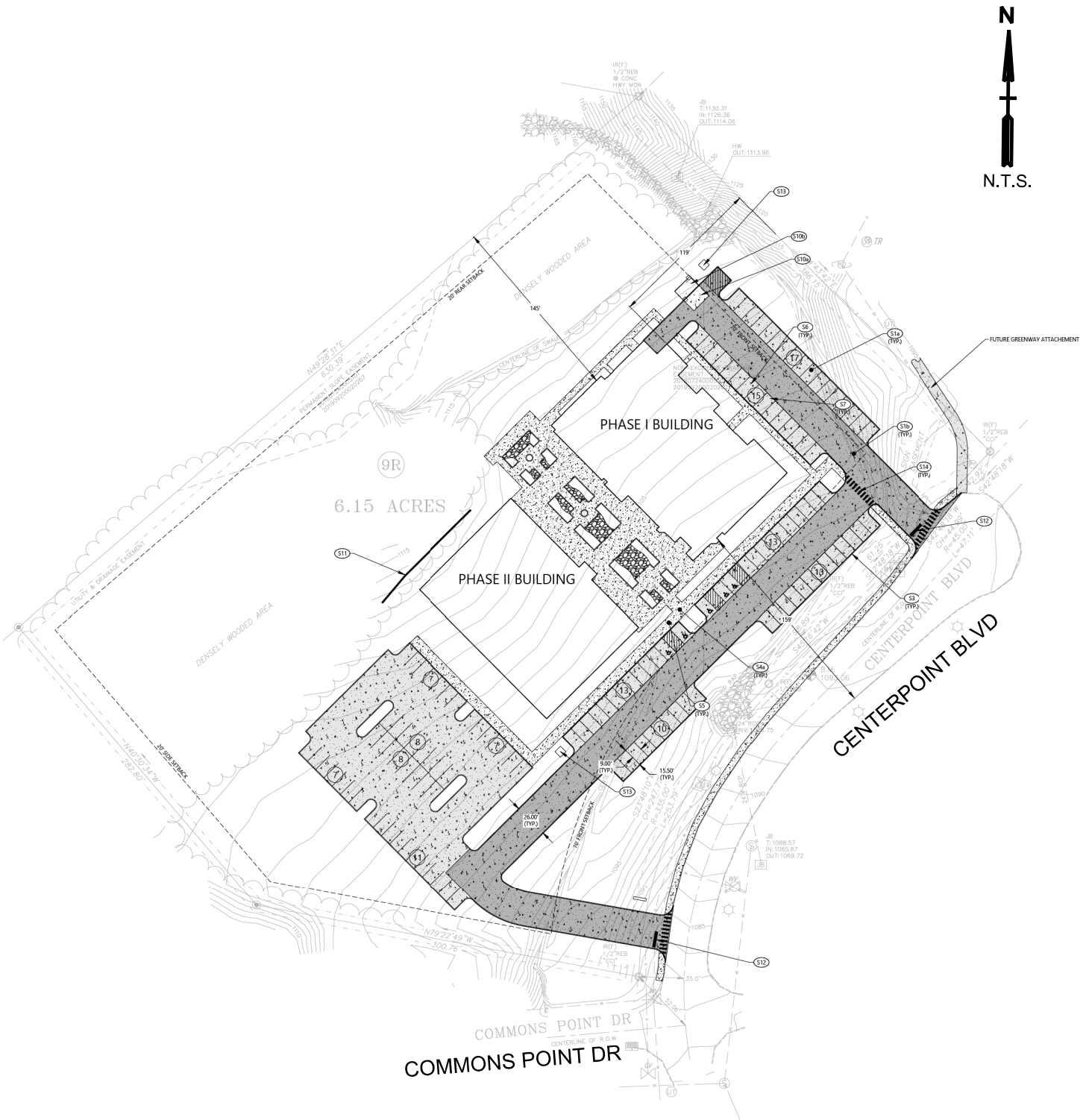
Sincerely,



Brian Haas, PE., PTOE

c: CCI Project No. 01004-0004.000

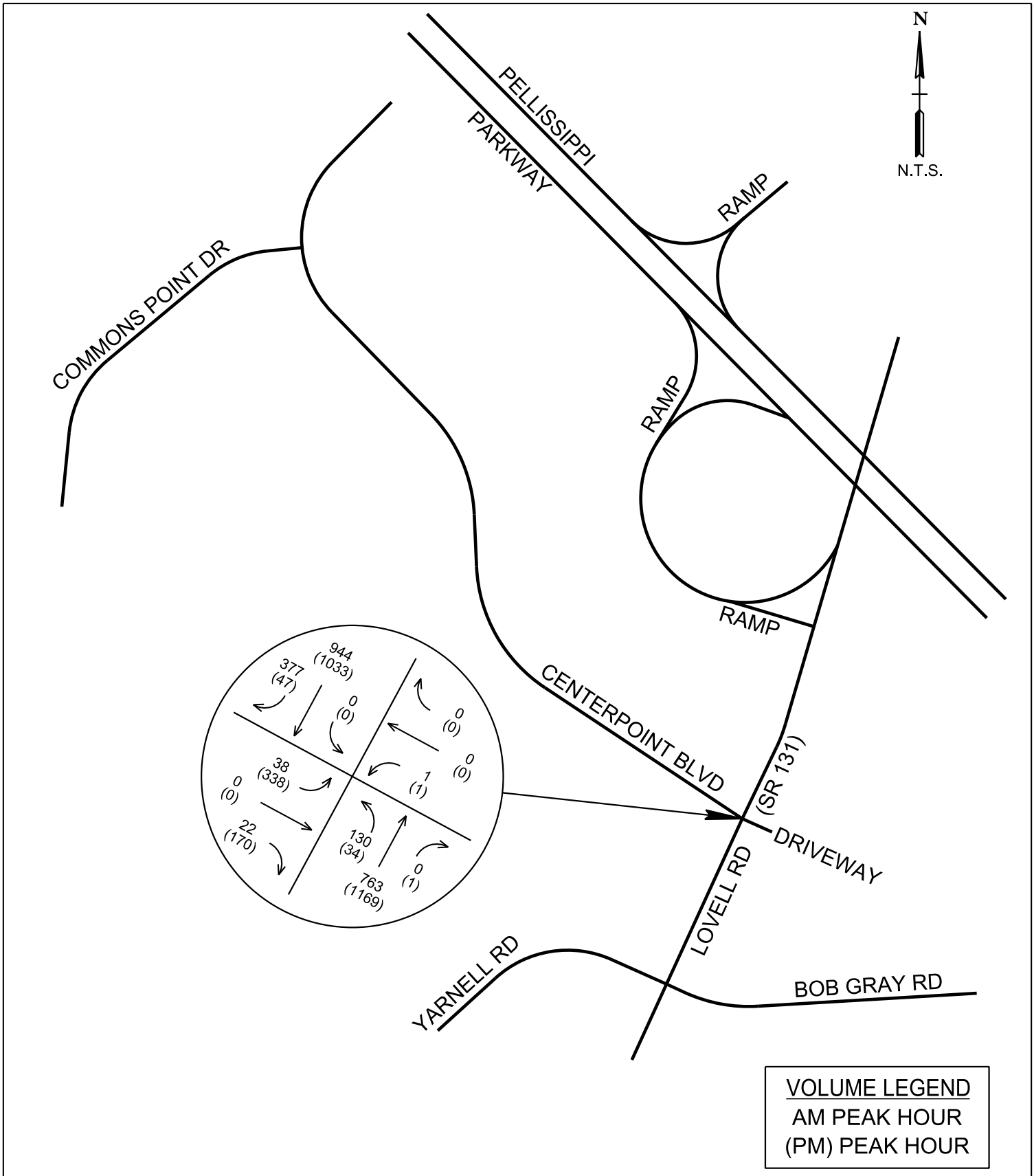
Attachments: Figures
Traffic and Trip Generation Data
Analyses Worksheets



