

appendix: G
TRAFFIC OPERATIONS CALCULATIONS

MEMORANDUM

Date: June 22, 2016
To: Amy Lewin, Emma Belmont and Rachel Prelog
From: Charlie Alexander
Subject: Traffic Operations Analysis for West Elizabeth Enhanced Travel Corridor Plan

DN15-0488

This technical memorandum summarizes the findings of the traffic operations analysis for the West Elizabeth Enhanced Travel Corridor Plan.

EXISTING & EXISTING + RECOMMENDED DESIGN

Table 1 shows results of AM and PM peak hour analysis for Existing Conditions and Existing Plus Recommended Design conditions at study intersections affected by the Recommended Design: West Elizabeth Street/Overland Trail, West Elizabeth Street/Taft Hill Road, West Elizabeth Street/Constitution Avenue, West Elizabeth/City Park Avenue, West Elizabeth Street/Shields Street and Plum Street/Shields Street.

TABLE 1: DELAY / LEVEL OF SERVICE – EXISTING TRAFFIC VOLUMES

Intersection	Existing		Existing + Recommended Design	
	AM	PM	AM	PM
West Elizabeth Street/Overland Trail	3 / A 22 / C (WBL)	3 / A 30 / D (WBL)	5 / A	7 / A
West Elizabeth Street/Taft Hill Road	21 / C	36 / D	22 / C	42 / D
West Elizabeth Street/Constitution Avenue	6 / A	9 / A	10 / B	17 / B
West Elizabeth Street/City Park Avenue	8 / A	17 / B	14 / B	25 / C
West Elizabeth Street/Shields Street	17 / B	46 / D	13 / B	42 / D
Shields Street/Plum Street	9 / A	14 / B	12 / B	18 / B

Key findings from the Existing Plus Recommended Design analysis are:

- At West Elizabeth Street/Overland Trail, average delay increases by two seconds in the AM peak hour and four seconds in the PM peak hour; however, level of service for westbound left-turning vehicles improves to LOS B during both peak hours.
- At West Elizabeth Street/Taft Hill Road, average delay increases by one second in the AM peak hour and six seconds in the PM peak hour due to the introduction of Transit Signal Priority.
- At West Elizabeth Street/Constitution Avenue, average delay increases by four seconds in the AM peak hour and eight seconds in the PM peak hour due to the introduction of Transit Signal Priority and the restriction of northbound and southbound right-turn on red for two-stage turn queue boxes.
- At West Elizabeth Street/City Park Avenue, average delay increases by six seconds in the AM peak hour and eight seconds in the PM peak hour due to the introduction of Transit

Signal Priority and eastbound/westbound protected-only left-turns due to the protected intersection.

- At West Elizabeth Street/Shields Street, average delay decreases in both the AM and PM peak hour due to changes in eastbound/westbound lane configurations, the removal of the crosswalk across the intersection's north leg and the re-optimization of green time away from the westbound phase to other phases. VISSIM analysis is showing that eastbound right-turning vehicles operations are significantly affected by the presence of pedestrians in the intersection's south crosswalk. The VISSIM model currently assumes only at-grade improvements from the IGA project (no undercrossing); therefore, pedestrian volumes from the north crosswalk were re-assigned to the south crosswalk. Implementing improvements that reduce the number of pedestrians in the south crosswalk would likely result in an even more substantial improvement to level of service at this intersection.
- At Plum Street/Shields Street, average delay increases by three seconds in the AM peak hour and four seconds in the PM peak hour due to the introduction of Transit Signal Priority.

2040 & 2040 + RECOMMENDED DESIGN

Table 2 shows results of AM and PM peak hour analysis for 2040 Conditions and 2040 Plus Recommended Design conditions at study intersections affected by the Recommended Design

TABLE 1: DELAY / LEVEL OF SERVICE – 2040 TRAFFIC VOLUMES

Intersection	2040		2040 + Recommended Design	
	AM	PM	AM	PM
West Elizabeth Street/Overland Trail	3 / A 25 / D (WBL)	4 / A 29 / D (WBL)	8 / A	9 / A
West Elizabeth Street/Taft Hill Road	33 / C	58 / E	32 / C	54 / D
West Elizabeth Street/Constitution Avenue	6 / A	11 / B	12 / B	19 / B
West Elizabeth Street/City Park Avenue	8 / A	23 / C	15 / B	34 / C
West Elizabeth Street/Shields Street	22 / C	>80 / F	17 / B	>80 / F
Shields Street/Plum Street	10 / B	47 / D	12 / B	45 / D

The 2040 Plus Recommended Design analysis indicates that changes to delay due to the project in 2040 are similar to changes to delay due to the project in existing conditions. At intersections with a relatively low level of congestion (West Elizabeth Street/Overland Trail, West Elizabeth Street/Constitution Avenue and West Elizabeth Street/City Park Avenue), delay generally increases between five and 11 seconds without causing unacceptable conditions (LOS D or worse). At congested intersections (West Elizabeth Street/Taft Hill Road, West Elizabeth Street/Shields Street and Shields Street/Plum Street., the Recommended Design does not have a significant impact as LOS is generally unchanged.

Detailed technical calculations are attached as an appendix.

Vehicles

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

WCAP W Elizabeth St
Existing
AM Peak Hour

Intersection 2 **Shields St/W Laurel St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn							
	Through	719	707	98.3%	3.6	0.8	A	47
	Right Turn	413	395	95.6%	5.2	1.2	A	38
	Subtotal	1,132	1,101	97.3%	4.2	0.8	A	85
SB	Left Turn	130	129	98.8%	20.9	2.7	C	49
	Through	667	670	100.4%	10.4	1.4	B	127
	Right Turn							
	Subtotal	797	798	100.2%	12.2	1.4	B	177
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	128	121	94.3%	46.9	2.5	D	104
	Through							
	Right Turn	61	61	100.2%	10.1	2.5	B	11
	Subtotal	189	182	96.2%	35.3	2.6	D	115
Total		2,118	2,081	98.3%	11.5	0.6	B	377

Intersection 3 **Shields St/W Plum St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	13	13	96.9%	6.1	7.5	A	1
	Through	1,064	1,039	97.6%	2.6	1.0	A	50
	Right Turn	37	40	108.9%	2.6	1.5	A	2
	Subtotal	1,114	1,091	98.0%	2.7	1.0	A	53
SB	Left Turn	13	14	103.8%	17.8	14.4	B	4
	Through	764	761	99.6%	5.4	0.8	A	75
	Right Turn	18	18	98.3%	5.6	2.7	A	2
	Subtotal	795	792	99.7%	5.7	0.7	A	81
EB	Left Turn	51	51	100.0%	54.3	9.9	D	51
	Through	25	31	124.4%	59.0	6.4	E	34
	Right Turn	34	34	100.3%	50.8	15.8	D	32
	Subtotal	110	116	105.6%	55.1	7.8	E	116
WB	Left Turn	17	18	105.9%	49.8	24.2	D	16
	Through	18	27	149.4%	42.4	11.6	D	21
	Right Turn	17	16	93.5%	7.9	3.1	A	2
	Subtotal	52	61	116.9%	36.1	10.6	D	40
Total		2,071	2,061	99.5%	8.9	0.7	A	290

Intersection 4 **Shields St/W Elizabeth St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	140	143	102.4%	24.1	6.9	C	63
	Through	851	827	97.1%	10.9	2.3	B	166
	Right Turn	54	55	101.3%	8.6	1.5	A	9
	Subtotal	1,045	1,025	98.1%	12.6	2.5	B	238
SB	Left Turn	24	23	95.8%	34.1	18.1	C	14
	Through	653	651	99.6%	7.3	1.7	A	87
	Right Turn	138	139	100.9%	2.9	0.4	A	7
	Subtotal	815	813	99.8%	7.5	1.3	A	109
EB	Left Turn	258	262	101.4%	41.9	5.4	D	201
	Through	27	26	95.9%	44.1	18.3	D	21
	Right Turn	296	297	100.2%	32.9	12.1	C	179
	Subtotal	581	584	100.5%	37.8	5.6	D	400
WB	Left Turn	15	13	88.7%	50.4	31.5	D	12
	Through	5	5	108.0%	21.4	25.8	C	2
	Right Turn	5	4	84.0%	10.1	21.5	B	1
	Subtotal	25	23	91.6%	40.7	22.2	D	15
Total		2,466	2,445	99.1%	17.4	2.0	B	762

Vehicles

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

WCAP W Elizabeth St
Existing
AM Peak Hour

Intersection 5		Shields St/Lake St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn							
	Through	1,178	1,171	99.4%	2.9	0.8	A	63
	Right Turn	154	151	98.0%	3.8	1.1	A	11
	Subtotal	1,332	1,322	99.2%	3.0	0.8	A	73
SB	Left Turn	123	120	97.6%	36.1	12.7	D	80
	Through	768	756	98.4%	5.6	1.6	A	78
	Right Turn							
	Subtotal	891	876	98.3%	10.2	3.7	B	158
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	61	60	99.0%	49.5	8.6	D	55
	Through							
	Right Turn	37	36	98.4%	4.9	1.0	A	3
	Subtotal	98	97	98.8%	32.4	5.4	C	58
Total		2,321	2,294	98.8%	7.5	1.8	A	289

Intersection 6		Shields St/Prospect			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	56	55	98.9%	26.4	5.0	C	27
	Through	946	942	99.6%	20.7	2.9	C	357
	Right Turn	136	130	95.2%	15.8	1.9	B	38
	Subtotal	1,138	1,127	99.0%	20.4	2.6	C	422
SB	Left Turn	145	155	107.2%	33.7	5.2	C	96
	Through	630	606	96.2%	6.6	1.2	A	73
	Right Turn	54	53	97.8%	2.6	0.9	A	3
	Subtotal	829	815	98.3%	11.6	1.4	B	171
EB	Left Turn	241	228	94.8%	154.2	42.7	F	646
	Through	713	732	102.6%	132.7	36.7	F	1,780
	Right Turn	152	151	99.5%	95.9	34.1	F	266
	Subtotal	1,106	1,112	100.5%	132.4	36.8	F	2,692
WB	Left Turn	71	66	92.4%	52.1	8.7	D	63
	Through	233	242	103.7%	41.6	3.4	D	184
	Right Turn	145	149	102.6%	34.4	5.1	C	94
	Subtotal	449	456	101.6%	40.8	2.9	D	341
Total		3,522	3,509	99.6%	60.5	13.5	E	3,626

