

University of Arkansas Campus Transportation Plan

Volume II - Appendices

Final Report
November 2005



TABLE OF CONTENTS

1.1	INTRODUCTION	1-3
1.2	EXISTING CONDITIONS	2-1
1.2.1	Campus Access and Study Area.....	2-1
1.2.2	Existing Roads	2-4
1.2.3	Existing (2004) Average Daily Traffic Volumes	2-4
1.2.4	Existing (2004) Turning Movement Count Data	2-4
1.2.5	Level of Service Criteria	2-11
1.2.6	Existing (2004) Intersection Level of Service Analysis.....	2-11
1.3	FUTURE PARKING CHANGES	3-1
1.3.1	Harmon Avenue Parking Facility (HAPF)	3-1
1.3.2	Surface Spaces.....	3-1
1.3.3	Garland Avenue Deck	3-1
1.3.4	Summary of Campus Parking Changes.....	3-1
1.3.5	Dickson Street Decks	3-2
1.4	TRAFFIC FORECASTING METHODOLOGY	4-4
1.4.1	Background Traffic Forecasting	4-4
1.4.2	Site Traffic Forecasting	4-4
1.4.2.1	<i>Trip Generation Rates</i>	4-4
1.4.2.2	<i>Site Trip Distribution</i>	4-5
1.4.2.3	<i>Site Trip Assignment</i>	4-6
1.5	SCENARIOS AND ASSUMPTIONS.....	5-1
1.5.1	2006 Scenarios and Assumptions.....	5-1
1.5.1.1	<i>No-Build (2006)</i>	5-1
1.5.1.2	<i>Build HAPF (2006)</i>	5-1
1.5.1.3	<i>Build HAPF (2006) Improved</i>	5-2
1.5.2	2010 Scenarios and Assumptions.....	5-2
1.5.2.1	<i>Build HAPF (2010)</i>	5-3
1.5.2.2	<i>Build HAPF Improved (2010)</i>	5-3
1.5.3	2015 Scenarios and Assumptions.....	5-3
1.5.3.1	<i>Build Garland (2015)</i>	5-4
1.5.3.2	<i>Build Dickson (2015)</i>	5-4
1.5.3.3	<i>Build Everything (2015)</i>	5-4
1.5.4	2030 Scenarios and Assumptions.....	5-13
1.5.4.1	<i>No-Build (2030)</i>	5-13
1.5.4.2	<i>Build Razorback 4-lane (2030)</i>	5-13
1.5.4.3	<i>Build Razorback 3-lane (2030)</i>	5-14
1.6	FORECAST VOLUMES.....	6-15
1.7	FORECAST LEVEL OF SERVICE	7-2
1.7.1	2006 Intersection Level of Service Analysis.....	7-2
1.7.1.1	<i>No-Build (2006) Scenario Results</i>	7-2
1.7.1.2	<i>Build (2006) Scenario Results</i>	7-3
1.7.1.3	<i>Build (2006) Improved Scenario Results</i>	7-3
1.7.2	2010 Intersection Level of Service Analysis.....	7-4
1.7.2.1	<i>No-Build (2010) Scenario Results</i>	7-5
1.7.2.2	<i>Build (2010) Scenario Results</i>	7-5
1.7.2.3	<i>Build HAPF (2010) Improved Scenario Results</i>	7-6
1.7.3	2015 Intersection Level of Service Analysis.....	7-7
1.7.3.1	<i>Build Garland (2015) Scenario Results</i>	7-7

- *Build Dickson (2015) Scenario Results*.....7-8
- 1.7.3.2 *Build Everything (2015) Scenario Results*.....7-10
- 1.7.4 2030 Intersection Level of Service Analysis.....7-11
 - 1.7.4.1 *No-Build (2030) Scenario Results*.....7-12
 - 1.7.4.2 *Build Razorback 4-lane (2030) Scenario Results*.....7-13
 - 1.7.4.3 *Build Razorback 3-lane (2030) Scenario Results*.....7-13

1.1 INTRODUCTION

This appendix provides full details of the traffic analysis undertaken to support the *Campus Transportation Plan*. It should be noted that the findings from the traffic analysis were used to determine the street system's ability to carry future traffic increase, to identify potential improvements and identify the need for any additional streets. While moving traffic safely and efficiently is a goal of the *Campus Transportation Plan*, and is the primary reason for this traffic study, intersection and street improvements are considered in the broader context of the campus environment and principles. Therefore while the efficiency of many intersections will deteriorate over time, unacceptable level of service at any intersection, as determined in this study, does not imply improvements be made at that intersection. Improvements or changes identified in this appendix are those that would be needed to achieve what is typically considered acceptable level of service. The main body of this report identifies those improvements that are considered appropriate for the campus.

In addition to the expected growth in background traffic volumes as the region grows, campus growth and associated parking changes will have an impact on travel volumes and routes in the area around the campus. A traffic analysis was therefore undertaken to determine the effects of the regional growth together with the planned campus growth, over the next 25 years, on the surrounding roadway network.

Conditions were evaluated for existing (2004) conditions as well as a range of scenarios for four future years: 2006, 2010, 2015 and 2030. Table 1-1 summarizes the scenarios; full details of each scenario are given in later sections of this Appendix.

The capacity analyses were performed for both morning and afternoon peak hour periods, using *Synchro Professional Version 6* software. Lane widths, grades, pedestrian volumes, etc, were included in the analyses when available. In some cases, simulations were run using *SimTraffic Version 6*. Site traffic calculations were managed using *Traffix for Windows Version 7.6*.

Table 1-1: Summary of Forecasting Scenarios

Analysis Year	Scenario	Traffic						Network Upgrades			
		Existing Traffic	Background Growth	HAPF Trips	Garland Deck Trips	Surface Parking Changes	Dickson Deck Trips	Razorback Road	Center Street	Virginia Avenue	North-South Road
2004	Existing	Yes	-	-	-	-	-	-	-	-	-
2006	No-Build	Yes	Yes	-	-	Yes	-	-	-	-	-
	Build HAPF	Yes	Yes	Yes	-	Yes	-	-	-	-	-
	Build HAPF Improved	Yes	Yes	Yes	-	Yes	-	-	-	-	-
2010	No-Build	Yes	Yes	-	-	Yes	-	-	-	-	-
	Build HAPF	Yes	Yes	Yes	-	Yes	-	-	-	-	-
	Build HAPF Improved	Yes	Yes	Yes	-	Yes	-	-	-	-	-
2015	Build Garland	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-
	Build Dickson	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-
	Build Everything	Yes	Yes	Yes	Yes	Yes	Yes	3-lane with twtlt	Yes	Yes	Yes
2030	No-Build	Yes	Yes	-	-	-	-	-	-	-	-
	Build Razorback 4-lane	Yes	Yes	Yes	-	-	-	4-lane undivided	-	-	-
	Build Razorback 3-lane	Yes	Yes	Yes	-	-	-	3-lane with twtlt	-	-	-

Notes:

1. HAPF - Harmon Avenue Parking Facility
2. Garland - Garland Avenue Deck
3. Dickson - Dickson Street Deck
4. Existing - Typical existing year traffic analysis scenario incorporating existing traffic volumes and existing roadway geometrics
5. No-Build - Typical future traffic analysis scenario incorporating background volumes and future roadway geometrics
6. Build - Typical future traffic analysis scenario incorporating future year background volumes, site trips from proposed development and future roadway geometrics
7. Build Improved - Typical future traffic analysis scenario incorporating future year background volumes, site trips from proposed development and future roadway geometrics with improvements necessary to achieve acceptable levels of service at study area intersections
8. twtlt - Two way left turn lane

1.2 EXISTING CONDITIONS

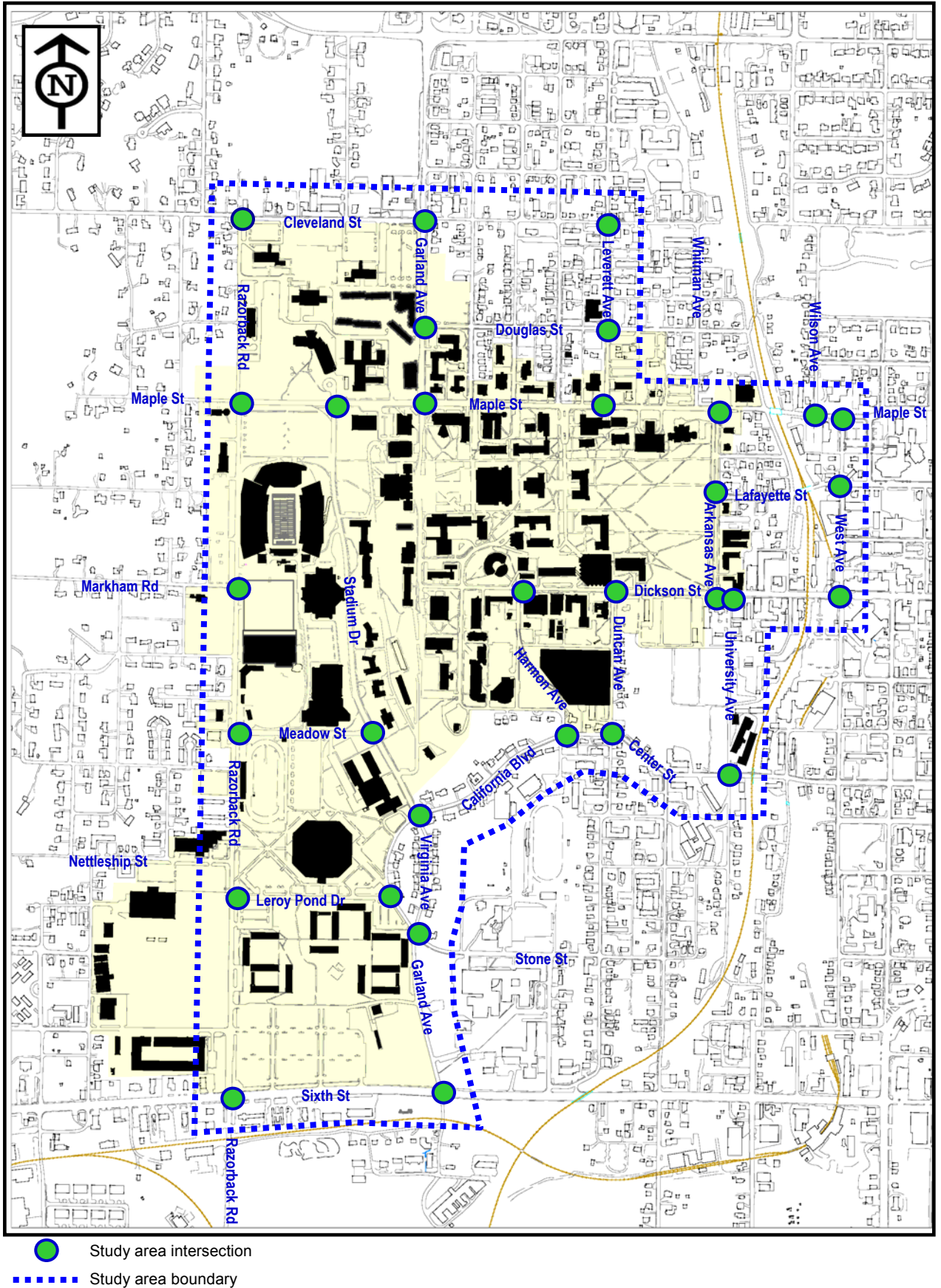
The study area consisted of the major roadways within the campus as well as many of the main streets adjoining the campus. Figure 1-1 shows the full street network in and around the campus; as well as the streets that were selected for study. Roadway and intersection geometric data were collected by field investigations, and Figure 1-2 shows the corresponding data used in the analysis.

1.2.1 CAMPUS ACCESS AND STUDY AREA

The study area varied based on the conditions being analyzed. The following 31 intersections were identified for analysis under existing and future conditions:

1. Cleveland Street at Razorback Road (unsignalized)
2. Cleveland Street at Garland Avenue (signalized)
3. Cleveland Street at Leverett Avenue (unsignalized)
4. Douglas Avenue at Garland Avenue (unsignalized)
5. Douglas Avenue at Leverett Avenue (unsignalized)
6. Maple Street at Razorback Road (unsignalized)
7. Maple Street at Stadium Drive (signalized)
8. Maple Street at Garland Avenue (signalized)
9. Maple Street at Leverett Avenue (signalized)
10. Maple Street at Arkansas Avenue (signalized)
11. Maple Street at Wilson Avenue (unsignalized)
12. Maple Street at West Avenue (unsignalized in 2004 – signal subsequently installed)
13. Arkansas Avenue at Lafayette Street (unsignalized)
14. West Avenue at Lafayette Street (signalized)
15. Markham Road at Razorback Road (unsignalized)
16. Dickson Street at Buchanan Avenue (unsignalized)
17. Dickson Street at Duncan Avenue (unsignalized)
18. Dickson Street at Arkansas Avenue (signalized)
19. Dickson Street at University Avenue (unsignalized)
20. Dickson Street at West Avenue (signalized)
21. Meadow Street at Razorback Road (unsignalized)
22. California Boulevard at Stadium Drive/Virginia Avenue (unsignalized four-way stop)
23. California Boulevard at Harmon Avenue (unsignalized)
24. Center Street at Duncan Avenue (signalized)
25. Center Street at University Avenue (unsignalized)
26. Leroy Pond Drive at Razorback Road (unsignalized)
27. California Boulevard at Virginia Avenue/Garland Avenue (unsignalized)
28. Sixth Street at Razorback Road (signalized)
29. Sixth Street at Garland Avenue (unsignalized)
30. Meadow Street at Stadium Drive (unsignalized)
31. Leroy Pond Drive at California Boulevard (unsignalized)

Figure 1-1: Study Area Intersections



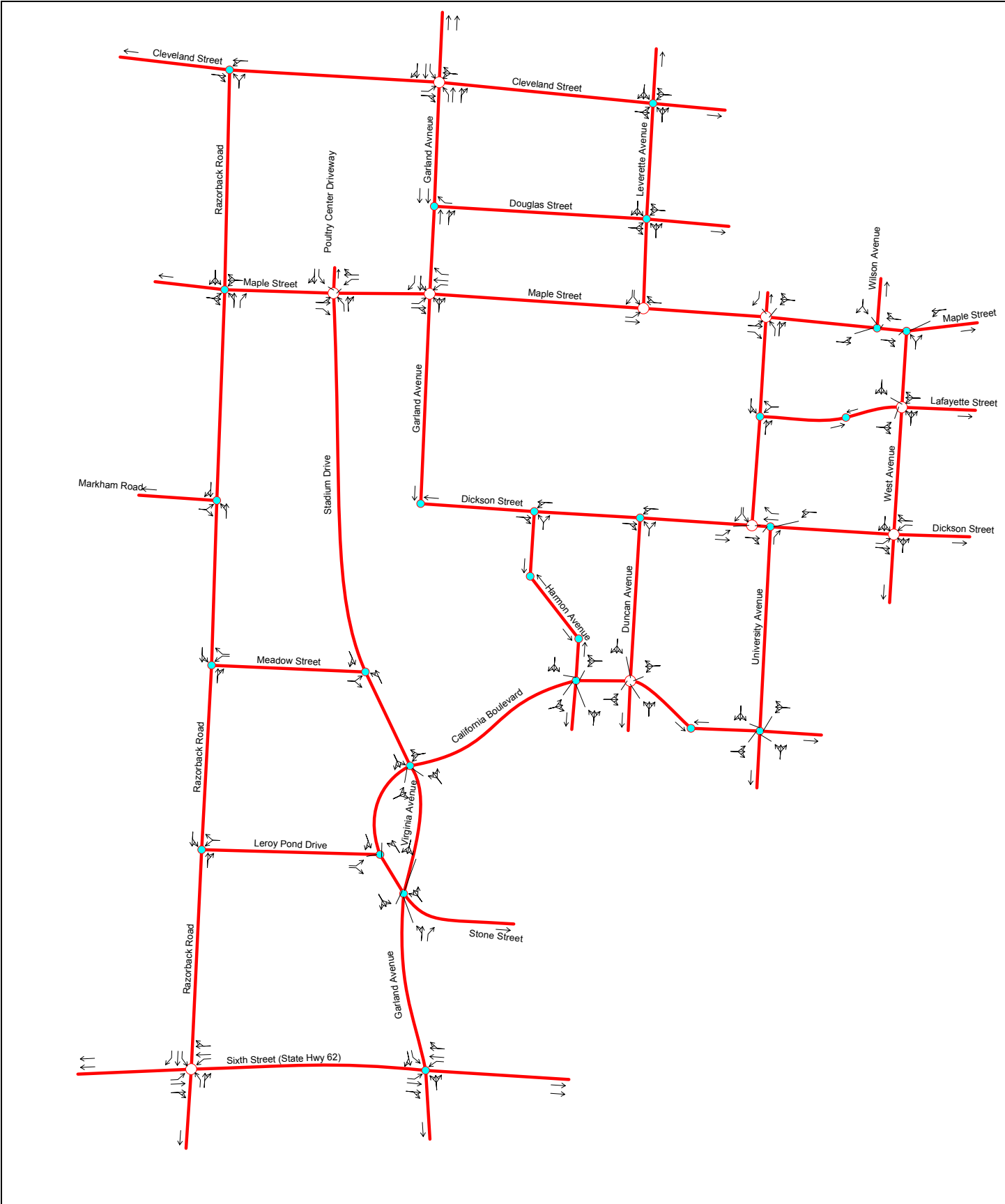


Figure 1-2
Existing (2004) Study Area Intersection and Roadway Geometrics

1.2.2 EXISTING ROADS

The pattern of the existing street network is complex, with typical historic grid structure in some areas but suburban-style large blocks in others (Figure 1-1).

Regional access to the campus is provided primarily via Garland Avenue from the north, Maple Street and Dickson Street from the west, and Razorback Road from the south. At the south end of Razorback Road, Sixth Street is particularly important for regional access as it links to Interstate 540. It is likely that Sixth Street and Razorback Road attract traffic originating from the north of the region (via the Interstate) as well as directly from the south.

The traffic circulation pattern at the heart of the campus is determined by the urban form and the closure of Garland Avenue. The street system here can be seen as a box, consisting of Maple Street on the north, Arkansas Avenue on the east, Dickson Street on the south, and Garland Avenue on the west. Maple Street is a major east-west corridor, connecting to the rest of the city grid along its length and beyond to the west and east. Dickson Street forms an important link eastwards out of the campus towards downtown, but at its west end has only internal campus circulation. Importantly, Garland Avenue has recently been closed to general traffic, and is now mainly used by University buses. This leaves Arkansas Avenue as the main north-south route at the heart of the campus.

West of Garland Avenue, Razorback Road is the main through route from north to south, with links to the city street system. Stadium Drive forms a secondary north-south route within the campus, although its continuation south (as Virginia Avenue and Garland Avenue) has a quieter residential character.

The majority of the roads are two-lane, with a distinctly rural feel in places such as California Boulevard and the northern part of Razorback Road. Arkansas Avenue and the northern part of Garland Avenue are four-lane roads with medians (although on-street parking makes Arkansas Avenue effectively two-lane). Sixth Street has four lanes plus a center turn lane.

1.2.3 EXISTING (2004) AVERAGE DAILY TRAFFIC VOLUMES

Average Daily Traffic (ADT) counts were collected during the fall of 2004 at 18 locations along roadways within the campus study area. The collected 2004 daily volumes, peak to daily volume percentages (k-Factors) are shown in Table 1-1. The volumes collected are simply 24-hour volumes on a typical weekday (Tuesday, Wednesday, or Thursday) with the University in session and do not take into consideration any seasonal adjustments.

1.2.4 EXISTING (2004) TURNING MOVEMENT COUNT DATA

A.M., Noon and P.M. Peak hour turning movement counts were collected for the study area intersections during the fall of 2004 on typical weekdays while the University was in session. Table 1-1 summarizes the schedule of counts and the volumes are summarized in Table 1-4 and shown in Figure 1-3, Figure 1-4 and Figure 1-5. Data for some intersections was estimated based on the data for surrounding intersections and review of counts undertaken for previous studies.

Table 1-2: Existing (2004) Average Daily Traffic Volumes

Location	AM Peak Hour		PM Peak Hour		ADT (vpd)
	Volume (vph)	k-Factor	Volume (vph)	k-Factor	
Arkansas Avenue, north of Dickson Street	649	6%	918	8%	11,900
Cleveland Street, west of Razorback Road	389	9%	409	9%	4,500
Cleveland Street, east of Lindell Avenue	150	9%	171	10%	1,700
Garland Avenue, south of Cleveland Street	875	6%	1,163	8%	15,300
Garland Avenue, south of California Boulevard	552	9%	523	9%	5,800
Dickson Street, east of Arkansas Avenue	595	6%	766	8%	9,500
University Avenue, south of Center Street	53	6%	81	9%	900
University Avenue, south of Whiteside Street	190	8%	189	8%	2,500
Center Street, east of University Avenue	563	10%	565	10%	5,700
California Boulevard, west of Delaware Avenue	367	18%	290	14%	2,100
California Boulevard, east of Stadium Drive	460	7%	642	9%	7,400
Stadium Drive, south of Maple Street	432	5%	676	8%	9,400
Razorback Road, south of Leroy Pond Drive	909	6%	1,104	8%	14,700
Razorback Road, north of Maple Street	572	7%	689	9%	7,800
Maple Street, east of Razorback Road	704	6%	878	8%	11,400
Maple Street, east of Leverett Avenue	990	6%	1,430	8%	18,300
Leverett Avenue, south of Cleveland Street	631	6%	938	9%	11,000
Douglas Street, east of Lindell Avenue	99	5%	186	10%	2,200

It is common to adjust ('balance') count data so that the volumes match from one intersection to the next, without traffic being gained or lost mid-block. This is done to eliminate inconsistencies in the counting process. In this case, however, because of the presence of large parking lots accessed mid-block in many locations, it was considered that the raw data reflected traffic conditions well and that balancing would have introduced inaccuracies. The volumes were therefore left unbalanced.

Table 1-3: Weekday Peak Period Turning Movement Schedule

ID #	Intersection	Day of Week	Date
1	Cleveland Street/Razorback Road	Tuesday	11/2/2004
2	Cleveland Street/Garland Avenue	Tuesday	11/2/2004
3	Cleveland Street/Leverett Avenue	Tuesday	11/2/2004
4	Douglas Street/Garland Avenue	Wednesday	11/3/2004
5	Douglas Street/Leverett Avenue	Wednesday	11/3/2004
6	Maple Street/Razorback Road	Thursday	11/4/2004
7	Maple Street/Stadium Drive	Wednesday	11/3/2004
8	Maple Street/Garland Avenue	Tuesday	11/9/2004
9	Maple Street/Leverett Avenue	Thursday	11/4/2004
10	Maple Street/Arkansas Avenue	Thursday	11/4/2004
11	Maple Street/Wilson Avenue	Monday	11/15/2004
12	Maple Street/West Avenue	Estimated	
13	Arkansas Avenue/Lafayette Street	Wednesday	11/17/2004
14	West Avenue/Lafayette Street	Estimated	
15	Markham Road/Razorback Road	Monday	11/15/2004
16	Dickson Street/Buchanan Avenue	Monday	11/8/2004
17	Dickson Street/Duncan Avenue	Tuesday	11/16/2004
18	Dickson Street/Arkansas Avenue	Wednesday	11/17/2004
19	Dickson Street/University Avenue	Monday	11/8/2004
20	Dickson Street/West Avenue	Estimated	
21	Meadow Street/Razorback Road	Wednesday	11/10/2004
22	California Boulevard/Stadium Drive/Virginia Avenue	Tuesday	11/16/2004
23	California Boulevard/Harmon Avenue	Monday	11/15/2004
24	Center Street/Duncan Avenue	Wednesday	11/10/2004
25	Center Street/University Avenue	Monday	11/8/2004
26	Leroy Pond Drive/Razorback Road	Tuesday	11/9/2004
27	California Boulevard/Virginia Avenue/Garland Avenue	Tuesday	11/16/2004
28	Sixth Street/Razorback Road	Tuesday	11/9/2004
29	Sixth Street/Garland Avenue	Wednesday	11/10/2004
30	Meadow Street/Stadium Drive	Estimated	
31	Leroy Pond Drive/California Boulevard	Estimated	

Table 1-4: Existing (2004) Peak Hour Turning Movement Volumes

A.M. Peak Hour													
ID #	Intersection	Turning Movement Volumes (vph)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Cleveland Street/Razorback Road	0	103	193	215	67	0	40	0	117	0	0	0
2	Cleveland Street/Garland Avenue	105	19	55	14	20	9	39	234	3	101	532	265
3	Cleveland Street/Leverett Avenue	39	9	24	2	7	18	10	127	2	11	515	34
4	Douglas Street/Garland Avenue	0	0	0	0	0	28	0	232	16	0	529	0
5	Douglas Street/Leverett Avenue	10	8	22	10	11	10	17	131	23	49	361	48
6	Maple Street/Razorback Road	0	20	14	223	5	25	5	169	312	85	302	2
7	Maple Street/Stadium Drive	7	304	67	255	260	11	22	1	77	4	0	4
8	Maple Street/Garland Avenue	153	184	14	8	206	72	0	13	7	210	8	358
9	Maple Street/Leverett Avenue	48	296	0	0	294	111	0	0	0	270	0	50
10	Maple Street/Arkansas Avenue	1	213	355	61	280	1	189	1	38	0	0	2
11	Maple Street/Wilson Avenue	22	230	0	0	319	122	0	0	0	211	0	36
12	Maple Street/West Avenue	0	207	234	33	293	0	148	0	18	0	0	0
13	Arkansas Avenue/Lafayette Street	0	0	0	21	0	47	0	177	6	39	366	0
14	West Avenue/Lafayette Street	5	35	5	5	48	5	10	156	58	72	185	10
15	Markham Road/Razorback Road	5	0	75	0	0	0	45	533	0	0	409	17
16	Dickson Street/Buchanon Avenue	0	46	6	37	116	0	5	0	21	0	0	0
17	Dickson Street/Duncan Avenue	0	58	1	121	151	0	1	0	67	0	0	0
18	Dickson Street/Arkansas Avenue	98	61	0	0	178	99	0	0	0	172	0	198
19	Dickson Street/University Avenue	0	196	19	70	268	0	10	0	42	0	0	0
20	Dickson Street/West Avenue	21	195	22	22	282	121	21	102	27	48	92	35
21	Meadow Street/Razorback Road	0	0	0	39	0	53	0	513	70	119	383	0
22	California Boulevard/Stadium Drive/Virginia Avenue	41	114	1	10	106	52	0	50	73	76	14	75
23	California Boulevard/Harmon Avenue	84	143	21	93	112	31	5	0	21	13	2	29
24	Center Street/Duncan Avenue	49	138	8	39	166	13	14	37	34	6	46	60
25	Center Street/University Avenue	65	238	4	4	263	8	4	9	16	5	7	86
26	Leroy Pond Drive/Razorback Road	0	0	0	24	0	55	0	518	71	135	290	0
27	California Boulevard/Virginia Avenue/Garland Avenue	2	102	131	46	47	32	60	72	85	10	14	1
28	Sixth Street/Razorback Road	261	909	75	52	741	105	142	226	120	60	69	88
29	Sixth Street/Garland Avenue	144	904	1	3	857	120	1	0	5	12	1	106
30	Meadow Street/Stadium Drive	85	0	64	0	0	0	21	122	0	0	101	71
31	Leroy Pond Drive/California Boulevard	106	0	75	0	0	0	58	50	0	0	160	21
Noon Peak Hour													
ID #	Intersection	Turning Movement Volumes (vph)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Cleveland Street/Razorback Road	0	51	76	163	67	0	119	0	153	0	0	0
2	Cleveland Street/Garland Avenue	169	22	77	10	22	7	83	411	16	49	380	144
3	Cleveland Street/Leverett Avenue	22	1	37	11	7	20	14	305	2	16	296	22
4	Douglas Street/Garland Avenue	0	0	0	0	0	46	0	384	11	0	384	0
5	Douglas Street/Leverett Avenue	25	20	30	12	19	36	20	251	13	24	250	22
6	Maple Street/Razorback Road	1	17	9	254	20	63	11	218	278	72	180	1
7	Maple Street/Stadium Drive	4	276	63	179	257	7	68	0	303	4	0	3
8	Maple Street/Garland Avenue	268	293	6	7	217	131	3	12	8	190	12	212
9	Maple Street/Leverett Avenue	78	399	0	0	332	193	0	0	0	207	0	71
10	Maple Street/Arkansas Avenue	1	288	363	65	253	1	305	1	100	0	0	3
11	Maple Street/Wilson Avenue	38	263	0	0	252	146	0	0	0	172	0	29
12	Maple Street/West Avenue	0	257	178	20	172	0	226	0	41	0	0	0
13	Arkansas Avenue/Lafayette Street	0	0	0	11	0	66	0	316	13	43	367	0
14	West Avenue/Lafayette Street	5	46	5	15	67	26	5	236	10	22	171	5
15	Markham Road/Razorback Road	23	0	40	0	0	0	29	494	0	0	435	16
16	Dickson Street/Buchanon Avenue	0	71	1	26	112	0	5	0	40	0	0	0
17	Dickson Street/Duncan Avenue	0	130	12	66	159	0	13	0	78	0	0	0
18	Dickson Street/Arkansas Avenue	152	106	0	0	119	165	0	0	0	218	0	125
19	Dickson Street/University Avenue	0	259	53	62	253	0	26	0	79	0	0	0
20	Dickson Street/West Avenue	31	257	50	26	246	118	29	102	30	56	94	41
21	Meadow Street/Razorback Road	0	0	0	91	0	81	0	422	81	61	428	0
22	California Boulevard/Stadium Drive/Virginia Avenue	49	98	1	9	154	93	1	40	50	117	21	73
23	California Boulevard/Harmon Avenue	72	97	17	23	89	43	10	1	29	38	3	50
24	Center Street/Duncan Avenue	72	141	11	17	139	13	11	41	46	13	36	52
25	Center Street/University Avenue	76	225	8	12	177	15	8	16	11	28	36	75
26	Leroy Pond Drive/Razorback Road	0	0	0	85	0	71	0	440	65	65	476	0
27	California Boulevard/Virginia Avenue/Garland Avenue	1	36	132	63	32	19	51	67	79	4	19	4
28	Sixth Street/Razorback Road	223	852	138	72	924	69	160	120	87	133	112	299
29	Sixth Street/Garland Avenue	126	944	5	5	904	49	2	1	13	14	0	148
30	Meadow Street/Stadium Drive	126	0	26	0	0	0	57	125	0	0	175	105
31	Leroy Pond Drive/California Boulevard	80	0	50	0	0	0	28	59	0	0	110	118
P.M. Peak Hour													
ID #	Intersection	Turning Movement Volumes (vph)											
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Cleveland Street/Razorback Road	0	43	93	203	141	0	162	0	148	0	0	0
2	Cleveland Street/Garland Avenue	205	19	74	13	36	19	125	512	4	79	476	183
3	Cleveland Street/Leverett Avenue	28	14	27	3	7	35	21	414	3	20	318	16
4	Douglas Street/Garland Avenue	0	0	0	0	0	88	0	508	19	0	586	0
5	Douglas Street/Leverett Avenue	41	17	56	10	27	42	29	347	10	18	323	40
6	Maple Street/Razorback Road	4	15	12	355	32	110	12	240	314	43	202	3
7	Maple Street/Stadium Drive	1	393	74	335	325	4	86	0	283	10	1	4
8	Maple Street/Garland Avenue	296	351	10	4	291	162	2	11	2	243	11	326
9	Maple Street/Leverett Avenue	97	505	0	0	435	257	0	0	0	268	0	100
10	Maple Street/Arkansas Avenue	2	375	454	77	301	9	480	3	91	4	1	7
11	Maple Street/Wilson Avenue	45	395	0	0	300	174	0	0	0	166	0	48
12	Maple Street/West Avenue	0	374	187	13	201	0	273	0	42	0	0	0
13	Arkansas Avenue/Lafayette Street	0	0	0	7	0	100	0	405	41	64	497	0
14	West Avenue/Lafayette Street	10	85	10	30	87	114	10	191	10	38	152	10
15	Markham Road/Razorback Road	21	0	58	0	0	0	39	501	0	0	599	13
16	Dickson Street/Buchanon Avenue	0	100	7	48	198	0	15	0	52	0	0	0
17	Dickson Street/Duncan Avenue	0	171	4	77	209	0	14	0	121	0	0	0
18	Dickson Street/Arkansas Avenue	219	130	0	0	157	195	0	0	0	254	0	229
19	Dickson Street/University Avenue	0	331	52	65	345	0	14	0	69	0	0	0
20	Dickson Street/West Avenue	16	352	32	26	356	95	29	100	33	36	131	25
21	Meadow Street/Razorback Road	0	0	0	97	0	119	0	547	73	90	555	0
22	California Boulevard/Stadium Drive/Virginia Avenue	63	116	0	5	139	74	0	32	48	154	35	114
23	California Boulevard/Harmon Avenue	183	153	2	6	129	31	3	3	7	29	6	69
24	Center Street/Duncan Avenue	54	214	7	18	118	20	14	20	58	13	30	47
25	Center Street/University Avenue	42	287	8	10	170	7	9	16	17	38	22	56
26	Leroy Pond Drive/Razorback Road	0	0	0	73	0	71	0	520	72	67	641	0
27	California Boulevard/Virginia Avenue/Garland Avenue	1	40	133	51	54	16	67	75	67	11	29	2
28	Sixth Street/Razorback Road	216	765	87	82	1082	73	172	130	77	130	179	341
29	Sixth Street/Garland Avenue	71	956	4	13	1003	55	3	1	19	27	1	180
30	Meadow Street/Stadium Drive	138	0	25	0	0	0	34	135	0	0	273	162
31	Leroy Pond Drive/California Boulevard	99	0	34	0	0	0	37	80	0	0	140	107