CANNON & CANNON INC
10025 Investment Drive, Suite 120
Knoxville, TN 37932
865.670.8555
www.cci-corp.com

FIGURE 1
SITE PLAN

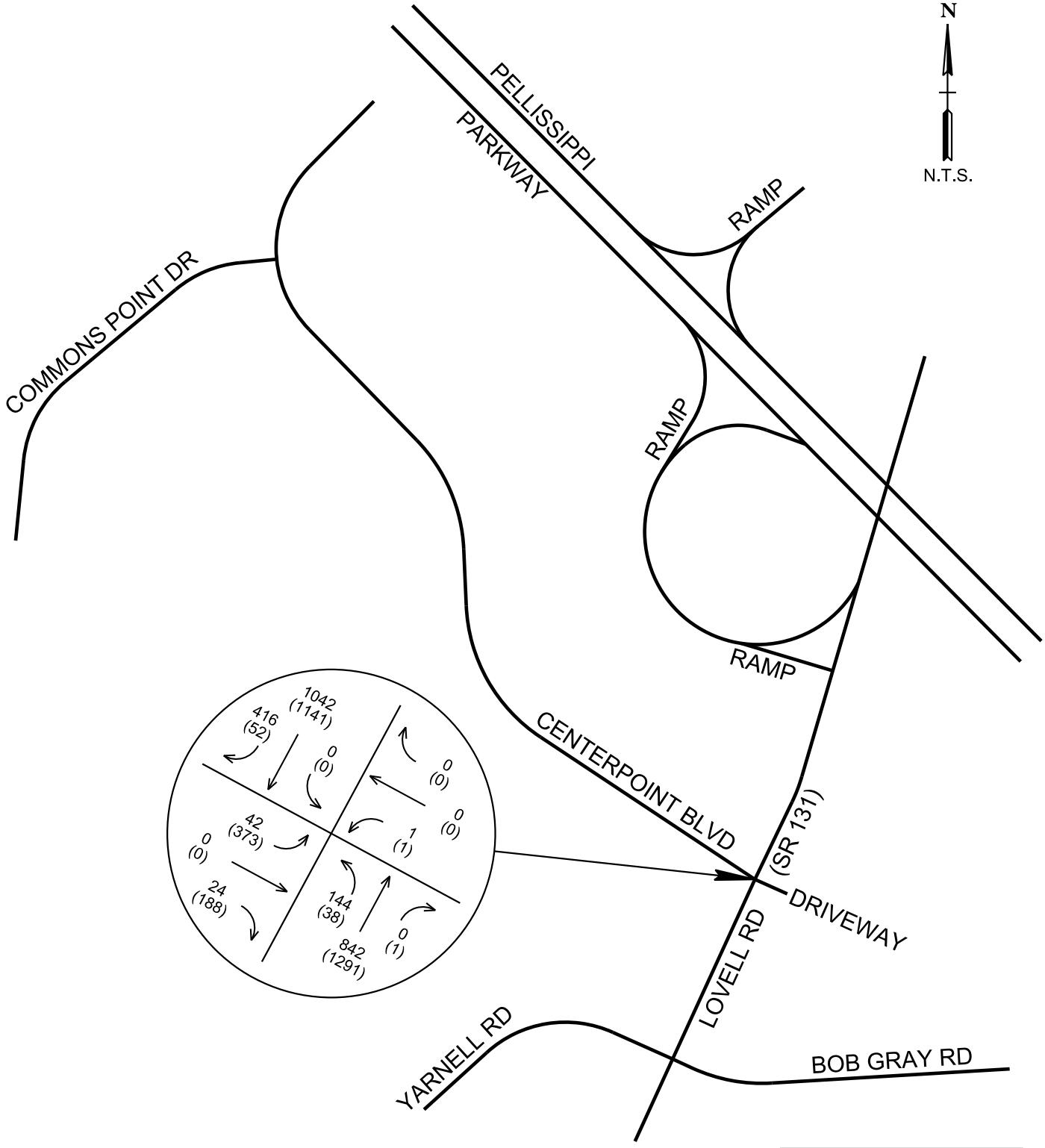
CENTERPOINT COMMONS
TRANSPORTATION IMPACT LETTER



CANNON & CANNON INC
10025 Investment Drive, Suite 120
Knoxville, TN 37932
865.670.8555
www.cci-corp.com

FIGURE 2
EXISTING TRAFFIC VOLUMES (2025)

CENTERPOINT COMMONS
TRANSPORTATION IMPACT LETTER



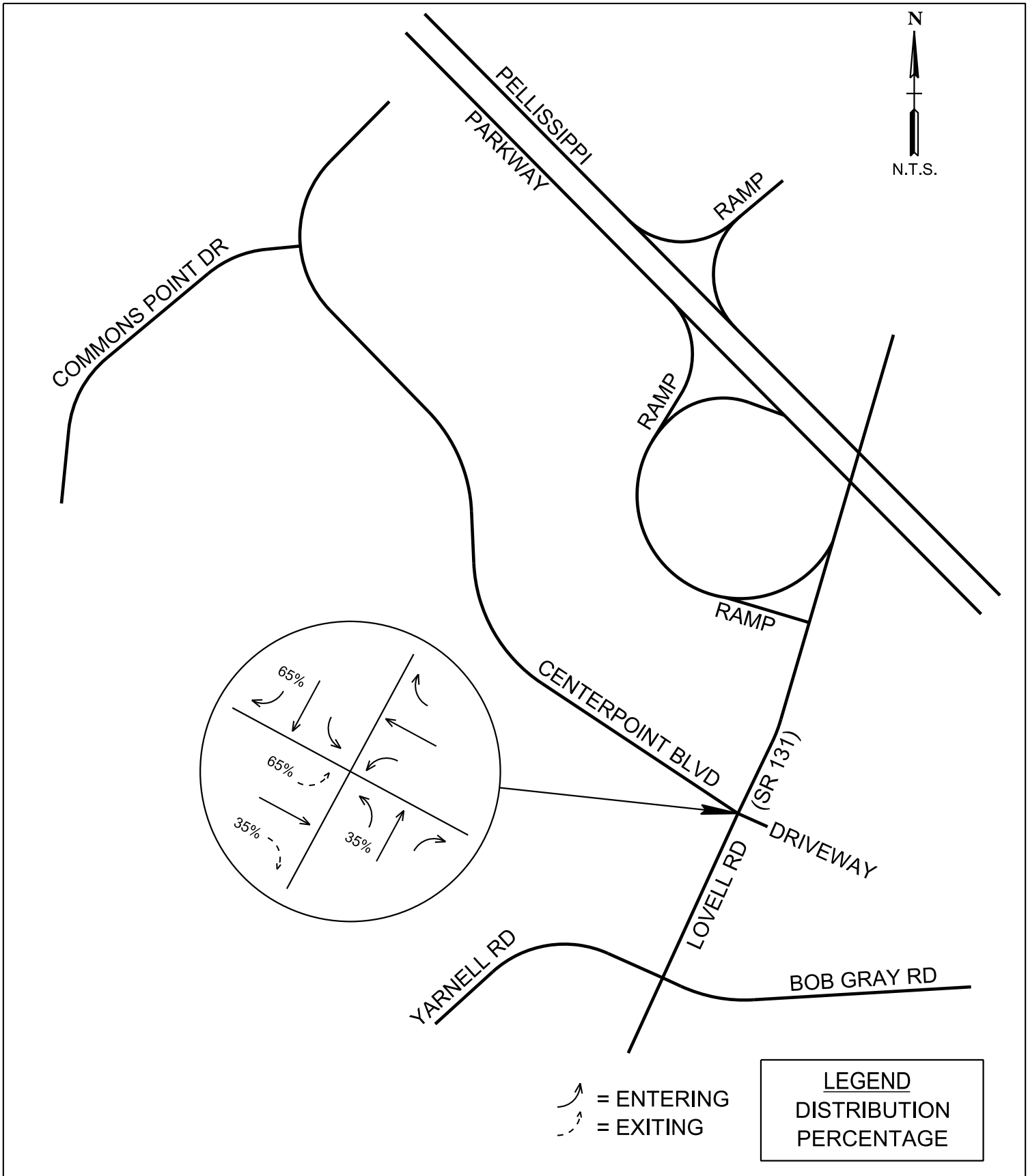
NOTE:
ASSUMES A 2% ANNUAL GROWTH RATE FROM YEAR 2025 TO 2030.