Intersection 8		City Park Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	24	23	95.8%	21.6	3.5	C	9
	Through	33	31	94.2%	19.3	5.8	B	11
	Right Turn	35	36	101.4%	10.2	4.0	B	7
	Subtotal	92	90	97.4%	16.2	3.9	B	27
SB	Left Turn	34	33	95.9%	19.8	6.1	B	12
	Through	32	33	103.4%	19.1	7.1	B	12
	Right Turn	18	23	128.9%	11.9	3.9	B	5
	Subtotal	84	89	105.8%	17.2	4.4	B	28
EB	Left Turn	53	51	96.8%	9.3	4.3	A	9
	Through	441	440	99.8%	5.7	0.9	A	46
	Right Turn	66	65	98.0%	5.2	1.3	A	6
	Subtotal	560	556	99.3%	6.0	1.1	A	61
WB	Left Turn	30	30	101.3%	11.5	5.9	B	6
	Through	160	161	100.7%	5.1	1.7	A	15
	Right Turn	45	43	94.9%	3.6	1.0	A	3
	Subtotal	235	234	99.7%	5.6	1.5	A	24
Total		971	969	99.8%	7.9	1.1	A	141

Vehicles

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

WCAP W Elizabeth St
Existing
AM Peak Hour

Intersection 9 Constitution Ave/W Elizabeth St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	3	3	110.0%	12.0	13.2	B	1
	Through	4	5	115.0%	17.7	14.4	B	1
	Right Turn	20	21	106.0%	5.7	2.3	A	2
	Subtotal	27	29	107.8%	9.3	4.7	A	4
SB	Left Turn	36	34	95.3%	19.0	6.0	B	12
	Through	9	9	103.3%	21.7	5.5	C	4
	Right Turn	32	36	112.2%	7.8	2.1	A	5
	Subtotal	77	80	103.2%	14.3	3.3	B	21
EB	Left Turn	26	26	100.8%	7.4	5.7	A	4
	Through	499	500	100.1%	4.0	1.3	A	36
	Right Turn	5	6	110.0%	2.0	2.8	A	0
	Subtotal	530	531	100.3%	4.1	1.2	A	40
WB	Left Turn	2	2	80.0%	0.8	1.4	A	0
	Through	150	151	100.5%	4.1	2.8	A	11
	Right Turn	15	21	139.3%	6.9	3.8	A	3
	Subtotal	167	173	103.7%	4.4	2.7	A	14
Total		801	813	101.5%	5.7	1.1	A	79

Intersection 11 Taft Hill Rd/W Elizabeth St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	51	47	91.6%	16.4	2.1	B	14
	Through	739	740	100.2%	18.7	2.0	B	253
	Right Turn	111	108	97.4%	18.4	2.5	B	37
	Subtotal	901	895	99.4%	18.5	1.6	B	304
SB	Left Turn	91	90	98.5%	23.1	6.0	C	38
	Through	547	544	99.5%	13.1	1.8	B	130
	Right Turn	47	48	101.5%	12.3	5.0	B	11
	Subtotal	685	681	99.5%	14.4	2.1	B	179
EB	Left Turn	121	120	99.0%	33.6	5.3	C	74
	Through	239	248	103.8%	40.3	3.0	D	183
	Right Turn	153	154	100.7%	16.8	3.4	B	47
	Subtotal	513	522	101.7%	31.9	2.7	C	304
WB	Left Turn	100	100	99.6%	31.6	8.6	C	58
	Through	109	117	107.3%	30.2	6.5	C	65
	Right Turn	32	31	96.9%	5.5	1.9	A	3
	Subtotal	241	248	102.7%	27.6	4.0	C	126
Total		2,340	2,346	100.3%	21.3	1.6	C	913

Intersection 12 Overland Trail/W Elizabeth St Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	4	4	100.0%	1.2	2.2	A	0
	Through	455	449	98.7%	0.5	0.1	A	4
	Right Turn	69	74	106.7%	0.9	0.2	A	1
	Subtotal	528	527	99.8%	0.6	0.1	A	6
SB	Left Turn	33	34	103.6%	3.3	1.7	A	2
	Through	272	278	102.1%	0.3	0.1	A	2
	Right Turn	10	11	111.0%	0.5	0.2	A	0
	Subtotal	315	323	102.5%	0.7	0.2	A	4
EB	Left Turn	11	13	117.3%	11.3	6.5	B	3
	Through	1	1	110.0%	5.5	12.2	A	0
	Right Turn	1	1	70.0%	1.0	2.1	A	0
	Subtotal	13	15	113.1%	11.3	6.7	B	3
WB	Left Turn	51	52	102.7%	21.6	6.3	C	21
	Through	4	4	105.0%	10.4	10.1	B	1
	Right Turn	65	69	106.5%	12.9	6.6	B	16
	Subtotal	120	126	104.8%	16.5	5.9	C	38
Total		976	990	101.5%	3.4	1.0	A	50

Vehicles

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

WCAP W Elizabeth St
Existing
PM Peak Hour

Intersection 2		Shields St/W Laurel St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	858	838	97.7%	8.3	2.7	A	128
	Through	428	412	96.2%	11.6	2.4	B	87
	Right Turn							
	Subtotal	1,286	1,250	97.2%	9.4	2.4	A	215
SB	Left Turn	99	96	96.7%	52.3	9.1	D	92
	Through	971	920	94.7%	17.5	1.8	B	295
	Right Turn							
	Subtotal	1,070	1,016	94.9%	20.9	1.9	C	387
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	497	491	98.7%	71.2	15.4	E	640
	Through							
	Right Turn	154	149	96.8%	42.5	15.3	D	116
	Subtotal	651	640	98.2%	64.1	15.1	E	756
Total		3,007	2,905	96.6%	24.8	3.8	C	1358

Intersection 3		Shields St/W Plum St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	70	63	90.1%	98.7	82.1	F	114
	Through	1,205	1,175	97.5%	4.7	1.5	A	100
	Right Turn	56	51	91.8%	3.4	2.2	A	3
	Subtotal	1,331	1,290	96.9%	8.8	4.4	A	218
SB	Left Turn	18	19	104.4%	45.3	24.3	D	16
	Through	1,390	1,334	96.0%	8.1	1.9	A	199
	Right Turn	60	59	99.0%	6.9	1.0	A	8
	Subtotal	1,468	1,412	96.2%	8.6	2.0	A	222
EB	Left Turn	59	59	99.7%	77.7	34.3	E	84
	Through	23	25	109.1%	83.2	35.2	F	38
	Right Turn	61	57	93.0%	82.2	31.8	F	85
	Subtotal	143	141	98.3%	79.9	32.2	E	207
WB	Left Turn	56	51	90.4%	74.5	27.1	E	69
	Through	24	27	111.7%	58.2	15.6	E	29
	Right Turn	22	19	87.7%	25.5	9.3	C	9
	Subtotal	102	97	94.8%	60.1	18.1	E	107
Total		3,044	2,939	96.6%	13.6	2.7	B	754

Intersection 4		Shields St/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	273	250	91.6%	136.7	58.3	F	627
	Through	1,001	971	97.0%	52.4	36.5	D	932
	Right Turn	57	56	97.9%	40.2	36.2	D	41
	Subtotal	1,331	1,277	96.0%	66.8	40.2	E	1601
SB	Left Turn	10	10	95.0%	34.4	30.9	C	6
	Through	1,067	1,015	95.1%	25.1	7.0	C	468
	Right Turn	430	412	95.8%	16.2	4.6	B	122
	Subtotal	1,507	1,436	95.3%	22.7	6.1	C	596
EB	Left Turn	324	316	97.6%	57.3	10.2	E	332
	Through	48	49	101.9%	58.9	14.4	E	53
	Right Turn	379	366	96.5%	63.8	20.6	E	427
	Subtotal	751	731	97.3%	61.0	11.7	E	812
WB	Left Turn	61	61	99.3%	49.8	9.8	D	55
	Through	36	36	100.8%	46.0	7.3	D	31
	Right Turn	6	6	91.7%	9.3	11.1	A	1
	Subtotal	103	102	99.4%	46.8	7.0	D	87
Total		3,692	3,547	96.1%	46.4	15.0	D	3096

Vehicles

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

WCAP W Elizabeth St
Existing
PM Peak Hour

Intersection 5		Shields St/Lake St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn							
	Through	1,268	1,259	99.3%	2.9	0.8	A	68
	Right Turn	52	51	98.8%	3.1	1.3	A	3
	Subtotal	1,320	1,311	99.3%	2.9	0.8	A	71
SB	Left Turn	92	87	94.9%	37.1	9.4	D	59
	Through	1,360	1,291	94.9%	13.2	6.2	B	312
	Right Turn							
	Subtotal	1,452	1,379	94.9%	14.7	6.6	B	371
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	117	118	101.0%	55.5	9.3	E	120
	Through							
	Right Turn	157	154	98.1%	9.3	3.5	A	26
	Subtotal	274	272	99.3%	30.0	7.3	C	146
Total		3,046	2,961	97.2%	11.2	3.4	B	588

Intersection 6		Shields St/Prospect			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn	160	155	96.8%	56.5	10.6	E	160
	Through	908	904	99.6%	35.7	3.8	D	591
	Right Turn	137	134	98.1%	23.9	6.2	C	59
	Subtotal	1,205	1,193	99.0%	37.3	4.8	D	810
SB	Left Turn	218	226	103.7%	54.6	7.5	D	226
	Through	1,080	1,013	93.8%	22.4	5.7	C	416
	Right Turn	179	165	92.2%	14.0	4.5	B	42
	Subtotal	1,477	1,404	95.1%	26.7	4.7	C	685
EB	Left Turn	158	160	101.3%	65.0	12.9	E	191
	Through	396	396	99.9%	40.2	2.6	D	292
	Right Turn	159	157	98.8%	20.8	5.4	C	60
	Subtotal	713	713	100.0%	41.5	4.8	D	543
WB	Left Turn	196	195	99.6%	89.8	15.6	F	321
	Through	637	625	98.1%	78.7	12.3	E	902
	Right Turn	254	243	95.6%	80.6	16.3	F	359
	Subtotal	1,087	1,063	97.8%	81.3	13.3	F	1582
Total		4,482	4,373	97.6%	46.1	3.9	D	3620

Intersection 8		City Park Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn	155	152	97.8%	46.8	15.9	D	130
	Through	107	101	94.7%	27.4	8.8	C	51
	Right Turn	87	86	99.3%	23.2	9.8	C	37
	Subtotal	349	339	97.2%	35.0	12.2	D	218
SB	Left Turn	73	74	101.1%	20.9	5.5	C	28
	Through	101	99	98.0%	17.2	3.2	B	31
	Right Turn	51	57	112.4%	18.8	3.8	B	20
	Subtotal	225	230	102.3%	18.8	2.7	B	79
EB	Left Turn	61	61	99.3%	17.3	5.0	B	19
	Through	508	504	99.1%	9.0	1.0	A	83
	Right Turn	96	98	101.6%	9.9	2.0	A	18
	Subtotal	665	662	99.5%	9.9	1.1	A	120
WB	Left Turn	89	89	99.9%	28.7	8.5	C	47
	Through	491	463	94.2%	9.2	1.2	A	78
	Right Turn	77	69	89.2%	9.4	2.2	A	12
	Subtotal	657	620	94.4%	11.8	1.6	B	136
Total		1,896	1,851	97.6%	16.6	2.3	B	553