Traffic Study

for

The University of Arkansas Campus Transportation Plan

Prepared for

The University of Arkansas

Prepared by



**MARTIN
ALEXIOU
BRYSON**

November 2005

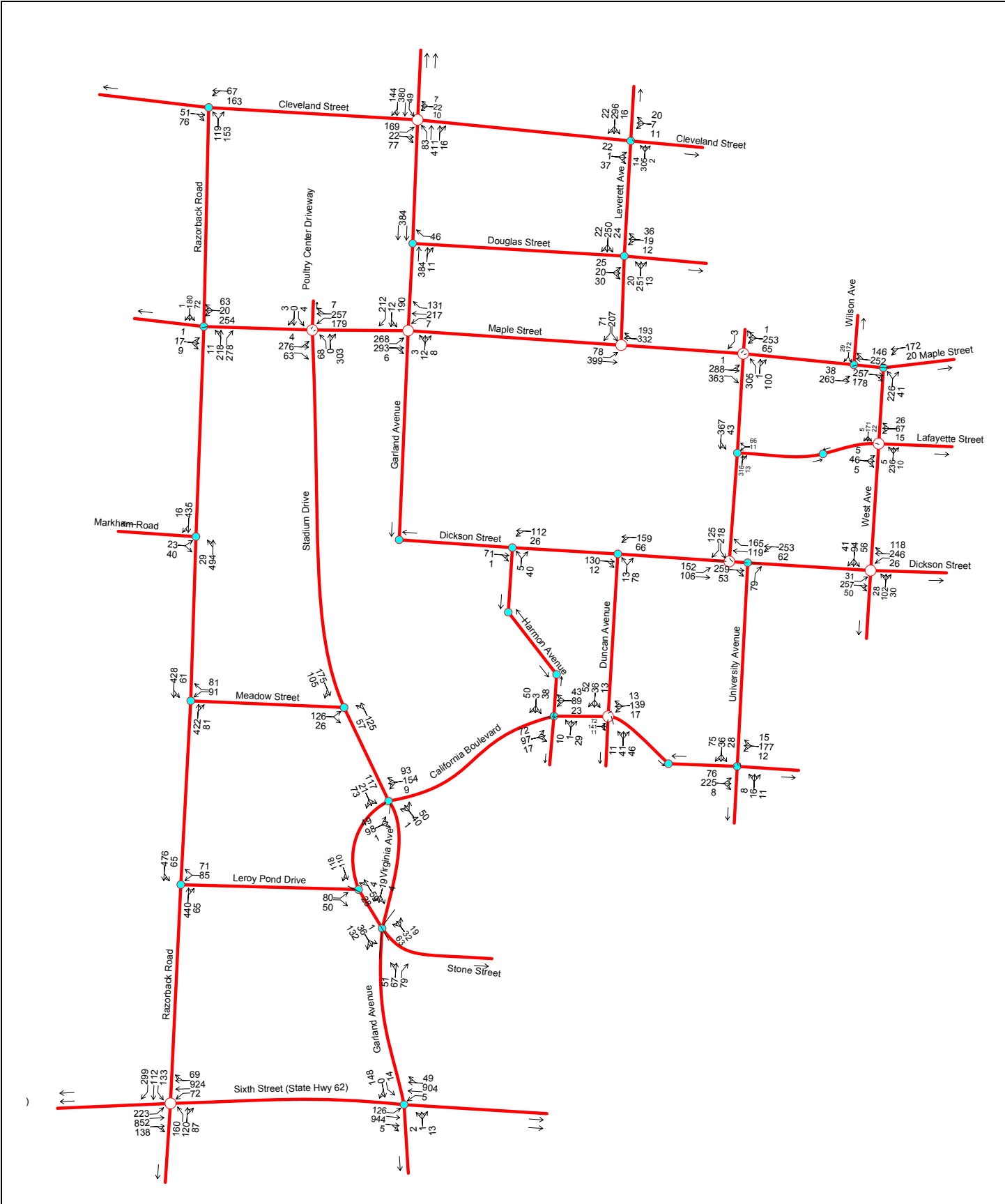


Figure 1-4
Existing (2004) Noon Peak Hour Turning Movement Volumes

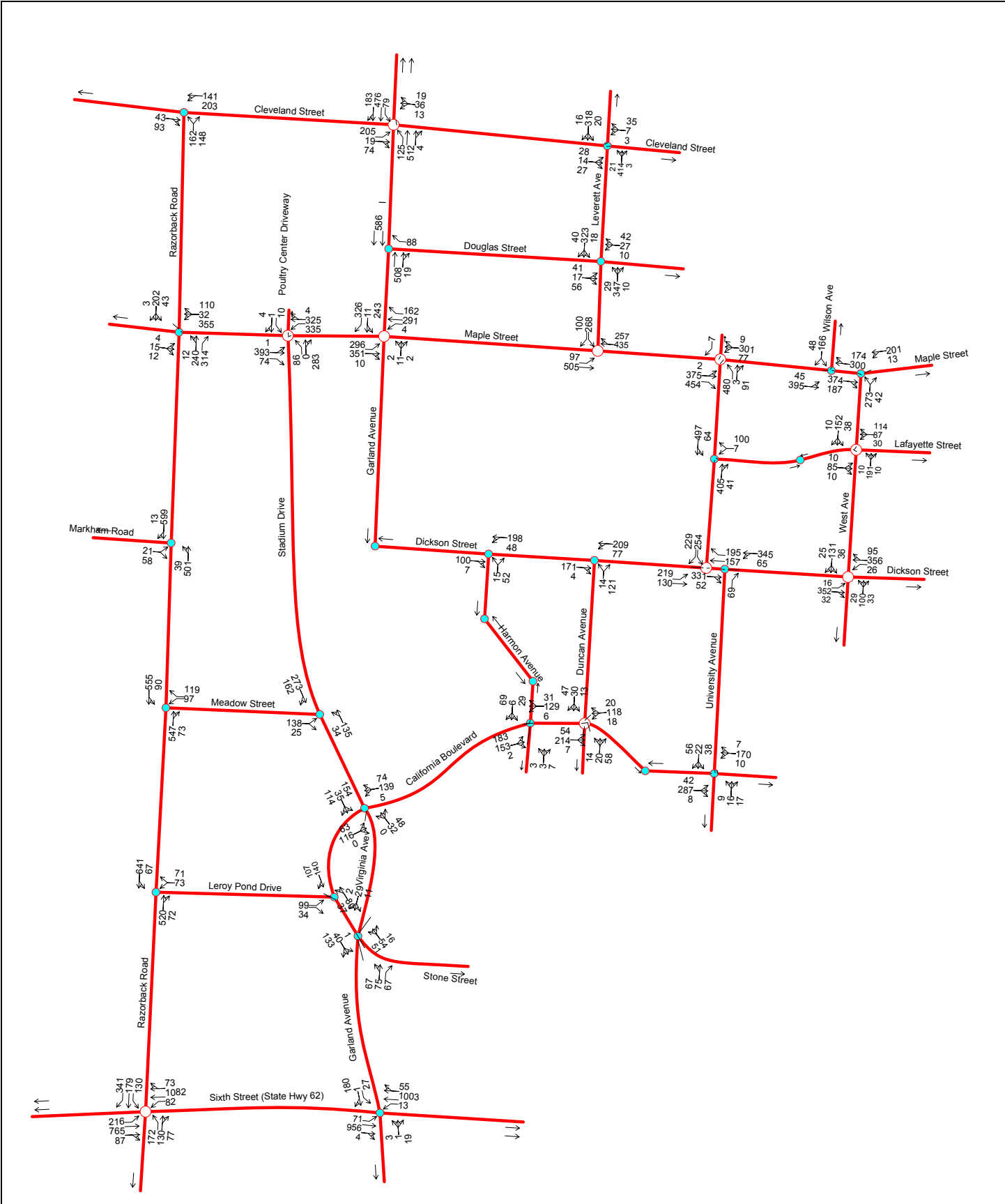


Figure 1-5
Existing (2004) P.M. Peak Hour Turning Movement Volumes

1.2.5 LEVEL OF SERVICE CRITERIA

Peak hour level of service (LOS) measures the adequacy of the intersection geometrics and traffic controls of a particular intersection or approach for the given turning movement volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of total delay attributed to traffic control devices (e.g., signals or stop signs). The engineering profession generally accepts level of service D as an acceptable operating condition for signalized intersections in urban areas and level of service C for rural areas.

At unsignalized intersections, a level of service E is generally considered acceptable only if the side street encounters delay. Nevertheless, side streets typically function at level of service F during peak traffic periods, because the traffic volumes often do not warrant a traffic signal to assist side street traffic. Table 1-5 below summarizes the LOS categories and delay ranges.

Table 1-5: Level of Service Descriptions for Intersections

Level of Service	Description	Signalized Intersection	Unsignalized Intersection
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80 sec.	> 50 sec.

1.2.6 EXISTING (2004) INTERSECTION LEVEL OF SERVICE ANALYSIS

Capacity analyses were performed for A.M., noon and P.M. peak hour periods, using *Synchro Professional Version 6* software. *Existing (2004)* geometrics and turning movement volumes were used in these analyses. Table 1-6 summarizes the existing intersection levels of service.

Most of the signalized intersections, within the study area, operate well under existing conditions with the exception of Maple Street at Garland Avenue which operates at an unacceptable level of service during A.M., noon and P.M. peak hours. The southbound approach suffers long delays in both the A.M. and noon peak hours as vehicles turning onto Maple Street contend with numerous pedestrians crossing Maple Street.

The stop-controlled approaches of Wilson and West Avenues at Maple Street suffer from failing levels of service in the P.M. peak hour. The Meadow Street and Leroy Pond Drive approaches to Razorback Road also operate poorly in the P.M. peak hour. It is not uncommon for stop-controlled approaches to suffer from poor levels of service during peak periods and so these findings are not unexpected.

Table 1-6: Existing (2004) Intersection Levels of Service

ID #	Intersection	Level of Service		
		Existing		
		A.M. Peak Hour	Noon Peak Hour	P.M. Peak Hour
1	Cleveland Street/Razorback Road	(NB-C)	(NB-C)	(NB-E)
2	Cleveland Street/Garland Avenue	B (WB-C)	B (WB-C)	C (EB-C)
3	Cleveland Street/Leverett Avenue	A (EB-C)	A (EB-B)	A (EB-C)
4	Douglas Street/Garland Avenue	(WB-A)	(WB-A)	(WB-B)
5	Douglas Street/Leverett Avenue	(WB-C)	(EB-C)	(EB-D)
6	Maple Street/Razorback Road	(EB-A)	(EB-A)	(EB-A)
7	Maple Street/Stadium Drive	A (EB-A)	A (EB-B)	B (EB-B)
8	Maple Street/Garland Avenue	F (SB-F)	E (SB-F)	E (WB-F)
9	Maple Street/Leverett Avenue	B (SB-B)	A (SB-B)	A (SB-B)
10	Maple Street/Arkansas Avenue	A (NB-B)	A (NB-B)	B (NB-C)
11	Maple Street/Wilson Avenue	(SB-E)	(SB-D)	(SB-F)
12	Maple Street/West Avenue	(NB-C)	(NB-C)	(NB-F)
13	Arkansas Avenue/Lafayette Street	(WB-B)	(WB-B)	(WB-B)
14	West Avenue/Lafayette Street	(WB-C)	(EB-C)	(EB-C)
15	Markham Road/Razorback Road	(EB-B)	(EB-C)	(EB-C)
16	Dickson Street/Buchanan Avenue	(NB-A)	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	(NB-A)	(NB-B)	(NB-B)
18	Dickson Street/Arkansas Avenue	B (SB-B)	B (SB-B)	B (SB-B)
19	Dickson Street/University Avenue	(NB-B)	(NB-B)	(NB-B)
20	Dickson Street/West Avenue	B (SB-C)	B (SB-C)	B (SB-C)
21	Meadow Street/Razorback Road	(WB-D)	(WB-D)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	(EB-B)	(WB-B)	(SB-B)
23	California Boulevard/Harmon Avenue	(SB-C)	(SB-B)	(NB-C)
24	Center Street/Duncan Avenue	B (EB-B)	A (EB-B)	B (EB-B)
25	Center Street/University Avenue	(NB-C)	(SB-C)	(SB-C)
26	Leroy Pond Drive/Razorback Road	(WB-D)	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	(NB-C)	(NB-B)	(NB-C)
28	Sixth Street/Razorback Road	C (NB-C)	C (NB-D)	C (SB-D)
29	Sixth Street/Garland Avenue	(NB-D)	(NB-E)	(NB-D)
30	Meadow Street/Stadium Drive	(EB-B)	(EB-B)	(EB-C)
31	Leroy Pond Drive/California Boulevard	(EB-B)	(EB-B)	(EB-B)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

= unacceptable level of service

1.3 FUTURE PARKING CHANGES

A number of parking changes are planned on the University campus within the next 25 years. These parking changes will impact traffic patterns on the campus roadways and were used as the basis for determining future traffic volumes resulting from campus growth.

1.3.1 HARMON AVENUE PARKING FACILITY (HAPF)

The Harmon Avenue Parking Facility (HAPF), currently under construction and scheduled for completion by the start of the 2005/2006 school year, consists of 2,149 new parking spaces. By 2006, two-thirds of the deck (1,418 spaces) is expected to be occupied with 100 percent occupancy anticipated by 2007/2008. Access to the garage will be provided via four full-access driveways: two on Williams Street, one on Harmon Avenue, and one on Duncan Avenue.

1.3.2 SURFACE SPACES

A number of surface parking space losses and gains are also planned as part of campus growth. These were described in Sections 3 and 10 of the *Campus Transportation Plan*. For simplicity, a number of the minor changes were regarded as negligible for traffic forecasting purposes and were therefore not modeled. This is slightly conservative, as the majority of the omissions were parking losses.

For the purposes of the traffic forecasts, a net loss of 288 surface parking spaces is expected to occur by 2006. An additional 293 spaces are projected to be removed between 2006 to 2010 and 1,044 spaces lost between 2010 and 2015. Between 2015 and 2030 an additional 414 surface spaces will be lost. Table 1-7 lists these changes in detail. All of these losses occur in surface lots and are to make room for new buildings and/or parking facilities.

1.3.3 GARLAND AVENUE DECK

An additional parking deck is proposed in the northern part of the campus (refer to Appendix 2). For traffic forecasting purposes, this was assumed to open between 2010 and 2015, sited adjacent to Garland Avenue at the intersection of Lindell Avenue and Douglas Avenue, with a gain of 1,377 spaces (net of existing surface spaces lost on the deck site). Access was assumed to be provided from driveways on Lindell Avenue and Douglas Avenue, but not directly from Garland Avenue.

1.3.4 SUMMARY OF CAMPUS PARKING CHANGES

Table 1-7 and Figure 1-6 summarize the expected campus parking changes. Between 2004 and 2006, there is expected to be a net increase of 1,130 parking spaces on the campus. Between 2006 and 2010, a further net increase of 438 spaces is expected, making a cumulative net increase of 1,568 spaces compared to 2004. Between 2010 and 2015, a further net increase of 333 spaces is expected, making a cumulative net increase of 1,901 spaces compared to 2004. Beyond 2015, it is expected that 414 spaces will be lost, making a cumulative net increase of 1,487 spaces compared to 2004.

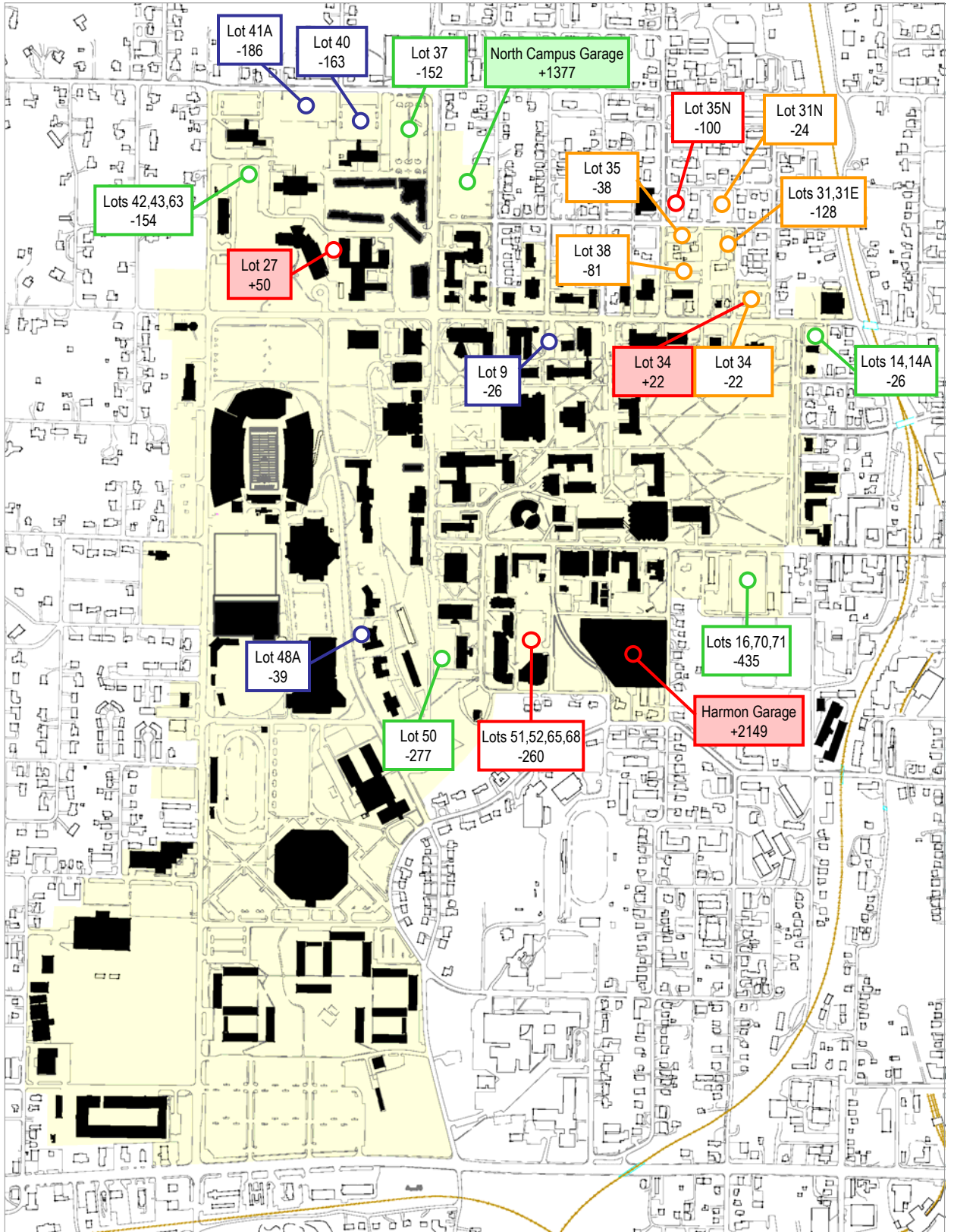
Table 1-7: Summary of Parking Changes Assumed in the Traffic Forecasts (Surface Spaces and Campus Decks)

Location	Net Change in Spaces
2004 to 2006 [red on corresponding diagram]	
Lot 27	50
Lot 34	22
Lot 35N	-100
Lots 51, 52, 65, 68	-260
Harmon Avenue Parking Facility	1,418
Total net change between 2004 and 2006	1,130
2006 to 2010 [orange on corresponding diagram]	
Lots 31, 31E	-128
Lot 31N	-24
Lot 34	-22
Lot 35	-38
Lot 38	-81
Harmon Avenue Parking Facility	731
Total net change between 2006 and 2010	438
Cumulative total net change to 2010	1,568
2010 to 2015 [green on corresponding diagram]	
Lot 37	-152
Lots 42, 43, 64	-154
Lots 14, 14A	-26
Lot 50	-277
Lots 16, 70, 71	-435
Garland Deck	1,377
Total net change between 2010 and 2015	333
Cumulative total net change to 2015	1,901
Beyond 2015 [blue on corresponding diagram]	
Lots 40, 41A	-349
Lot 48A	-39
Lot 9	-26
Total net change beyond 2015	-414
Cumulative total net change to beyond 2015	1,487

1.3.5 DICKSON STREET DECKS

In addition to the campus parking changes, certain scenarios for 2015 assumed that two new decks would be built in Downtown on Dickson Street near West Avenue, with a total of approximately 1,400 spaces (a net increase of approximately 1,200 spaces). This reflects the conclusions of the parallel Dickson Street Parking Deck Feasibility Study (Appendix 4). Conservatively, the existing spaces lost on the proposed deck sites were not subtracted from traffic volumes.

Figure 1-6: Parking Changes Assumed in the Traffic Forecasts



Net change in parking spaces:

- by 2006
- by 2010
- by 2015
- by 2030

Shaded labels denote a net gain of spaces

Other parking changes, not included in the traffic forecasts, are not shown

1.4 TRAFFIC FORECASTING METHODOLOGY

Forecasts were made for four planning horizons: 2006, 2010, 2015 and 2030. Future No-Build scenarios typically included *Existing (2004)* turning movement count data as well as annual background growth to analysis year. Build scenarios included the same traffic data as the No-Build scenarios and also the expected University growth (represented by changes in parking supply).

1.4.1 BACKGROUND TRAFFIC FORECASTING

The traffic forecasts took account of likely background growth in traffic levels. Growth rates were forecast by reviewing historic trends in and around the study area, and extrapolating those trends into the future.

The trends were assessed using intersection turning movement counts performed in 1992 and 2001, in comparison to the 2004 counts. Growth due to the University's expansion should be excluded, as this is accounted for separately in the site traffic forecasting, but the historical data make no such distinction. To minimize the influence of University-related growth, the intersections on the edge of the study area were assessed.

On the basis of the historic trends, the forecast growth rate was set for the entire study area at 2.25% per year until 2015, then at 1.5% per year from 2015 to 2030.

1.4.2 SITE TRAFFIC FORECASTING

To determine the impact of the future development on the campus, the parking supply was used as the best indicator of additional trips on the study area network. As already described in Section 1.3 above, the overall parking supply on campus is expected to increase by approximately 1,550 spaces. Some areas of campus will gain spaces but others will lose spaces. In addition, a major parking deck is proposed in the Dickson Street area of downtown. To forecast the effects of these changes, the parking was converted into peak hour vehicle trips and then distributed to the study area network as described below.

The site trips were assigned to the study area network using *Traffix for Windows Version 7.6*.

1.4.2.1 Trip Generation Rates

The expected parking changes were described in Section 1.3 above. These changes need to be converted into traffic levels, using trip generation rates (trips per space).

The forecasts used rates developed specifically for this study, based on review of existing University of Arkansas data and extensive data from other comparable Universities. Table 1-8 shows the data that were reviewed and (in the bottom row) the rates that were used in the forecasts.

Table 1-9 shows the resulting trips that each site was forecast to generate. The negative numbers, denoting a reduction in trips, correspond to the sites where parking spaces would be lost.

Table 1-8: Trip Generation Rates (Vehicle Trips per Space)

Institution	AM In (trips/space)	AM Out (trips/space)	PM In (trips/space)	PM Out (trips/space)
UNC Chapel Hill (M/A/B)	0.33	0.11	0.34	0.38
U of Arkansas - Fayetteville (Walker Parking)	0.53	0.10	0.24	0.40
College Park Campus, U of Maryland and Towson University (M/A/B)	0.49	0.13	0.23	0.48
Average Rates	0.45	0.11	0.27	0.42

Table 1-9: Generated Site Trips

Location	Net Change in Spaces	AM In (trips)	AM Out (trips)	PM In (trips)	PM Out (trips)
2004 to 2006 [red on corresponding diagram]					
Lot 27	50	23	6	14	21
Lot 34	22	10	2	6	9
Lot 35N	-100	-45	-11	-27	-42
Lots 51, 52, 65, 68	-260	-117	-29	-70	-109
Harmon Avenue Parking Facility	1,418	638	156	383	596
Total net change between 2004 and 2006	1,130	509	124	305	475
2006 to 2010 [orange on corresponding diagram]					
Lots 31, 31E	-128	-58	-14	-35	-54
Lot 31N	-24	-11	-3	-6	-10
Lot 34	-22	-10	-2	-6	-9
Lot 35	-38	-17	-4	-10	-16
Lot 38	-81	-36	-9	-22	-34
Harmon Avenue Parking Facility	731	329	80	197	307
Total net change between 2006 and 2010	438	197	48	118	184
Cumulative total net change to 2010	1,568	706	172	423	659
2010 to 2015 [green on corresponding diagram]					
Lot 37	-152	-68	-17	-41	-64
Lots 42, 43, 64	-154	-69	-17	-42	-65
Lots 14, 14A	-26	-12	-3	-7	-11
Lot 50	-277	-125	-30	-75	-116
Lots 16, 70, 71	-435	-196	-48	-117	-183
Garland Deck	1,377	620	151	372	578
Total net change between 2010 and 2015	333	150	37	90	140
Cumulative total net change to 2015	1,901	855	209	513	798
Beyond 2015 [blue on corresponding diagram]					
Lots 40, 41A	-349	-157	-38	-94	-147
Lot 48A	-39	-18	-4	-11	-16
Lot 9	-26	-12	-3	-7	-11
Total net change beyond 2015	-414	-186	-46	-112	-174
Cumulative total net change to beyond 2015	1,487	669	164	401	625

1.4.2.2 Site Trip Distribution

The trips to and from the parking lots must then be distributed to origins and destinations outside the study area. A variety of distributions were used, as shown in Table 1-10 below. The starting point was a general distribution ('General TD') that served for most cases. This was determined from the geo-coded student and employee addresses, review of the

distribution used in the Walker parking report, review of traffic counts, and professional judgment. Figure 1-7 shows this general distribution.

The general distribution was used for all site traffic in the 2006, 2010 and 2030 scenarios, and in certain cases in the 2015 scenarios. Because a number of other factors had to be taken into account for 2015, some distributions were generated for these scenarios:

- The Garland Avenue Deck would be expected to attract users preferentially from origins north of the campus, and similarly the HAPF would then attract users preferentially from the south (or from the freeway corridor via Sixth Street). Amended distributions were therefore used for these two decks in 2015.
- The Dickson Street Decks would be expected to have approach patterns significantly different from campus sites, and therefore a wholly new distribution was used.
- In the 2015 Build Everything scenario, the assumed presence of the North-South Road would be expected to alter traffic patterns for some sites:
 - For sites south of Maple Street (including the HAPF and Dickson Street Decks), traffic to/from the north would be expected to re-route onto the North-South Road instead of Garland Avenue/Leverett Avenue/Whitman Avenue. The distributions for these sites were adjusted accordingly.
 - For sites north of Maple Street (including the Garland Avenue Deck), traffic would be expected to continue using the original routing, and hence the distribution was unchanged.