VOLUME LEGEND
AM PEAK HOUR
(PM) PEAK HOUR

CANNON & CANNON INC
10025 Investment Drive, Suite 120
Knoxville, TN 37932
865.670.8555
www.cci-corp.com

FIGURE 3
BACKGROUND TRAFFIC VOLUMES (2030)

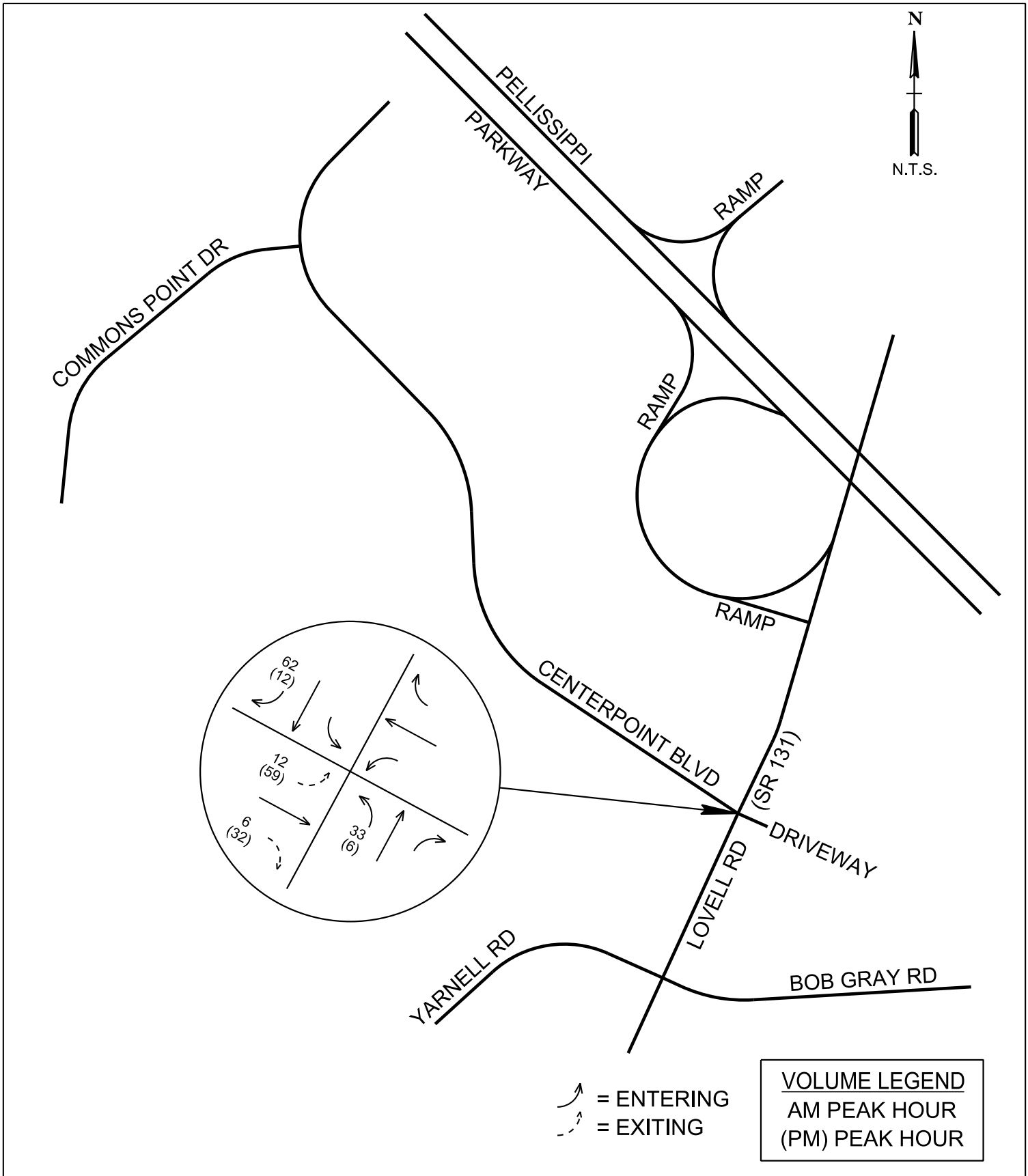
CENTERPOINT COMMONS
TRANSPORTATION IMPACT LETTER



CANNON & CANNON INC
10025 Investment Drive, Suite 120
Knoxville, TN 37932
865.670.8555
www.cci-corp.com

FIGURE 4
TRIP DISTRIBUTION PATTERNS (2030)