Vehicles

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

WCAP W Elizabeth St
Existing
PM Peak Hour

Intersection 9		Constitution Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	2	2	95.0%	3.1	6.8	A	0
	Through	26	23	89.2%	24.5	7.7	C	10
	Right Turn	35	34	98.3%	7.8	2.8	A	5
	Subtotal	63	60	94.4%	13.7	3.9	B	15
SB	Left Turn	36	36	100.0%	23.5	4.4	C	16
	Through	22	23	104.1%	22.9	10.3	C	10
	Right Turn	74	76	103.2%	14.5	5.7	B	20
	Subtotal	132	135	102.5%	18.6	3.4	B	45
EB	Left Turn	47	46	98.3%	20.3	13.5	C	17
	Through	531	527	99.2%	6.1	1.1	A	59
	Right Turn	6	6	105.0%	9.5	9.0	A	1
	Subtotal	584	579	99.2%	7.5	2.0	A	77
WB	Left Turn	39	41	105.4%	6.0	2.2	A	5
	Through	622	583	93.7%	7.3	4.8	A	78
	Right Turn	47	52	110.2%	11.9	9.2	B	11
	Subtotal	708	676	95.4%	7.5	4.7	A	94
Total		1,487	1,450	97.5%	9.0	3.1	A	232

Intersection 11		Taft Hill Rd/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	136	133	98.0%	33.9	2.9	C	83
	Through	577	572	99.2%	21.8	3.5	C	229
	Right Turn	129	125	97.2%	19.9	6.7	B	46
	Subtotal	842	831	98.7%	23.4	3.4	C	357
SB	Left Turn	106	107	101.1%	42.8	12.5	D	84
	Through	768	765	99.6%	30.7	5.7	C	431
	Right Turn	84	81	96.5%	29.8	5.3	C	44
	Subtotal	958	953	99.5%	32.1	5.9	C	559
EB	Left Turn	162	157	96.9%	77.3	39.3	E	222
	Through	305	305	99.9%	58.0	31.2	E	324
	Right Turn	121	120	99.2%	37.6	30.8	D	83
	Subtotal	588	582	98.9%	59.7	33.5	E	629
WB	Left Turn	178	164	92.2%	45.1	17.3	D	136
	Through	319	303	95.1%	39.0	10.7	D	217
	Right Turn	77	71	92.6%	8.9	2.7	A	12
	Subtotal	574	539	93.9%	36.7	6.6	D	364
Total		2,962	2,905	98.1%	35.5	7.3	D	1910

Intersection 12		Overland Trail/W Elizabeth St			Side-street Stop			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	2	2	90.0%	1.6	2.1	A	0
	Through	322	329	102.1%	0.5	0.1	A	3
	Right Turn	83	83	99.8%	1.0	0.2	A	1
	Subtotal	407	413	101.5%	0.6	0.1	A	5
SB	Left Turn	73	75	102.6%	4.5	1.3	A	6
	Through	537	540	100.5%	0.5	0.1	A	5
	Right Turn	7	6	84.3%	0.6	0.5	A	0
	Subtotal	617	621	100.6%	1.1	0.3	A	12
EB	Left Turn	2	2	120.0%	7.4	11.7	A	0
	Through							
	Right Turn	3	4	130.0%	2.6	2.7	A	0
	Subtotal	5	6	126.0%	7.1	10.1	A	1
WB	Left Turn	69	67	96.4%	29.6	7.2	D	36
	Through	5	6	122.0%	14.8	14.1	B	2
	Right Turn	67	64	96.1%	10.3	3.5	B	12
	Subtotal	141	137	97.2%	20.5	5.7	C	50
Total		1,170	1,177	100.6%	3.3	0.9	A	67

Intersection 2		Shields St/W Laurel St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	719	701	97.5%	5.0	1.2	A	64
	Through	413	395	95.7%	7.8	2.6	A	57
	Right Turn							
	Subtotal	1,132	1,096	96.8%	6.0	1.4	A	120
SB	Left Turn	130	133	102.2%	21.4	6.0	C	52
	Through	667	653	97.9%	10.2	1.5	B	122
	Right Turn							
	Subtotal	797	786	98.6%	12.1	2.4	B	174
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	128	121	94.5%	45.8	4.0	D	102
	Through							
	Right Turn	61	60	98.2%	10.3	2.1	B	11
	Subtotal	189	181	95.7%	34.6	3.1	C	113
Total		2,118	2,063	97.4%	12.2	1.4	B	407

Intersection 3		Shields St/W Plum St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	13	12	93.8%	17.9	10.7	B	4
	Through	1,064	1,032	97.0%	9.2	1.1	A	174
	Right Turn	37	41	111.1%	8.8	4.4	A	7
	Subtotal	1,114	1,086	97.4%	9.3	1.1	A	185
SB	Left Turn	13	11	84.6%	15.9	14.9	B	3
	Through	764	748	97.9%	7.0	1.6	A	96
	Right Turn	18	18	97.2%	7.7	5.8	A	2
	Subtotal	795	777	97.7%	7.2	1.6	A	102
EB	Left Turn	51	50	98.6%	54.4	9.2	D	50
	Through	25	31	123.6%	39.4	9.1	D	22
	Right Turn	34	33	97.4%	45.1	13.4	D	27
	Subtotal	110	114	103.9%	48.8	6.2	D	100
WB	Left Turn	17	23	132.4%	38.7	18.7	D	16
	Through	18	23	127.8%	29.1	17.4	C	12
	Right Turn	17	17	98.2%	8.9	5.1	A	3
	Subtotal	52	62	119.6%	27.2	11.0	C	31
Total		2,071	2,039	98.4%	12.1	1.2	B	417

Intersection 4		Shields St/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	140	145	103.2%	22.4	2.9	C	59
	Through	851	823	96.7%	7.2	2.5	A	109
	Right Turn	54	54	99.1%	6.7	3.6	A	7
	Subtotal	1,045	1,021	97.7%	9.3	2.3	A	175
SB	Left Turn	24	23	96.7%	18.8	6.1	B	8
	Through	653	641	98.1%	7.5	3.3	A	88
	Right Turn	138	140	101.4%	3.2	0.6	A	8
	Subtotal	815	804	98.7%	7.1	2.7	A	105
EB	Left Turn	258	254	98.6%	43.8	6.5	D	204
	Through	27	26	96.3%	28.8	17.0	C	14
	Right Turn	296	297	100.4%	14.1	2.5	B	77
	Subtotal	581	577	99.4%	27.7	3.3	C	295
WB	Left Turn	15	14	96.0%	60.0	15.1	E	16
	Through	5	5	106.0%	27.5	25.5	C	3
	Right Turn	5	4	78.0%	52.5	38.2	D	4
	Subtotal	25	24	94.4%	54.8	10.9	D	22
Total		2,466	2,426	98.4%	13.4	1.9	B	597

Intersection 5 Shields St/Lake St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn							
	Through	1,178	1,174	99.7%	3.7	0.8	A	80
	Right Turn	154	149	97.0%	4.3	1.2	A	12
	Subtotal	1,332	1,324	99.4%	3.8	0.7	A	92
SB	Left Turn	123	120	97.8%	45.5	6.9	D	100
	Through	768	753	98.0%	5.8	1.5	A	80
	Right Turn							
	Subtotal	891	873	98.0%	11.4	2.8	B	180
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	61	63	102.6%	47.6	7.3	D	55
	Through							
	Right Turn	37	36	97.6%	5.5	1.1	A	4
	Subtotal	98	99	100.7%	32.5	6.3	C	58
Total		2,321	2,296	98.9%	7.8	1.2	A	330

Intersection 6 Shields St/Prospect Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	56	59	105.9%	22.9	5.7	C	25
	Through	946	933	98.6%	21.1	2.0	C	361
	Right Turn	136	134	98.4%	14.6	3.8	B	36
	Subtotal	1,138	1,126	98.9%	20.4	1.7	C	422
SB	Left Turn	145	149	102.4%	33.0	6.9	C	90
	Through	630	609	96.7%	8.2	1.6	A	92
	Right Turn	54	57	105.9%	2.6	0.8	A	3
	Subtotal	829	815	98.3%	12.8	1.8	B	185
EB	Left Turn	241	241	100.2%	134.3	27.4	F	594
	Through	713	717	100.6%	111.5	16.5	F	1466
	Right Turn	152	155	102.0%	75.6	18.1	E	215
	Subtotal	1,106	1,114	100.7%	111.5	19.1	F	2275
WB	Left Turn	71	70	98.6%	48.6	10.1	D	62
	Through	233	234	100.6%	41.9	2.9	D	180
	Right Turn	145	148	101.8%	31.8	6.4	C	86
	Subtotal	449	452	100.6%	39.7	2.8	D	328
Total		3,522	3,506	99.6%	53.6	6.8	D	3209

Intersection 8 City Park Ave/W Elizabeth St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	24	22	91.7%	34.8	19.8	C	14
	Through	33	31	94.8%	23.6	5.5	C	14
	Right Turn	35	37	106.3%	9.5	4.8	A	6
	Subtotal	92	91	98.4%	20.2	4.5	C	34
SB	Left Turn	34	33	97.1%	30.7	13.4	C	19
	Through	32	33	104.4%	26.3	6.7	C	16
	Right Turn	18	23	126.1%	10.2	3.7	B	4
	Subtotal	84	89	106.1%	22.9	5.1	C	39
EB	Left Turn	53	56	105.1%	40.0	3.7	D	41
	Through	441	440	99.9%	10.8	1.7	B	87
	Right Turn	66	64	97.1%	9.1	1.8	A	11
	Subtotal	560	560	100.0%	13.5	1.7	B	139
WB	Left Turn	30	29	97.3%	35.5	11.7	D	19
	Through	160	160	100.1%	7.9	2.1	A	23
	Right Turn	45	46	101.3%	6.4	2.5	A	5
	Subtotal	235	235	100.0%	10.7	2.2	B	48
Total		971	975	100.4%	14.2	1.7	B	259