1.4.2.3 Site Trip Assignment

The traffic between each parking lot (“Zone” in Traffix terminology) and each exit from the study area (“gateways” in Traffix terminology) must then be assigned to one or more paths through the network. This was undertaken using professional judgment and knowledge of the local road network. Each zone-gateway pair had between one and eight paths, reflecting the potential routes available. Each path was allocated a certain percentage of that pair’s traffic.

The Center Street and Virginia Avenue Upgrades would be expected to affect some of the paths taken, particularly for journeys using the Razorback Road or Virginia Avenue corridors, such as trips to/from Sixth Street. To reflect this, the percentage splits between paths were revised for the 2015 Build Everything scenario, with more traffic assigned to the Virginia Avenue corridor and less to Razorback Road.

Table 1-10: Summary of trip distribution percentages

Gate Name	Sector	Zones	Without North-South Road				With North-South Road				
			Surface lot losses	Garland Deck	HAPF	Dickson Deck	Surface lot losses, not affected by NSR	Surface lot losses, affected by NSR	Garland Deck	HAPF	Dickson Deck
			Traffic Scenario featuring this zone *	Surface parking losses	Garland Deck ST (skewed TD)	HAPF ST (skewed TD)	Dickson Deck Site Traffic	Build Everything (all zones appear in one scenario)			
Traffic TD used for this zone	General TD	Garland Deck (skewed north) TD	HAPF (skewed south) TD	Dickson Deck TD	TD with NSR built (i.e. a common TD name for all zones, but zone has its own TD percentages)						
Garland [north]	North		22	26	16	18	22	13	26	9	10
Leverett	North		12	15	10	9	12	5	15	4	4
North Total			34	41	26	27	34	18	41	13	14
Cleveland [north-east]	North-East										
Whitman or Douglas	North-East		3	4	2	3	3	1	4	1	1
North-South Road	North-East							18		14	16
Wilson	North-East					3					2
North-East Total			3	4	2	6	3	19	4	15	19
Maple [east]	East		12	14	10	15	12	12	14	10	15
Lafayette	East		3	3	3	15	3	3	3	3	15
Dickson	East		10	10	11	16	10	10	10	11	16
East Total			25	27	24	46	25	25	27	24	46
West Ave	South-East					10					10
Center	South-East		6	4	7		6	6	4	7	
Duncan	South-East		2		3		2	2		3	
Harmon	South-East										
Stone	South-East		2		3		2	2		3	
Sixth [south-east]	South-East		4	3	5		4	4	3	5	
South-East Total			14	7	18	10	14	14	7	18	10
University	South		1		2		1	1		2	
Garland [south]	South										
Razorback	South		5	4	6		5	5	4	6	
South Total			6	4	8		6	6	4	8	
Sixth [west]	West		9	6	14	# 4	9	9	6	14	# 4
Nettleship	West		1	1	1		1	1	1	1	
Markham	West		1	1	1		1	1	1	1	
Maple [west]	West		1	2	1	1	1	1	2	1	1
Cleveland [west]	West		6	7	5	6	6	6	7	5	6
West Total			18	17	22	11	18	18	17	22	11
Grand Total			100	100	100	100	100	100	100	100	100
Notes			Based on existing travel patterns. (Also used for HAPF before Garland Deck is built.)	Biased towards northern gates.	Used for HAPF from 2015, when Garland Deck also exists. Biased towards southern gates.	Modified TD	Same as general TD. Used for surface lots north of Maple Street, where traffic would not shift to NSR.	Used for surface lots south of Maple Street, where traffic in North and North-East sectors would shift to NSR.	No shift to NSR. Hence same TD as before.	Traffic in North and North-East sectors shifts to NSR.	Traffic in North and North-East sectors shifts to NSR.

Legend:

* AM and PM scenarios exist in each case.

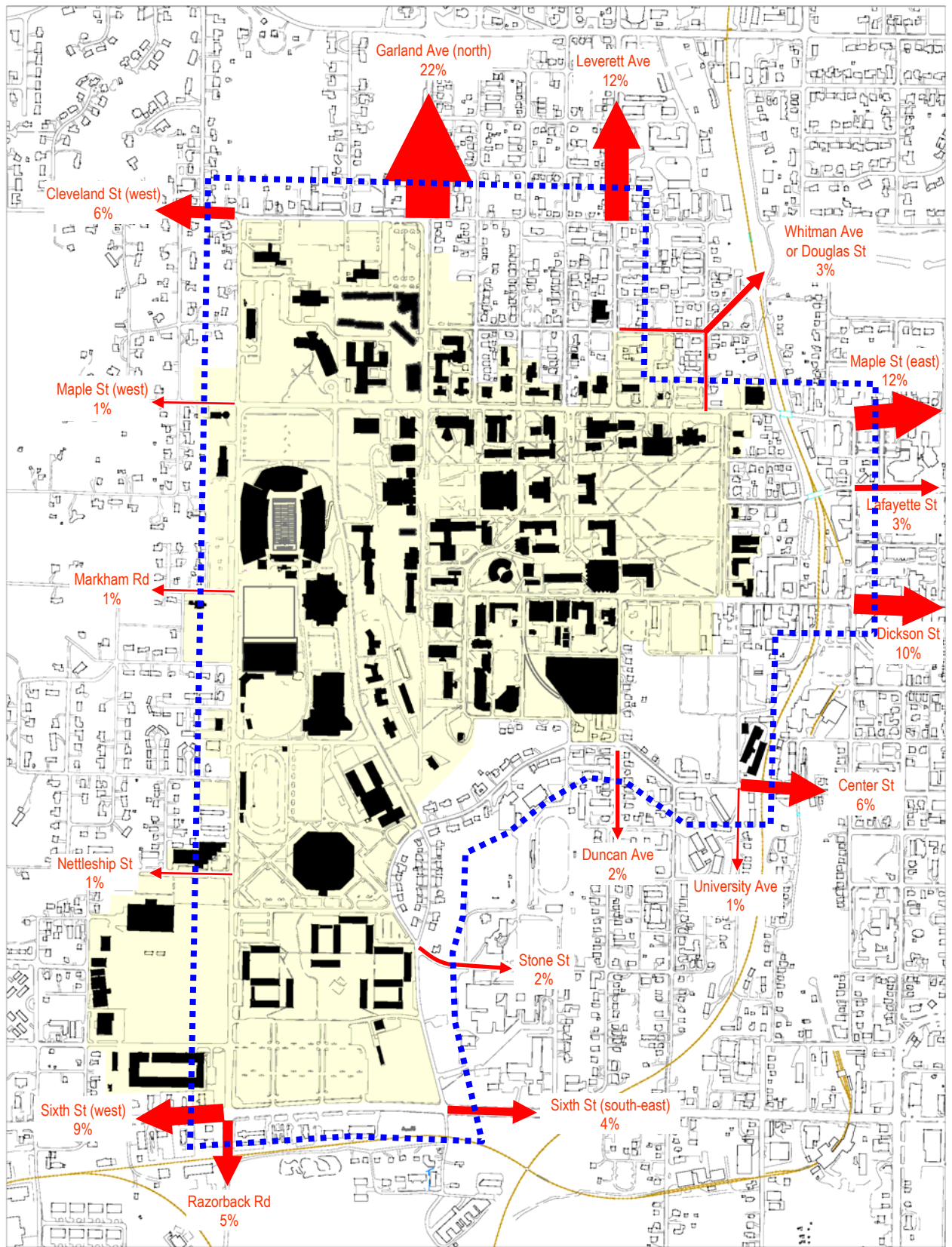
This 4% in the Dickson Deck TD represents people traveling to/from the university campus. Conservatively and for simplicity, their trips are extended out to Sixth St. (In this TD, traffic originating on Sixth St is expected to use West Ave.)

NSR = North-South Road

TD = Trip Distribution

ST = Site Traffic

Figure 1-7: General Site Traffic Distribution



← Traffic leaving study area (width of tail is proportional to volume)

Study area boundary

See text for exceptions to this distribution

1.5 SCENARIOS AND ASSUMPTIONS

1.5.1 2006 SCENARIOS AND ASSUMPTIONS

The 2006 analysis scenarios serve to establish the effects of the HAPF site trips on the roadway network with the deck 60% occupied as anticipated. The *No-Build (2006)* analyses evaluate future year 2006 level of service with background growth and planned surface parking changes only taken into consideration. The *Build HAPF (2006)* analyses evaluate level of service with the No-Build changes plus the addition of HAPF site traffic. The *Build HAPF Improved (2006)* scenario evaluates proposed improvements to the roadway network.

Due to the scope of the analyses for the 2006 scenarios, i.e., the evaluation of HAPF site traffic impacts, the study area was reduced to include only the following intersections for all 2006 scenarios:

- Markham Road at Razorback Road (unsignalized)
- Dickson Street at Buchanan Avenue (unsignalized)
- Dickson Street at Duncan Avenue (unsignalized)
- Meadow Street at Razorback Road (unsignalized)
- California Boulevard at Stadium Drive/Virginia Avenue (unsignalized four-way stop)
- Center Street at Harmon Avenue (unsignalized)
- Center Street at Duncan Avenue (signalized)
- Center Street at University Avenue (unsignalized)
- Leroy Pond Drive at Razorback Road (unsignalized)
- California Boulevard at Virginia Avenue/Garland Avenue (unsignalized)
- Sixth Street at Razorback Road (signalized)
- Sixth Street at Garland Avenue (unsignalized)
- Meadow Street at Stadium Drive (unsignalized)
- Leroy Pond Drive at California Boulevard (unsignalized)

1.5.1.1 No-Build (2006)

Volumes

Volumes used in the *No-Build (2006)* analyses were based on the *Existing (2004)* turning movement counts. The *Existing (2004)* turning movement volumes were grown by a rate of 2.25% per year to 2006 to account for background growth. The site trips associated with surface parking changes, anticipated between 2004 and 2006 were also incorporated into the No-Build (2006) volumes.

Roadway Network

The roadway network used in the *No-Build (2006)* analyses was based on the *Existing (2004)* network with one exception: the intersection of West Avenue and Maple Street was changed from unsignalized to signalized to reflect changes made to the intersection's control after the count data were collected.

1.5.1.2 Build HAPF (2006)

Volumes

Volumes used in the *Build HAPF (2006)* analyses were based on *No-Build (2006)* turning movement volumes with the addition of site trips from the HAPF, assuming two-thirds occupancy.

Roadway Network

The roadway network used in the *Build HAPF (2006)* analyses was the same as that used in the *No-Build (2006)* analyses.

1.5.1.3 Build HAPF (2006) Improved

Volumes

Volumes used in the *Build HAPF Improved (2006)* analyses were based on *No-Build (2006)* turning movement volumes with the addition of site trips from the HAPF, assuming two-thirds occupancy.

Roadway Network

The roadway network used in the *Build HAPF (2006)* analyses included the following improvements that would provide acceptable levels of service:

- Center Street at Harmon Avenue – westbound and eastbound left-turn lanes along Center Street and a southbound right-turn lane along Harmon Avenue.
- Center Street at Duncan Avenue –upgraded signal to provide actuated control.
- Sixth Street at Garland Avenue –southbound right-turn lane on the Garland Avenue approach and signalization.

1.5.2 2010 SCENARIOS AND ASSUMPTIONS

The 2010 analysis scenarios serve to establish the effects of the HAPF site trips on the roadway network with the deck 100% occupied. The *No-Build (2010)* analyses evaluate future year 2010 level of service with background growth and planned surface parking changes only taken into consideration. The *Build HAPF (2010)* analyses evaluate level of service with the No-Build changes plus the addition of HAPF site traffic. The *Build HAPF Improved (2010)* scenario evaluates proposed improvements to the roadway network.

Due to the scope of the analyses for the 2010 scenarios, i.e., the evaluation of HAPF site traffic impacts, the study area was reduced to include only the following intersections for all 2010 scenarios:

- Markham Road at Razorback Road (unsignalized)
- Dickson Street at Buchanan Avenue (unsignalized)
- Dickson Street at Duncan Avenue (unsignalized)
- Meadow Street at Razorback Road (unsignalized)
- California Boulevard at Stadium Drive/Virginia Avenue (unsignalized four-way stop)
- Center Street at Harmon Avenue (unsignalized)
- Center Street at Duncan Avenue (signalized)
- Center Street at University Avenue (unsignalized)
- Leroy Pond Drive at Razorback Road (unsignalized)
- California Boulevard at Virginia Avenue/Garland Avenue (unsignalized)
- Sixth Street at Razorback Road (signalized)
- Sixth Street at Garland Avenue (unsignalized)

- Meadow Street at Stadium Drive (unsignalized)
- Leroy Pond Drive at California Boulevard (unsignalized)

Volumes

Volumes used in the *No-Build (2010)* analyses were based on the *Existing (2004)* turning movement counts. The *Existing (2004)* turning movement volumes were grown by a rate of 2.25% per year to 2010 to account for background growth. The site trips associated with surface parking changes, anticipated between 2004 and 2010 were also incorporated into the *No-Build (2010)* volumes.

Roadway Network

The roadway network used in the *No-Build (2010)* analyses was based on the *Existing (2004)* network with one exception: the intersection of West Avenue and Maple Street was changed from unsignalized to signalized to reflect changes made to the intersection's control after the count data were collected.

1.5.2.1 Build HAPF (2010)

Volumes

Volumes used in the *Build HAPF (2010)* analyses were based on *No-Build (2010)* turning movement volumes with the addition of site trips from the HAPF, assuming 100 percent occupancy.

Roadway Network

The roadway network used in the *Build HAPF (2010)* analyses was the same as that used in the *No-Build (2010)* analyses.

1.5.2.2 Build HAPF Improved (2010)

Volumes

Volumes used in the *Build HAPF (2010)* analyses were based on *No-Build (2010)* turning movement volumes with the addition of site trips from the HAPF, assuming 100 percent occupancy.

Roadway Network

The roadway network used in the *Build HAPF Improved (2010)* analyses included the following improvements that would provide acceptable levels of service (in addition to those identified in the 2006 analyses):

- Center Street at Duncan Avenue – westbound and eastbound left-turn lanes along Center Street and a southbound right-turn lane along Duncan Avenue.
- California Boulevard at Stadium Drive/Virginia Avenue: southbound, westbound, and eastbound turn lanes as well as signalization.

1.5.3 2015 SCENARIOS AND ASSUMPTIONS

The 2015 analyses served to determine the impact of a deck on northern part of campus (specifically on Garland Avenue as discussed in Appendix 2) as well as to understand the impact of the Dickson Street deck (as discussed in Appendix 4); and to evaluate a package of road upgrades including the North-South Road (also referred to as the Gregg Avenue Connector).

Due to the scope of the analyses for the 2030 scenarios, the study area included the campus intersections identified and evaluated in the *Existing (2004)* conditions analyses as well as some additional off-campus intersections in the *Build Everything (2015)* scenario. The following additional intersections were included:

- Gregg Avenue at Maple Street (assumed signalized)
- Gregg Avenue at Lafayette Street (assumed signalized)
- Gregg Avenue at Dickson Street (assumed signalized)

1.5.3.1 Build Garland (2015)

Volumes

Volumes used in the *Build Garland (2015)* analyses were based on the *Existing (2004)* turning movement counts. The *Existing (2004)* turning movement volumes were grown by a rate of 2.25% per year to 2015 to account for background growth. The site trips associated with surface parking changes, anticipated between 2004 and 2015 as well as HAPF site trips and Garland Deck site trips were also incorporated into the volumes.

Roadway Network

The roadway network used in the *Build Garland (2015)* analyses was based on the *Existing (2004)* network with one exception: the intersection of West Avenue and Maple Street was changed from unsignalized to signalized to reflect changes made to the intersection's control after the count data were collected.

1.5.3.2 Build Dickson (2015)

Volumes

Volumes used in the *Build Dickson (2015)* analyses were based on the *Build Garland (2015)* turning movement volumes with the addition of site trips from two Dickson Street Decks in downtown Fayetteville. The trips included traffic generated from a 600-space deck on the West Annex site, with access from West Avenue and Lafayette Street; and a 600-space deck on the Walton Arts Center lot, with access from West Avenue.

For simplicity, trip generation was estimated using the same rates as were used for the campus parking facilities (Table 1-8). This traffic was distributed and assigned to the street network in accordance with likely travel patterns (as described above). Conservatively, this traffic was simply added to the no-build traffic, although in practice many trips would be diverted from existing parking facilities.

Roadway Network

The roadway network used in the *Build Dickson (2015)* analyses was based on the *Existing (2004)* network with one exception: the intersection of West Avenue and Maple Street was changed from unsignalized to signalized to reflect changes made to the intersection's control after the count data were collected.

1.5.3.3 Build Everything (2015)

In addition to the Dickson Street Deck site traffic, the components of the *Build Everything (2030)* scenario are described in detail below.

(a) Razorback Road upgrade

Volumes

No adjustments were required to the traffic volumes. As Razorback Road is already a main route, the upgrade is unlikely to divert traffic from other routes.

Roadway Network

The proposed Razorback Road configuration (two lanes plus a center two-way left turn lane) was incorporated into the network model.

(b) Center Street upgrade

Volumes

The distribution and assignment of site traffic from surface lots was unchanged. For HAPF, Dickson Street and Garland Avenue Deck site traffic, the distribution was unaffected but (as described above) the *path* percentages were reallocated to show more site traffic using Center Street and Virginia Avenue and fewer using Razorback Road.

Roadway Network

The proposed upgrade of Center Street was incorporated into the network model. This involved improvements at Center Street/Duncan Avenue as well as Center Street/Harmon Avenue, a signal at Center Street/Stadium Drive, and a signal at Garland Avenue/Sixth Street.

(c) Virginia Avenue upgrade

Volumes

For simplicity, the site distribution and assignment model (in Traffix) continued to use the current road layout in the Virginia Avenue area, with the turning movements redistributed manually. Background traffic volumes were also re-distributed to reflect the new road layout. It was assumed that the stub of California Boulevard (the eastbound approach at Virginia Avenue/Stadium Drive) would remain to serve parking lots. To reflect this, a small amount of traffic was manually added to the relevant turning volumes at this intersection.

Roadway Network

The *Campus Transportation Plan* includes a long-term aspiration to rebuild Virginia Avenue into a north-south route providing a secondary access to the southern part of the campus. To reflect this, a hypothetical Virginia Avenue upgrade was incorporated into the network model. Figure 1-8 shows the layout adopted.

(d) North-South Road

Volumes

Because Gregg Avenue was not originally part of the network model, background traffic data for the street were not available. Turning movement counts were therefore estimated based on observations, the counts at surrounding intersections and the potential to balance volumes.

A proportion of the background traffic on the network was redistributed to the North-South Road, instead of Garland Avenue/Leverett Avenue/Wilson Avenue, reflecting likely changes in route choice following the construction of a North-South Road along Gregg Avenue. Figure 1-9 shows the redistributed volumes

As described above, site traffic was redistributed, wherever it was considered that route choice to/from a particular site would be affected by the new road.

Roadway Network

The proposed North-South road (NSR) was added to the Synchro model as an extension of Gregg Avenue north from Maple Street. Signals were assumed at Gregg Avenue/Maple Street/North-South Road, Gregg Avenue/Lafayette Street and Gregg Avenue/Dickson Street. (Gregg Avenue/Lafayette Street would warrant a signal due to poor sight distances, rather than traffic volumes).

An initial analysis provided useful indications of the network geometry that would likely be required; this was reflected in the final analysis. Figure 1-10 shows the layout adopted.