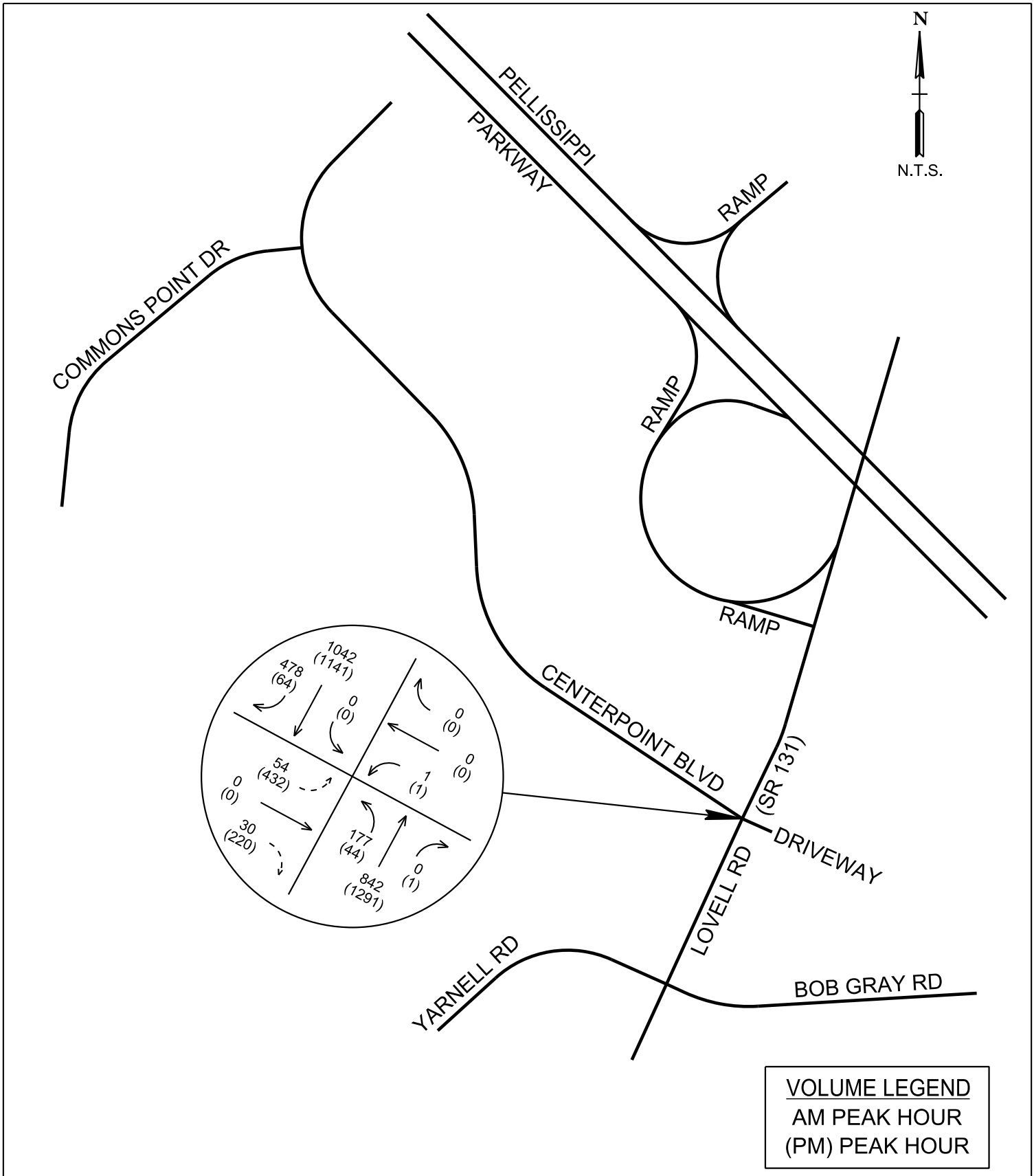
CENTERPOINT COMMONS
TRANSPORTATION IMPACT LETTER



CANNON & CANNON INC
10025 Investment Drive, Suite 120
Knoxville, TN 37932
865.670.8555
www.cci-corp.com

FIGURE 5
GENERATED TRIPS

CENTERPOINT COMMONS
TRANSPORTATION IMPACT LETTER



CANNON & CANNON INC
10025 Investment Drive, Suite 120
Knoxville, TN 37932
865.670.8555
www.cci-corp.com

FIGURE 6
COMBINED TRAFFIC VOLUMES (2030)

CENTERPOINT COMMONS
TRANSPORTATION IMPACT LETTER

Prepared by National Data & Surveying Services

Lovell Rd/SR 131 & Centerpoint Blvd

Peak Hour Turning Movement Count

ID: 25-190041-001
City: Knoxville

Day: Tuesday
Date: 5/20/2025

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	7:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	4:00 PM - 06:00 PM

SOUTHBOUND (Lovell Rd/SR 131)

	L	T	R	U	Total	
AM	377	944	0	1	802	AM
NOON	0	0	0	0	0	NOON
PM	47	1033	0	0	1507	PM

EASTBOUND (Centerpoint Blvd)

AM	NOON	PM		
507	0	81	⇦	
0	0	0	↶	0
38	0	338	↱	1.5
0	0	0	→	0.5
22	0	170	↴	1
AM	NOON	PM		

WESTBOUND (Centerpoint Blvd)

PM	NOON	AM		
0	0	0	↶	0
0	0	0	←	0
1	0	1	↰	0
0	0	0	↰	0
1	0	0	⇨	
PM	NOON	AM		

NORTHBOUND (Lovell Rd/SR 131)

	L	T	T	R	Total	
PM	1204	0	34	1169	1	PM
NOON	0	0	0	0	0	NOON
AM	967	0	130	763	0	AM

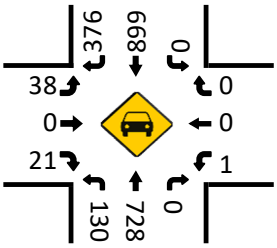
	1	2	1	0
	↶	↑	↱	↱
	0	1	2	0

CONTROL

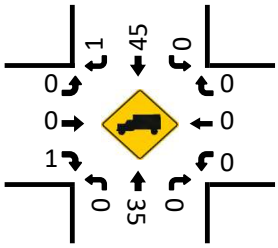
Signalized

TEV	2276 AM	0 NOON	2793 PM
PHF	0.83		0.94

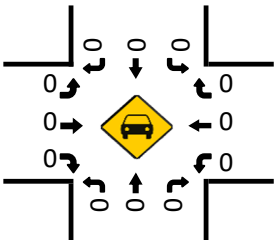
Cars (AM)



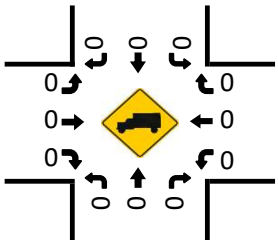
HT (AM)



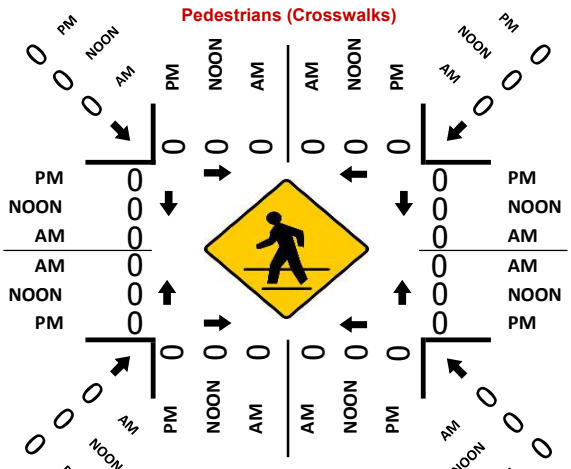
Cars (NOON)



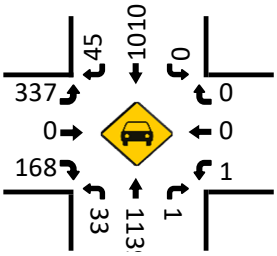
HT (NOON)



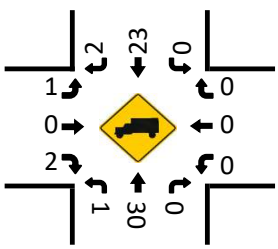
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project: 190041-001 - Centerpoint Commons TIL
Intersection: Lovell Rd (SR 131) at Centerpoint Blvd
Date Conducted: Tuesday May 20, 2025