Intersection 9		Constitution Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	3	2	63.3%	18.6	20.2	B	1
	Through	4	5	117.5%	15.9	16.3	B	1
	Right Turn	20	18	91.0%	20.5	8.2	C	7
	Subtotal	27	25	91.9%	21.6	8.7	C	9
SB	Left Turn	36	35	96.4%	27.0	9.0	C	17
	Through	9	8	93.3%	20.8	15.3	C	3
	Right Turn	32	32	100.3%	24.7	4.4	C	15
	Subtotal	77	75	97.7%	25.1	4.0	C	35
EB	Left Turn	26	27	102.3%	8.8	3.8	A	4
	Through	499	503	100.7%	8.6	1.7	A	80
	Right Turn	5	6	126.0%	4.0	5.1	A	0
	Subtotal	530	536	101.0%	8.6	1.7	A	84
WB	Left Turn	2	2	80.0%	1.5	2.2	A	0
	Through	150	148	98.6%	3.6	1.4	A	10
	Right Turn	15	20	130.0%	7.5	3.1	A	3
	Subtotal	167	169	101.2%	4.0	1.4	A	13
Total		801	805	100.4%	10.4	1.6	B	141

Intersection 11		Taft Hill Rd/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	51	52	102.2%	15.5	3.7	B	15
	Through	739	721	97.5%	18.3	3.4	B	241
	Right Turn	111	112	100.8%	15.7	4.9	B	32
	Subtotal	901	885	98.2%	17.9	3.3	B	289
SB	Left Turn	91	88	96.6%	22.3	4.8	C	36
	Through	547	557	101.9%	13.1	1.7	B	134
	Right Turn	47	44	94.5%	10.7	4.0	B	9
	Subtotal	685	690	100.7%	14.1	1.5	B	179
EB	Left Turn	121	118	97.4%	40.3	6.8	D	87
	Through	239	244	102.1%	43.4	8.1	D	194
	Right Turn	153	158	103.3%	18.1	6.4	B	52
	Subtotal	513	520	101.3%	35.5	6.5	D	333
WB	Left Turn	100	98	97.6%	33.6	8.2	C	60
	Through	109	111	101.5%	31.9	9.6	C	65
	Right Turn	32	30	94.7%	5.5	1.3	A	3
	Subtotal	241	239	99.0%	29.8	7.8	C	128
Total		2,340	2,332	99.7%	22.1	2.7	C	929

Intersection 12		Overland Trail/W Elizabeth St			Roundabout			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	4	4	95.0%	1.7	1.9	A	0
	Through	455	460	101.0%	4.4	0.9	A	37
	Right Turn	69	69	99.4%	4.1	1.3	A	5
	Subtotal	528	532	100.7%	4.3	1.0	A	42
SB	Left Turn	33	30	91.2%	3.4	1.4	A	2
	Through	272	285	104.9%	2.9	0.4	A	15
	Right Turn	10	7	74.0%	3.5	2.5	A	0
	Subtotal	315	323	102.5%	2.9	0.4	A	18
EB	Left Turn	11	12	112.7%	4.4	2.7	A	1
	Through	1	7	740.0%	4.9	3.6	A	1
	Right Turn	1	1	50.0%	0.6	1.2	A	0
	Subtotal	13	20	156.2%	4.5	2.5	A	2
WB	Left Turn	51	49	96.7%	14.7	5.4	B	13
	Through	4	10	247.5%	29.2	7.8	D	5
	Right Turn	65	63	96.5%	16.1	6.8	C	19
	Subtotal	120	122	101.6%	16.6	4.8	C	37
Total		976	997	102.2%	5.4	0.8	A	98

Intersection 2		Shields St/W Laurel St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	858	836	97.4%	13.9	5.1	B	213
	Through	428	424	99.0%	15.4	4.0	B	120
	Right Turn							
	Subtotal	1,286	1,260	97.9%	14.4	4.7	B	333
SB	Left Turn	99	98	98.8%	51.3	8.4	D	92
	Through	971	929	95.7%	22.9	9.4	C	390
	Right Turn							
	Subtotal	1,070	1,027	95.9%	25.8	8.6	C	482
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	497	494	99.4%	83.2	24.9	F	754
	Through							
	Right Turn	154	149	96.6%	56.1	29.6	E	153
	Subtotal	651	643	98.8%	76.5	26.3	E	907
Total		3,007	2,929	97.4%	31.8	5.8	C	1721

Intersection 3		Shields St/W Plum St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	70	64	91.1%	116.1	101.6	F	136
	Through	1,205	1,184	98.2%	12.3	2.5	B	268
	Right Turn	56	55	98.8%	12.4	3.6	B	13
	Subtotal	1,331	1,303	97.9%	17.4	6.0	B	416
SB	Left Turn	18	21	113.9%	35.0	12.4	C	13
	Through	1,390	1,342	96.5%	13.7	5.2	B	337
	Right Turn	60	61	101.2%	11.1	6.4	B	12
	Subtotal	1,468	1,423	96.9%	13.9	5.2	B	362
EB	Left Turn	59	59	99.3%	56.2	8.4	E	60
	Through	23	27	117.8%	42.0	16.2	D	21
	Right Turn	61	56	92.1%	54.5	12.6	D	56
	Subtotal	143	142	99.2%	53.2	8.6	D	137
WB	Left Turn	56	54	97.1%	55.7	18.6	E	56
	Through	24	27	111.3%	34.1	22.1	C	17
	Right Turn	22	20	89.1%	16.3	11.7	B	6
	Subtotal	102	101	98.7%	42.3	10.8	D	78
Total		3,044	2,969	97.5%	18.4	4.0	B	994

Intersection 4		Shields St/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	273	254	92.9%	78.8	22.4	E	366
	Through	1,001	987	98.6%	27.4	10.7	C	497
	Right Turn	57	59	103.0%	22.2	9.5	C	24
	Subtotal	1,331	1,299	97.6%	37.5	13.0	D	887
SB	Left Turn	10	11	106.0%	44.6	19.3	D	9
	Through	1,067	1,015	95.1%	27.2	7.8	C	506
	Right Turn	430	415	96.5%	16.5	4.9	B	126
	Subtotal	1,507	1,441	95.6%	24.3	6.9	C	641
EB	Left Turn	324	314	97.0%	51.8	7.0	D	298
	Through	48	47	98.3%	53.6	16.4	D	46
	Right Turn	379	338	89.1%	114.8	17.8	F	710
	Subtotal	751	699	93.1%	81.8	8.9	F	1055
WB	Left Turn	61	59	96.6%	99.5	31.3	F	107
	Through	36	37	102.8%	88.1	26.8	F	60
	Right Turn	6	5	75.0%	53.1	60.1	D	4
	Subtotal	103	100	97.5%	94.8	27.2	F	172
Total		3,692	3,539	95.9%	42.3	6.3	D	2754

Intersection 5 Shields St/Lake St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn							
	Through	1,268	1,271	100.2%	2.9	0.4	A	67
	Right Turn	52	56	107.7%	3.3	2.6	A	3
	Subtotal	1,320	1,327	100.5%	2.9	0.4	A	70
SB	Left Turn	92	85	92.0%	38.5	8.2	D	60
	Through	1,360	1,265	93.0%	14.8	3.1	B	342
	Right Turn							
	Subtotal	1,452	1,350	93.0%	16.2	3.1	B	402
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	117	120	102.4%	53.4	9.5	D	117
	Through							
	Right Turn	157	154	98.2%	10.5	3.6	B	30
	Subtotal	274	274	100.0%	30.2	7.6	C	147
Total		3,046	2,951	96.9%	11.9	1.8	B	619

Intersection 6 Shields St/Prospect Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	160	153	95.6%	48.1	13.7	D	135
	Through	908	912	100.4%	33.7	4.7	C	563
	Right Turn	137	132	96.1%	23.1	6.2	C	56
	Subtotal	1,205	1,197	99.3%	34.6	6.1	C	754
SB	Left Turn	218	221	101.2%	52.3	7.1	D	212
	Through	1,080	993	91.9%	19.9	4.5	B	363
	Right Turn	179	163	91.3%	12.3	2.9	B	37
	Subtotal	1,477	1,377	93.2%	24.2	3.6	C	612
EB	Left Turn	158	160	101.5%	68.5	15.9	E	201
	Through	396	394	99.4%	40.4	4.0	D	292
	Right Turn	159	158	99.1%	20.3	4.7	C	59
	Subtotal	713	712	99.8%	42.7	5.6	D	552
WB	Left Turn	196	191	97.4%	106.3	33.1	F	372
	Through	637	613	96.2%	100.7	33.6	F	1131
	Right Turn	254	250	98.6%	103.6	33.4	F	475
	Subtotal	1,087	1,054	97.0%	102.5	33.2	F	1978
Total		4,482	4,339	96.8%	50.2	9.2	D	3896

Intersection 8 City Park Ave/W Elizabeth St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	155	158	101.7%	45.1	15.7	D	130
	Through	107	100	93.5%	28.3	9.1	C	52
	Right Turn	87	86	99.1%	20.9	6.7	C	33
	Subtotal	349	344	98.5%	34.2	11.9	C	215
SB	Left Turn	73	70	95.3%	25.8	5.4	C	33
	Through	101	99	98.0%	19.5	4.6	B	35
	Right Turn	51	56	109.8%	14.2	3.6	B	15
	Subtotal	225	225	99.8%	20.0	3.7	C	83
EB	Left Turn	61	56	91.3%	43.0	7.3	D	44
	Through	508	499	98.3%	24.7	5.5	C	226
	Right Turn	96	92	96.1%	19.6	6.8	B	33
	Subtotal	665	647	97.4%	25.6	5.1	C	303
WB	Left Turn	89	91	102.1%	36.8	7.7	D	61
	Through	491	470	95.7%	16.2	1.6	B	139
	Right Turn	77	66	86.1%	16.4	2.3	B	20
	Subtotal	657	627	95.4%	19.1	1.8	B	221
Total		1,896	1,843	97.2%	24.5	3.7	C	821

Intersection 9 Constitution Ave/W Elizabeth St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	2	2	105.0%	9.7	20.5	A	0
	Through	26	23	88.8%	16.6	6.5	B	7
	Right Turn	35	31	88.0%	21.3	7.1	C	12
	Subtotal	63	56	88.9%	19.7	6.2	B	19
SB	Left Turn	36	36	100.0%	27.2	6.4	C	18
	Through	22	26	117.3%	21.8	6.2	C	10
	Right Turn	74	74	99.6%	24.2	4.4	C	33
	Subtotal	132	136	102.7%	25.0	3.7	C	61
EB	Left Turn	47	50	105.5%	25.1	6.9	C	23
	Through	531	520	97.9%	15.9	3.1	B	151
	Right Turn	6	6	106.7%	14.8	15.6	B	2
	Subtotal	584	576	98.6%	16.6	3.1	B	176
WB	Left Turn	39	41	104.4%	23.4	8.9	C	17
	Through	622	598	96.1%	14.8	3.0	B	162
	Right Turn	47	52	110.0%	14.6	4.1	B	14
	Subtotal	708	690	97.5%	15.2	3.1	B	193
Total		1,487	1,458	98.0%	16.9	2.1	B	449