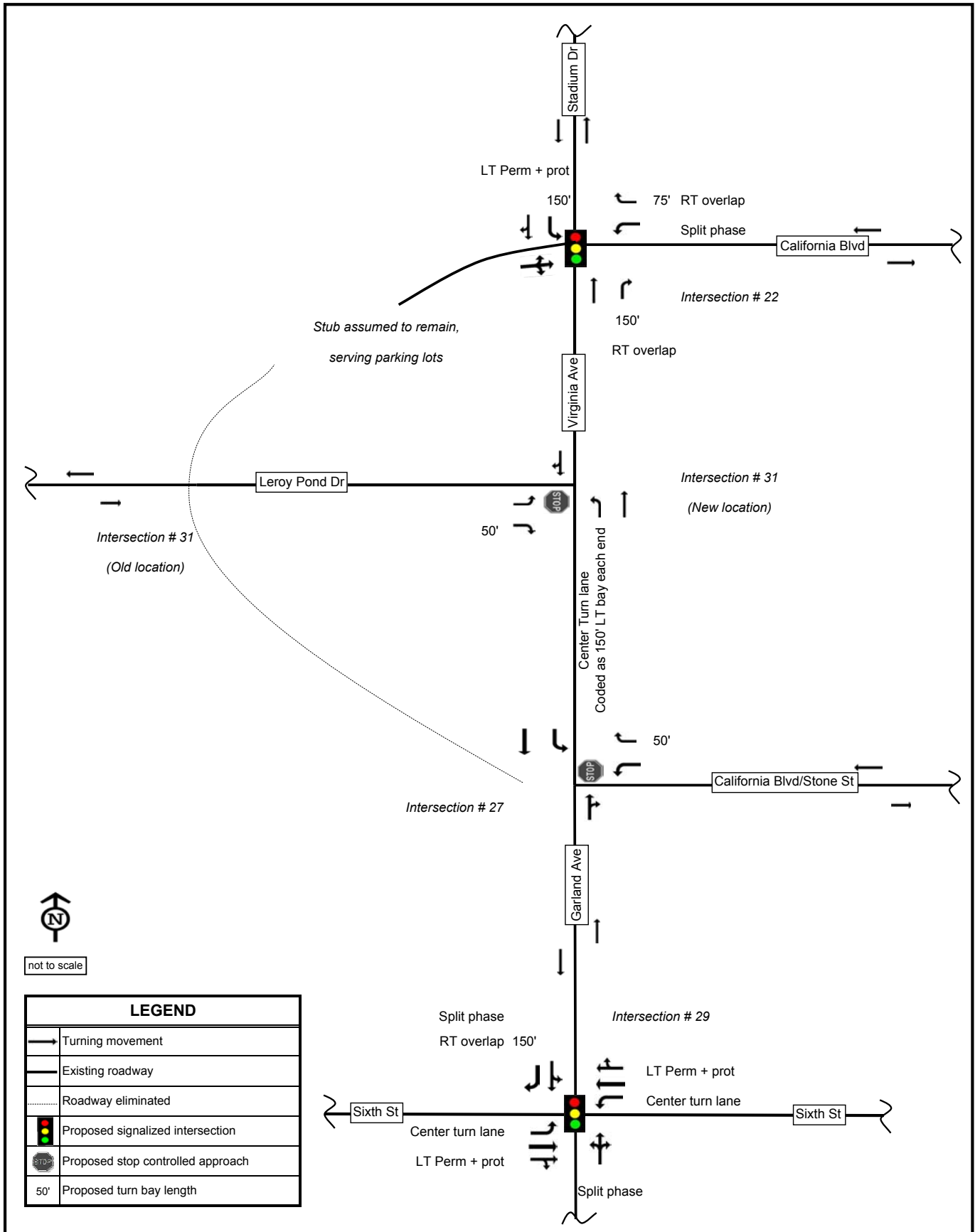


Figure 1-8
Assumed network geometry for the Virginia Avenue Upgrade

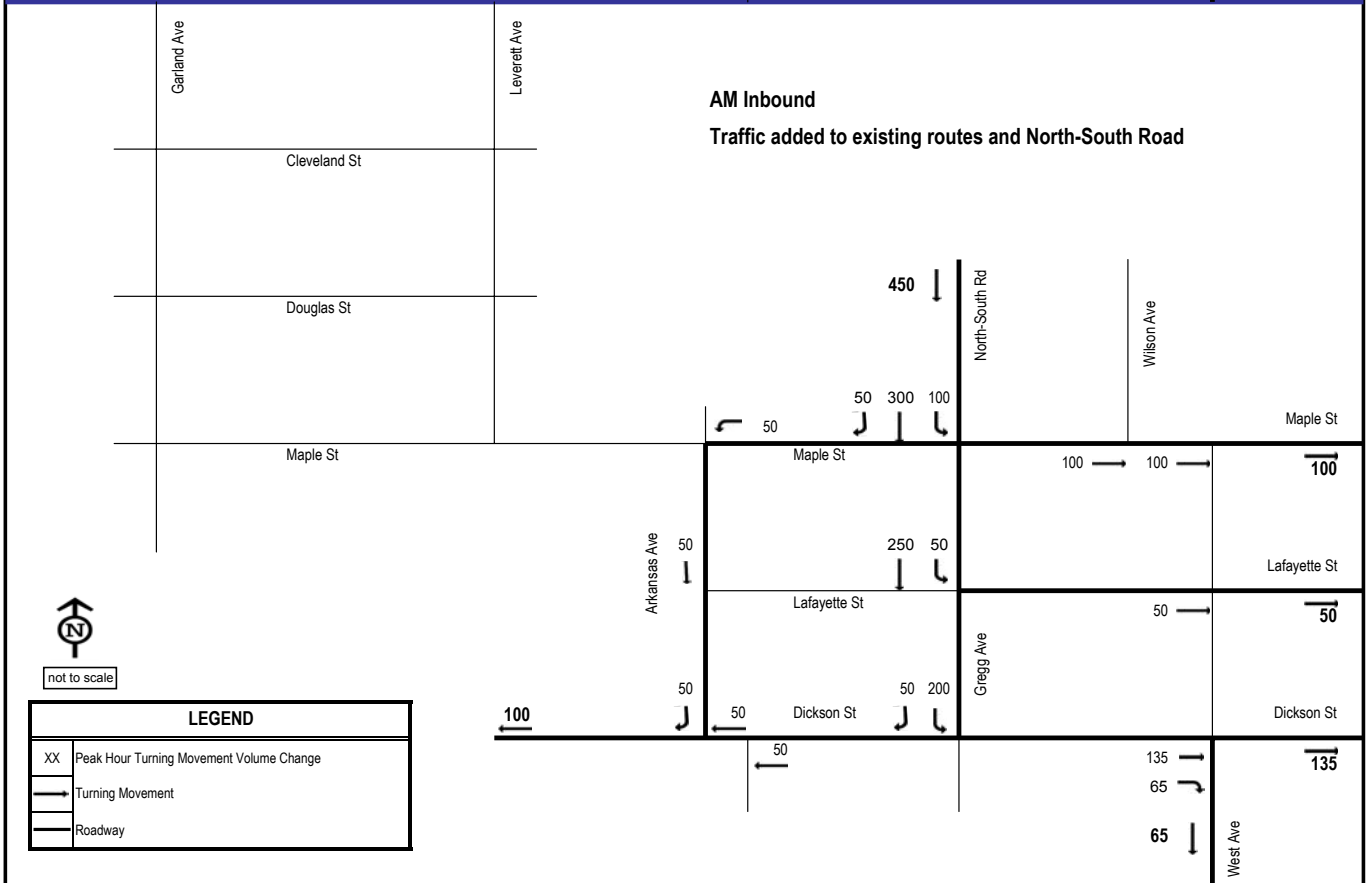
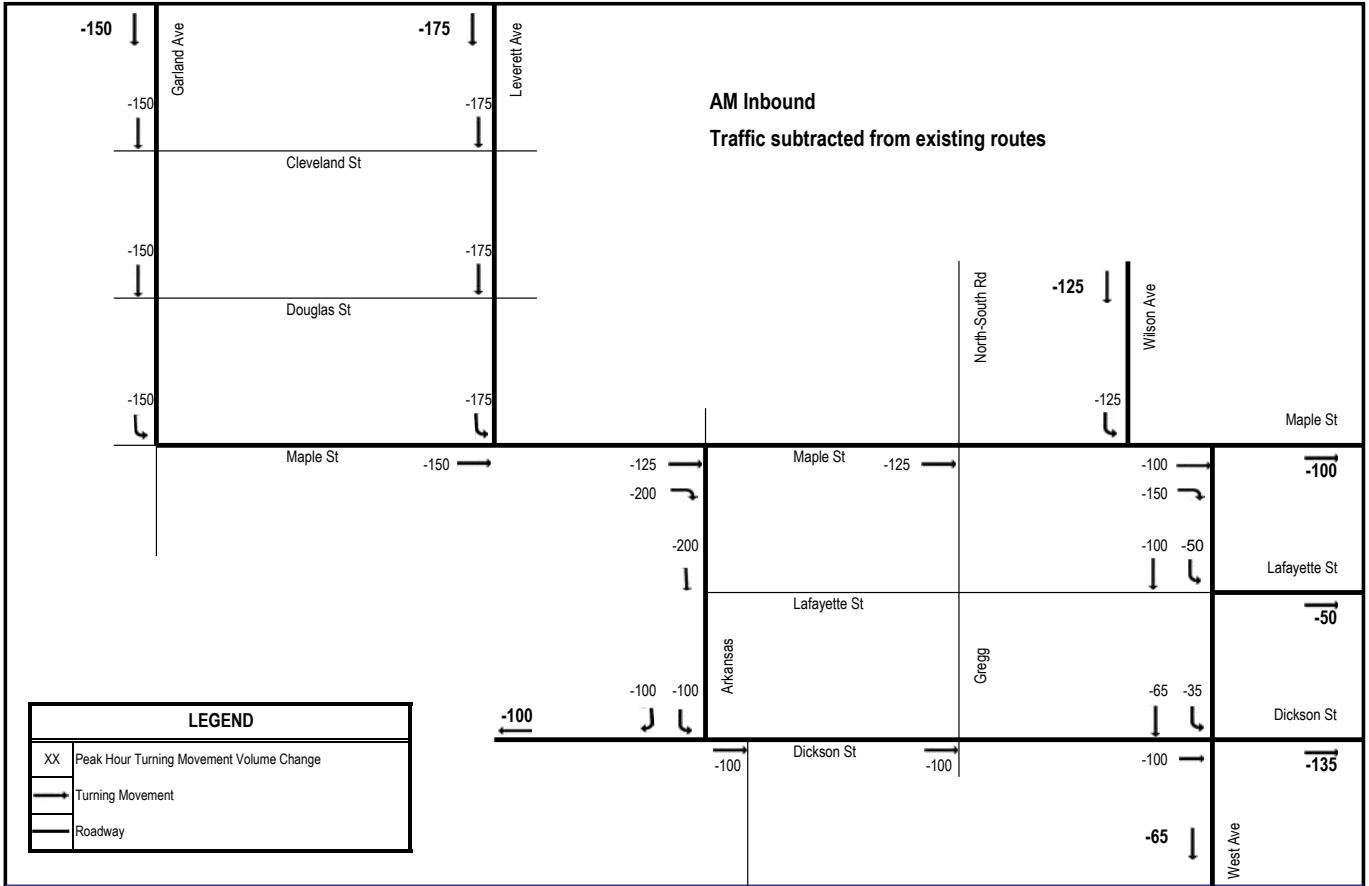
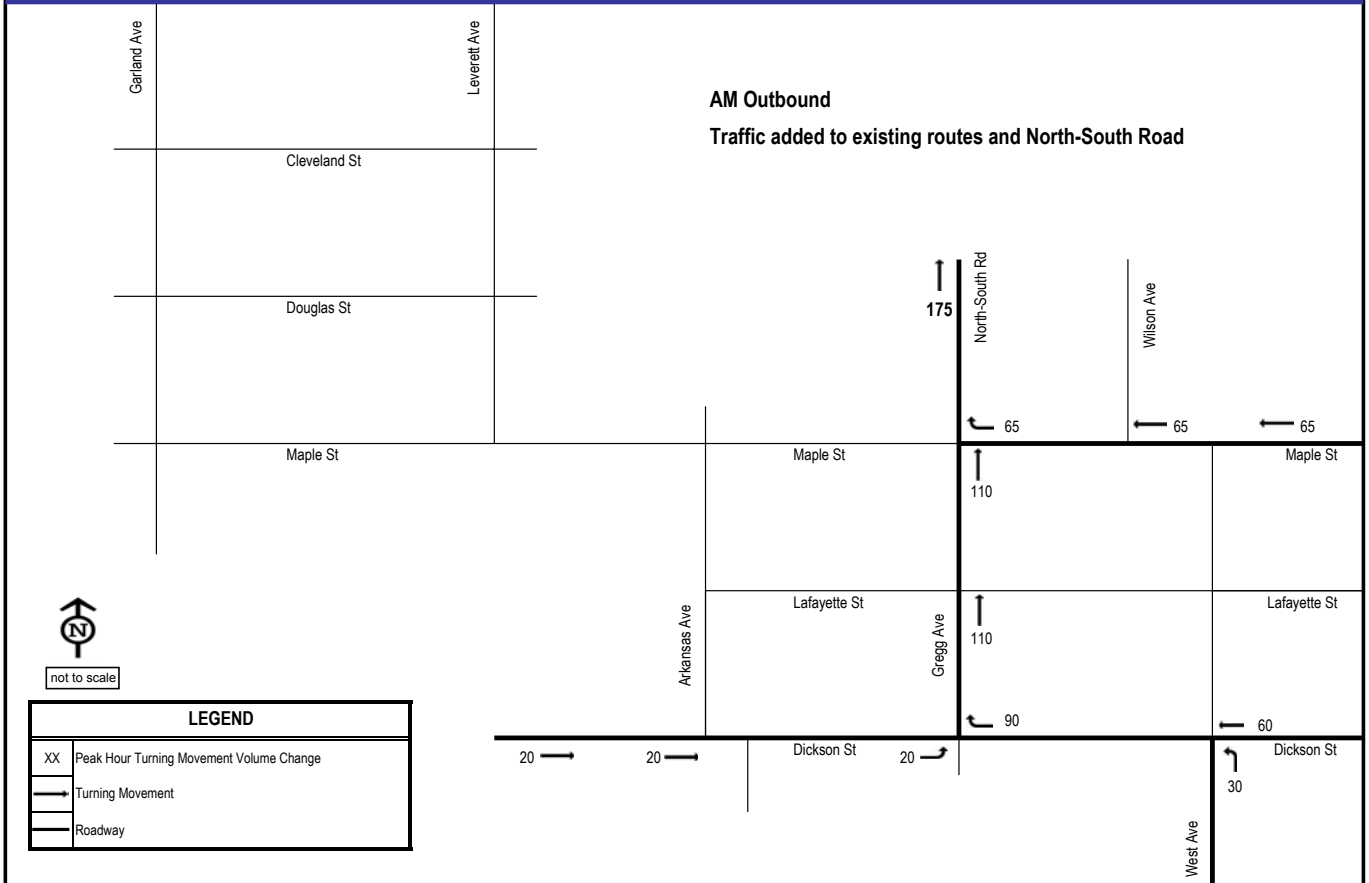
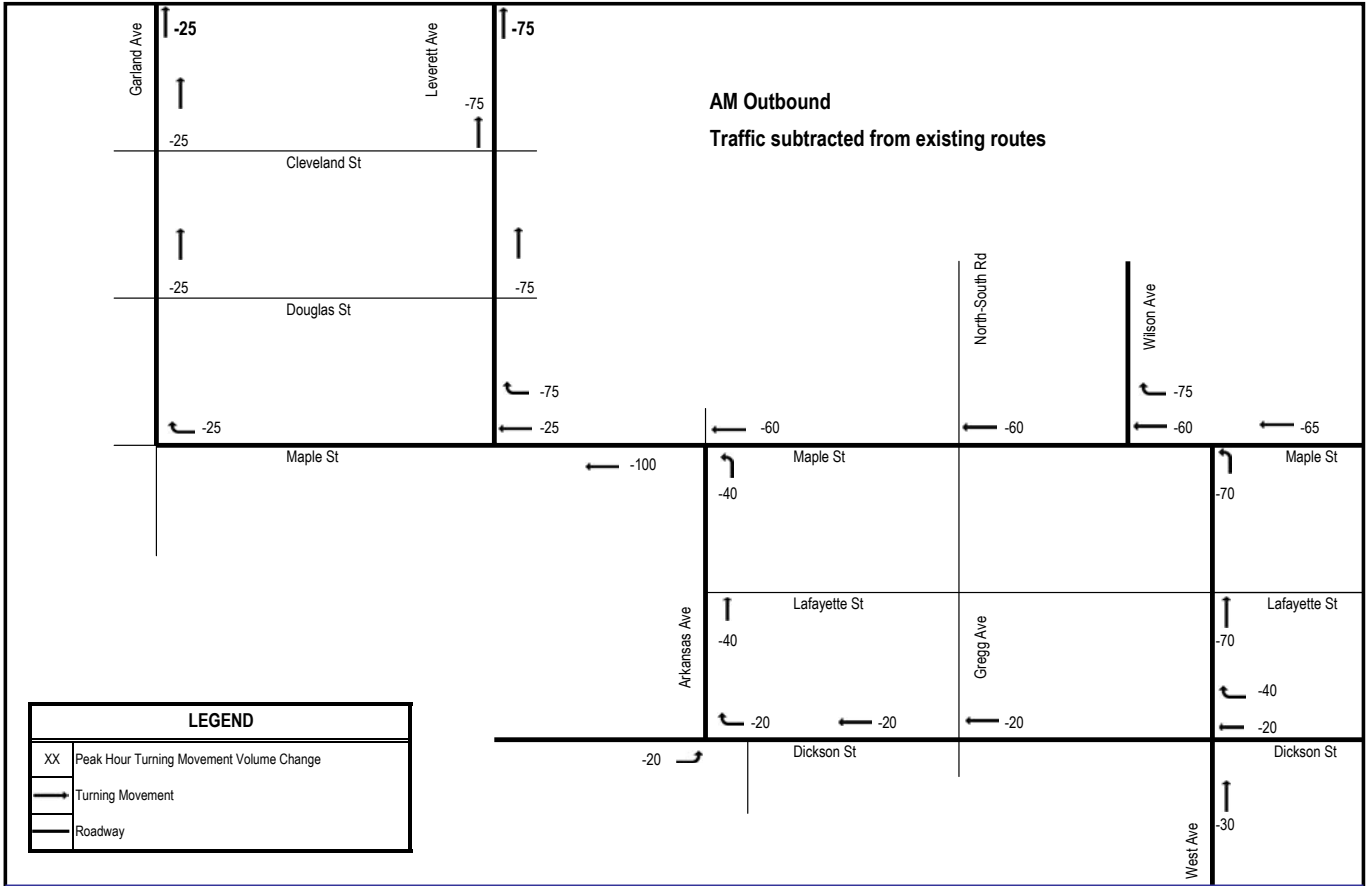
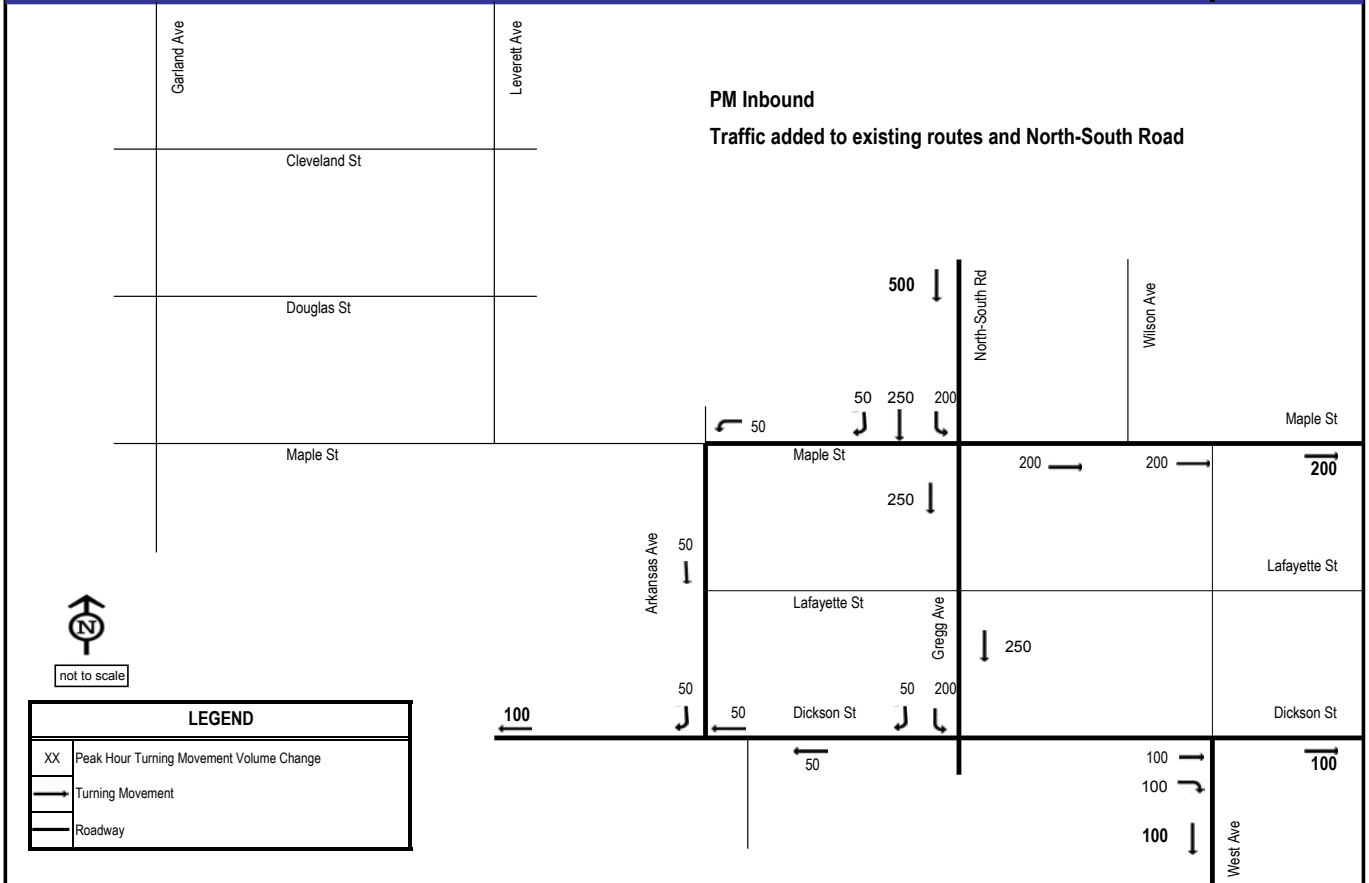
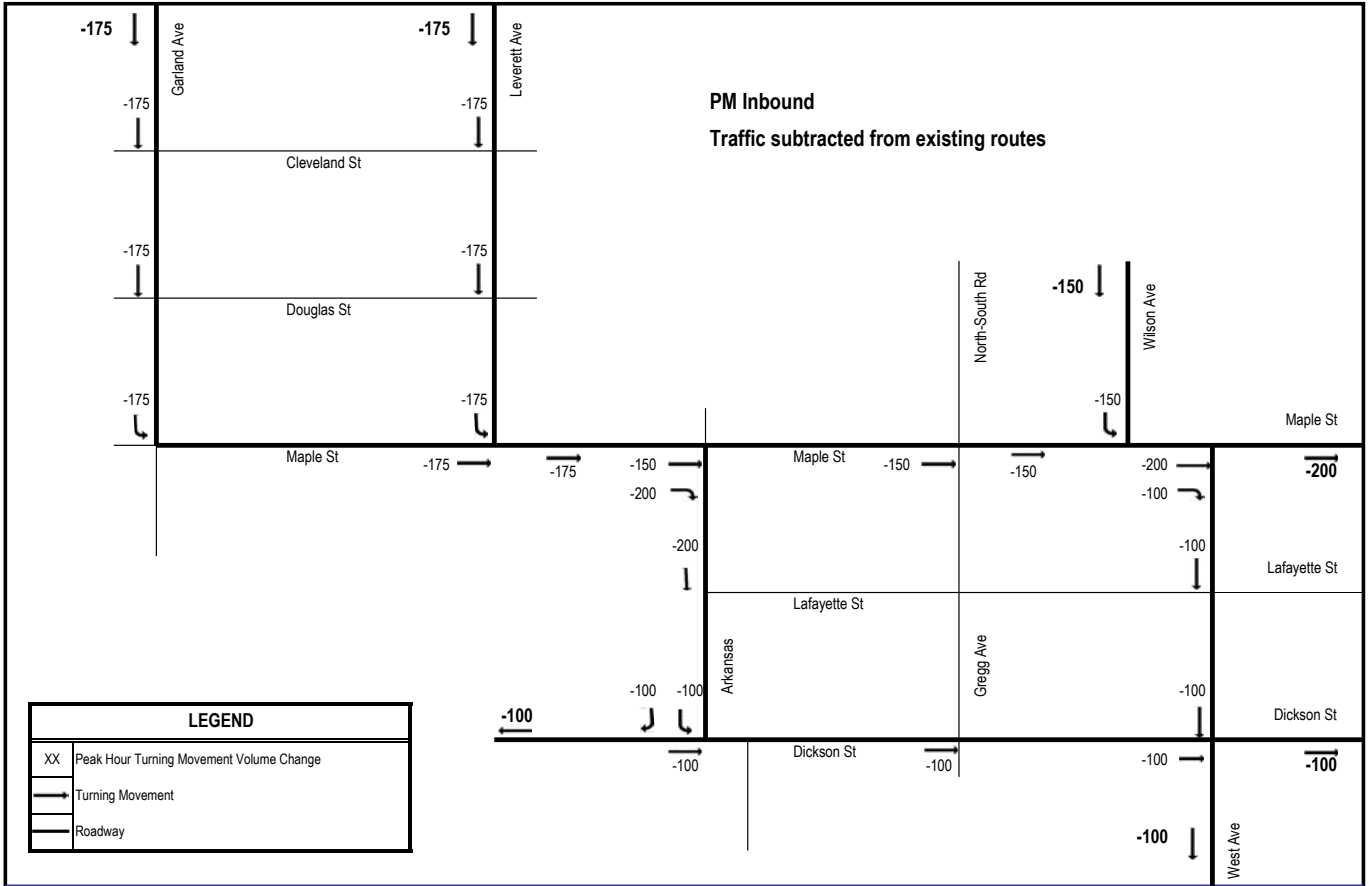
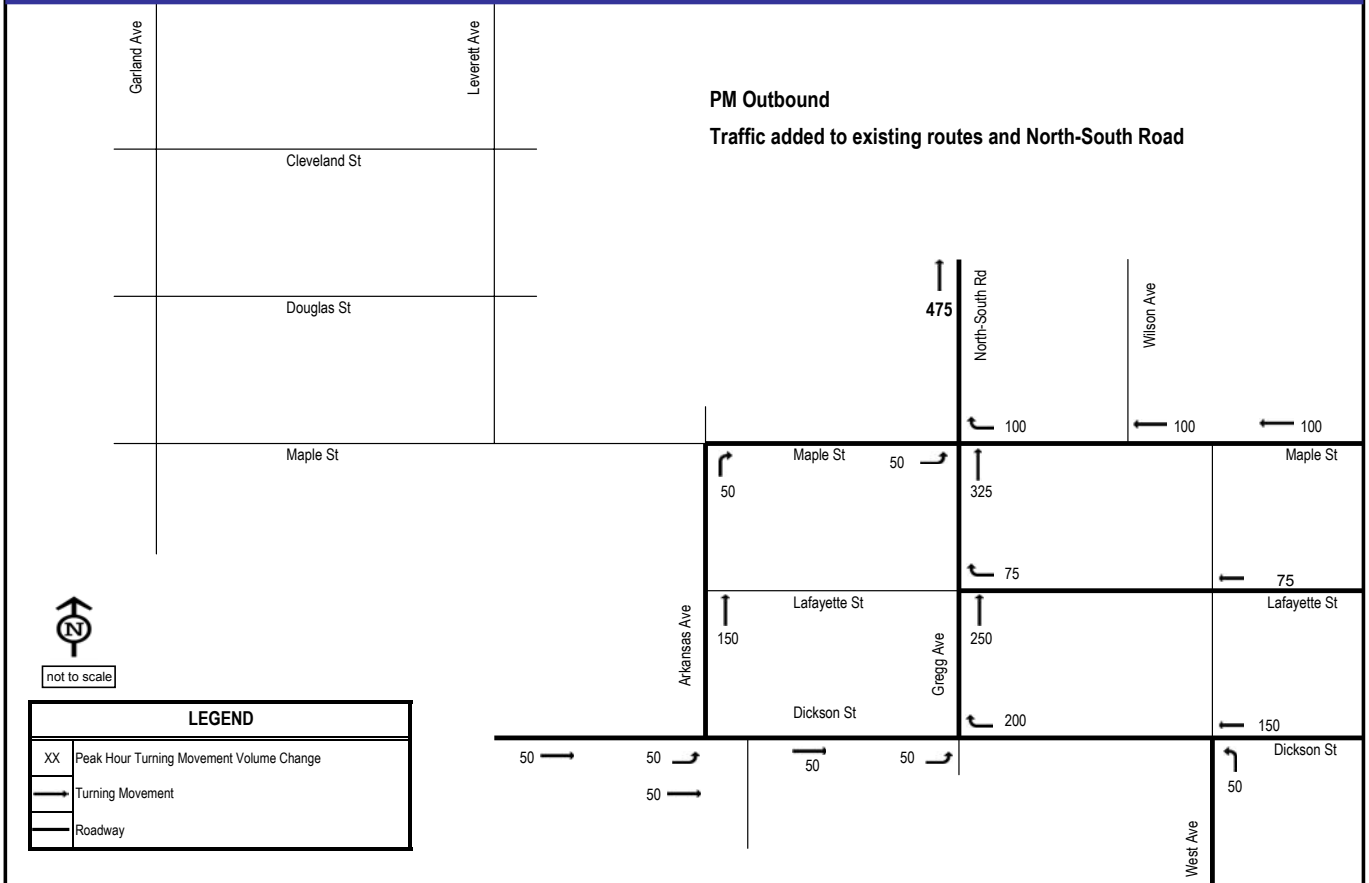
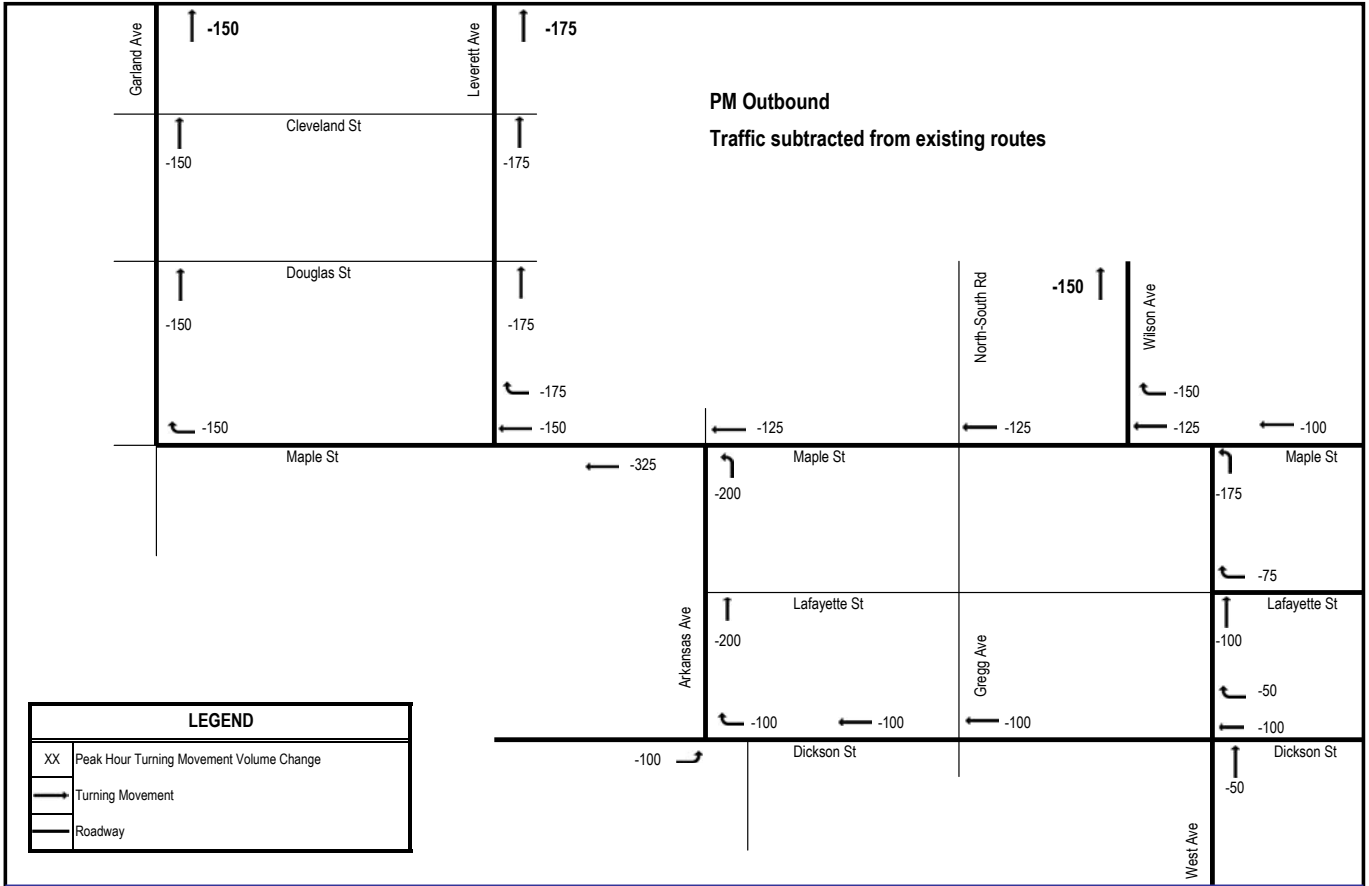


Figure 1-9
Redistribution of Background Traffic to/from North-South Road
AM Inbound Traffic



**Figure 1-9, continued
Redistribution of Background Traffic to/from North-South Road
AM Outbound Traffic**





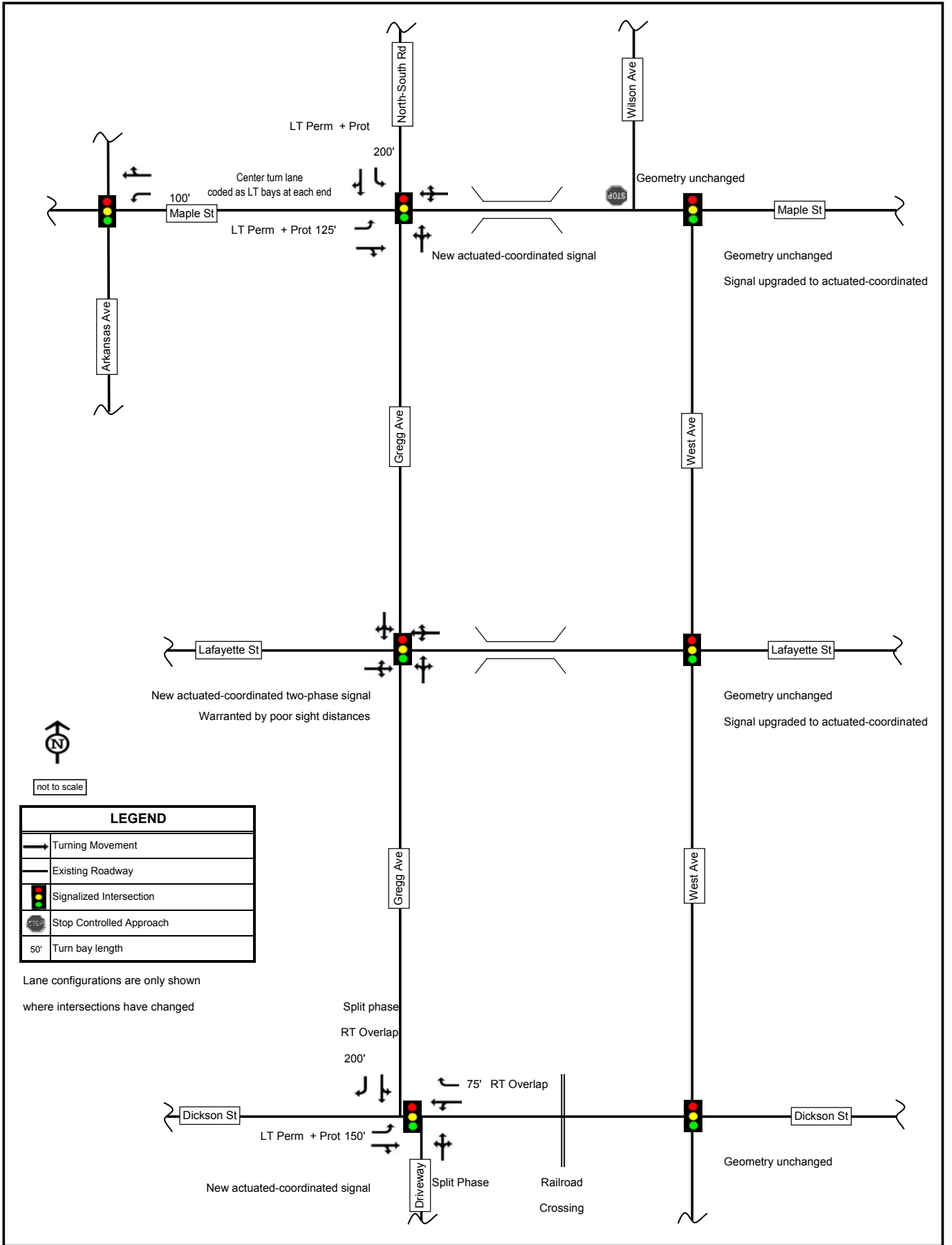


Figure 1-10
Assumed network geometry for the North-South Road and Gregg Avenue

1.5.4 2030 SCENARIOS AND ASSUMPTIONS

2030 traffic analysis was undertaken to evaluate the effect of regional growth on the campus street system, assuming growth in northwest Arkansas and the City of Fayetteville including the university (at an order of magnitude level only), as well as to assess the potential improvements to Razorback Road through the campus.

The region is experiencing significant growth which is already resulting in increasing congestion. There is an overall concern that improvements to the road system can not keep pace with the anticipated growth in traffic, therefore an assessment of long-term traffic impacts can assist policy makers in developing appropriate transportation strategies for the future, including measures to improve the use of alternative modes of travel as discussed in the *City of Fayetteville, Arkansas Traffic and Transportation Study* (October 2003).

The region's long-range transportation plan includes upgrading the section of Razorback Road between Maple Street and Sixth Street. Typically traffic projections going out 20 to 30 years are used in determining appropriate improvements. The 2030 analyses examine the effects on level of service for various options being considered for this upgrade. This section of Razorback Road currently is a two-lane roadway that is part of State Route 112 that includes Garland Avenue to the north and Razorback Road south of Sixth Street to the south.

Several scenarios were evaluated for the Razorback Road improvements, including three- and four-lane (2030) options. In addition, some other unconventional designs were also analyzed, including roundabouts at three intersections, sections of three- and four lanes, and an unbalanced three-lane scenario. Simulation analysis was also performed to supplement the vehicle queue analysis.

1.5.4.1 No-Build (2030)

Volumes

Future traffic volumes were projected for 2030 by applying a 2.25% annual growth factor (compounded) from *Existing (2004)* traffic volumes to year 2015 and then applying a 1.5% annual growth factor (compounded) between 2015 and 2030

Roadway Network

The roadway network used in the *No-Build (2030)* analyses was based on the *Existing (2004)* network with one exception: the intersection of West Avenue and Maple Street was changed from unsignalized to signalized to reflect changes made to the intersection's control after the count data were collected.

1.5.4.2 Build Razorback 4-lane (2030)

Volumes

Volumes used in the *Build Razorback 4-lane (2030)* analyses were based on *No-Build (2030)* turning movement volumes.