AM Peak Hour	7:30 AM - 8:30 AM	2275
PM Peak Hour	4:30 PM - 5:30 PM	2793

	Lovell Rd (SR 131) Southbound				Driveway Westbound				Lovell Rd (SR 131) Northbound				Centerpoint Blvd Eastbound				
Start	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Int. Total
Peak Hour Analysis from 7:00 AM to 9:00 AM																	
AM Peak Hour begins at 7:30 AM																	
7:30 AM	0	233	119	352	0	0	0	0	31	174	0	205	11	0	9	**20**	577
7:45 AM	0	281	138	**419**	0	0	0	0	42	209	0	**251**	11	0	7	18	**688**
8:00 AM	0	197	63	260	0	0	0	0	31	199	0	230	8	0	1	9	499
8:15 AM	0	233	57	290	1	0	0	**1**	26	181	0	207	8	0	5	13	511
Total Volume	0	944	377	1321	1	0	0	1	130	763	0	893	38	0	22	60	2275
Future (2.0% over 5 yrs)	0	1042	416		1	0	0		144	842	0		42	0	24		2512
PHF				**0.79**				**0.25**				**0.89**				**0.75**	**0.83**
Peak Hour Analysis from 3:00 PM to 6:00 PM																	
PM Peak Hour begins at 4:30 PM																	
4:30 PM	0	281	13	**294**	0	0	0	0	9	289	0	298	101	0	53	154	**746**
4:45 PM	0	259	11	270	0	0	0	0	8	260	1	269	119	0	41	**160**	699
5:00 PM	0	264	9	273	0	0	0	0	9	317	0	**326**	83	0	52	135	734
5:15 PM	0	229	14	243	1	0	0	**1**	8	303	0	311	35	0	24	59	614
Total Volume	0	1033	47	1080	1	0	0	1	34	1169	1	1204	338	0	170	508	2793
Future (2.0% over 5 yrs)	0	1141	52		1	0	0		38	1291	1		373	0	188		3084
PHF				**0.92**				**0.25**				**0.92**				**0.79**	**0.94**

Land Use: 710
General Office Building

Description

A general office building is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building houses multiple tenants that can include, as examples, professional services, insurance companies, investment brokers, a banking institution, a restaurant, or other service retailers. A general office building with a gross floor area of 10,000 square feet or less is classified as a small office building (Land Use 712). Corporate headquarters building (Land Use 714), single tenant office building (Land Use 715), medical-dental office building (Land Use 720), office park (Land Use 750), research and development center (Land Use 760), and business park (Land Use 770) are additional related uses.

Additional Data

If two or more general office buildings are in close physical proximity (within a close walk) and function as a unit (perhaps with a shared parking facility and common or complementary tenants), the total gross floor area or employment of the paired office buildings can be used for calculating the site trip generation. If the individual buildings are isolated or not functionally related to one another, trip generation should be calculated for each building separately.

For study sites with reported gross floor area and employees, an average employee density of 3.3 employees per 1,000 square feet GFA (or roughly 300 square feet per employee) has been consistent through the 1980s, 1990s, and 2000s. No sites counted in the 2010s reported both GFA and employees.

The average building occupancy varies considerably within the studies for which occupancy data were provided. The reported occupied gross floor area was 88 percent for general urban/suburban sites and 96 percent for the center city core and dense multi-use urban sites.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The average numbers of person trips per vehicle trip at the eight center city core sites at which both person trip and vehicle trip data were collected are as follows:

- 2.8 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 2.9 during Weekday, AM Peak Hour of Generator
- 2.9 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 3.0 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 18 dense multi-use urban sites at which both person trip and vehicle trip data were collected are as follows:

- 1.5 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.5 during Weekday, AM Peak Hour of Generator
- 1.5 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.5 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 23 general urban/suburban sites at which both person trip and vehicle trip data were collected are as follows:

- 1.3 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.3 during Weekday, AM Peak Hour of Generator
- 1.3 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.4 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in Alberta (CAN), California, Colorado, Connecticut, Georgia, Illinois, Indiana, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, Ontario (CAN)Pennsylvania, Texas, Utah, Virginia, and Washington.

Source Numbers

161, 175, 183, 184, 185, 207, 212, 217, 247, 253, 257, 260, 262, 273, 279, 297, 298, 300, 301, 302, 303, 304, 321, 322, 323, 324, 327, 404, 407, 408, 419, 423, 562, 734, 850, 859, 862, 867, 869, 883, 884, 890, 891, 904, 940, 944, 946, 964, 965, 972, 1009, 1030, 1058, 1061

General Office Building
(710)

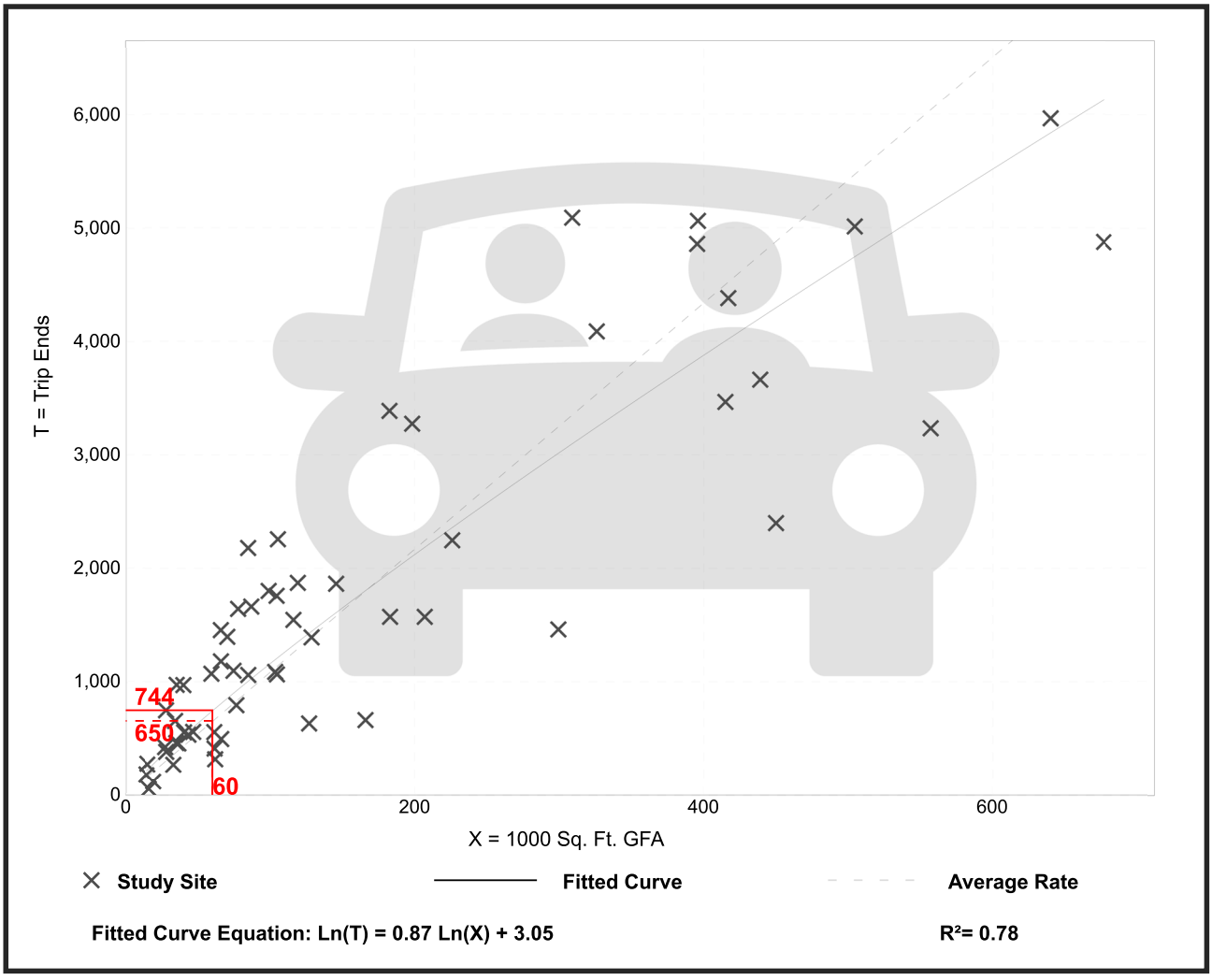
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 59
Avg. 1000 Sq. Ft. GFA: 163
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.84	3.27 - 27.56	4.76