Intersection 11 Taft Hill Rd/W Elizabeth St Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	136	132	97.1%	35.1	5.4	D	85
	Through	577	574	99.5%	24.5	4.5	C	258
	Right Turn	129	124	95.7%	21.1	5.6	C	48
	Subtotal	842	830	98.6%	25.7	4.3	C	391
SB	Left Turn	106	104	98.1%	51.9	12.8	D	99
	Through	768	755	98.4%	41.7	10.4	D	577
	Right Turn	84	80	95.5%	38.3	11.3	D	56
	Subtotal	958	940	98.1%	42.5	10.4	D	732
EB	Left Turn	162	160	99.0%	79.3	41.1	E	233
	Through	305	306	100.4%	62.4	34.8	E	350
	Right Turn	121	117	97.0%	45.0	32.7	D	97
	Subtotal	588	584	99.3%	63.9	36.7	E	680
WB	Left Turn	178	170	95.2%	54.3	16.1	D	169
	Through	319	307	96.3%	45.0	10.4	D	253
	Right Turn	77	74	95.7%	14.0	8.0	B	19
	Subtotal	574	550	95.9%	43.8	11.8	D	441
Total		2,962	2,904	98.0%	42.2	10.8	D	2244

Intersection 12 Overland Trail/W Elizabeth St Roundabout

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	2	2	95.0%	2.1	3.4	A	0
	Through	322	324	100.5%	4.6	1.2	A	27
	Right Turn	83	83	100.0%	4.5	1.0	A	7
	Subtotal	407	408	100.3%	4.6	1.1	A	34
SB	Left Turn	73	72	98.8%	7.5	3.3	A	10
	Through	537	541	100.7%	7.2	2.2	A	71
	Right Turn	7	7	94.3%	7.8	5.0	A	1
	Subtotal	617	620	100.4%	7.2	2.2	A	82
EB	Left Turn	2	2	100.0%	3.8	4.2	A	0
	Through							
	Right Turn	3	3	103.3%	8.0	11.8	A	0
	Subtotal	5	5	102.0%	6.9	6.6	A	1
WB	Left Turn	69	62	89.7%	12.3	3.1	B	14
	Through	5	11	226.0%	23.8	6.1	C	5
	Right Turn	67	64	95.1%	13.9	5.0	B	16
	Subtotal	141	137	97.1%	14.3	3.0	B	35
Total		1,170	1,170	100.0%	7.2	1.2	A	152

Intersection 2 **Shields St/W Laurel St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn							
	Through	850	829	97.5%	8.0	2.8	A	122
	Right Turn	490	471	96.1%	10.5	2.6	B	90
	Subtotal	1,340	1,300	97.0%	8.9	2.7	A	212
SB	Left Turn	155	156	100.9%	34.7	10.8	C	100
	Through	790	783	99.1%	12.1	1.1	B	174
	Right Turn							
	Subtotal	945	939	99.4%	15.8	2.2	B	274
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	155	146	94.3%	45.1	4.3	D	121
	Through							
	Right Turn	75	70	92.7%	11.4	3.5	B	14
	Subtotal	230	216	93.8%	34.2	4.0	C	135
Total		2,515	2,455	97.6%	13.5	1.6	B	621

Intersection 3 **Shields St/W Plum St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	20	15	76.5%	11.4	6.8	B	3
	Through	1,260	1,227	97.4%	3.6	1.6	A	81
	Right Turn	45	46	102.0%	3.8	1.8	A	3
	Subtotal	1,325	1,289	97.2%	3.7	1.6	A	88
SB	Left Turn	20	14	68.0%	26.2	24.9	C	7
	Through	905	898	99.2%	5.5	0.7	A	90
	Right Turn	25	20	80.4%	4.3	2.6	A	2
	Subtotal	950	932	98.1%	5.9	0.9	A	98
EB	Left Turn	65	58	89.8%	63.5	17.1	E	68
	Through	30	37	123.7%	67.4	15.9	E	46
	Right Turn	45	40	88.7%	67.0	19.3	E	49
	Subtotal	140	135	96.7%	64.6	14.6	E	163
WB	Left Turn	25	22	88.0%	50.8	25.7	D	20
	Through	25	28	113.2%	34.3	9.6	C	18
	Right Turn	25	20	79.2%	14.4	8.3	B	5
	Subtotal	75	70	93.5%	34.3	9.2	C	43
Total		2,490	2,426	97.4%	10.1	1.4	B	392

Intersection 4 **Shields St/W Elizabeth St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	170	162	95.5%	32.4	4.7	C	97
	Through	1,005	970	96.5%	11.1	3.1	B	198
	Right Turn	70	62	88.9%	9.7	3.3	A	11
	Subtotal	1,245	1,195	96.0%	14.0	2.4	B	306
SB	Left Turn	30	26	85.7%	53.5	15.1	D	25
	Through	775	769	99.2%	8.2	2.4	A	115
	Right Turn	170	166	97.4%	3.8	0.6	A	12
	Subtotal	975	960	98.5%	8.9	2.0	A	152
EB	Left Turn	315	317	100.6%	48.3	5.6	D	281
	Through	35	36	103.7%	52.2	11.7	D	35
	Right Turn	360	357	99.3%	53.6	25.3	D	351
	Subtotal	710	711	100.1%	51.3	14.2	D	667
WB	Left Turn	20	16	80.5%	37.2	25.9	D	11
	Through	10	6	63.0%	22.2	30.5	C	3
	Right Turn	10	5	50.0%	7.4	10.9	A	1
	Subtotal	40	27	68.5%	37.3	16.7	D	14
Total		2,970	2,893	97.4%	21.7	2.8	C	1,138

Intersection 5		Shields St/Lake St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn							
	Through	1,395	1,372	98.3%	5.0	1.0	A	125
	Right Turn	185	175	94.6%	5.7	1.5	A	18
	Subtotal	1,580	1,547	97.9%	5.1	1.0	A	143
SB	Left Turn	150	145	96.7%	50.5	12.1	D	134
	Through	910	901	99.0%	7.0	3.3	A	115
	Right Turn							
	Subtotal	1,060	1,046	98.7%	13.3	4.6	B	249
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	75	71	94.1%	47.0	8.2	D	61
	Through							
	Right Turn	45	45	99.1%	5.5	1.4	A	4
	Subtotal	120	115	96.0%	31.9	4.8	C	65
Total		2,760	2,708	98.1%	9.8	2.1	A	458

Intersection 6		Shields St/Prospect			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	70	68	97.0%	35.0	8.4	D	44
	Through	1,120	1,107	98.8%	27.0	4.7	C	549
	Right Turn	165	155	94.1%	21.9	7.4	C	62
	Subtotal	1,355	1,330	98.1%	26.8	4.9	C	655
SB	Left Turn	175	178	101.4%	41.5	6.5	D	135
	Through	745	728	97.8%	7.9	2.2	A	106
	Right Turn	65	63	96.2%	4.7	1.5	A	5
	Subtotal	985	968	98.3%	14.2	2.3	B	247
EB	Left Turn	285	264	92.6%	381.2	56.8	F	1,845
	Through	845	792	93.8%	375.3	55.3	F	5,451
	Right Turn	180	165	91.7%	342.7	56.5	F	1,037
	Subtotal	1,310	1,221	93.2%	372.4	55.3	F	8,332
WB	Left Turn	85	83	97.1%	63.5	17.4	E	96
	Through	275	274	99.5%	3.0	1.4	A	15
	Right Turn	175	174	99.1%	19.1	3.3	B	61
	Subtotal	535	530	99.0%	18.0	4.4	B	172
Total		4,185	4,049	96.8%	135.2	17.3	F	9,405

Intersection 8		City Park Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	30	27	89.3%	20.5	3.9	C	10
	Through	45	40	88.7%	19.4	4.4	B	14
	Right Turn	45	44	98.0%	10.1	4.3	B	8
	Subtotal	120	111	92.3%	15.7	2.5	B	32
SB	Left Turn	45	40	89.8%	22.8	6.1	C	17
	Through	40	39	98.3%	18.7	4.2	B	13
	Right Turn	25	26	102.8%	15.7	5.5	B	7
	Subtotal	110	105	95.8%	19.3	2.5	B	38
EB	Left Turn	70	65	92.1%	7.3	1.9	A	9
	Through	545	532	97.6%	5.9	0.6	A	58
	Right Turn	85	82	96.4%	6.0	1.7	A	9
	Subtotal	700	678	96.9%	6.1	0.6	A	75
WB	Left Turn	40	34	86.0%	16.1	4.0	B	10
	Through	200	180	90.2%	5.9	1.3	A	19
	Right Turn	60	52	86.7%	4.0	1.3	A	4
	Subtotal	300	267	88.9%	6.8	1.2	A	33
Total		1,230	1,161	94.4%	8.3	0.6	A	179

Intersection 9 **Constitution Ave/W Elizabeth St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	3	60.0%	7.2	10.0	A	0
	Through	5	6	114.0%	15.1	9.0	B	2
	Right Turn	25	24	94.0%	5.7	1.3	A	2
	Subtotal	35	32	92.0%	8.2	3.4	A	4
SB	Left Turn	45	42	93.6%	20.6	4.1	C	16
	Through	15	11	72.7%	21.5	8.8	C	4
	Right Turn	40	40	99.0%	7.4	1.0	A	5
	Subtotal	100	93	92.6%	14.7	2.7	B	26
EB	Left Turn	35	28	79.7%	4.3	1.9	A	2
	Through	615	609	99.1%	4.2	1.2	A	47
	Right Turn	10	6	60.0%	4.5	5.6	A	0
	Subtotal	660	643	97.4%	4.3	1.2	A	50
WB	Left Turn	5	2	44.0%	2.7	3.4	A	0
	Through	185	170	91.8%	2.7	0.6	A	9
	Right Turn	20	22	108.0%	6.0	2.2	A	2
	Subtotal	210	194	92.2%	3.2	0.6	A	11
Total		1,005	962	95.7%	5.6	1.1	A	91

Intersection 11 **Taft Hill Rd/W Elizabeth St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	65	65	99.7%	26.7	10.0	C	32
	Through	910	898	98.7%	30.7	11.4	C	505
	Right Turn	140	137	97.6%	31.7	10.3	C	79
	Subtotal	1,115	1,099	98.6%	30.6	11.0	C	616
SB	Left Turn	115	111	96.2%	32.6	4.3	C	66
	Through	675	675	100.0%	17.2	2.2	B	213
	Right Turn	60	53	88.0%	17.1	4.2	B	17
	Subtotal	850	838	98.6%	19.2	2.3	B	296
EB	Left Turn	150	151	100.5%	52.2	18.1	D	144
	Through	295	291	98.8%	59.8	15.8	E	320
	Right Turn	190	192	100.9%	37.1	16.3	D	130
	Subtotal	635	634	99.8%	51.2	16.5	D	594
WB	Left Turn	125	111	88.4%	43.3	15.0	D	88
	Through	135	130	96.1%	30.0	4.0	C	71
	Right Turn	40	37	92.8%	7.0	2.1	A	5
	Subtotal	300	277	92.5%	32.1	6.8	C	164
Total		2,900	2,849	98.2%	32.5	6.7	C	1,670