Roadway Network

The roadway network used in the *Build Razorback 4-lane (2030)* analyses included the following geometric and traffic control modifications:

- Widening Razorback Road between Maple Street and Sixth Street from the existing two-lane section to a four-lane undivided section.
- Adding southbound left-turn lanes at:
 - Stadium lot (Lot 44)
 - Meadow Street
 - Leroy Pond Drive
 - Lot 56 northern entrance
- Adding northbound left-turn lanes at:
 - Mitchell Street
 - Nettleship Street (realigned to connect to Leroy Pond Drive)
 - Center Street

1.5.4.3 Build Razorback 3-lane (2030)

Volumes

Volumes used in the *Build Razorback 3-lane (2030)* analyses were based on *No-Build (2030)* turning movement volumes.

Roadway Network

The roadway network used in the *Build Razorback 3-lane (2030)* analyses included the widening of Razorback Road between Maple Street and Sixth Street from the existing two-lane section to a three-lane section with center turn lane.

1.6 FORECAST VOLUMES

This section provides a summary of all of the scenarios volumes in tabular and graphic form. The data is based on the assumptions described in the preceding chapter.

Table 1-11: No-Build (2006) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	47	557	-	-	428	18	5	-	78	-	-	-
16	Dickson Street/Buchanan Avenue	5	-	22	-	-	-	-	48	6	39	121	-
17	Dickson Street/Duncan Avenue	1	-	70	-	-	-	-	61	1	127	158	-
21	Meadow Street/Razorback Road	-	536	73	124	400	-	-	-	-	41	-	55
22	California Boulevard/Stadium Drive/Virginia Avenue	-	52	76	79	15	78	43	119	1	10	111	54
23	California Boulevard/Harmon Avenue	5	-	22	14	2	30	88	150	22	97	117	32
24	Center Street/Duncan Avenue	15	39	36	6	48	63	51	144	8	41	174	14
25	Center Street/University Avenue	4	9	17	5	7	90	68	249	4	4	275	8
26	Leroy Pond Drive/Razorback Road	-	542	74	141	303	-	-	-	-	25	-	58
27	California Boulevard/Virginia Avenue/Garland Avenue	63	75	89	10	15	1	2	107	137	48	49	33
28	Sixth Street/Razorback Road	148	236	125	63	72	92	273	950	78	54	775	110
29	Sixth Street/Garland Avenue	1	-	5	13	1	111	151	945	1	3	896	125
30	Meadow Street/Stadium Drive	22	128	-	-	106	74	89	-	67	-	-	-
31	Leroy Pond Drive/California Boulevard	61	52	-	-	167	22	111	-	78	-	-	-
PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	41	524	-	-	626	14	22	-	61	-	-	-
16	Dickson Street/Buchanan Avenue	16	-	54	-	-	-	-	105	7	50	207	-
17	Dickson Street/Duncan Avenue	15	-	127	-	-	-	-	179	4	81	219	-
21	Meadow Street/Razorback Road	-	572	76	94	580	-	-	-	-	101	-	124
22	California Boulevard/Stadium Drive/Virginia Avenue	-	33	50	161	37	119	66	121	-	5	145	77
23	California Boulevard/Harmon Avenue	3	3	7	30	6	72	191	160	2	6	135	32
24	Center Street/Duncan Avenue	15	21	61	14	31	49	56	224	7	19	123	21
25	Center Street/University Avenue	9	17	18	40	23	59	44	300	8	10	178	7
26	Leroy Pond Drive/Razorback Road	-	544	75	70	670	-	-	-	-	76	-	74
27	California Boulevard/Virginia Avenue/Garland Avenue	70	78	70	12	30	2	1	42	139	53	56	17
28	Sixth Street/Razorback Road	180	136	81	136	187	357	226	800	91	86	1,131	76
29	Sixth Street/Garland Avenue	3	1	20	28	1	188	74	1,000	4	14	1,049	58
30	Meadow Street/Stadium Drive	36	141	-	-	285	169	144	-	26	-	-	-
31	Leroy Pond Drive/California Boulevard	39	84	-	-	146	112	104	-	36	-	-	-

Table 1-12: Build HAPF (2006) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	49	563	-	-	447	18	5	-	83	-	-	-
16	Dickson Street/Buchanan Avenue	5	-	44	-	-	-	-	42	6	126	98	-
17	Dickson Street/Duncan Avenue	1	-	121	-	-	-	-	77	1	342	222	-
21	Meadow Street/Razorback Road	-	537	74	148	400	-	-	-	-	42	-	62
22	California Boulevard/Stadium Drive/Virginia Avenue	-	52	76	168	15	78	42	225	1	10	137	77
23	California Boulevard/Harmon Avenue	5	-	22	16	2	47	157	276	22	97	150	41
24	Center Street/Duncan Avenue	18	47	36	13	50	94	177	146	9	41	182	44
25	Center Street/University Avenue	10	9	17	5	7	90	68	257	6	4	308	6
26	Leroy Pond Drive/Razorback Road	-	542	129	144	303	-	-	-	-	39	-	59
27	California Boulevard/Virginia Avenue/Garland Avenue	101	75	89	10	15	1	2	110	146	48	59	33
28	Sixth Street/Razorback Road	148	262	125	63	78	99	302	967	78	54	779	110
29	Sixth Street/Garland Avenue	1	-	5	18	1	115	168	945	1	3	896	145
30	Meadow Street/Stadium Drive	29	143	-	-	169	74	88	-	93	-	-	-
31	Leroy Pond Drive/California Boulevard	61	100	-	-	179	36	169	-	78	-	-	-
PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	46	542	-	-	638	14	22	-	64	-	-	-
16	Dickson Street/Buchanan Avenue	16	-	136	-	-	-	-	83	7	102	193	-
17	Dickson Street/Duncan Avenue	15	-	327	-	-	-	-	239	4	209	257	-
21	Meadow Street/Razorback Road	-	573	77	109	581	-	-	-	-	102	-	146
22	California Boulevard/Stadium Drive/Virginia Avenue	-	33	50	216	37	118	65	185	-	5	244	161
23	California Boulevard/Harmon Avenue	3	3	7	38	6	137	233	237	2	6	253	37
24	Center Street/Duncan Avenue	16	26	61	42	38	166	131	232	9	19	128	39
25	Center Street/University Avenue	12	17	18	38	23	59	44	330	13	10	197	6
26	Leroy Pond Drive/Razorback Road	-	544	108	72	669	-	-	-	-	127	-	77
27	California Boulevard/Virginia Avenue/Garland Avenue	93	78	70	12	30	2	1	51	174	53	62	17
28	Sixth Street/Razorback Road	180	151	81	136	211	384	243	810	91	86	1,147	76
29	Sixth Street/Garland Avenue	3	1	20	47	1	204	84	1,000	4	14	1,049	70
30	Meadow Street/Stadium Drive	61	199	-	-	322	168	143	-	42	-	-	-
31	Leroy Pond Drive/California Boulevard	39	113	-	-	190	166	139	-	36	-	-	-

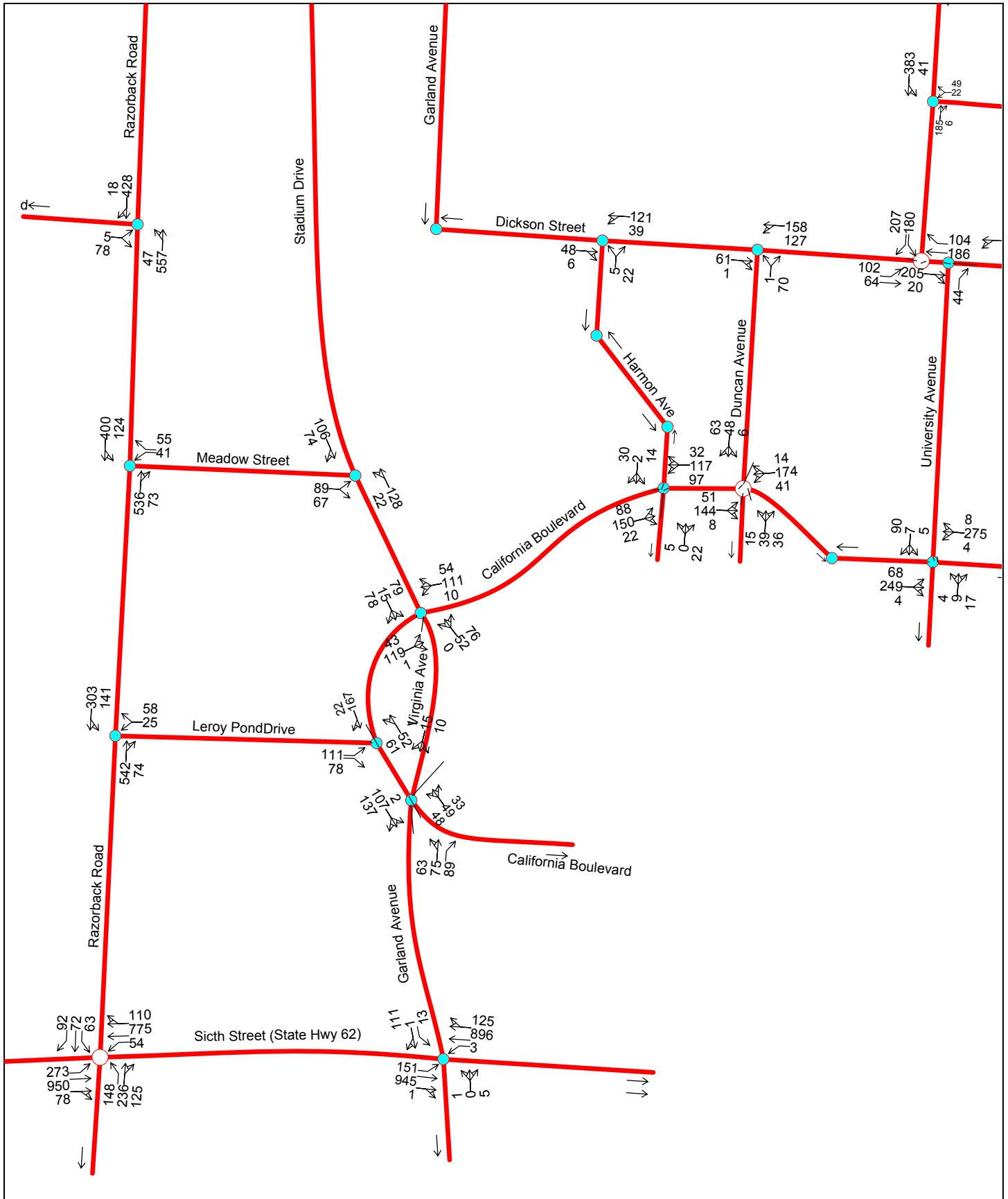


Figure 1-11
No-Build (2006) A.M. Peak Hour Turning Movement Volumes

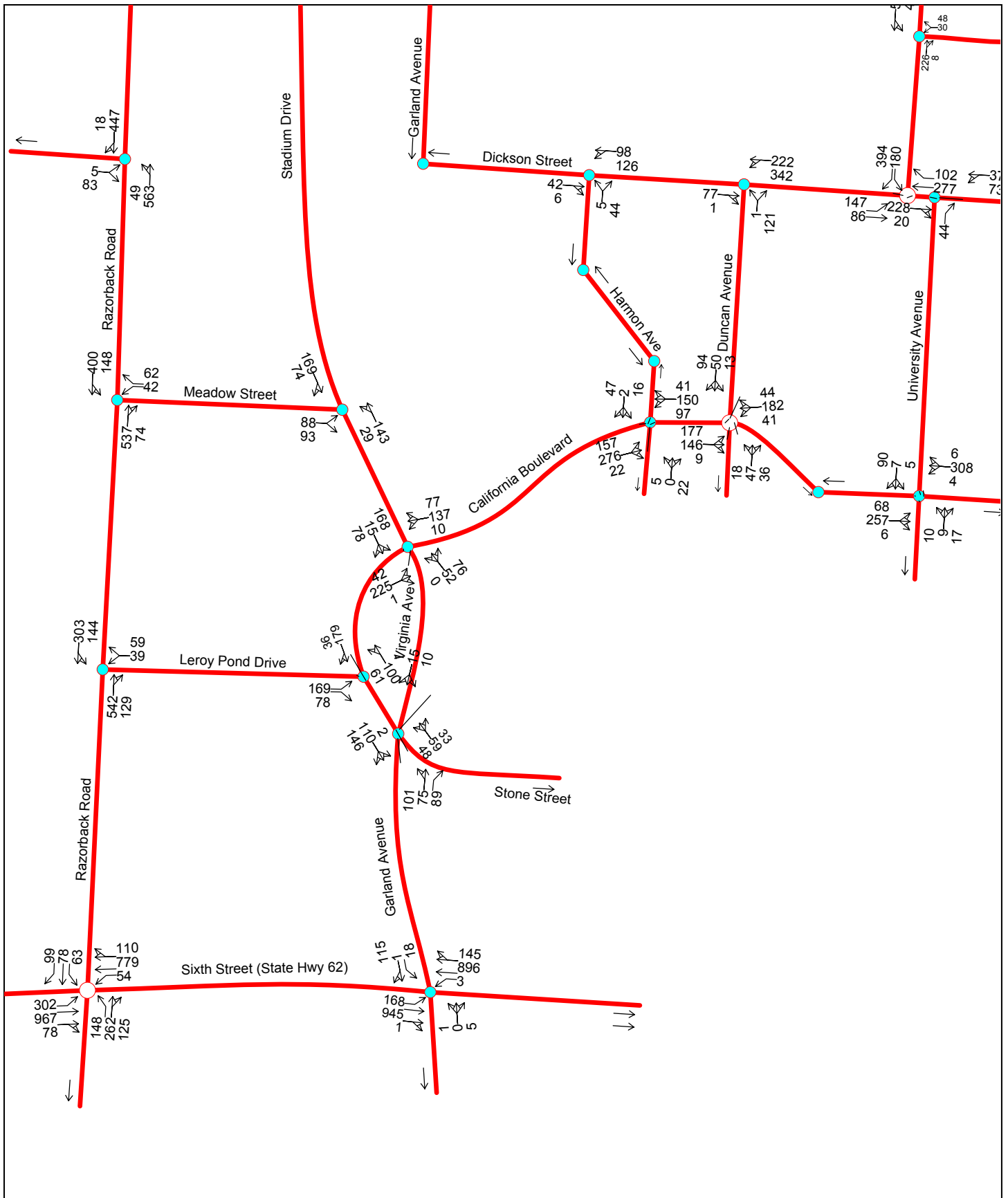


Figure 1-13
Build HAPF (2006) A.M. Peak Hour Turning Movement Volumes

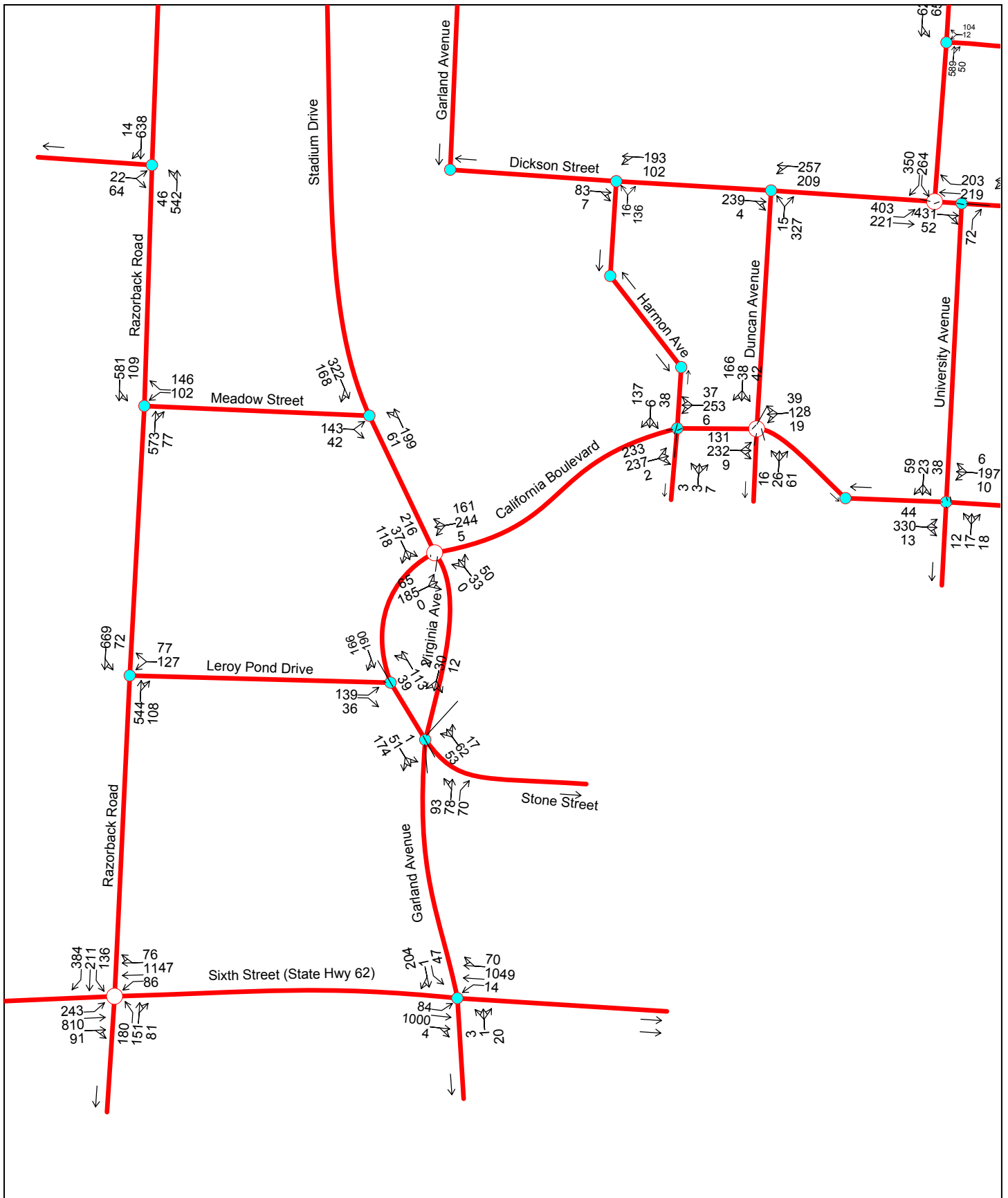


Figure 1-14
 Build HAPF (2006) P.M. Peak Hour Turning Movement Volumes

Table 1-13: No-Build (2010) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	51	609	-	-	467	19	6	-	86	-	-	-
16	Dickson Street/Buchanan Avenue	6	-	24	-	-	-	-	53	7	42	133	-
17	Dickson Street/Duncan Avenue	1	-	77	-	-	-	-	66	1	138	173	-
21	Meadow Street/Razorback Road	-	586	80	136	438	-	-	-	-	45	-	61
22	California Boulevard/Stadium Drive/Virginia Avenue	-	57	83	87	16	86	47	130	1	11	121	59
23	California Boulevard/Harmon Avenue	6	-	24	15	2	33	96	163	24	106	128	35
24	Center Street/Duncan Avenue	16	42	39	7	53	69	56	158	9	45	190	15
25	Center Street/University Avenue	5	10	18	6	8	98	74	272	5	5	301	9
26	Leroy Pond Drive/Razorback Road	-	592	81	154	331	-	-	-	-	27	-	63
27	California Boulevard/Virginia Avenue/Garland Avenue	69	82	97	11	16	1	2	117	150	53	54	37
28	Sixth Street/Razorback Road	162	258	137	69	79	101	298	1,039	86	59	847	120
29	Sixth Street/Garland Avenue	1	-	6	14	1	121	165	1,033	1	3	979	137
30	Meadow Street/Stadium Drive	24	139	-	-	115	81	97	-	73	-	-	-
31	Leroy Pond Drive/California Boulevard	66	57	-	-	183	24	121	-	86	-	-	-

PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	45	573	-	-	685	15	24	-	66	-	-	-
16	Dickson Street/Buchanan Avenue	17	-	59	-	-	-	-	114	8	55	226	-
17	Dickson Street/Duncan Avenue	16	-	138	-	-	-	-	195	5	88	239	-
21	Meadow Street/Razorback Road	-	625	83	103	634	-	-	-	-	111	-	136
22	California Boulevard/Stadium Drive/Virginia Avenue	-	37	55	176	40	130	72	133	-	6	159	85
23	California Boulevard/Harmon Avenue	3	3	8	33	7	79	209	175	2	7	147	35
24	Center Street/Duncan Avenue	16	23	66	15	34	54	62	245	8	21	135	23
25	Center Street/University Avenue	10	18	19	43	25	64	48	328	9	11	194	8
26	Leroy Pond Drive/Razorback Road	-	594	82	77	733	-	-	-	-	83	-	81
27	California Boulevard/Virginia Avenue/Garland Avenue	77	86	77	13	33	2	1	46	152	58	62	18
28	Sixth Street/Razorback Road	197	149	88	149	205	390	247	874	99	94	1,237	83
29	Sixth Street/Garland Avenue	3	1	22	31	1	206	81	1,093	5	15	1,146	63
30	Meadow Street/Stadium Drive	39	154	-	-	312	185	158	-	29	-	-	-
31	Leroy Pond Drive/California Boulevard	42	91	-	-	160	122	113	-	39	-	-	-

Table 1-14: Build HAPF (2010) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	54	608	-	-	495	19	5	-	94	-	-	-
16	Dickson Street/Buchanan Avenue	6	-	60	-	-	-	-	47	7	186	110	-
17	Dickson Street/Duncan Avenue	1	-	148	-	-	-	-	96	1	462	294	-
21	Meadow Street/Razorback Road	-	577	77	175	436	-	-	-	-	45	-	72
22	California Boulevard/Stadium Drive/Virginia Avenue	-	57	83	240	16	84	37	299	1	11	162	98
23	California Boulevard/Harmon Avenue	6	-	24	19	2	66	231	350	24	106	176	54
24	Center Street/Duncan Avenue	21	52	39	18	55	115	243	162	11	45	206	60
25	Center Street/University Avenue	14	9	18	4	8	98	74	285	8	5	354	1
26	Leroy Pond Drive/Razorback Road	-	578	168	159	328	-	-	-	-	49	-	64
27	California Boulevard/Virginia Avenue/Garland Avenue	124	82	97	11	16	1	2	121	163	53	68	37
28	Sixth Street/Razorback Road	162	294	137	69	87	110	336	1,065	86	59	853	120
29	Sixth Street/Garland Avenue	1	-	6	21	1	127	191	1,033	1	3	979	165
30	Meadow Street/Stadium Drive	35	157	-	-	224	80	91	-	115	-	-	-
31	Leroy Pond Drive/California Boulevard	66	126	-	-	200	46	213	-	86	-	-	-

PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
15	Markham Road/Razorback Road	53	596	-	-	695	14	23	-	71	-	-	-
16	Dickson Street/Buchanan Avenue	17	-	194	-	-	-	-	92	8	141	212	-
17	Dickson Street/Duncan Avenue	16	-	437	-	-	-	-	308	5	276	311	-
21	Meadow Street/Razorback Road	-	620	82	127	626	-	-	-	-	109	-	172
22	California Boulevard/Stadium Drive/Virginia Avenue	-	37	55	269	40	121	66	235	-	6	317	229
23	California Boulevard/Harmon Avenue	3	3	8	50	7	206	291	288	2	7	322	46
24	Center Street/Duncan Avenue	18	29	66	57	43	228	173	260	12	21	145	50
25	Center Street/University Avenue	15	17	19	34	24	64	48	376	17	11	225	2
26	Leroy Pond Drive/Razorback Road	-	586	134	80	719	-	-	-	-	164	-	86
27	California Boulevard/Virginia Avenue/Garland Avenue	110	86	77	13	33	2	1	59	203	58	70	18
28	Sixth Street/Razorback Road	197	170	88	149	238	425	269	889	99	94	1,261	83
29	Sixth Street/Garland Avenue	3	1	22	57	1	230	96	1,093	5	15	1,146	80
30	Meadow Street/Stadium Drive	79	251	-	-	370	179	154	-	55	-	-	-
31	Leroy Pond Drive/California Boulevard	42	132	-	-	223	208	168	-	39	-	-	-