Data Plot and Equation



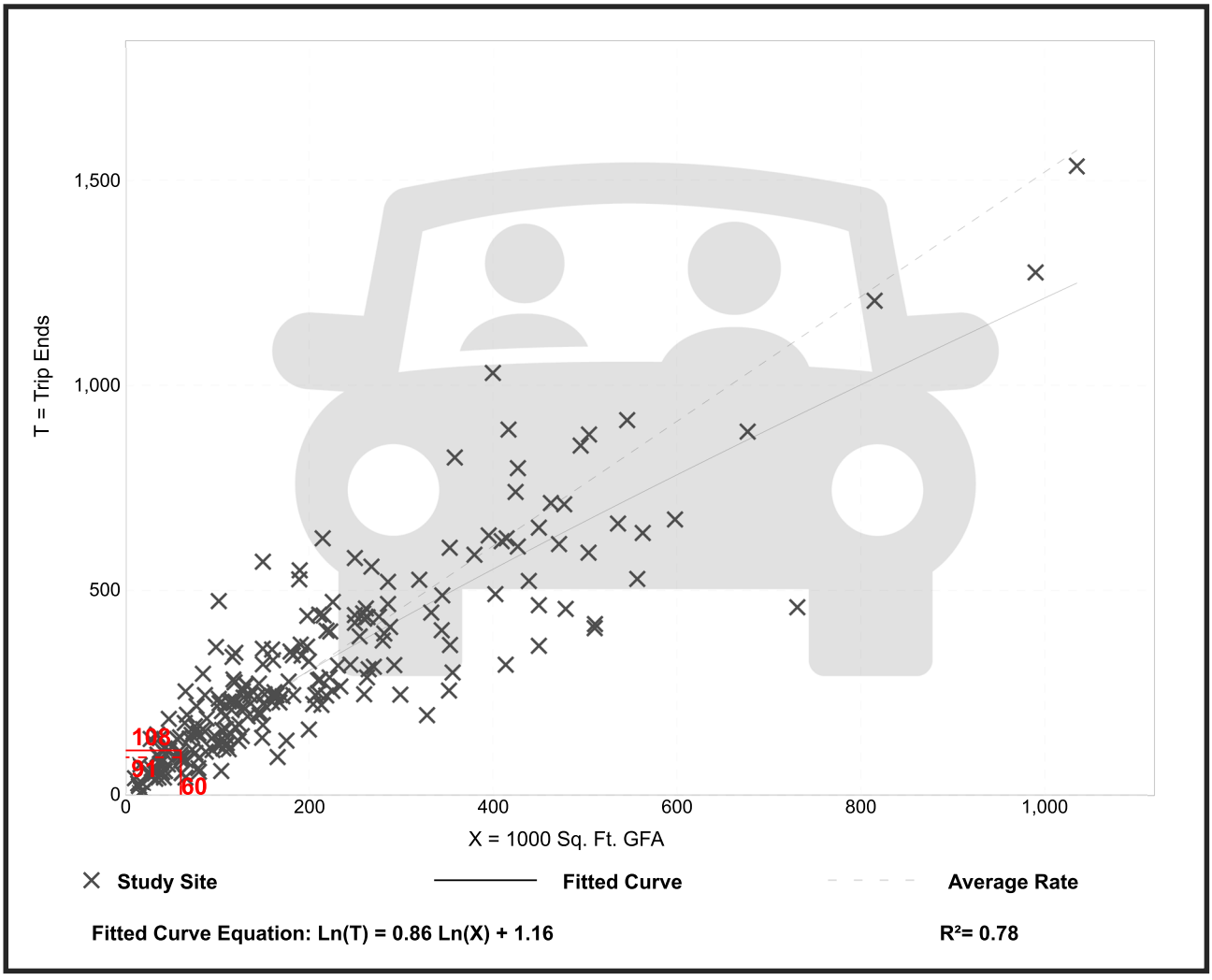
General Office Building
(710)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 221
Avg. 1000 Sq. Ft. GFA: 201
Directional Distribution: 88% entering, 12% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.52	0.32 - 4.93	0.58

Data Plot and Equation



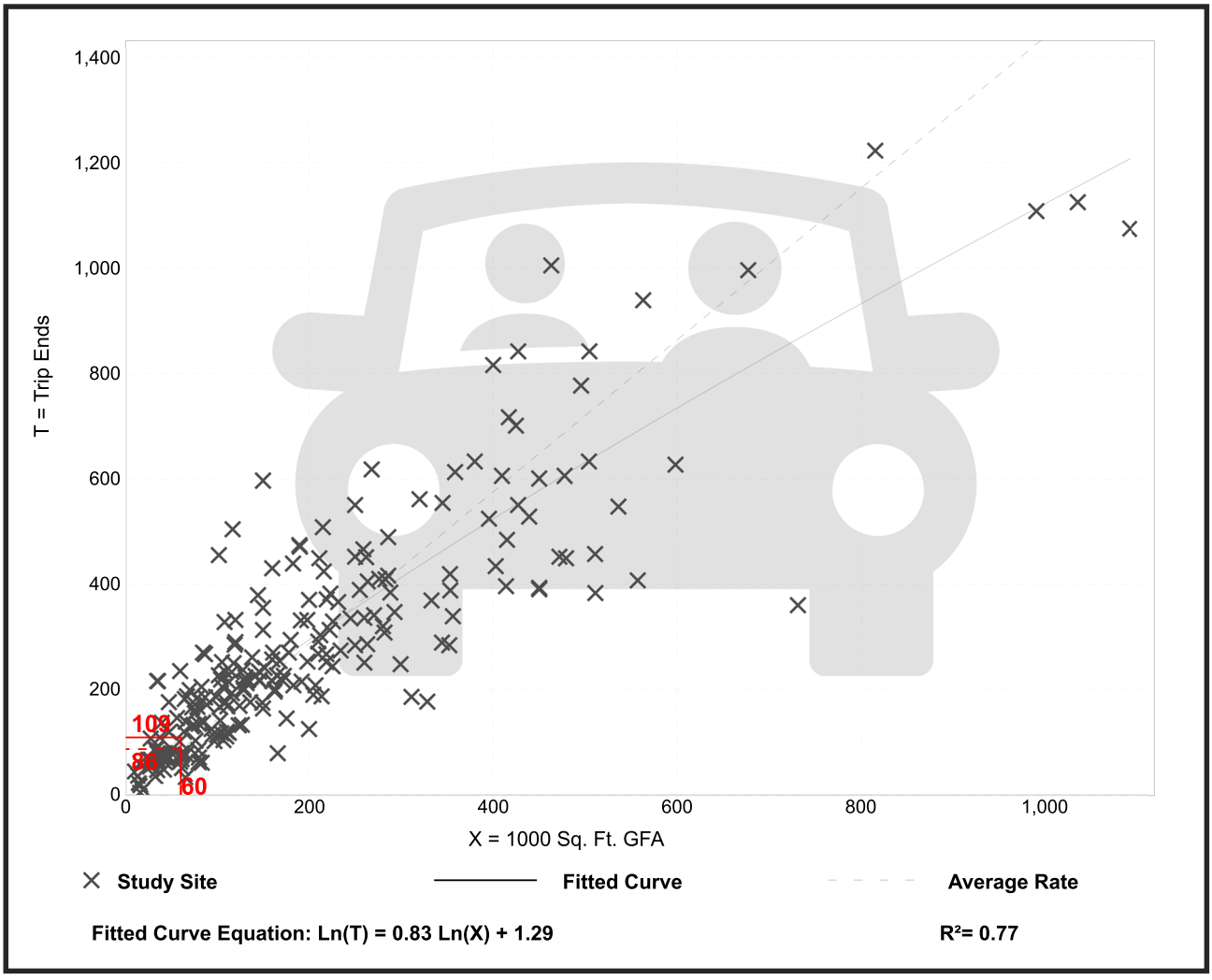
General Office Building
(710)