Intersection 12 **Overland Trail/W Elizabeth St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	5	98.0%	3.4	2.3	A	0
	Through	560	560	100.1%	0.6	0.1	A	6
	Right Turn	85	88	103.5%	0.9	0.1	A	2
	Subtotal	650	653	100.5%	0.7	0.1	A	8
SB	Left Turn	45	41	90.2%	6.3	2.3	A	5
	Through	335	338	100.8%	0.5	0.2	A	3
	Right Turn	15	10	63.3%	0.5	0.2	A	0
	Subtotal	395	388	98.2%	1.1	0.3	A	8
EB	Left Turn	15	13	89.3%	20.4	7.4	C	5
	Through	5	1	18.0%	5.7	13.2	A	0
	Right Turn	5	1	20.0%	0.5	1.6	A	0
	Subtotal	25	15	61.2%	20.0	7.1	C	5
WB	Left Turn	65	62	95.1%	25.0	16.0	D	28
	Through	5	5	100.0%	15.1	9.2	C	1
	Right Turn	80	81	101.1%	19.7	12.7	C	29
	Subtotal	150	148	98.5%	22.2	13.7	C	59
Total		1,220	1,204	98.7%	3.3	1.3	A	80

Intersection 2		Shields St/W Laurel St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	1,040	929	89.3%	22.7	11.7	C	387
	Through	520	461	88.6%	25.0	8.7	C	211
	Right Turn							
	Subtotal	1,560	1,390	89.1%	23.5	10.6	C	598
SB	Left Turn	120	110	92.0%	134.9	43.4	F	273
	Through	1,175	1,121	95.4%	78.3	27.3	E	1608
	Right Turn							
	Subtotal	1,295	1,231	95.1%	83.1	28.5	F	1881
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	605	489	80.8%	445.1	179.8	F	3987
	Through							
	Right Turn	190	160	84.1%	267.8	144.2	F	785
	Subtotal	795	648	81.6%	403.5	178.5	F	4771
Total		3,650	3,269	89.6%	97.4	21.3	F	7250

Intersection 3		Shields St/W Plum St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	85	73	85.6%	110.5	62.7	F	147
	Through	1,460	1,314	90.0%	17.7	14.6	B	427
	Right Turn	70	59	83.9%	14.8	13.0	B	16
	Subtotal	1,615	1,445	89.5%	22.8	15.3	C	590
SB	Left Turn	25	19	77.2%	102.2	27.6	F	36
	Through	1,685	1,506	89.4%	41.6	6.5	D	1149
	Right Turn	75	65	86.9%	41.5	8.6	D	50
	Subtotal	1,785	1,591	89.1%	42.4	6.6	D	1234
EB	Left Turn	75	65	86.9%	274.0	134.3	F	328
	Through	30	29	97.7%	274.6	127.3	F	147
	Right Turn	75	66	88.1%	282.5	133.3	F	342
	Subtotal	180	161	89.2%	278.2	131.9	F	817
WB	Left Turn	70	60	85.3%	97.0	44.9	F	106
	Through	30	34	111.7%	95.2	52.2	F	58
	Right Turn	30	22	73.3%	49.7	34.2	D	20
	Subtotal	130	115	88.6%	87.2	42.6	F	185
Total		3,710	3,312	89.3%	46.8	8.6	D	2827

Intersection 4		Shields St/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	320	273	85.3%	291.5	60.9	F	1459
	Through	1,215	1,095	90.1%	181.0	33.2	F	3633
	Right Turn	70	62	88.6%	154.5	30.0	F	176
	Subtotal	1,605	1,430	89.1%	199.7	38.3	F	5268
SB	Left Turn	15	12	82.0%	82.1	45.1	F	19
	Through	1,295	1,141	88.1%	50.3	8.8	D	1052
	Right Turn	505	462	91.4%	23.8	3.6	C	201
	Subtotal	1,815	1,615	89.0%	43.2	6.3	D	1271
EB	Left Turn	380	353	92.9%	70.7	18.5	E	457
	Through	55	55	99.3%	73.2	20.1	E	73
	Right Turn	445	403	90.5%	49.2	13.8	D	363
	Subtotal	880	810	92.1%	60.3	11.7	E	894
WB	Left Turn	75	71	95.1%	53.2	8.7	D	70
	Through	45	45	99.6%	46.6	9.7	D	38
	Right Turn	10	6	58.0%	17.1	12.2	B	2
	Subtotal	130	122	93.8%	49.3	7.3	D	110
Total		4,430	3,977	89.8%	102.5	10.6	F	7543

Intersection 5		Shields St/Lake St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn							
	Through	1,535	1,452	94.6%	29.5	17.0	C	786
	Right Turn	65	58	88.6%	23.8	12.6	C	25
	Subtotal	1,600	1,509	94.3%	29.3	16.8	C	811
SB	Left Turn	115	93	80.9%	199.8	45.1	F	341
	Through	1,650	1,397	84.7%	128.5	31.6	F	3292
	Right Turn							
	Subtotal	1,765	1,490	84.4%	133.6	31.2	F	3633
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	145	141	97.3%	69.6	13.4	E	180
	Through							
	Right Turn	190	183	96.2%	54.7	31.0	D	183
	Subtotal	335	324	96.7%	61.8	21.6	E	363
Total		3,700	3,323	89.8%	79.6	15.9	E	4807

Intersection 6		Shields St/Prospect			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn	195	182	93.3%	144.0	42.4	F	480
	Through	1,100	1,056	96.0%	124.1	53.3	F	2403
	Right Turn	170	155	91.1%	106.4	54.6	F	302
	Subtotal	1,465	1,393	95.1%	125.3	51.3	F	3185
SB	Left Turn	265	242	91.4%	83.8	20.7	F	372
	Through	1,310	1,102	84.1%	39.5	4.7	D	798
	Right Turn	220	181	82.1%	24.5	3.3	C	81
	Subtotal	1,795	1,525	85.0%	45.2	5.9	D	1251
EB	Left Turn	195	183	93.9%	74.2	15.1	E	249
	Through	480	478	99.6%	41.9	3.9	D	368
	Right Turn	195	195	100.1%	22.4	4.4	C	80
	Subtotal	870	857	98.4%	43.8	4.3	D	697
WB	Left Turn	240	228	94.8%	110.6	31.7	F	461
	Through	775	751	96.9%	96.7	38.3	F	1331
	Right Turn	310	289	93.2%	110.5	70.8	F	585
	Subtotal	1,325	1,267	95.6%	102.3	42.2	F	2377
Total		5,455	5,042	92.4%	80.6	22.4	F	7510

Intersection 8		City Park Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn	180	167	92.7%	74.2	39.6	E	227
	Through	125	114	91.0%	57.6	38.9	E	120
	Right Turn	100	96	96.2%	51.8	35.1	D	91
	Subtotal	405	377	93.0%	63.2	38.6	E	438
SB	Left Turn	85	79	93.3%	23.8	8.6	C	35
	Through	115	109	94.9%	18.4	4.9	B	37
	Right Turn	60	61	101.5%	18.0	4.9	B	20
	Subtotal	260	249	95.9%	20.0	4.9	C	91
EB	Left Turn	70	64	91.9%	20.7	4.7	C	24
	Through	575	563	97.9%	8.5	0.8	A	88
	Right Turn	110	106	96.3%	9.2	1.7	A	18
	Subtotal	755	733	97.1%	9.6	0.6	A	130
WB	Left Turn	105	97	92.8%	38.3	13.5	D	68
	Through	555	523	94.2%	10.0	0.9	B	96
	Right Turn	90	74	82.4%	10.5	2.0	B	14
	Subtotal	750	695	92.6%	14.4	3.1	B	179
Total		2,170	2,053	94.6%	23.3	7.7	C	838

Intersection 9		Constitution Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	2	40.0%	5.1	11.8	A	0
	Through	30	25	83.0%	21.3	7.6	C	10
	Right Turn	40	36	90.0%	7.6	2.2	A	5
	Subtotal	75	63	83.9%	13.2	3.8	B	15
SB	Left Turn	45	42	92.4%	18.4	4.0	B	14
	Through	25	25	101.6%	23.4	5.5	C	11
	Right Turn	85	85	99.5%	14.9	7.4	B	23
	Subtotal	155	152	97.8%	17.1	4.1	B	48
EB	Left Turn	55	51	92.7%	36.1	23.7	D	34
	Through	605	582	96.2%	7.0	1.5	A	75
	Right Turn	10	6	58.0%	8.9	9.2	A	1
	Subtotal	670	639	95.4%	9.4	3.0	A	110
WB	Left Turn	45	43	94.9%	8.9	3.1	A	7
	Through	705	661	93.7%	10.4	5.9	B	125
	Right Turn	55	57	102.7%	12.1	10.0	B	12
	Subtotal	805	760	94.4%	10.4	5.7	B	145
Total		1,705	1,613	94.6%	10.8	4.0	B	317

Intersection 11		Taft Hill Rd/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	155	150	96.9%	42.8	16.0	D	118
	Through	655	656	100.1%	27.1	5.4	C	326
	Right Turn	150	145	96.4%	24.1	5.4	C	64
	Subtotal	960	951	99.0%	29.3	7.0	C	507
SB	Left Turn	120	116	96.4%	75.6	16.1	E	160
	Through	870	844	97.0%	59.5	11.3	E	920
	Right Turn	95	85	89.1%	56.8	12.2	E	88
	Subtotal	1,085	1,044	96.3%	61.1	11.1	E	1169
EB	Left Turn	185	177	95.6%	143.1	90.2	F	464
	Through	345	332	96.2%	101.3	67.3	F	616
	Right Turn	140	131	93.4%	80.7	66.2	F	194
	Subtotal	670	639	95.4%	108.8	73.4	F	1274
WB	Left Turn	205	191	93.0%	66.9	22.2	E	234
	Through	365	340	93.1%	51.3	25.7	D	320
	Right Turn	90	80	88.3%	20.3	15.5	C	30
	Subtotal	660	610	92.4%	51.6	22.5	D	583
Total		3,375	3,244	96.1%	57.7	12.5	E	3533