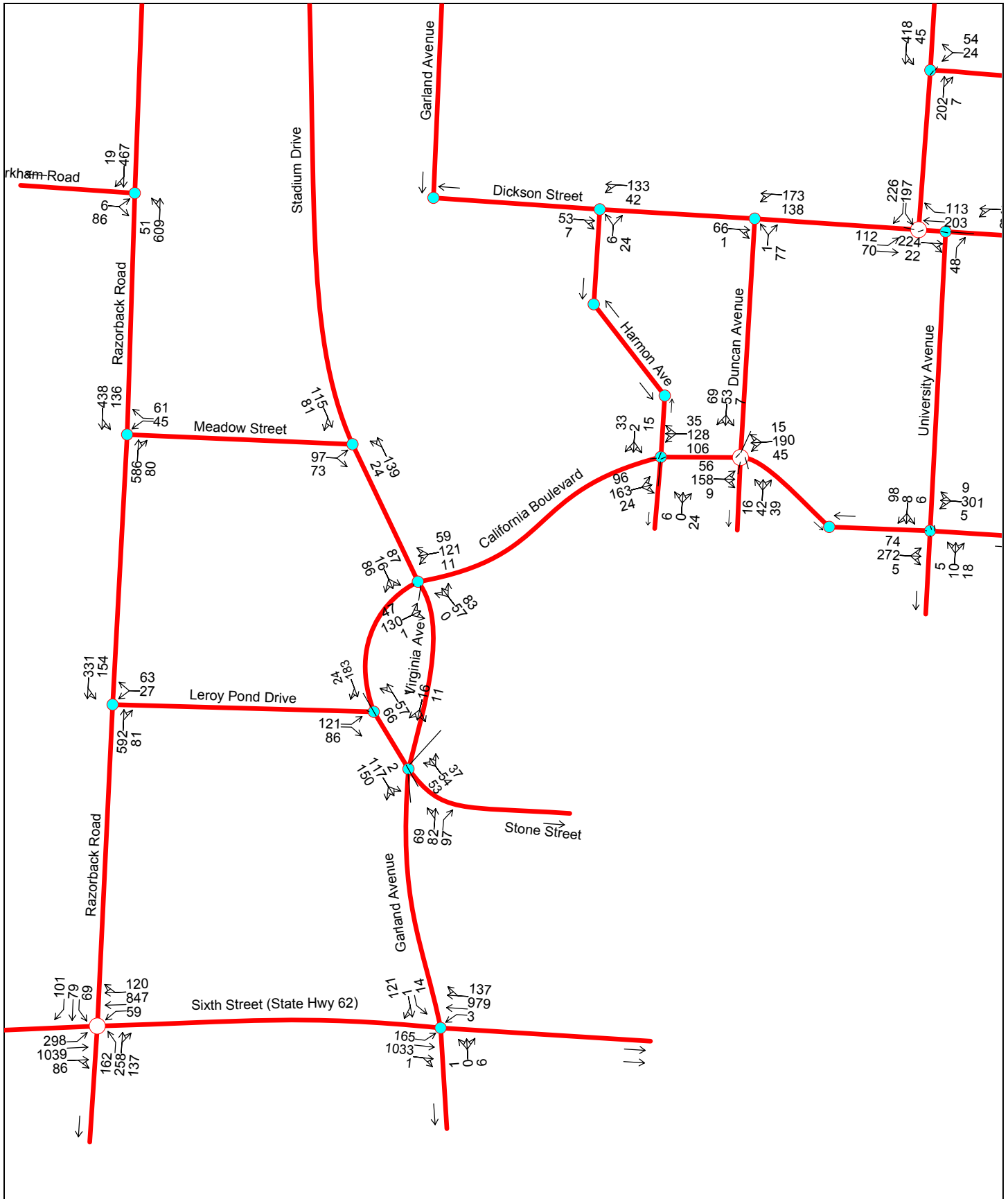


Figure 1-15
No-Build (2010) A.M. Peak Hour Turning Movement Volumes

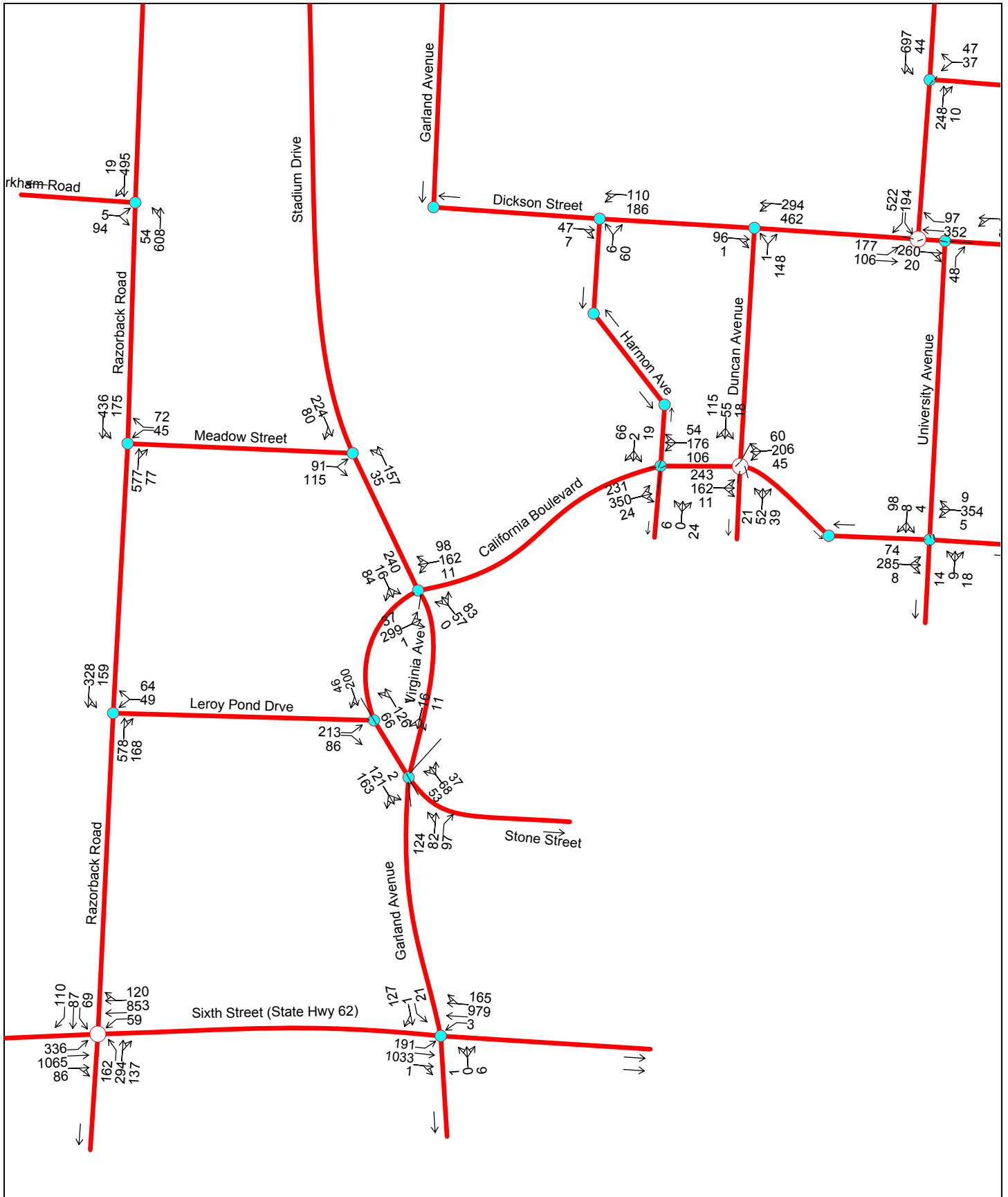


Figure 1-17
Build HAPF (2010) A.M. Peak Hour Turning Movement Volumes

Table 1-15: Build Garland (2015) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	57	-	139	-	-	-	-	154	272	264	92	-
2	Cleveland Street/Garland Avenue	5	337	5	253	731	319	129	54	57	17	16	14
3	Cleveland Street/Leverett Avenue	3	179	2	15	735	69	58	11	10	2	9	23
4	Douglas Street/Garland Avenue	-	279	120	-	712	-	-	-	-	-	-	68
5	Douglas Street/Leverett Avenue	115	274	5	17	481	117	23	16	51	4	35	3
6	Maple Street/Razorback Road	8	203	463	118	398	2	-	37	22	302	10	32
7	Maple Street/Stadium Drive	30	1	97	6	-	6	9	455	106	358	350	15
8	Maple Street/Garland Avenue	-	17	9	274	10	486	290	204	18	10	264	81
9	Maple Street/Leverett Avenue	-	-	-	405	-	54	25	394	-	-	433	228
10	Maple Street/Arkansas Avenue	263	1	49	-	-	2	1	289	511	80	439	1
11	Maple Street/Wilson Avenue	-	-	-	269	-	46	28	314	-	-	490	155
12	Maple Street/West Avenue	217	-	33	-	-	-	-	278	305	83	428	-
13	Arkansas Avenue/Lafayette Street	-	249	9	49	531	-	-	-	-	30	-	58
14	West Avenue/Lafayette Street	6	232	78	93	283	12	7	47	5	20	68	13
15	Markham Road/Razorback Road	58	729	-	-	555	22	10	-	102	-	-	-
16	Dickson Street/Buchanan Avenue	7	-	56	-	-	-	-	43	8	169	62	-
17	Dickson Street/Duncan Avenue	1	-	110	-	-	-	-	87	1	425	227	-
18	Dickson Street/Arkansas Avenue	-	-	-	226	-	323	133	106	-	-	343	142
19	Dickson Street/University Avenue	-	-	54	-	-	-	-	283	27	89	475	-
20	Dickson Street/West Avenue	27	131	35	65	117	99	40	269	28	28	438	170
21	Meadow Street/Razorback Road	-	699	85	178	502	-	-	-	-	47	-	73
22	California Boulevard/Stadium Drive/Virginia Avenue	-	63	70	184	15	92	47	347	1	9	188	98
23	California Boulevard/Harmon Avenue	7	-	27	22	2	74	212	343	27	118	186	56
24	Center Street/Duncan Avenue	22	57	44	22	62	120	240	164	11	50	227	72
25	Center Street/University Avenue	20	9	20	6	8	106	67	317	10	6	397	-2
26	Leroy Pond Drive/Razorback Road	-	696	177	174	378	-	-	-	-	53	-	69
27	California Boulevard/Virginia Avenue/Garland Avenue	161	77	108	10	14	1	2	137	188	59	84	32
28	Sixth Street/Razorback Road	181	334	153	80	99	130	400	1,201	96	66	956	141
29	Sixth Street/Garland Avenue	1	-	7	22	1	144	224	1,158	1	3	1,101	183
30	Meadow Street/Stadium Drive	32	164	-	-	183	89	101	-	112	-	-	-
31	Leroy Pond Drive/California Boulevard	73	172	-	-	231	50	223	-	96	-	-	-

PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	230	-	175	-	-	-	-	69	133	245	201	-
2	Cleveland Street/Garland Avenue	152	804	14	176	639	222	243	31	65	16	53	38
3	Cleveland Street/Leverett Avenue	3	592	3	26	452	35	67	18	3	3	9	45
4	Douglas Street/Garland Avenue	-	672	85	-	749	-	-	-	-	-	-	240
5	Douglas Street/Leverett Avenue	88	468	5	5	423	84	96	44	162	5	35	25
6	Maple Street/Razorback Road	20	315	439	61	250	2	5	26	19	519	53	147
7	Maple Street/Stadium Drive	124	-	374	12	1	6	1	542	105	432	483	6
8	Maple Street/Garland Avenue	2	15	2	297	15	430	448	412	12	6	421	220
9	Maple Street/Leverett Avenue	-	-	-	437	-	95	95	703	-	-	601	420
10	Maple Street/Arkansas Avenue	688	3	118	-	-	9	2	553	624	100	430	11
11	Maple Street/Wilson Avenue	-	-	-	212	-	61	57	581	-	-	433	222
12	Maple Street/West Avenue	366	-	92	-	-	-	-	528	266	42	290	-
13	Arkansas Avenue/Lafayette Street	-	596	56	81	684	-	-	-	-	9	-	127
14	West Avenue/Lafayette Street	8	296	24	54	240	12	12	115	6	46	116	149
15	Markham Road/Razorback Road	55	689	-	-	822	20	29	-	77	-	-	-
16	Dickson Street/Buchanan Avenue	19	-	179	-	-	-	-	66	9	134	201	-
17	Dickson Street/Duncan Avenue	18	-	389	-	-	-	-	270	6	226	288	-
18	Dickson Street/Arkansas Avenue	-	-	-	345	-	321	350	276	-	-	270	259
19	Dickson Street/University Avenue	-	-	88	-	-	-	-	546	72	83	520	-
20	Dickson Street/West Avenue	37	127	42	61	168	65	71	522	41	34	503	132
21	Meadow Street/Razorback Road	-	726	91	129	754	-	-	-	-	114	-	179
22	California Boulevard/Stadium Drive/Virginia Avenue	-	41	47	246	34	128	77	270	-	5	383	202
23	California Boulevard/Harmon Avenue	3	3	9	54	8	233	297	289	2	8	317	50
24	Center Street/Duncan Avenue	21	32	74	71	48	226	175	275	13	23	147	59
25	Center Street/University Avenue	20	19	21	45	24	57	45	415	25	12	254	2
26	Leroy Pond Drive/Razorback Road	-	685	144	86	850	-	-	-	-	182	-	93
27	California Boulevard/Virginia Avenue/Garland Avenue	136	88	86	6	22	2	1	73	243	65	83	14
28	Sixth Street/Razorback Road	220	195	98	179	272	501	316	1,000	111	105	1,418	98
29	Sixth Street/Garland Avenue	3	1	25	58	1	264	114	1,234	6	17	1,286	89
30	Meadow Street/Stadium Drive	68	203	-	-	371	200	173	-	48	-	-	-
31	Leroy Pond Drive/California Boulevard	46	168	-	-	275	227	179	-	43	-	-	-

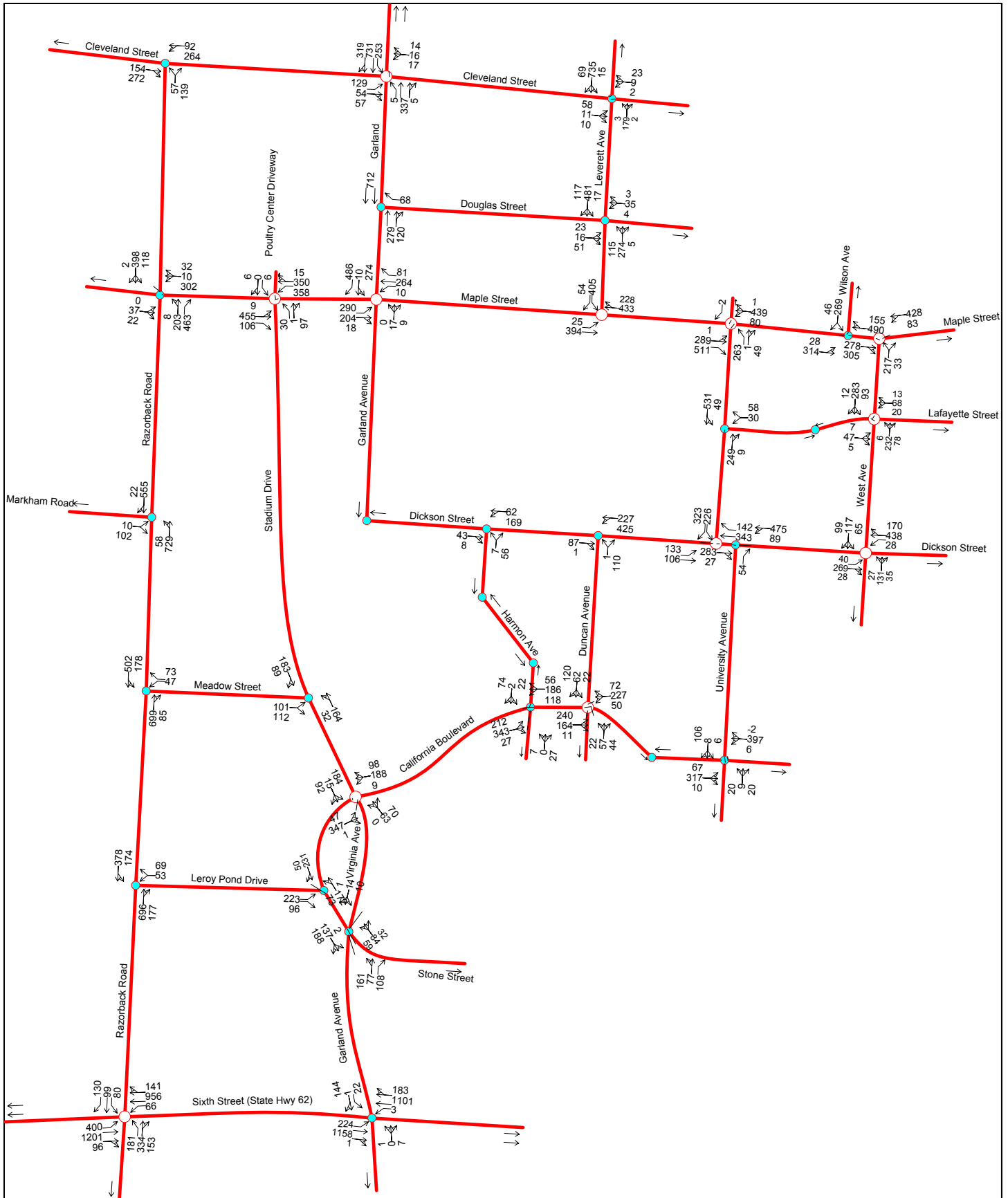


Figure 1-19
Build Garland (2015) AM Peak Hour Turning Movement Volumes

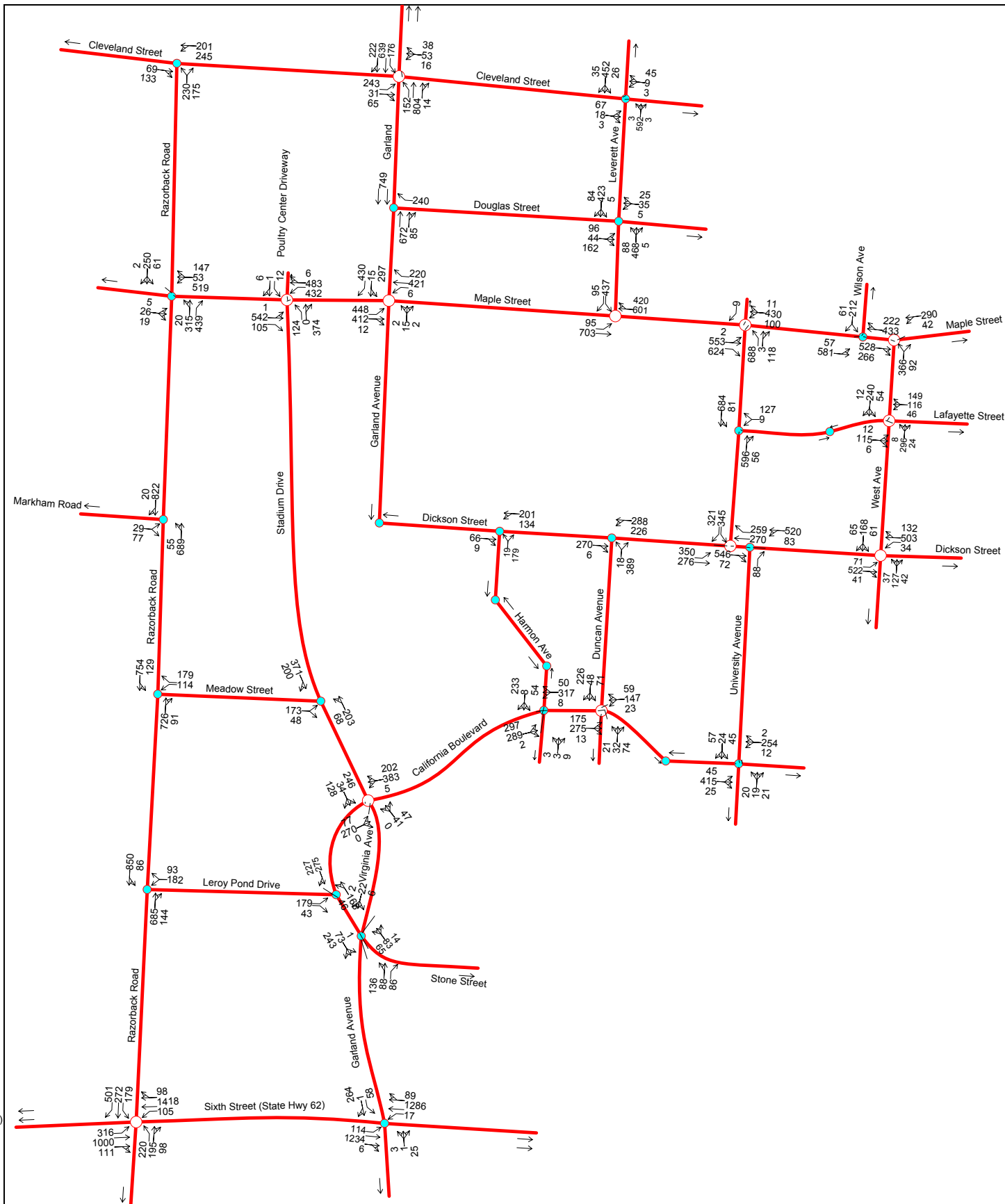


Figure 1-20
Build Garland (2015) PM Peak Hour Turning Movement Volumes

Table 1-16: Build Dickson (2015) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	61	-	139	-	-	-	-	170	288	264	96	-
2	Cleveland Street/Garland Avenue	9	361	5	253	828	319	129	54	73	17	16	14
3	Cleveland Street/Leverett Avenue	3	191	2	15	784	69	58	11	10	2	9	23
4	Douglas Street/Garland Avenue	-	307	120	-	825	-	-	-	-	-	-	68
5	Douglas Street/Leverett Avenue	115	286	5	17	530	117	23	16	51	4	35	3
6	Maple Street/Razorback Road	8	203	463	134	398	2	-	42	22	302	11	36
7	Maple Street/Stadium Drive	30	1	97	6	-	6	9	477	106	358	355	15
8	Maple Street/Garland Avenue	-	17	9	387	10	486	290	226	18	10	269	109
9	Maple Street/Leverett Avenue	-	-	-	454	-	54	25	529	-	-	466	240
10	Maple Street/Arkansas Avenue	276	1	49	-	-	2	1	435	565	80	475	1
11	Maple Street/Wilson Avenue	-	-	-	285	-	46	28	460	-	-	526	159
12	Maple Street/West Avenue	257	-	53	-	-	-	-	278	467	164	428	-
13	Arkansas Avenue/Lafayette Street	-	256	9	76	558	-	-	-	-	30	-	65
14	West Avenue/Lafayette Street	6	279	88	146	473	12	7	74	5	61	75	26
15	Markham Road/Razorback Road	58	729	16	-	555	22	10	-	102	4	-	-
16	Dickson Street/Buchanan Avenue	7	-	56	27	-	-	-	59	8	169	66	7
17	Dickson Street/Duncan Avenue	1	-	115	-	-	-	-	130	1	426	238	-
18	Dickson Street/Arkansas Avenue	9	67	11	237	169	326	144	106	38	43	343	185
19	Dickson Street/University Avenue	-	-	54	-	-	-	-	305	27	89	480	-
20	Dickson Street/West Avenue	27	131	35	65	117	99	40	291	28	28	443	170
21	Meadow Street/Razorback Road	-	699	85	178	502	4	16	5	-	47	1	73
22	California Boulevard/Stadium Drive/Virginia Avenue	-	63	70	184	15	93	52	347	1	9	188	98
23	California Boulevard/Harmon Avenue	7	-	43	22	2	74	212	343	27	122	186	56
24	Center Street/Duncan Avenue	27	57	44	22	62	120	240	164	12	50	227	72
25	Center Street/University Avenue	20	9	20	6	8	110	83	322	10	6	398	-2
26	Leroy Pond Drive/Razorback Road	-	696	177	174	378	1	5	-	-	53	-	69
27	California Boulevard/Virginia Avenue/Garland Avenue	161	77	108	10	14	1	2	137	188	59	84	32
28	Sixth Street/Razorback Road	181	339	153	80	100	134	416	1,201	96	66	956	141
29	Sixth Street/Garland Avenue	1	-	7	22	1	144	224	1,158	1	3	1,101	183
30	Meadow Street/Stadium Drive	32	164	-	-	183	89	101	-	112	-	-	-
31	Leroy Pond Drive/California Boulevard	73	172	-	-	231	50	223	-	96	-	-	-

PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	245	-	175	-	-	-	-	79	143	245	216	-
2	Cleveland Street/Garland Avenue	167	895	14	176	697	222	243	31	75	16	53	38
3	Cleveland Street/Leverett Street	3	637	3	26	481	35	67	18	3	3	9	45
4	Douglas Street/Garland Avenue	-	778	85	-	817	-	-	-	-	-	-	240
5	Douglas Street/Leverett Street	88	513	5	5	452	84	96	44	162	5	35	25
6	Maple Street/Razorback Road	20	315	439	71	250	2	5	29	19	519	58	162
7	Maple Street/Stadium Drive	124	-	374	12	1	6	1	555	105	432	503	6
8	Maple Street/Garland Avenue	2	15	2	365	15	430	448	425	12	6	441	326
9	Maple Street/Leverett Street	-	-	-	466	-	95	95	784	-	-	727	465
10	Maple Street/Arkansas Avenue	738	3	118	-	-	9	2	640	656	100	566	11
11	Maple Street/Wilson Avenue	-	-	-	222	-	61	57	668	-	-	569	237
12	Maple Street/West Avenue	517	-	168	-	-	-	-	528	363	91	290	-
13	Arkansas Avenue/Lafayette Street	-	621	56	97	700	-	-	-	-	9	-	152
14	West Avenue/Lafayette Street	8	474	62	86	354	12	12	131	6	70	141	198
15	Markham Road/Razorback Road	55	689	10	-	822	20	29	-	77	15	-	-
16	Dickson Street/Buchanan Avenue	19	-	179	16	-	-	-	76	9	134	216	25
17	Dickson Street/Duncan Avenue	18	-	392	-	-	-	-	296	6	231	328	-
18	Dickson Street/Arkansas Avenue	35	167	40	385	122	331	356	276	23	26	270	285
19	Dickson Street/University Avenue	-	-	88	-	-	-	-	559	72	83	540	-
20	Dickson Street/West Avenue	37	127	42	61	168	65	71	535	41	34	523	132
21	Meadow Street/Razorback Road	-	726	91	129	754	15	10	3	-	114	5	179
22	California Boulevard/Stadium Drive/Virginia Street	-	41	47	246	34	133	80	270	-	5	383	202
23	California Boulevard/Harmon Avenue	3	3	19	54	8	233	297	289	2	23	317	50
24	Center Street/Duncan Avenue	24	32	74	71	48	226	175	275	18	23	147	59
25	Center Street/University Avenue	20	19	21	45	24	72	55	418	25	12	259	2
26	Leroy Pond Road/Razorback Road	-	685	144	86	850	5	3	-	-	182	-	93
27	California Boulevard/Virginia Avenue/Garland Avenue	136	88	86	6	22	2	1	73	243	65	83	14
28	6th Street/Razorback Road	220	198	98	179	277	516	326	1,000	111	105	1,418	98
29	6th Street/Garland Avenue	3	1	25	58	1	264	114	1,234	6	17	1,286	89
30	Meadow Street/Stadium Drive	68	203	-	-	371	200	173	-	48	-	-	-
31	Leroy Pond Road/California Boulevard	46	168	-	-	275	227	179	-	43	-	-	-

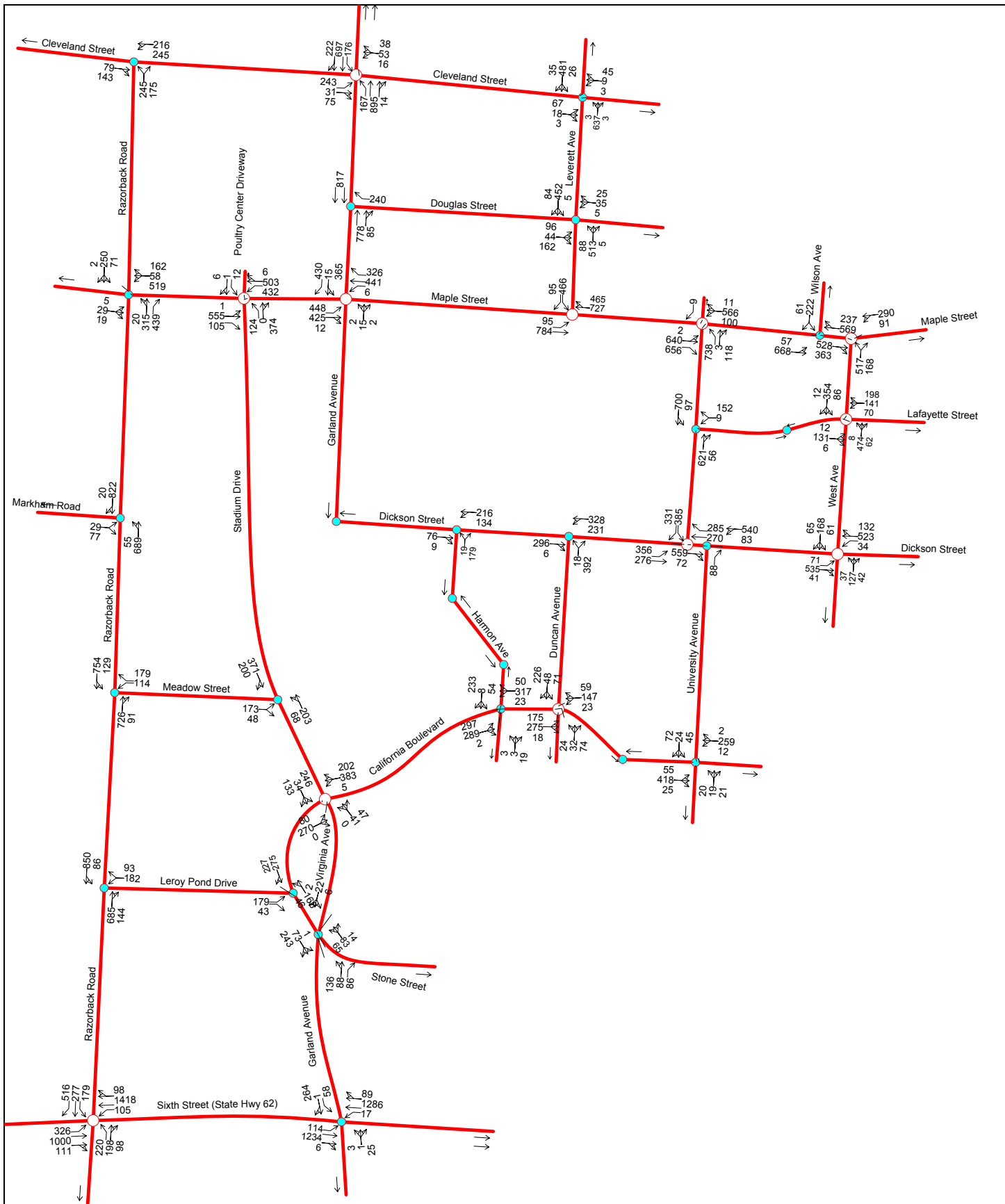


Figure 1-22
Build Dickson (2015) PM Peak Hour Turning Movement Volumes

Table 1-17: Build Everything (2015) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	61	-	139	-	-	-	-	171	288	264	95	-
2	Cleveland Street/Garland Avenue	27	319	5	253	607	319	129	54	73	17	16	14
3	Cleveland Street/Leverett Avenue	3	102	2	15	555	69	58	11	5	2	9	23
4	Douglas Street/Garland Avenue	-	264	120	-	605	-	-	-	-	-	-	68
5	Douglas Street/Leverett Avenue	115	97	5	17	301	117	23	16	51	4	35	3
6	Maple Street/Razorback Road	8	203	459	135	398	2	5	43	22	300	11	36
7	Maple Street/Stadium Drive	31	1	99	6	-	6	9	473	106	343	353	15
8	Maple Street/Garland Avenue	-	17	9	185	10	469	288	227	18	10	269	69
9	Maple Street/Leverett Avenue	-	-	-	226	-	54	26	327	-	-	427	151
10	Maple Street/Arkansas Avenue	220	1	52	-	-	2	1	251	305	146	400	1
11	Maple Street/Wilson Avenue	-	-	-	155	-	46	28	386	-	-	519	83
12	Maple Street/West Avenue	174	-	53	-	-	-	278	263	164	428	-	-
13	Arkansas Avenue/Lafayette Street	-	206	8	66	373	-	-	-	-	30	-	62
14	West Avenue/Lafayette Street	8	198	87	83	333	12	7	145	16	60	80	23
15	Markham Road/Razorback Road	58	726	-	-	553	22	10	-	101	-	-	-
16	Dickson Street/Buchanon Avenue	7	-	47	-	-	-	-	38	8	128	51	-
17	Dickson Street/Duncan Avenue	1	-	143	-	-	-	-	73	1	497	176	-
18	Dickson Street/Arkansas Avenue	-	-	-	142	-	240	105	155	-	-	450	126
19	Dickson Street/University Avenue	-	-	57	-	-	-	-	248	27	79	565	-
20	Dickson Street/West Avenue	72	162	46	41	199	102	51	303	152	71	479	173
21	Meadow Street/Razorback Road	5	695	85	178	500	15	5	5	15	47	5	74
22	California Boulevard/Stadium Drive/Virginia Avenue	5	115	438	166	109	5	5	5	5	203	5	92
23	California Boulevard/Harmon Avenue	7	-	27	21	2	73	211	347	27	118	188	57
24	Center Street/Duncan Avenue	22	57	44	22	61	120	239	169	11	50	228	73
25	Center Street/University Avenue	20	9	20	6	8	107	73	316	10	6	396	5
26	Leroy Pond Drive/Razorback Road	-	693	124	174	376	-	-	-	-	40	-	70
27	California Boulevard/Virginia Avenue/Garland Avenue	-	317	108	147	222	-	-	-	-	59	-	116
28	Sixth Street/Razorback Road	181	315	172	78	95	122	366	1,256	96	71	970	137
29	Sixth Street/Garland Avenue	1	-	7	24	1	162	298	1,156	1	3	1,097	187
30	Meadow Street/Stadium Drive	32	165	-	-	168	89	101	-	111	-	-	-
31	Leroy Pond Drive/California Boulevard	73	360	-	-	275	39	170	-	98	-	-	-
32	Gregg Avenue/Maple Street *	5	161	7	126	431	74	8	282	15	15	468	83
33	Gregg Avenue/Lafayette Street *	7	153	6	98	358	5	5	64	5	5	80	16
34	Gregg Avenue/Dickson Street *	3	3	3	252	5	111	50	251	3	9	530	113

PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	289	-	175	-	-	-	-	79	171	245	216	-
2	Cleveland Street/Garland Avenue	167	849	13	176	587	222	243	31	75	16	53	38
3	Cleveland Street/Leverett Street	3	494	3	26	325	35	68	18	3	3	9	45
4	Douglas Street/Garland Avenue	-	733	85	-	707	-	-	-	-	-	-	240
5	Douglas Street/Leverett Street	88	370	5	5	296	84	96	44	162	5	34	25
6	Maple Street/Razorback Road	24	336	437	84	265	2	5	31	21	510	61	184
7	Maple Street/Stadium Drive	150	-	454	12	1	6	1	553	122	485	494	6
8	Maple Street/Garland Avenue	2	15	2	213	15	474	522	429	12	6	441	207
9	Maple Street/Leverett Street	-	-	-	309	-	95	99	632	-	-	608	317
10	Maple Street/Arkansas Avenue	660	3	220	-	-	9	2	456	540	182	387	11
11	Maple Street/Wilson Avenue	-	-	-	68	-	61	57	727	-	-	522	82
12	Maple Street/West Avenue	292	-	205	-	-	-	565	230	113	313	-	-
13	Arkansas Avenue/Lafayette Street	-	655	63	90	672	-	-	-	-	14	-	141
14	West Avenue/Lafayette Street	18	373	69	77	253	12	12	151	13	75	240	110
15	Markham Road/Razorback Road	70	713	-	-	831	20	29	-	86	-	-	-
16	Dickson Street/Buchanon Avenue	19	-	142	-	-	-	-	46	9	110	194	-
17	Dickson Street/Duncan Avenue	18	-	815	-	-	-	-	214	6	504	257	-
18	Dickson Street/Arkansas Avenue	-	-	-	255	-	404	502	503	-	-	442	174
19	Dickson Street/University Avenue	-	-	80	-	-	-	-	683	72	81	607	-
20	Dickson Street/West Avenue	142	224	82	102	177	103	121	597	177	60	599	108
21	Meadow Street/Razorback Road **	5	723	91	156	746	15	5	5	15	113	5	220
22	California Boulevard/Stadium Drive/Virginia Street	5	120	409	332	171	5	5	5	5	522	5	331
23	California Boulevard/Harmon Avenue	3	3	9	54	8	345	371	393	2	8	481	50
24	Center Street/Duncan Avenue	20	60	74	137	92	384	275	277	13	23	153	102
25	Center Street/University Avenue	24	19	21	46	24	62	48	474	32	12	290	2
26	Leroy Pond Road/Razorback Road	-	683	157	86	841	-	-	-	-	204	-	93
27	California Boulevard/Virginia Avenue/Garland Avenue	-	305	86	79	398	-	-	-	-	65	-	97
28	6th Street/Razorback Road	220	202	109	170	284	512	322	1,050	111	123	1,494	95
29	6th Street/Garland Avenue	3	1	25	97	1	359	175	1,225	6	17	1,283	110
30	Meadow Street/Stadium Drive	108	309	-	-	440	200	173	-	74	-	-	-
31	Leroy Pond Road/Virginia St	46	350	-	-	436	251	192	-	44	-	-	-
32	Gregg Avenue/Maple Street *	30	479	5	211	370	87	85	567	22	5	463	115
33	Gregg Avenue/Lafayette Street *	11	378	10	33	354	10	10	132	10	10	136	125
34	Gregg Avenue/Dickson Street *	5	5	5	259	5	110	128	630	5	5	573	266

* Estimated count, based on surrounding data and previous counts

** Estimated volumes to/from eastbound approach

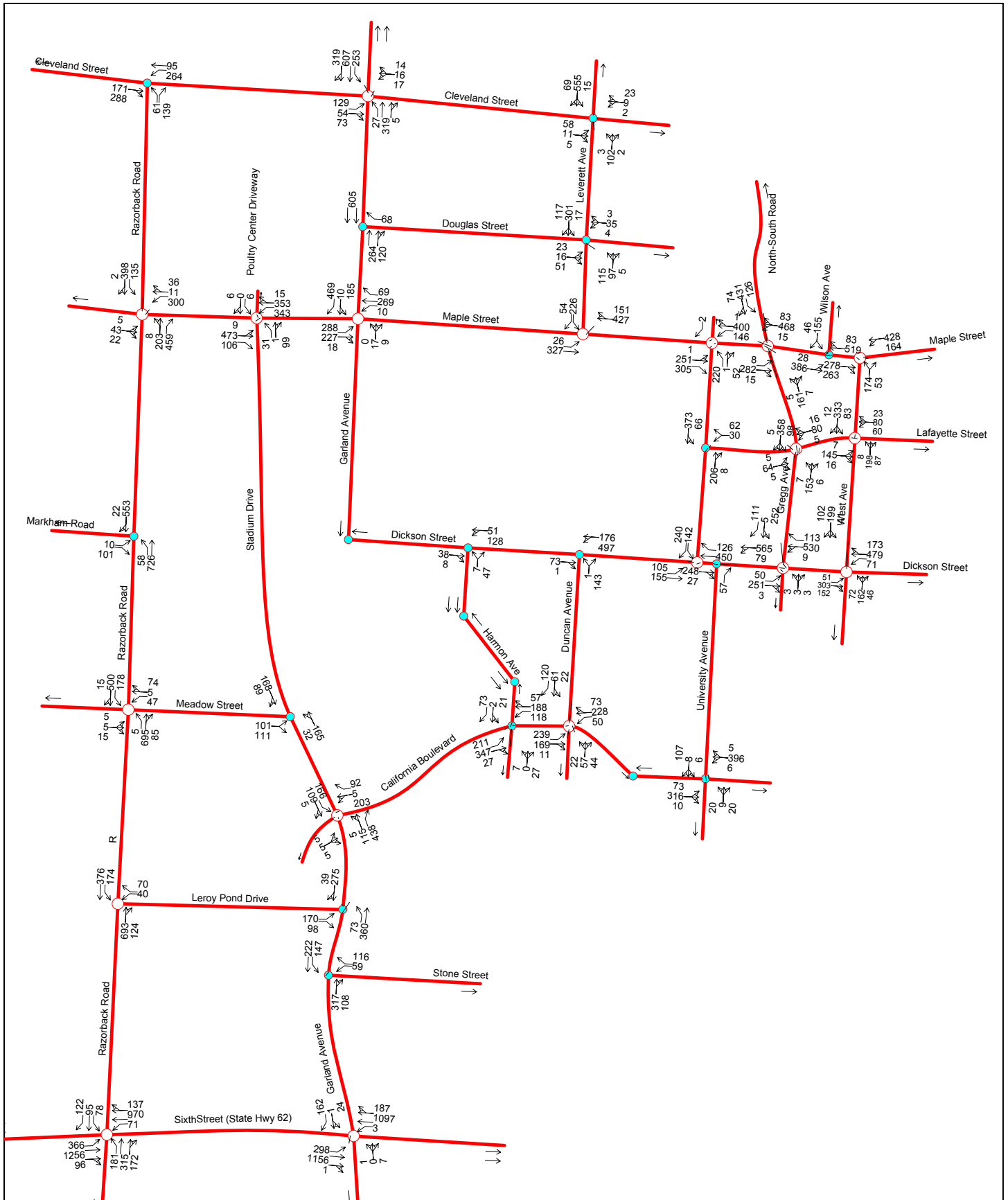


Figure 1-23
 Build Everything (2015) AM Peak Hour Turning Movement Volumes

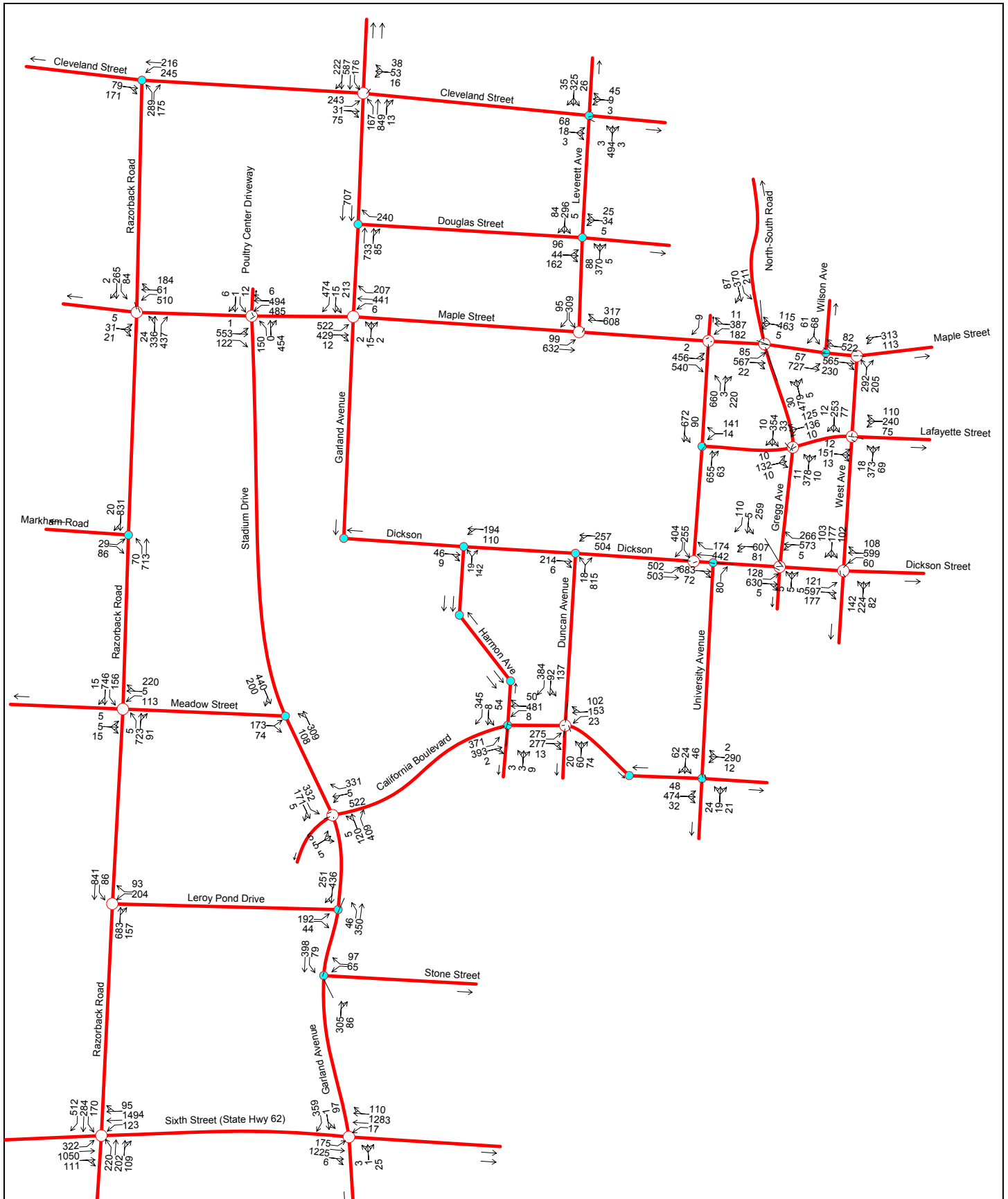


Figure 1-24
 Build Everything (2015) PM Peak Hour Turning Movement Volumes

Table 1-18: No-Build (2030) - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	64	-	188	-	-	-	-	165	309	344	108	-
2	Cleveland Street/Garland Avenue	63	373	4	161	850	424	168	31	88	23	33	14
3	Cleveland Street/Leverett Avenue	15	203	3	19	823	55	63	14	38	3	11	29
4	Douglas Street/Garland Avenue	-	370	25	-	845	-	-	-	-	-	-	45
5	Douglas Street/Leverett Avenue	26	210	36	79	578	76	15	13	35	15	19	15
6	Maple Street/Razorback Road	9	270	499	135	483	3	-	33	23	356	9	40
7	Maple Street/Stadium Drive	35	1	123	8	-	8	11	485	108	406	415	19
8	Maple Street/Garland Avenue	-	21	11	335	13	571	245	294	23	13	329	115
9	Maple Street/Leverett Avenue	-	-	-	431	-	80	76	473	-	-	470	178
10	Maple Street/Arkansas Avenue	301	1	60	-	-	3	1	340	568	98	448	1
11	Maple Street/Wilson Avenue	-	-	-	336	-	58	35	368	-	-	510	194
12	Maple Street/West Avenue	236	-	29	-	-	-	-	331	373	53	468	-
13	Arkansas Avenue/Lafayette Street	-	283	10	63	584	-	-	-	-	34	-	75
14	West Avenue/Lafayette Street	15	249	93	115	295	15	9	56	9	9	76	9
15	Markham Road/Razorback Road	71	851	-	-	653	26	9	-	120	-	-	-
16	Dickson Street/Buchanan Avenue	9	-	34	-	-	-	-	74	10	59	186	-
17	Dickson Street/Duncan Avenue	1	-	108	-	-	-	-	93	1	193	241	-
18	Dickson Street/Arkansas Avenue	-	-	-	275	-	316	156	98	-	-	284	158
19	Dickson Street/University Avenue	15	-	68	-	-	-	-	313	31	111	428	-
20	Dickson Street/West Avenue	34	164	44	76	146	56	34	311	35	35	450	193
21	Meadow Street/Razorback Road	-	819	111	190	613	-	-	-	-	63	-	85
22	California Boulevard/Stadium Drive/Virginia Avenue	-	80	116	121	23	120	66	181	1	15	169	83
23	California Boulevard/Harmon Avenue	9	-	34	21	3	46	134	228	34	148	179	49
24	Center Street/Duncan Avenue	23	59	55	10	74	96	79	221	13	63	265	21
25	Center Street/University Avenue	8	14	25	9	11	138	104	380	8	8	420	13
26	Leroy Pond Drive/Razorback Road	-	828	114	215	463	-	-	-	-	38	-	88
27	California Boulevard/Virginia Avenue/Garland Avenue	96	115	135	15	23	1	3	164	210	74	75	51
28	Sixth Street/Razorback Road	226	360	191	96	110	141	416	1,452	120	83	1,184	168
29	Sixth Street/Garland Avenue	1	-	9	20	1	169	230	1,444	1	4	1,368	191
30	Meadow Street/Stadium Drive	34	194	-	-	161	114	135	-	103	-	-	-
31	Leroy Pond Drive/California Boulevard	93	80	-	-	256	34	169	-	120	-	-	-

PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	259	-	236	-	-	-	-	69	148	324	225	-
2	Cleveland Street/Garland Avenue	200	818	8	126	760	293	328	31	119	21	58	31
3	Cleveland Street/Leverett Avenue	34	661	4	33	508	25	45	23	44	4	11	56
4	Douglas Street/Garland Avenue	-	811	31	-	936	-	-	-	-	-	-	141
5	Douglas Street/Leverett Avenue	46	555	15	29	515	64	66	26	90	15	44	68
6	Maple Street/Razorback Road	20	383	501	69	323	4	8	24	20	568	51	176
7	Maple Street/Stadium Drive	138	-	451	15	1	8	1	628	119	535	519	8
8	Maple Street/Garland Avenue	3	19	3	389	19	521	473	560	15	8	465	259
9	Maple Street/Leverett Avenue	-	-	-	428	-	159	155	806	-	-	694	411
10	Maple Street/Arkansas Avenue	768	4	145	8	1	11	3	599	725	123	480	14
11	Maple Street/Wilson Avenue	-	-	-	265	-	76	71	630	-	-	479	278
12	Maple Street/West Avenue	436	-	68	-	-	-	-	596	299	21	321	-
13	Arkansas Avenue/Lafayette Street	-	646	66	103	794	-	-	-	-	11	-	159
14	West Avenue/Lafayette Street	15	305	15	60	243	15	15	135	15	48	139	181
15	Markham Road/Razorback Road	63	800	-	-	958	21	34	-	93	-	-	-
16	Dickson Street/Buchanan Avenue	24	-	83	-	-	-	-	159	11	76	316	-
17	Dickson Street/Duncan Avenue	23	-	193	-	-	-	-	273	8	123	334	-
18	Dickson Street/Arkansas Avenue	-	-	-	405	-	366	349	209	-	-	250	311
19	Dickson Street/University Avenue	23	-	110	-	-	-	-	528	83	104	550	-
20	Dickson Street/West Avenue	46	159	53	58	210	40	25	561	51	43	569	153
21	Meadow Street/Razorback Road	-	874	116	144	886	-	-	-	-	155	-	190
22	California Boulevard/Stadium Drive/Virginia Avenue	-	51	76	246	56	181	100	186	-	9	223	119
23	California Boulevard/Harmon Avenue	4	4	11	46	10	110	293	245	3	10	205	49
24	Center Street/Duncan Avenue	23	33	93	21	48	75	86	343	11	29	189	33
25	Center Street/University Avenue	14	25	26	60	35	90	68	459	13	15	271	11
26	Leroy Pond Drive/Razorback Road	-	830	115	108	1,024	-	-	-	-	116	-	114
27	California Boulevard/Virginia Avenue/Garland Avenue	108	120	108	19	46	3	1	64	213	81	86	25
28	Sixth Street/Razorback Road	275	209	123	209	286	545	345	1,221	139	131	1,729	116
29	Sixth Street/Garland Avenue	4	1	31	44	1	288	114	1,528	8	21	1,602	88
30	Meadow Street/Stadium Drive	55	215	-	-	436	259	221	-	40	-	-	-
31	Leroy Pond Drive/California Boulevard	59	128	-	-	224	170	158	-	55	-	-	-

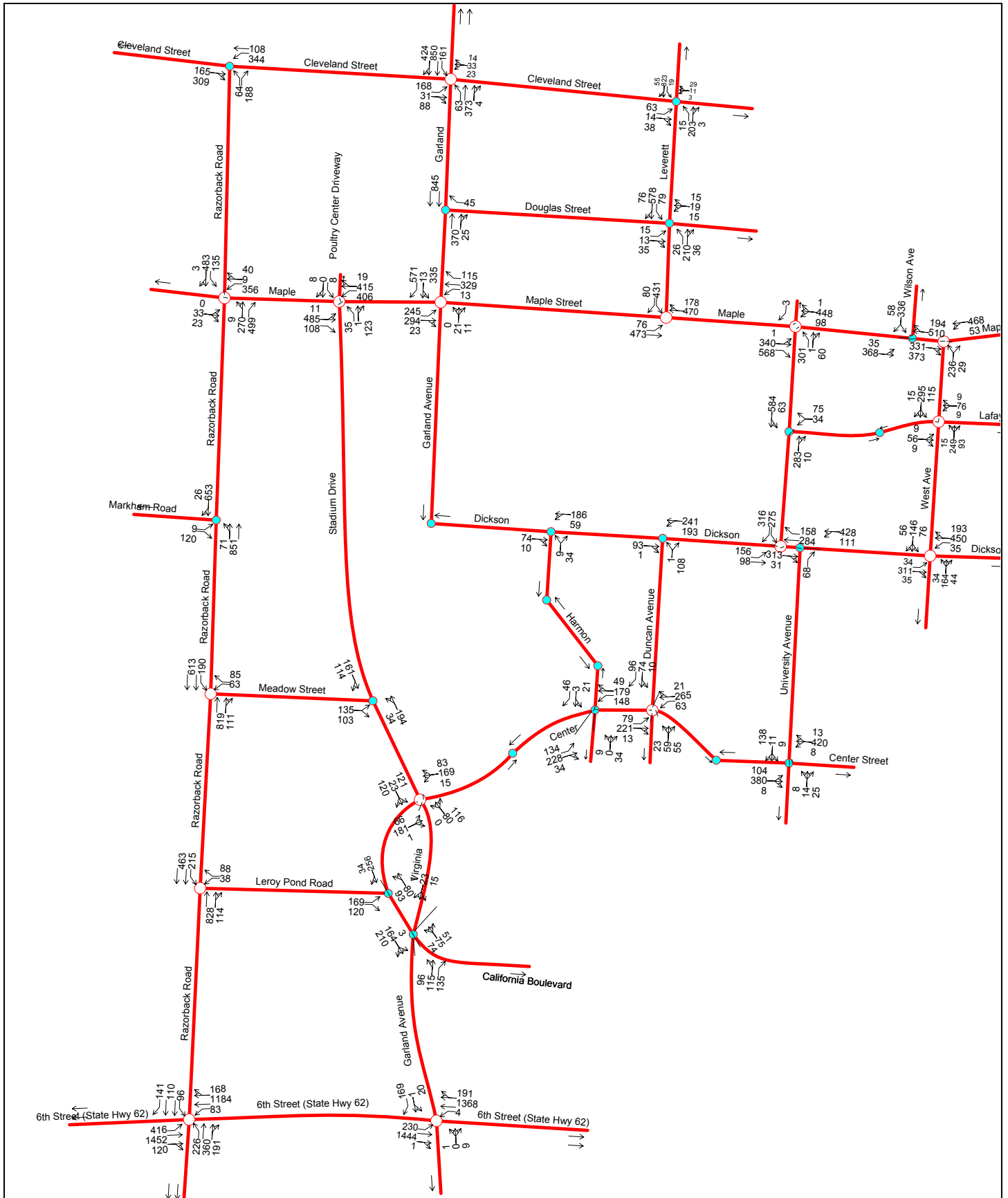


Figure 1-25
No-Build (2030) AM Peak Hour Turning Movement Volumes

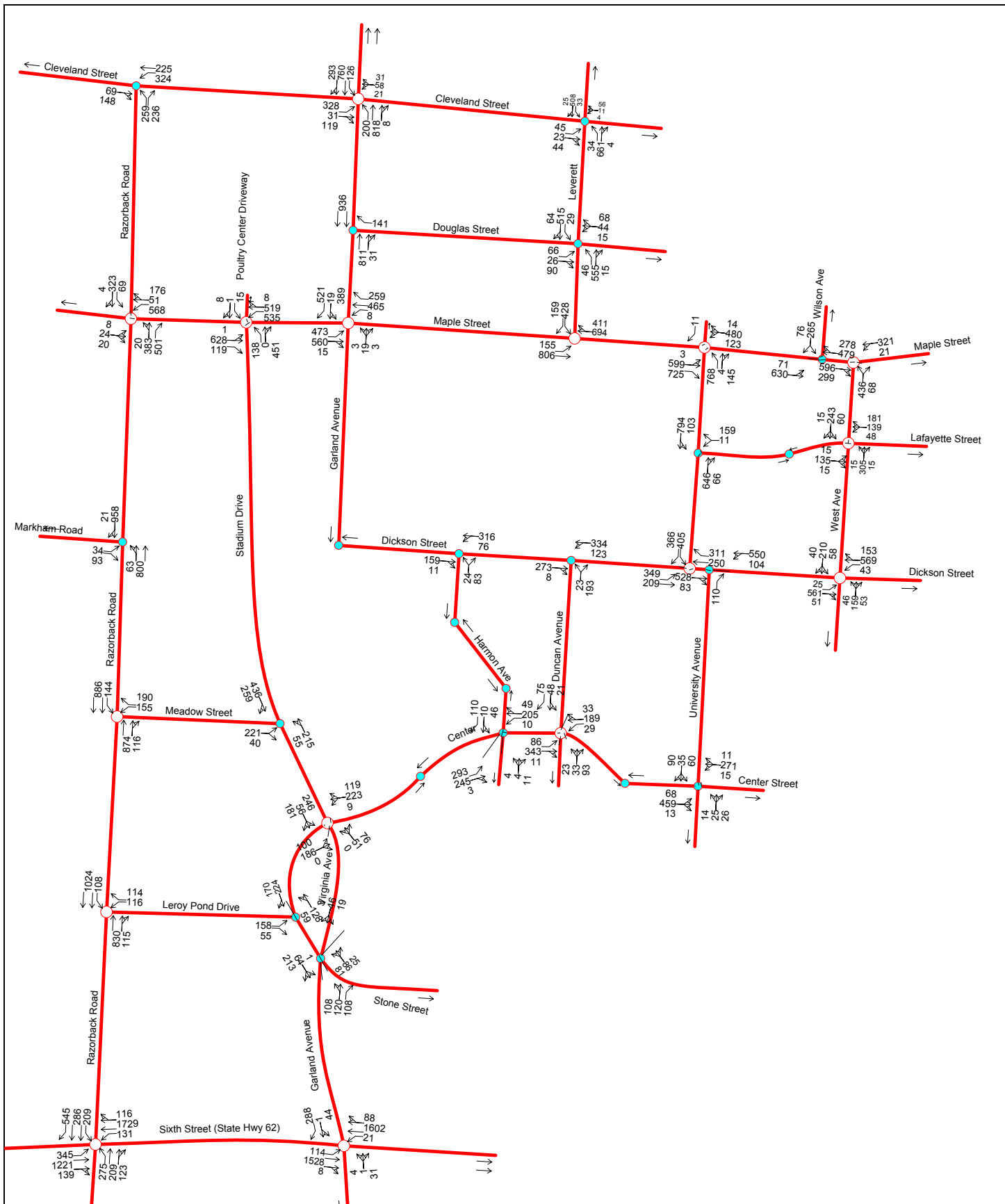


Figure 1-26
No-Build (2030) PM Peak Hour Turning Movement Volumes

Table 1-19: Both Build (2030) Scenarios - Turning Movement Volumes

AM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	74	-	188	-	-	-	-	165	356	344	108	-
2	Cleveland Street/Garland Avenue	63	412	4	161	1,032	424	168	31	88	23	33	14
3	Cleveland Street/Leverett Avenue	15	222	3	19	910	55	63	14	38	3	11	29
4	Douglas Street/Garland Avenue	-	409	25	-	1,027	-	-	-	-	-	-	45
5	Douglas Street/Leverett Avenue	26	229	36	79	665	76	15	13	35	15	19	15
6	Maple Street/Razorback Road	10	275	499	159	507	3	-	37	27	356	10	45
7	Maple Street/Stadium Drive	41	1	143	8	-	8	11	485	136	497	415	19
8	Maple Street/Garland Avenue	-	21	11	426	13	662	265	294	23	13	329	135
9	Maple Street/Leverett Avenue	-	-	-	518	-	80	76	564	-	-	490	197
10	Maple Street/Arkansas Avenue	344	1	69	-	-	3	1	340	769	138	448	1
11	Maple Street/Wilson Avenue	-	-	-	336	-	58	35	377	-	-	550	194
12	Maple Street/West Avenue	236	-	38	-	-	-	-	340	373	93	508	-
13	Arkansas Avenue/Lafayette Street	-	335	12	63	825	-	-	-	-	42	-	75
14	West Avenue/Lafayette Street	15	258	95	115	335	15	9	58	9	17	84	9
15	Markham Road/Razorback Road	74	857	-	-	681	26	9	-	136	-	-	-
16	Dickson Street/Buchanan Avenue	9	-	34	-	-	-	-	74	10	59	186	-
17	Dickson Street/Duncan Avenue	1	-	189	-	-	-	-	93	1	568	241	-
18	Dickson Street/Arkansas Avenue	-	-	-	275	-	565	210	125	-	-	410	158
19	Dickson Street/University Avenue	15	-	68	-	-	-	-	340	31	111	554	-
20	Dickson Street/West Avenue	34	164	44	76	146	103	44	328	35	35	529	193
21	Meadow Street/Razorback Road	-	819	111	233	613	-	-	-	-	63	-	94
22	California Boulevard/Stadium Drive/Virginia Avenue	-	80	116	283	23	120	66	315	1	15	198	118
23	California Boulevard/Harmon Avenue	9	-	34	21	3	73	260	398	34	148	216	49
24	Center Street/Duncan Avenue	23	106	55	25	84	133	249	221	13	63	265	92
25	Center Street/University Avenue	16	14	25	9	11	138	104	394	10	8	483	13
26	Leroy Pond Drive/Razorback Road	-	828	190	215	463	-	-	-	-	54	-	88
27	California Boulevard/Virginia Avenue/Garland Avenue	154	115	135	15	23	1	3	164	223	74	75	51
28	Sixth Street/Razorback Road	226	392	191	96	117	151	460	1,479	120	83	1,190	168
29	Sixth Street/Garland Avenue	1	-	9	27	1	175	257	1,444	1	4	1,368	223
30	Meadow Street/Stadium Drive	43	220	-	-	280	114	135	-	146	-	-	-
31	Leroy Pond Drive/California Boulevard	93	138	-	-	269	50	245	-	120	-	-	-

PM Peak Hour													
ID#	Intersection	Northbound			Southbound			Eastbound			Westbound		
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Cleveland Street/Razorback Road	303	-	236	-	-	-	-	69	176	324	225	-
2	Cleveland Street/Garland Avenue	200	988	8	126	867	293	328	31	119	21	58	31
3	Cleveland Street/Leverett Avenue	34	742	4	33	559	25	45	23	44	4	11	56
4	Douglas Street/Garland Avenue	-	981	31	-	1,043	-	-	-	-	-	-	141
5	Douglas Street/Leverett Avenue	46	636	15	29	566	64	66	26	90	15	44	68
6	Maple Street/Razorback Road	24	405	501	83	337	4	8	26	22	568	55	198
7	Maple Street/Stadium Drive	164	-	536	15	1	8	1	628	135	589	519	8
8	Maple Street/Garland Avenue	3	19	3	443	19	575	558	560	15	8	465	344
9	Maple Street/Leverett Avenue	-	-	-	479	-	159	155	860	-	-	779	492
10	Maple Street/Arkansas Avenue	956	4	182	8	1	11	3	599	844	146	480	14
11	Maple Street/Wilson Avenue	-	-	-	265	-	76	71	667	-	-	502	278
12	Maple Street/West Avenue	436	-	105	-	-	-	-	633	299	44	344	-
13	Arkansas Avenue/Lafayette Street	-	871	73	103	936	-	-	-	-	16	-	159
14	West Avenue/Lafayette Street	15	342	22	60	266	15	15	142	15	53	144	181
15	Markham Road/Razorback Road	78	826	-	-	974	21	34	-	102	-	-	-
16	Dickson Street/Buchanan Avenue	24	-	83	-	-	-	-	159	11	76	316	-
17	Dickson Street/Duncan Avenue	23	-	544	-	-	-	-	273	8	344	334	-
18	Dickson Street/Arkansas Avenue	-	-	-	405	-	513	581	327	-	-	325	311
19	Dickson Street/University Avenue	23	-	110	-	-	-	-	646	83	104	625	-
20	Dickson Street/West Avenue	46	159	53	58	210	68	69	635	51	43	616	153
21	Meadow Street/Razorback Road	-	874	116	170	886	-	-	-	-	155	-	231
22	California Boulevard/Stadium Drive/Virginia Avenue	-	51	76	342	56	181	100	265	-	9	348	270
23	California Boulevard/Harmon Avenue	4	4	11	46	10	228	367	345	3	10	364	49
24	Center Street/Duncan Avenue	23	61	93	87	92	234	186	343	11	29	189	75
25	Center Street/University Avenue	19	25	26	60	35	90	68	518	20	15	308	11
26	Leroy Pond Drive/Razorback Road	-	830	160	108	1,024	-	-	-	-	187	-	114
27	California Boulevard/Virginia Avenue/Garland Avenue	142	120	108	19	46	3	1	64	267	81	86	25
28	Sixth Street/Razorback Road	275	228	123	209	316	587	371	1,237	139	131	1,754	116
29	Sixth Street/Garland Avenue	4	1	31	74	1	313	130	1,528	8	21	1,602	107
30	Meadow Street/Stadium Drive	96	326	-	-	506	259	221	-	66	-	-	-
31	Leroy Pond Drive/California Boulevard	59	162	-	-	278	241	203	-	55	-	-	-

1.7 FORECAST LEVEL OF SERVICE

The traffic volumes and network details for each scenario were used to conduct morning and afternoon peak-hour capacity analyses. Capacity analyses were performed for A.M. and P.M. peak hour periods, using *Synchro Professional Version 6* software.