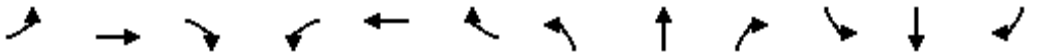
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 232
Avg. 1000 Sq. Ft. GFA: 199
Directional Distribution: 17% entering, 83% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.44	0.26 - 6.20	0.60

Data Plot and Equation

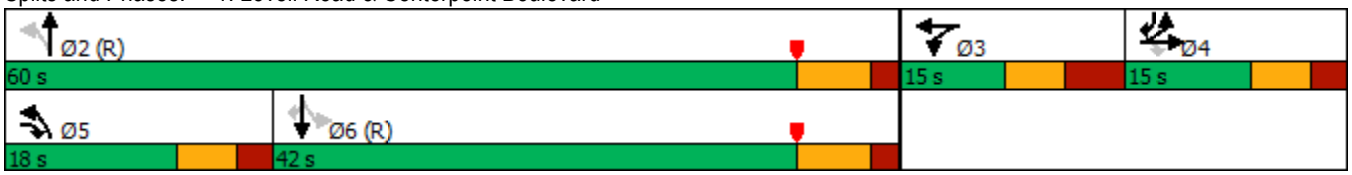




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	0	30	1	0	0	177	842	0	0	1042	478
Future Volume (vph)	54	0	30	1	0	0	177	842	0	0	1042	478
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950	0.950			0.950		0.950					
Satd. Flow (prot)	1681	1681	1583	0	1770	0	1770	3539	0	1863	3539	1583
Flt Permitted	0.950	0.950			0.950		0.102					
Satd. Flow (perm)	1681	1681	1583	0	1770	0	190	3539	0	1863	3539	1583
Satd. Flow (RTOR)			145									519
Peak Hour Factor	0.75	0.75	0.75	0.25	0.25	0.25	0.89	0.89	0.89	0.79	0.79	0.79
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	36	36	40	0	4	0	199	946	0	0	1319	605
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2			6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		6	6	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	5.0	6.0	6.0		5.0	25.0		25.0	25.0	6.0
Minimum Split (s)	14.0	14.0	13.0	15.0	15.0		13.0	33.0		33.0	33.0	14.0
Total Split (s)	15.0	15.0	18.0	15.0	15.0		18.0	60.0		42.0	42.0	15.0
Total Split (%)	16.7%	16.7%	20.0%	16.7%	16.7%		20.0%	66.7%		46.7%	46.7%	16.7%
Maximum Green (s)	8.5	8.5	11.5	7.0	7.0		11.5	53.0		35.0	35.0	8.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		5.0	5.0	4.0
All-Red Time (s)	2.5	2.5	2.5	4.0	4.0		2.5	2.0		2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		8.0		6.5	7.0		7.0	7.0	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		2.0	2.0	1.0
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	7.0	7.0	21.2		6.0		67.2	66.7			52.5	65.3
Actuated g/C Ratio	0.08	0.08	0.24		0.07		0.75	0.74			0.58	0.73
v/c Ratio	0.27	0.27	0.08		0.03		0.72	0.36			0.64	0.47
Control Delay	43.9	43.9	0.3		40.0		26.1	5.5			16.8	2.2
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0
Total Delay	43.9	43.9	0.3		40.0		26.1	5.5			16.8	2.2
LOS	D	D	A		D		C	A			B	A
Approach Delay		28.3			40.0			9.1			12.2	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	21	21	0		2		25	65			208	9
Queue Length 95th (ft)	42	42	0		3		121	187			386	23
Internal Link Dist (ft)		712			76			372			507	
Turn Bay Length (ft)	165		165				80					165
Base Capacity (vph)	162	162	545		137		343	2621			2066	1310
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.22	0.22	0.07		0.03		0.58	0.36			0.64	0.46

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 67.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Lovell Road & Centerpoint Boulevard

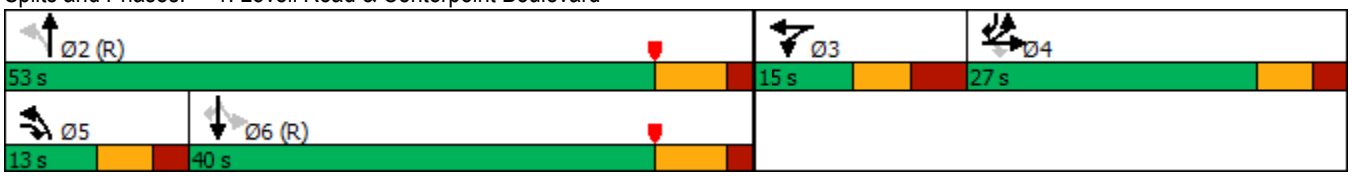


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	0	220	1	0	0	44	1291	1	0	1141	64
Future Volume (vph)	432	0	220	1	0	0	44	1291	1	0	1141	64
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950	0.950			0.950		0.950					
Satd. Flow (prot)	1681	1681	1583	0	1770	0	1770	3539	0	1863	3539	1583
Flt Permitted	0.950	0.950			0.950		0.088					
Satd. Flow (perm)	1681	1681	1583	0	1770	0	164	3539	0	1863	3539	1583
Satd. Flow (RTOR)			185									132
Peak Hour Factor	0.79	0.79	0.79	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	273	274	278	0	4	0	48	1404	0	0	1240	70
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2			6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		6	6	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	5.0	6.0	6.0		5.0	25.0		25.0	25.0	6.0
Minimum Split (s)	14.0	14.0	13.0	15.0	15.0		13.0	33.0		33.0	33.0	14.0
Total Split (s)	27.0	27.0	13.0	15.0	15.0		13.0	53.0		40.0	40.0	27.0
Total Split (%)	28.4%	28.4%	13.7%	15.8%	15.8%		13.7%	55.8%		42.1%	42.1%	28.4%
Maximum Green (s)	20.5	20.5	6.5	7.0	7.0		6.5	46.0		33.0	33.0	20.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		5.0	5.0	4.0
All-Red Time (s)	2.5	2.5	2.5	4.0	4.0		2.5	2.0		2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		8.0		6.5	7.0		7.0	7.0	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		2.0	2.0	1.0
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	18.5	18.5	30.3		6.0		60.7	60.2			48.4	72.6
Actuated g/C Ratio	0.19	0.19	0.32		0.06		0.64	0.63			0.51	0.76
v/c Ratio	0.83	0.84	0.44		0.04		0.25	0.63			0.69	0.06
Control Delay	58.3	58.6	10.5		43.0		12.1	13.9			22.5	0.1
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0
Total Delay	58.3	58.6	10.5		43.0		12.1	13.9			22.5	0.1
LOS	E	E	B		D		B	B			C	A
Approach Delay		42.3			43.0			13.9			21.3	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	165	166	40		2		9	228			267	0
Queue Length 95th (ft)	216	217	72		4		33	462			#546	1
Internal Link Dist (ft)		712			76			370			507	
Turn Bay Length (ft)	165		165				80					165
Base Capacity (vph)	374	374	648		130		214	2242			1803	1282
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.73	0.73	0.43		0.03		0.22	0.63			0.69	0.05