Intersection 12		Overland Trail/W Elizabeth St			Side-street Stop			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	3	56.0%	4.1	3.9	A	0
	Through	365	362	99.3%	0.5	0.2	A	4
	Right Turn	95	98	103.5%	0.9	0.2	A	2
	Subtotal	465	464	99.7%	0.7	0.2	A	5
SB	Left Turn	85	86	101.4%	5.2	1.6	A	8
	Through	610	603	98.9%	0.6	0.1	A	7
	Right Turn	10	8	78.0%	0.7	0.5	A	0
	Subtotal	705	697	98.9%	1.2	0.2	A	15
EB	Left Turn	5	3	54.0%	9.1	12.3	A	0
	Through	5	4	76.0%	3.7	2.6	A	0
	Right Turn	10	7	65.0%	8.6	6.8	A	1
	Subtotal	10	7	65.0%	8.6	6.8	A	1
WB	Left Turn	80	74	92.4%	29.3	6.4	D	40
	Through	10	6	56.0%	28.1	13.6	D	3
	Right Turn	80	72	90.0%	14.5	1.7	B	19
	Subtotal	170	152	89.1%	22.8	3.8	C	62
Total		1,350	1,319	97.7%	3.6	0.7	A	83

Intersection 2		Shields St/W Laurel St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	850	820	96.5%	6.7	1.5	A	100
	Through	490	464	94.7%	10.2	1.9	B	87
	Right Turn							
	Subtotal	1,340	1,284	95.9%	8.0	1.6	A	187
SB	Left Turn	155	155	100.1%	30.8	6.5	C	88
	Through	790	769	97.4%	13.0	1.3	B	183
	Right Turn							
	Subtotal	945	924	97.8%	16.1	2.0	B	271
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	155	143	92.5%	45.4	5.8	D	119
	Through							
	Right Turn	75	71	94.3%	11.9	3.3	B	15
	Subtotal	230	214	93.0%	34.6	4.5	C	135
Total		2,515	2,423	96.3%	14.7	1.5	B	592

Intersection 3		Shields St/W Plum St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	20	15	75.5%	20.9	11.9	C	6
	Through	1,260	1,208	95.9%	10.5	1.9	B	232
	Right Turn	45	47	104.7%	9.0	2.3	A	8
	Subtotal	1,325	1,271	95.9%	10.5	1.8	B	246
SB	Left Turn	20	13	66.5%	22.1	22.0	C	5
	Through	905	883	97.5%	6.2	1.0	A	100
	Right Turn	25	20	78.8%	6.9	3.6	A	3
	Subtotal	950	916	96.4%	6.6	1.0	A	108
EB	Left Turn	65	59	90.8%	50.2	7.5	D	54
	Through	30	35	116.7%	40.9	8.5	D	26
	Right Turn	45	40	89.8%	46.7	11.3	D	35
	Subtotal	140	134	96.0%	47.0	5.1	D	115
WB	Left Turn	25	26	103.2%	41.3	21.1	D	20
	Through	25	26	104.4%	25.5	16.1	C	12
	Right Turn	25	20	80.0%	12.3	6.8	B	5
	Subtotal	75	72	95.9%	28.4	9.0	C	36
Total		2,490	2,393	96.1%	12.4	1.5	B	505

Intersection 4		Shields St/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	170	165	97.1%	32.3	7.1	C	98
	Through	1,005	953	94.8%	10.3	3.2	B	180
	Right Turn	70	63	90.6%	8.3	2.7	A	10
	Subtotal	1,245	1,181	94.9%	13.4	3.1	B	287
SB	Left Turn	30	27	90.3%	30.6	13.4	C	15
	Through	775	754	97.3%	9.6	4.4	A	133
	Right Turn	170	166	97.8%	3.8	1.0	A	12
	Subtotal	975	947	97.2%	9.4	3.4	A	160
EB	Left Turn	315	311	98.7%	44.1	6.6	D	252
	Through	35	31	89.1%	44.8	14.5	D	26
	Right Turn	360	367	101.8%	18.8	4.1	B	126
	Subtotal	710	709	99.8%	31.3	4.4	C	404
WB	Left Turn	20	17	87.0%	53.6	32.0	D	17
	Through	10	6	60.0%	31.0	41.0	C	3
	Right Turn	10	5	45.0%	16.0	26.6	B	1
	Subtotal	40	28	69.8%	57.3	13.4	E	22
Total		2,970	2,865	96.5%	16.9	1.7	B	872

Intersection 5		Shields St/Lake St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn							
	Through	1,395	1,368	98.0%	4.4	1.4	A	110
	Right Turn	185	174	94.1%	5.4	1.5	A	17
	Subtotal	1,580	1,542	97.6%	4.5	1.4	A	128
SB	Left Turn	150	142	94.3%	50.6	13.0	D	131
	Through	910	905	99.5%	7.3	2.4	A	121
	Right Turn							
	Subtotal	1,060	1,047	98.7%	13.0	4.4	B	252
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	75	75	99.6%	45.2	6.8	D	62
	Through							
	Right Turn	45	42	94.2%	6.0	1.8	A	5
	Subtotal	120	117	97.6%	30.2	6.1	C	67
Total		2,760	2,706	98.0%	8.9	2.2	A	446

Intersection 6		Shields St/Prospect			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	70	69	98.4%	38.6	12.5	D	49
	Through	1,120	1,103	98.5%	35.8	11.3	D	724
	Right Turn	165	156	94.8%	31.4	11.5	C	90
	Subtotal	1,355	1,328	98.0%	35.4	11.2	D	863
SB	Left Turn	175	177	101.1%	46.6	11.0	D	151
	Through	745	731	98.1%	11.3	2.9	B	152
	Right Turn	65	68	104.2%	3.3	0.8	A	4
	Subtotal	985	976	99.1%	17.5	3.9	B	307
EB	Left Turn	285	263	92.2%	261.0	31.7	F	1257
	Through	845	780	92.3%	223.4	20.1	F	3194
	Right Turn	180	167	92.8%	179.0	13.8	F	548
	Subtotal	1,310	1,210	92.4%	226.3	18.1	F	4999
WB	Left Turn	85	84	98.7%	55.4	8.7	E	85
	Through	275	277	100.8%	40.4	2.2	D	205
	Right Turn	175	172	98.1%	33.9	5.8	C	107
	Subtotal	535	533	99.6%	40.5	1.9	D	397
Total		4,185	4,047	96.7%	91.1	5.1	F	6567

Intersection 8		City Park Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	30	27	91.0%	29.8	9.8	C	15
	Through	45	39	85.6%	25.7	6.9	C	18
	Right Turn	45	45	98.9%	9.2	4.3	A	7
	Subtotal	120	110	91.9%	20.1	2.9	C	41
SB	Left Turn	45	41	90.9%	26.6	5.7	C	20
	Through	40	41	101.3%	24.6	5.7	C	18
	Right Turn	25	28	112.0%	11.0	3.6	B	6
	Subtotal	110	109	99.5%	22.0	4.5	C	44
EB	Left Turn	70	68	97.3%	38.7	3.7	D	48
	Through	545	541	99.3%	12.5	2.0	B	124
	Right Turn	85	80	93.5%	9.6	1.4	A	14
	Subtotal	700	689	98.4%	14.9	2.3	B	186
WB	Left Turn	40	34	83.8%	36.1	9.0	D	22
	Through	200	187	93.3%	8.2	2.2	A	28
	Right Turn	60	54	89.2%	6.3	2.9	A	6
	Subtotal	300	274	91.2%	11.4	1.9	B	56
Total		1,230	1,182	96.1%	15.3	1.6	B	327

Intersection 9		Constitution Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	2	44.0%	6.5	9.7	A	0
	Through	5	6	128.0%	14.8	15.8	B	2
	Right Turn	25	23	90.4%	24.2	9.5	C	10
	Subtotal	35	31	89.1%	23.0	5.2	C	12
SB	Left Turn	45	44	96.9%	27.4	6.7	C	22
	Through	15	10	68.7%	28.0	8.9	C	5
	Right Turn	40	39	97.0%	23.8	5.3	C	17
	Subtotal	100	93	92.7%	26.0	4.6	C	44
EB	Left Turn	35	33	93.4%	10.6	5.6	B	6
	Through	615	617	100.4%	10.8	1.5	B	122
	Right Turn	10	7	67.0%	7.5	9.3	A	1
	Subtotal	660	657	99.5%	10.9	1.4	B	130
WB	Left Turn	5	2	44.0%	6.2	11.0	A	0
	Through	185	174	93.8%	3.5	1.3	A	11
	Right Turn	20	23	116.0%	5.0	1.2	A	2
	Subtotal	210	199	94.7%	3.8	0.9	A	14
Total		1,005	980	97.5%	12.0	1.5	B	199

Intersection 11		Taft Hill Rd/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	65	64	98.6%	27.2	9.4	C	32
	Through	910	892	98.0%	29.1	10.6	C	475
	Right Turn	140	136	97.3%	29.2	13.6	C	73
	Subtotal	1,115	1,092	97.9%	29.0	10.7	C	580
SB	Left Turn	115	110	95.7%	33.2	4.0	C	67
	Through	675	684	101.3%	18.0	2.4	B	225
	Right Turn	60	55	92.3%	15.7	3.2	B	16
	Subtotal	850	849	99.9%	19.7	1.9	B	308
EB	Left Turn	150	148	98.5%	57.1	13.4	E	155
	Through	295	298	101.0%	58.1	13.5	E	317
	Right Turn	190	197	103.7%	38.3	13.1	D	138
	Subtotal	635	643	101.2%	52.1	12.9	D	610
WB	Left Turn	125	117	93.3%	54.6	18.5	D	117
	Through	135	131	97.3%	28.8	2.6	C	69
	Right Turn	40	36	89.8%	5.5	2.0	A	4
	Subtotal	300	284	94.6%	36.4	8.3	D	190
Total		2,900	2,868	98.9%	32.4	5.9	C	1688

Intersection 12		Overland Trail/W Elizabeth St			Roundabout			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	4	76.0%	5.6	5.4	A	0
	Through	560	565	100.8%	6.5	1.4	A	67
	Right Turn	85	87	102.1%	5.8	1.2	A	9
	Subtotal	650	655	100.8%	6.5	1.3	A	77
SB	Left Turn	45	36	80.4%	4.0	1.0	A	3
	Through	335	349	104.2%	4.0	0.9	A	25
	Right Turn	15	10	67.3%	2.7	2.3	A	1
	Subtotal	395	396	100.1%	3.9	0.8	A	28
EB	Left Turn	15	14	92.7%	4.0	2.3	A	1
	Through	5	8	150.0%	11.1	3.3	B	2
	Right Turn	5	1	14.0%	1.8	4.1	A	0
	Subtotal	25	22	88.4%	7.4	1.5	A	3
WB	Left Turn	65	62	94.6%	23.8	6.0	C	27
	Through	5	11	210.0%	29.1	10.2	D	6
	Right Turn	80	76	95.0%	21.2	5.5	C	29
	Subtotal	150	148	98.7%	23.1	4.9	C	62
Total		1,220	1,221	100.1%	7.8	0.9	A	170