1.7.1 2006 INTERSECTION LEVEL OF SERVICE ANALYSIS

Six analyses were evaluated for 2010 conditions; including *No-Build (2006) A.M.*, *No-Build (2006) P.M.*, *Build HAPF (2006) A.M.*, *Build HAPF (2006) P.M.*, *Build HAPF (2006) Improved A.M.* and *Build HAPF (2006) Improved P.M.* The intersection of Maple Street at West Avenue has recently been signalized and all 2006 scenarios reflect this change in traffic control.

The *No-Build (2006)* scenarios included *Existing (2004)* turning movement volumes grown to 2006 values based on a growth rate of 2.25% per year. The *Build HAPF (2006)* and *Build HAPF (2006) Improved* scenarios included the *No-Build (2006)* volumes and site trips associated with the HAPF at two-thirds occupancy as well as surface parking losses anticipated between 2004 and 2006.

1.7.1.1 No-Build (2006) Scenario Results

The *No-Build (2006)* A.M. and P.M. peak hour volumes used in these analyses are shown in Figure 1-11 and Figure 1-12. Table 1-20 summarizes the projected intersection levels of service.

Table 1-20: No-Build (2006) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
15	Markham Road/Razorback Road	Unsignalized	(EB-B)	(EB-D)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-A)	(NB-B)
21	Meadow Street/Razorback Road	Unsignalized	(WB-E)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(EB-B)	(SB-C)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-C)	(SB-C)
24	Center Street/Duncan Avenue	Signalized	B (WB-B)	B (EB-B)
25	Center Street/University Avenue	Unsignalized	(NB-C)	(SB-D)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-E)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-D)	(NB-C)
28	Sixth Street/Razorback Road	Signalized	C (NB-D)	C (NB-D)
29	Sixth Street/Garland Avenue	Unsignalized	(NB-D)	(NB-F)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-C)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-B)	(EB-B)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

There are some changes in levels of service between *Existing (2004)* and *No-Build (2006)* conditions for the unsignalized intersections in the study area. The Leroy Pond Drive approach to Razorback Road continues to operate poorly in the P.M. peak hour. The intersection of Sixth Street at Garland Avenue degrades from LOS C to LOS F in the P.M. peak hour.

These drops in levels of service are attributed to the background growth in traffic experienced throughout the entire study area.

1.7.1.2 Build (2006) Scenario Results

The *Build HAPF (2006)* A.M. and P.M. peak hour volumes used in these analyses are shown in Figure 1-13 and Figure 1-14. Table 1-21 summarizes the projected intersection levels of service.

Table 1-21: Build HAPF (2006) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
15	Markham Road/Razorback Road	Unsignalized	(EB-B)	(EB-D)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-E)
21	Meadow Street/Razorback Road	Unsignalized	(WB-E)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(SB-C)	(EB-C)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-D)	(SB-F)
24	Center Street/Duncan Avenue	Signalized	D (EB-F)	C (EB-D)
25	Center Street/University Avenue	Unsignalized	(NB-D)	(SB-D)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-F)	(NB-E)
28	Sixth Street/Razorback Road	Signalized	C (NB-D)	C (NB-D)
29	Sixth Street/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-D)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-B)	(EB-B)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

Several of the intersections in the vicinity of the HAPF degrade to unacceptable levels of service with the addition of site traffic. These include: California Boulevard at Harmon Avenue in the P.M. peak hour, Leroy Pond Drive at Razorback Road in the A.M. peak hour, California Boulevard/Virginia Avenue at Garland Avenue in the A.M. peak hour and Sixth Street at Garland Avenue in the A.M. peak hour.

These drops in levels of service are attributed to the addition of HAPF site trips to the roadway network.

1.7.1.3 Build (2006) Improved Scenario Results

The *Build HAPF (2006) Improved* A.M. and P.M. peak hour volumes are the same as those used in the *Build HAPF (2006)* analyses and are shown in Figure 1-13 and Figure 1-14.

Table 1-22 summarizes the projected intersection levels of service with the addition of the following improvements:

- Center Street at Harmon Avenue – westbound and eastbound left-turn lanes along Center Street and a southbound right-turn lane along Harmon Avenue.
- Center Street at Duncan Avenue –upgraded signal to provide actuated control.
- Sixth Street at Garland Avenue –southbound right-turn lane on the Garland Avenue approach and signalization.

Table 1-22: Build HAPF (2006) Improved Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
15	Markham Road/Razorback Road	Unsignalized	(EB-B)	(EB-D)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-E)
21	Meadow Street/Razorback Road	Unsignalized	(WB-E)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(EB-B)	(EB-C)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-C)	(NB-E)
24	Center Street/Duncan Avenue	Signalized	D (EB-F)	C (EB-D)
25	Center Street/University Avenue	Unsignalized	(NB-D)	(SB-D)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-D)	(NB-D)
28	Sixth Street/Razorback Road	Signalized	C (NB-D)	C (NB-D)
29	Sixth Street/Garland Avenue	Signalized	A (NB-B)	B (SB-B)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-D)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-B)	(EB-B)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

= unacceptable level of service

These roadway improvements serve to mitigate the impacts of the HAPF site traffic on the roadway network. These improvements would better the level of service at all of the intersections affected by the addition of HAPF site trips.

1.7.2 2010 INTERSECTION LEVEL OF SERVICE ANALYSIS

Six analyses were evaluated for 2010 conditions; including *No-Build (2010) A.M.*, *No-Build (2010) P.M.*, *Build HAPF (2010) A.M.*, *Build HAPF (2010) P.M.*, *Build HAPF (2010) Improved A.M.* and *Build HAPF (2010) Improved P.M.*

The *No-Build (2010)* scenarios included *Existing (2004)* turning movement volumes grown to 2010 values based on a growth rate of 2.25% per year. The *Build HAPF (2010)* and *Build HAPF (2010) Improved* scenarios included the *No-Build (2010)* volumes and site trips associated with the HAPF at 100 percent occupancy as well as surface parking losses anticipated between 2004 and 2010. The roadway network is the same as that used in the 2006 scenarios.

1.7.2.1 No-Build (2010) Scenario Results

The *No-Build (2010)* A.M. and P.M. peak hour volumes, used in these analyses are shown in Figure 1-15 and Figure 1-16. Table 1-23 summarizes the projected intersection levels of service.

Table 1-23: No-Build (2010) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
15	Markham Road/Razorback Road	Unsignalized	(EB-C)	(EB-D)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-A)	(NB-B)
21	Meadow Street/Razorback Road	Unsignalized	(WB-F)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(EB-B)	(SB-C)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-C)	(SB-C)
24	Center Street/Duncan Avenue	Signalized	B (WB-B)	B (EB-B)
25	Center Street/University Avenue	Unsignalized	(NB-C)	(SB-D)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-E)	(NB-D)
28	Sixth Street/Razorback Road	Signalized	C (NB-D)	E (WB-F)
29	Sixth Street/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-C)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-B)	(EB-B)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

= unacceptable level of service

There are some changes in levels of service between *No-Build (2006)* and *No-Build (2010)* conditions for the unsignalized intersections in the study area. The Meadow Street and Leroy Pond Drive approaches to Razorback Road both degrade to unacceptable levels of service in the A.M. peak hour, as does the northbound Garland Avenue approach to Sixth Street. The signalized intersection of Sixth Street at Razorback Road drops to an unacceptable level of service in the P.M. peak hour as well.

These drops in levels of service are attributed to the background growth in traffic experienced throughout the entire study area.

1.7.2.2 Build (2010) Scenario Results

The Build HAPF (2010) A.M. and P.M. peak hour volumes, used in these analyses are shown in Figure 1-17 and Figure 1-18. Table 1-24 summarizes the projected intersection levels of service.

Table 1-24: Build HAPF (2010) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
15	Markham Road/Razorback Road	Unsignalized	(EB-C)	(EB-E)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-F)
21	Meadow Street/Razorback Road	Unsignalized	(WB-F)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(SB-F)	(EB-F)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-F)	(SB-F)
24	Center Street/Duncan Avenue	Signalized	F (EB-F)	E (EB-F)
25	Center Street/University Avenue	Unsignalized	(NB-E)	(SB-E)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
28	Sixth Street/Razorback Road	Signalized	D (NB-E)	D (SB-E)
29	Sixth Street/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-E)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-C)	(EB-C)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

Several of the intersections in the vicinity of the HAPF also degrade to unacceptable levels of service with the addition of the remainder of site traffic. These include: Center Street at Duncan Avenue in both the A.M. and P.M. peak hours, Dickson Street at Duncan Avenue in the P.M. peak hour, California Boulevard at Harmon Avenue in the A.M. and P.M. peak hours, and California Boulevard/Virginia Avenue at Garland Avenue in the A.M. and P.M. peak hours.

These drops in levels of service are attributed to the addition of HAPF site trips to the roadway network.

1.7.2.3 Build HAPF (2010) Improved Scenario Results

The *Build HAPF (2010)* Improved A.M. and P.M. peak hour volumes are the same as those used in the *Build HAPF (2010)* analyses and are shown in Figure 1-17 and Figure 1-18.

Table 1-24 summarizes the projected intersection levels of service with the following improvements to the roadway network:

- Center Street at Harmon Avenue – westbound and eastbound left-turn lanes along Center Street and a southbound right-turn lane along Harmon Avenue.
- Center Street at Duncan Avenue –upgraded signal to provide actuated control.
- Sixth Street at Garland Avenue –southbound right-turn lane on the Garland Avenue approach and signalization.
- Center Street at Duncan Avenue – westbound and eastbound left-turn lanes along Center Street and a southbound right-turn lane along Duncan Avenue.
- California Boulevard at Stadium Drive/Virginia Avenue: southbound, westbound, and eastbound turn lanes as well as signalization.

Table 1-25: Build HAPF (2010) Improved Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
15	Markham Road/Razorback Road	Unsignalized	(EB-C)	(EB-E)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-F)
21	Meadow Street/Razorback Road	Unsignalized	(WB-F)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(EB-C)	(EB-C)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-B)	(SB-C)
24	Center Street/Duncan Avenue	Signalized	B (NB-C)	A (NB-B)
25	Center Street/University Avenue	Unsignalized	(NB-E)	(SB-E)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
28	Sixth Street/Razorback Road	Signalized	D (NB-E)	D (SB-E)
29	Sixth Street/Garland Avenue	Signalized	B (NB-B)	B (SB-C)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-E)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-C)	(EB-C)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

= unacceptable level of service

These roadway improvements serve to mitigate the impacts of the HAPF site traffic on the roadway network. These improvements would better the level of service at many of the intersections affected by the addition of site traffic. The only intersections that would continue to operate poorly due to site traffic volumes are the intersections of California Boulevard/Virginia Avenue/Garland Avenue during A.M. and P.M. peak hours and the northbound approach of Duncan Avenue at Dickson Street in the P.M. peak hour.

1.7.3 2015 INTERSECTION LEVEL OF SERVICE ANALYSIS

Six analyses were evaluated for 2015 conditions; including *Build Garland (2015) A.M.*, *Build Garland (2015) P.M.*, *Build Dickson (2015) A.M.*, *Build Garland (2015) P.M.*, *Build Everything (2015) A.M.* and *Build Everything (2015) P.M.* The intersection of Maple Street at West Avenue has recently been signalized and all 2015 scenarios reflect this change in traffic control.

The detailed assumptions for each of the 2015 scenarios are described in section 1.5.3.

1.7.3.1 Build Garland (2015) Scenario Results

The *Build Garland (2015) A.M.* and *P.M.* peak hour volumes used in the analyses are shown in Figure 1-19 and Figure 1-20. Table 1-26 summarizes the projected intersection levels of service.

Table 1-26: Build Garland (2015) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
1	Cleveland Street/Razorback Road	Unsignalized	(NB-E)	(NB-F)
2	Cleveland Street/Garland Avenue	Signalized	B (EB-C)	C (WB-D)
3	Cleveland Street/Leverett Avenue	Signalized	A (EB-F)	C (EB-F)
4	Douglas Street/Garland Avenue	Unsignalized	(WB-B)	(WB-C)
5	Douglas Street/Leverett Avenue	Unsignalized	(EB-F)	(EB-F)
6	Maple Street/Razorback Road	Unsignalized	(EB-A)	(EB-A)
7	Maple Street/Stadium Drive	Signalized	B (EB-B)	C (SB-D)
8	Maple Street/Garland Avenue	Signalized	F (SB-F)	F (SB-F)
9	Maple Street/Leverett Avenue	Signalized	C (SB-C)	F (SB-F)
10	Maple Street/Arkansas Avenue	Signalized	A (NB-C)	F (WB-F)
11	Maple Street/Wilson Avenue	Unsignalized	(SB-F)	(SB-F)
12	Maple Street/West Avenue	Signalized	B (NB-C)	C (NB-E)
13	Arkansas Avenue/Lafayette Street	Unsignalized	(WB-C)	(WB-D)
14	West Avenue/Lafayette Street	Unsignalized	B (WB-B)	B (WB-C)
15	Markham Road/Razorback Road	Unsignalized	(EB-C)	(EB-F)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-F)
18	Dickson Street/Arkansas Avenue	Signalized	A (WB-A)	B (SB-B)
19	Dickson Street/University Avenue	Unsignalized	(NB-B)	(NB-C)
20	Dickson Street/West Avenue	Signalized	B (WB-C)	C (SB-D)
21	Meadow Street/Razorback Road	Unsignalized	(WB-F)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(EB-C)	(SB-F)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-F)	(SB-F)
24	Center Street/Duncan Avenue	Signalized	F (EB-F)	E (EB-F)
25	Center Street/University Avenue	Unsignalized	(NB-F)	(SB-F)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
28	Sixth Street/Razorback Road	Signalized	E (NB-F)	E (SB-F)
29	Sixth Street/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-E)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-D)	(EB-F)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

Conditions service worsens throughout the study area with several intersections along Maple Street suffering poor levels of service in one, or both, peak hours. The intersections in the vicinity of HAPF are expected to operate poorly in 2015 with additional background traffic and site trips to the HAPF and Garland deck.

▪ **Build Dickson (2015) Scenario Results**

The *Build Dickson (2015)* A.M. and P.M. peak hour volumes used in the analyses are shown in Figure 1-21 and Figure 1-22. Table 1-26 summarizes the projected intersection levels of service.

Table 1-27: Build Dickson (2015) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
1	Cleveland Street/Razorback Road	Unsignalized	(NB-F)	(NB-F)
2	Cleveland Street/Garland Avenue	Signalized	C (EB-C)	D (SB-D)
3	Cleveland Street/Leverett Avenue	Signalized	B (EB-F)	D (EB-F)
4	Douglas Street/Garland Avenue	Unsignalized	(WB-B)	(WB-D)
5	Douglas Street/Leverett Avenue	Unsignalized	(EB-F)	(EB-F)
6	Maple Street/Razorback Road	Unsignalized	(EB-A)	(EB-A)
7	Maple Street/Stadium Drive	Signalized	A (SB-C)	C (EB-C)
8	Maple Street/Garland Avenue	Signalized	F (SB-F)	F (SB-F)
9	Maple Street/Leverett Avenue	Signalized	C (SB-D)	F (WB-F)
10	Maple Street/Arkansas Avenue	Signalized	B (NB-C)	F (WB-F)
11	Maple Street/Wilson Avenue	Unsignalized	(SB-F)	(SB-F)
12	Maple Street/West Avenue	Signalized	D (NB-F)	F (WB-F)
13	Arkansas Avenue/Lafayette Street	Unsignalized	(WB-C)	(WB-E)
14	West Avenue/Lafayette Street	Unsignalized	C (SB-C)	B (WB-C)
15	Markham Road/Razorback Road	Unsignalized	(EB-C)	(EB-F)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-F)
18	Dickson Street/Arkansas Avenue	Signalized	A (WB-A)	B (SB-B)
19	Dickson Street/University Avenue	Unsignalized	(NB-B)	(NB-C)
20	Dickson Street/West Avenue	Signalized	B (WB-C)	C (SB-D)
21	Meadow Street/Razorback Road	Unsignalized	(WB-F)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(EB-C)	(EB-F)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-F)	(SB-F)
24	Center Street/Duncan Avenue	Signalized	F (EB-F)	E (EB-F)
25	Center Street/University Avenue	Unsignalized	(NB-F)	(SB-F)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
28	Sixth Street/Razorback Road	Signalized	E (NB-F)	E (WB-F)
29	Sixth Street/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-E)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-E)	(EB-F)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

Unsurprisingly, the addition of Dickson Street Deck site traffic in the Dickson Build scenario has its main impacts along West Avenue and Lafayette Street, the two main routes to/from the decks. The intersections of Maple Street and West Avenue (signalized) and Arkansas Avenue and Lafayette Street (unsignalized) now fail in the P.M. peak. In the A.M. peak, performance worsens at Maple Street / West Avenue and at Lafayette Street / West Avenue (unsignalized), but without failing. However, the results at all these intersections should be treated with caution, as their 2004 volumes were only estimates.

Elsewhere, performance in both peak periods deteriorates slightly along Cleveland Street, but without failing. The intersection of Leroy Pond Drive with Virginia Avenue (unsignalized) now fails in the A.M. peak as well as the P.M. peak.

1.7.3.2 Build Everything (2015) Scenario Results

The *Build Everything (2015)* A.M. and P.M. peak hour volumes used in the analyses are shown in Figure 1-23 and Figure 1-24. Table 1-28 summarizes the projected intersection levels of service.

Table 1-28: Build Everything (2015) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
1	Cleveland Street/Razorback Road	Unsignalized	(NB-D)	(NB-F)
2	Cleveland Street/Garland Avenue	Signalized	B (WB-C)	C (WB-D)
3	Cleveland Street/Leverett Avenue	Signalized	A (EB-D)	A (EB-E)
4	Douglas Street/Garland Avenue	Unsignalized	(WB-B)	(WB-C)
5	Douglas Street/Leverett Avenue	Unsignalized	(WB-D)	(EB-F)
6	Maple Street/Razorback Road	Signalized	B (SB-C)	B (NB-C)
7	Maple Street/Stadium Drive	Signalized	A (SB-C)	B (SB-D)
8	Maple Street/Garland Avenue	Signalized	F (SB-F)	F (SB-F)
9	Maple Street/Leverett Avenue	Signalized	B (SB-C)	B (SB-D)
10	Maple Street/Arkansas Avenue	Signalized	A (NB-C)	C (NB-D)
11	Maple Street/Wilson Avenue	Unsignalized	(SB-F)	(SB-F)
12	Maple Street/West Avenue	Signalized	B (NB-D)	F (WB-F)
13	Arkansas Avenue/Lafayette Street	Unsignalized	(WB-B)	(WB-E)
14	West Avenue/Lafayette Street	Unsignalized	A (EB-C)	B (WB-D)
15	Markham Road/Razorback Road	Unsignalized	(EB-D)	(EB-E)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-F)
18	Dickson Street/Arkansas Avenue	Signalized	B (SB-C)	C (SB-C)
19	Dickson Street/University Avenue	Unsignalized	(NB-B)	(NB-C)
20	Dickson Street/West Avenue	Signalized	C (NB-E)	F (NB-F)
21	Meadow Street/Razorback Road	Signalized	A (EB-C)	A (EB-C)
22	California Boulevard/Stadium Drive/Virginia Avenue	Signalized	A (EB-B)	C (SB-D)
23	Center Street/Harmon Avenue	Unsignalized	(SB-F)	(NB-F)
24	Center Street/Duncan Avenue	Signalized	B (WB-B)	B (EB-B)
25	Center Street/University Avenue	Unsignalized	(NB-F)	(SB-F)
26	Leroy Pond Drive/Razorback Road	Signalized	B (WB-C)	B (WB-D)
27	California Boulevard/Virginia Avenue/Garland Avenue	Signalized	B (WB-F)	B (WB-E)
28	Sixth Street/Razorback Road	Signalized	C (NB-D)	F (WB-F)
29	Sixth Street/Garland Avenue	Signalized	B (WB-C)	C (SB-C)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-B)	(EB-F)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-D)	(EB-F)
32	Gregg Avenue/Maple Street	Signalized	C (SB-D)	D (NB-D)
33	Gregg Avenue/Lafayette Street	Signalized	A (EB-C)	A (EB-B)
34	Gregg Avenue/Dickson Street	Signalized	B (NB-D)	B (NB-D)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

In the *Build Everything (2015)* scenario, performance changes are seen at most intersections in the study network, reflecting the wide range of infrastructure changes introduced.

In the southern part of the campus, along the Razorback Road and Center Street corridors, performance improves dramatically in comparison to the *Build Dickson (2015)* scenario. Only a few intersections (mainly unsignalized) now fail in this area. However, the intersection of Sixth Street and Razorback Road continues to fail in the P.M. peak hour.

In the north-west part of the study area, conditions improve at most intersections in one or both peaks, due to the shift of traffic onto the north-south road. In particular, Maple Street no longer fails in the P.M. peak hour at Leverett Avenue or Arkansas Avenue, although Maple Street at Garland Avenue still fails in both peaks.

The changes in the eastern part of the study area, along Arkansas Avenue and West Avenue, are mixed, as traffic has been re-routed through the area. The Dickson Street/West Avenue intersection now fails in the evening peak (a severe change from LOS C in the previous scenario to LOS F), although the newly-modeled intersections on Gregg Avenue perform well. Some other intersections improve or worsen without failing. Again, however, the results here should be treated with caution, due to the estimated data and the close spacing of the signalized intersections.

1.7.4 2030 INTERSECTION LEVEL OF SERVICE ANALYSIS

Several scenarios were evaluated with respect to the Razorback Road upgrade. These included a four-lane undivided option, a three-lane with a two-way center left turn lane as well as a three-lane option with two northbound lanes and one southbound lane.

Four lanes are not required for the entire length of Razorback Road. Two lanes are required northbound (partly because of the frequent left-turns intersection the many streets and driveways on the west side of the road), but a single, appropriately-designed lane can provide adequate capacity in the southbound direction as far south as Meadow Street, and possibly Leroy Pond Drive.

Left-turning northbound traffic on Razorback Road will experience long delays at times because traffic in a single southbound lane presents very few gaps (left-turns in the southbound direction are limited to a very few locations). Two lanes northbound are needed to prevent the northbound direction from being blocked.

Traffic exiting several of the side streets on the west side of the road also will experience long delays at times because traffic in a single southbound lane presents very few gaps.

Traffic signals are required at Maple Street, Meadow Street, and Leroy Pond Drive. Regardless, a roundabout at Maple Street was analyzed for the final alternatives.

A roundabout at Maple Street causes long queues for westbound traffic in the afternoon peak period. Traffic will extend through and block the Stadium Drive intersection. This is because westbound traffic must yield to the high volume of northbound traffic along Razorback Road.

Installing a traffic signal at Maple Street rather than a roundabout to reduce delays and queuing. This will entail adding an additional (right-turn) lane in the southbound direction.

1.7.4.1 No-Build (2030) Scenario Results

Table 2-29 summarizes the results of the capacity analysis for the *No-Build (2030)* scenario. The data used in the analyses can be found in Table 1-18.

Table 2-29: No-Build (2030) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
1	Cleveland Street/Razorback Road	Unsignalized	(NB-F)	(NB-F)
2	Cleveland Street/Garland Avenue	Signalized	C (WB-D)	D (EB-E)
3	Cleveland Street/Leverett Avenue	Signalized	C (EB-F)	D (EB-F)
4	Douglas Street/Garland Avenue	Unsignalized	(WB-A)	(WB-C)
5	Douglas Street/Leverett Avenue	Unsignalized	(WB-F)	(EB-F)
6	Maple Street/Razorback Road	Unsignalized	(EB-A)	(EB-A)
7	Maple Street/Stadium Drive	Signalized	B (SB-C)	C (SB-E)
8	Maple Street/Garland Avenue	Signalized	F (SB-F)	F (SB-F)
9	Maple Street/Leverett Avenue	Signalized	C (SB-C)	F (SB-F)
10	Maple Street/Arkansas Avenue	Signalized	B (NB-C)	F (WB-F)
11	Maple Street/Wilson Avenue	Unsignalized	(SB-F)	(SB-F)
12	Maple Street/West Avenue	Signalized	(NB-F)	(NB-F)
13	Arkansas Avenue/Lafayette Street	Unsignalized	(WB-C)	(WB-E)
14	West Avenue/Lafayette Street	Unsignalized	(WB-C)	(WB-C)
15	Markham Road/Razorback Road	Unsignalized	(EB-E)	(EB-F)
16	Dickson Street/Buchanan Avenue	Unsignalized	(NB-A)	(NB-B)
17	Dickson Street/Duncan Avenue	Unsignalized	(NB-B)	(NB-D)
18	Dickson Street/Arkansas Avenue	Signalized	B (SB-B)	B (SB-C)
19	Dickson Street/University Avenue	Unsignalized	(NB-F)	(NB-F)
20	Dickson Street/West Avenue	Signalized	C (SB-D)	C (SB-D)
21	Meadow Street/Razorback Road	Unsignalized	(WB-F)	(WB-F)
22	California Boulevard/Stadium Drive/Virginia Avenue	Unsignalized	(SB-D)	(SB-F)
23	California Boulevard/Harmon Avenue	Unsignalized	(SB-F)	(SB-F)
24	Center Street/Duncan Avenue	Signalized	C (EB-C)	C (EB-E)
25	Center Street/University Avenue	Unsignalized	(NB-F)	(SB-F)
26	Leroy Pond Drive/Razorback Road	Unsignalized	(WB-F)	(WB-F)
27	California Boulevard/Virginia Avenue/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
28	Sixth Street/Razorback Road	Signalized	F (WB-F)	F (WB-F)
29	Sixth Street/Garland Avenue	Unsignalized	(NB-F)	(NB-F)
30	Meadow Street/Stadium Drive	Unsignalized	(EB-C)	(EB-F)
31	Leroy Pond Drive/California Boulevard	Unsignalized	(EB-C)	(EB-C)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

Several of the intersections suffer from poor levels of service with the addition of annual growth from exiting conditions to 2030. Most of the intersections in the southern part of the

campus perform poorly in both the AM and PM peak hours as do many of the intersections along Maple Street.

1.7.4.2 Build Razorback 4-lane (2030) Scenario Results

Table 1-30 summarizes the results of the capacity analysis for the *No-Build (2030)* scenario. The data used in the analyses can be found in Table 1-19. Only the intersections along Razorback Road and Garland Avenue were analyzed as part of the *Build Razorback 4-lane (2030)* analyses.

Table 1-30: Build Razorback 4-lane (2030) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
1	Cleveland Street/Razorback Road	Unsignalized	(NB-F)	(NB-F)
2	Cleveland Street/Garland Avenue	Signalized	C (WB-E)	D (EB-E)
4	Douglas Street/Garland Avenue	Unsignalized	(WB-A)	(WB-C)
6	Maple Street/Razorback Road	Unsignalized	B (SB-C)	D (SB-D)
7	Maple Street/Stadium Drive	Signalized	B (EB-B)	C (EB-D)
8	Maple Street/Garland Avenue	Signalized	E (SB-F)	F (SB-F)
15	Markham Road/Razorback Road	Unsignalized	(EB-B)	(EB-C)
21	Meadow Street/Razorback Road	Unsignalized	A (EB-B)	A (WB-B)
26	Leroy Pond Drive/Razorback Road	Unsignalized	A (WB-B)	A (WB-B)
28	Sixth Street/Razorback Road	Signalized	D (NB-E)	F (SB-F)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

= unacceptable level of service

1.7.4.3 Build Razorback 3-lane (2030) Scenario Results

Table 1-31 summarizes the results of the capacity analysis for the *No-Build (2030)* scenario. The data used in the analyses can be found in Table 1-19. Only the intersections along Razorback Road and Garland Avenue were analyzed as part of the *Build Razorback 4-lane (2030)* analyses.

Table 1-31: Build Razorback 3-lane (2030) Intersection Levels of Service

ID #	Intersection	Traffic Control	Level of Service	
			A.M. Peak Hour	P.M. Peak Hour
1	Cleveland Street/Razorback Road	Unsignalized	(NB-F)	(NB-F)
2	Cleveland Street/Garland Avenue	Signalized	C (WB-E)	D (WB-F)
4	Douglas Street/Garland Avenue	Unsignalized	(WB-A)	(WB-C)
6	Maple Street/Razorback Road	Signalized	B (WB-C)	C (SB-D)
7	Maple Street/Stadium Drive	Signalized	B (EB-B)	C (EB-D)
8	Maple Street/Garland Avenue	Signalized	E (SB-F)	E (SB-F)
15	Markham Road/Razorback Road	Unsignalized	(EB-C)	(EB-F)
21	Meadow Street/Razorback Road	Signalized	C (NB-D)	C (WB-E)
26	Leroy Pond Drive/Razorback Road	Signalized	D (NB-E)	B (WB-D)
28	Sixth Street/Razorback Road	Signalized	D (NB-E)	F (SB-F)

Legend:

Signalized intersections: X(XX-X) = intersection level of service (worst approach - worst approach level of service)

Unsignalized intersections: (XX-X) = (worst approach - worst approach level of service)

 = unacceptable level of service

**MARTIN
ALEXIOU
BRYSON**