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 15 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 23.1	Intersection LOS: C
Intersection Capacity Utilization 68.1%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Lovell Road & Centerpoint Boulevard

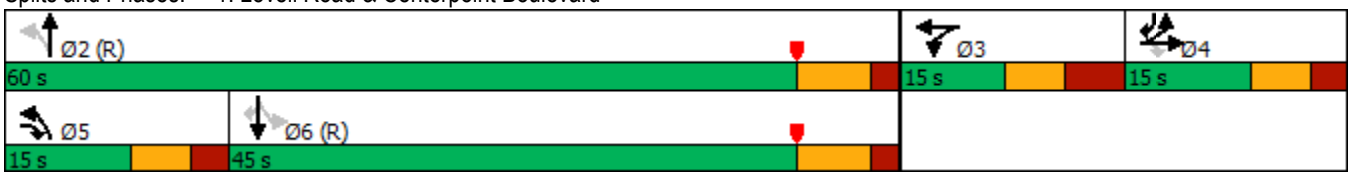


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	0	30	1	0	0	177	842	0	0	1042	478
Future Volume (vph)	54	0	30	1	0	0	177	842	0	0	1042	478
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950	0.950			0.950		0.950					
Satd. Flow (prot)	1681	1681	1583	0	1770	0	1770	3539	0	1863	3539	1583
Flt Permitted	0.950	0.950			0.950		0.101					
Satd. Flow (perm)	1681	1681	1583	0	1770	0	188	3539	0	1863	3539	1583
Satd. Flow (RTOR)			145									555
Peak Hour Factor	0.75	0.75	0.75	0.25	0.25	0.25	0.89	0.89	0.89	0.79	0.79	0.79
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	36	36	40	0	4	0	199	946	0	0	1319	605
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2			6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		6	6	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	5.0	6.0	6.0		5.0	25.0		25.0	25.0	6.0
Minimum Split (s)	14.0	14.0	13.0	15.0	15.0		13.0	33.0		33.0	33.0	14.0
Total Split (s)	15.0	15.0	15.0	15.0	15.0		15.0	60.0		45.0	45.0	15.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	16.7%		16.7%	66.7%		50.0%	50.0%	16.7%
Maximum Green (s)	8.5	8.5	8.5	7.0	7.0		8.5	53.0		38.0	38.0	8.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		5.0	5.0	4.0
All-Red Time (s)	2.5	2.5	2.5	4.0	4.0		2.5	2.0		2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		8.0		6.5	7.0		7.0	7.0	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		2.0	2.0	1.0
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	7.0	7.0	21.4		6.0		67.2	66.7			52.3	65.1
Actuated g/C Ratio	0.08	0.08	0.24		0.07		0.75	0.74			0.58	0.72
v/c Ratio	0.27	0.27	0.08		0.03		0.72	0.36			0.64	0.47
Control Delay	43.9	43.9	0.3		40.0		26.7	5.5			16.4	1.9
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0
Total Delay	43.9	43.9	0.3		40.0		26.7	5.5			16.4	1.9
LOS	D	D	A		D		C	A			B	A
Approach Delay		28.3			40.0			9.2			11.8	
Approach LOS		C			D			A			B	
Queue Length 50th (ft)	21	21	0		2		26	65			218	6
Queue Length 95th (ft)	42	42	0		3		#155	187			363	15
Internal Link Dist (ft)		712			76			372			507	
Turn Bay Length (ft)	165		165				80					165
Base Capacity (vph)	162	162	504		137		297	2621			2058	1317
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.22	0.22	0.08		0.03		0.67	0.36			0.64	0.46

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 67.4%	ICU Level of Service C
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Lovell Road & Centerpoint Boulevard



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	0	220	1	0	0	44	1291	1	0	1141	64
Future Volume (vph)	432	0	220	1	0	0	44	1291	1	0	1141	64
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950	0.950			0.950		0.950					
Satd. Flow (prot)	1681	1681	1583	0	1770	0	1770	3539	0	1863	3539	1583
Flt Permitted	0.950	0.950			0.950		0.085					
Satd. Flow (perm)	1681	1681	1583	0	1770	0	158	3539	0	1863	3539	1583
Satd. Flow (RTOR)			176									132
Peak Hour Factor	0.79	0.79	0.79	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)	50%											
Lane Group Flow (vph)	273	274	278	0	4	0	48	1404	0	0	1240	70
Turn Type	Split	NA	pm+ov	Split	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	4	4	5	3	3		5	2			6	4
Permitted Phases			4				2			6		6
Detector Phase	4	4	5	3	3		5	2		6	6	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	5.0	6.0	6.0		5.0	25.0		25.0	25.0	6.0
Minimum Split (s)	14.0	14.0	13.0	15.0	15.0		13.0	33.0		33.0	33.0	14.0
Total Split (s)	24.0	24.0	13.0	15.0	15.0		13.0	56.0		43.0	43.0	24.0
Total Split (%)	25.3%	25.3%	13.7%	15.8%	15.8%		13.7%	58.9%		45.3%	45.3%	25.3%
Maximum Green (s)	17.5	17.5	6.5	7.0	7.0		6.5	49.0		36.0	36.0	17.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	5.0		5.0	5.0	4.0
All-Red Time (s)	2.5	2.5	2.5	4.0	4.0		2.5	2.0		2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		8.0		6.5	7.0		7.0	7.0	6.5
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0		1.0	2.0		2.0	2.0	1.0
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	None
Act Effct Green (s)	18.9	18.9	30.7		6.0		60.3	59.8			48.0	72.6
Actuated g/C Ratio	0.20	0.20	0.32		0.06		0.63	0.63			0.51	0.76
v/c Ratio	0.82	0.82	0.44		0.04		0.25	0.63			0.69	0.06
Control Delay	56.6	57.0	11.4		43.0		11.8	13.7			22.3	0.1
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	0.0
Total Delay	56.6	57.0	11.4		43.0		11.8	13.7			22.3	0.1
LOS	E	E	B		D		B	B			C	A
Approach Delay		41.5			43.0			13.7			21.1	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	162	163	43		2		10	241			277	0
Queue Length 95th (ft)	#245	#246	82		4		31	429			#507	1
Internal Link Dist (ft)		712			76			370			507	
Turn Bay Length (ft)	165		165				80					165
Base Capacity (vph)	347	347	648		130		210	2227			1789	1253
Starvation Cap Reductn	0	0	0		0		0	0			0	0
Spillback Cap Reductn	0	0	0		0		0	0			0	0
Storage Cap Reductn	0	0	0		0		0	0			0	0
Reduced v/c Ratio	0.79	0.79	0.43		0.03		0.23	0.63			0.69	0.06

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 15 (16%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 22.8	Intersection LOS: C
Intersection Capacity Utilization 68.1%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Lovell Road & Centerpoint Boulevard