Intersection 2		Shields St/W Laurel St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	1,040	891	85.6%	21.2	11.6	C	346
	Through	520	450	86.4%	23.0	7.8	C	189
	Right Turn							
	Subtotal	1,560	1,340	85.9%	21.8	10.0	C	536
SB	Left Turn	120	105	87.2%	107.0	34.7	F	205
	Through	1,175	1,060	90.2%	64.2	26.8	E	1247
	Right Turn							
	Subtotal	1,295	1,164	89.9%	67.6	26.5	E	1452
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	605	529	87.5%	261.4	46.1	F	2536
	Through							
	Right Turn	190	160	84.3%	246.7	45.4	F	724
	Subtotal	795	689	86.7%	256.6	40.1	F	3261
Total		3,650	3,194	87.5%	83.1	16.6	F	5248

Intersection 3		Shields St/W Plum St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	85	53	61.9%	785.9	444.0	F	758
	Through	1,460	1,253	85.8%	40.7	21.4	D	936
	Right Turn	70	58	83.4%	27.5	12.4	C	29
	Subtotal	1,615	1,364	84.5%	58.3	23.3	E	1724
SB	Left Turn	25	21	84.8%	140.0	80.1	F	54
	Through	1,685	1,488	88.3%	29.4	10.8	C	801
	Right Turn	75	66	87.9%	25.1	13.5	C	30
	Subtotal	1,785	1,575	88.2%	31.0	11.3	C	886
EB	Left Turn	75	66	87.5%	74.0	14.0	E	89
	Through	30	32	107.0%	61.2	18.5	E	36
	Right Turn	75	70	93.3%	62.1	6.0	E	80
	Subtotal	180	168	93.2%	67.0	8.7	E	205
WB	Left Turn	70	66	93.7%	63.9	22.4	E	77
	Through	30	32	106.3%	37.0	13.6	D	22
	Right Turn	30	23	78.0%	32.6	16.6	C	14
	Subtotal	130	121	93.0%	51.3	18.7	D	112
Total		3,710	3,228	87.0%	45.0	13.1	D	2927

Intersection 4		Shields St/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	320	274	85.7%	264.7	52.9	F	1331
	Through	1,215	1,057	87.0%	176.8	47.1	F	3425
	Right Turn	70	64	91.3%	151.4	47.1	F	177
	Subtotal	1,605	1,395	86.9%	192.0	45.8	F	4933
SB	Left Turn	15	11	76.0%	75.7	36.1	E	16
	Through	1,295	1,130	87.2%	47.1	11.5	D	975
	Right Turn	505	465	92.1%	32.4	7.0	C	276
	Subtotal	1,815	1,606	88.5%	42.8	9.7	D	1267
EB	Left Turn	380	333	87.5%	70.7	9.3	E	431
	Through	55	48	86.7%	68.0	24.5	E	59
	Right Turn	445	368	82.8%	108.3	31.9	F	731
	Subtotal	880	749	85.1%	88.7	16.0	F	1222
WB	Left Turn	75	70	93.5%	109.6	47.3	F	141
	Through	45	43	94.9%	108.7	57.7	F	85
	Right Turn	10	6	61.0%	56.1	54.0	E	6
	Subtotal	130	119	91.5%	108.4	49.5	F	232
Total		4,430	3,869	87.3%	104.2	17.7	F	7654

Intersection 5		Shields St/Lake St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn							
	Through	1,535	1,416	92.2%	19.5	14.1	B	505
	Right Turn	65	60	92.3%	15.0	11.6	B	16
	Subtotal	1,600	1,476	92.3%	19.3	14.0	B	522
SB	Left Turn	115	97	84.4%	133.8	41.1	F	238
	Through	1,650	1,382	83.8%	79.6	39.4	E	2018
	Right Turn							
	Subtotal	1,765	1,480	83.8%	83.3	39.2	F	2256
EB	Left Turn							
	Through							
	Right Turn							
	Subtotal							
WB	Left Turn	145	143	98.6%	61.6	5.4	E	161
	Through							
	Right Turn	190	185	97.5%	29.4	17.5	C	100
	Subtotal	335	328	97.9%	44.8	10.8	D	261
Total		3,700	3,284	88.7%	50.8	18.0	D	3039

Intersection 6		Shields St/Prospect			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn	195	183	93.7%	107.9	32.3	F	362
	Through	1,100	1,056	96.0%	82.2	15.0	F	1593
	Right Turn	170	158	92.9%	67.1	14.5	E	194
	Subtotal	1,465	1,397	95.4%	84.1	16.5	F	2149
SB	Left Turn	265	242	91.2%	83.8	19.4	F	371
	Through	1,310	1,094	83.5%	39.1	6.7	D	784
	Right Turn	220	184	83.7%	25.4	4.4	C	86
	Subtotal	1,795	1,520	84.7%	45.1	7.7	D	1241
EB	Left Turn	195	184	94.4%	82.5	12.6	F	278
	Through	480	477	99.3%	40.4	4.0	D	353
	Right Turn	195	197	101.1%	20.6	2.9	C	74
	Subtotal	870	858	98.6%	44.5	4.5	D	706
WB	Left Turn	240	192	80.1%	237.1	17.7	F	836
	Through	775	626	80.8%	253.6	29.8	F	2912
	Right Turn	310	244	78.6%	261.7	29.1	F	1170
	Subtotal	1,325	1,063	80.2%	252.4	26.9	F	4918
Total		5,455	4,838	88.7%	101.2	6.0	F	9013

Intersection 8		City Park Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		LOS	Total Person Delay (min)
			Average	Percent	Average	Std. Dev.		
NB	Left Turn	180	163	90.7%	68.1	29.8	E	204
	Through	125	111	88.4%	44.8	23.0	D	91
	Right Turn	100	100	100.0%	42.1	22.8	D	77
	Subtotal	405	374	92.3%	54.8	24.5	D	372
SB	Left Turn	85	77	90.2%	29.1	13.0	C	41
	Through	115	117	101.5%	20.8	3.9	C	45
	Right Turn	60	62	103.7%	16.9	2.2	B	19
	Subtotal	260	256	98.3%	22.5	4.6	C	105
EB	Left Turn	70	63	90.4%	58.2	19.3	E	68
	Through	575	541	94.1%	41.6	19.7	D	413
	Right Turn	110	104	94.9%	37.0	14.4	D	71
	Subtotal	755	709	93.9%	42.4	18.6	D	552
WB	Left Turn	105	95	90.7%	39.5	4.0	D	69
	Through	555	523	94.3%	16.4	1.2	B	158
	Right Turn	90	77	85.6%	14.2	4.3	B	20
	Subtotal	750	695	92.7%	19.3	1.5	B	247
Total		2,170	2,034	93.7%	34.1	8.1	C	1275

Intersection 9		Constitution Ave/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	2	44.0%	7.7	13.9	A	0
	Through	30	26	86.7%	22.0	11.4	C	10
	Right Turn	40	37	93.5%	24.4	10.8	C	17
	Subtotal	75	66	87.5%	24.1	10.3	C	28
SB	Left Turn	45	41	91.1%	28.8	5.2	C	22
	Through	25	26	102.4%	26.5	8.1	C	12
	Right Turn	85	82	96.6%	24.9	8.3	C	37
	Subtotal	155	149	95.9%	26.4	5.6	C	72
EB	Left Turn	55	52	94.5%	27.2	5.5	C	26
	Through	605	569	94.0%	15.7	4.1	B	164
	Right Turn	10	8	77.0%	11.8	10.9	B	2
	Subtotal	670	629	93.8%	16.6	4.0	B	191
WB	Left Turn	45	42	93.8%	28.1	7.7	C	22
	Through	705	660	93.6%	18.9	3.8	B	228
	Right Turn	55	60	109.1%	17.7	3.9	B	19
	Subtotal	805	762	94.7%	19.3	3.6	B	269
Total		1,705	1,605	94.1%	18.9	2.4	B	560

Intersection 11		Taft Hill Rd/W Elizabeth St			Signal			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	155	150	97.0%	39.8	7.3	D	110
	Through	655	648	98.9%	26.9	4.6	C	319
	Right Turn	150	143	95.5%	25.0	7.9	C	66
	Subtotal	960	941	98.1%	28.6	4.4	C	494
SB	Left Turn	120	112	93.3%	68.4	5.6	E	140
	Through	870	830	95.4%	56.6	5.4	E	861
	Right Turn	95	91	95.3%	55.2	8.9	E	92
	Subtotal	1,085	1,033	95.2%	57.7	4.9	E	1093
EB	Left Turn	185	184	99.2%	114.8	71.1	F	386
	Through	345	331	96.0%	89.9	61.3	F	546
	Right Turn	140	131	93.4%	70.4	56.5	E	169
	Subtotal	670	645	96.3%	93.2	62.5	F	1101
WB	Left Turn	205	184	89.7%	58.7	14.2	E	198
	Through	365	335	91.8%	47.6	10.5	D	292
	Right Turn	90	81	90.1%	24.3	18.1	C	36
	Subtotal	660	600	90.9%	48.1	10.7	D	526
Total		3,375	3,220	95.4%	53.8	12.7	D	3214

Intersection 12		Overland Trail/W Elizabeth St			Roundabout			
Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)			Total Person Delay (min)
			Average	Percent	Average	Std. Dev.	LOS	
NB	Left Turn	5	2	48.0%	2.7	3.7	A	0
	Through	365	368	100.7%	6.1	1.2	A	41
	Right Turn	95	93	97.5%	5.2	1.0	A	9
	Subtotal	465	463	99.5%	5.9	1.1	A	50
SB	Left Turn	85	78	92.2%	10.2	2.0	B	15
	Through	610	615	100.8%	10.1	2.5	B	114
	Right Turn	10	7	70.0%	9.9	6.2	A	1
	Subtotal	705	700	99.3%	10.1	2.3	B	130
EB	Left Turn	5	2	48.0%	6.4	9.7	A	0
	Through	5	4	74.0%	5.2	6.2	A	0
	Right Turn	10	6	61.0%	7.7	7.5	A	1
	Subtotal	10	6	61.0%	7.7	7.5	A	1
WB	Left Turn	80	71	88.6%	13.2	3.8	B	17
	Through	10	11	112.0%	30.3	8.6	D	6
	Right Turn	80	71	88.8%	13.0	4.1	B	17
	Subtotal	170	153	90.1%	14.4	2.7	B	40
Total		1,350	1,322	97.9%	9.2	1.2	A	221