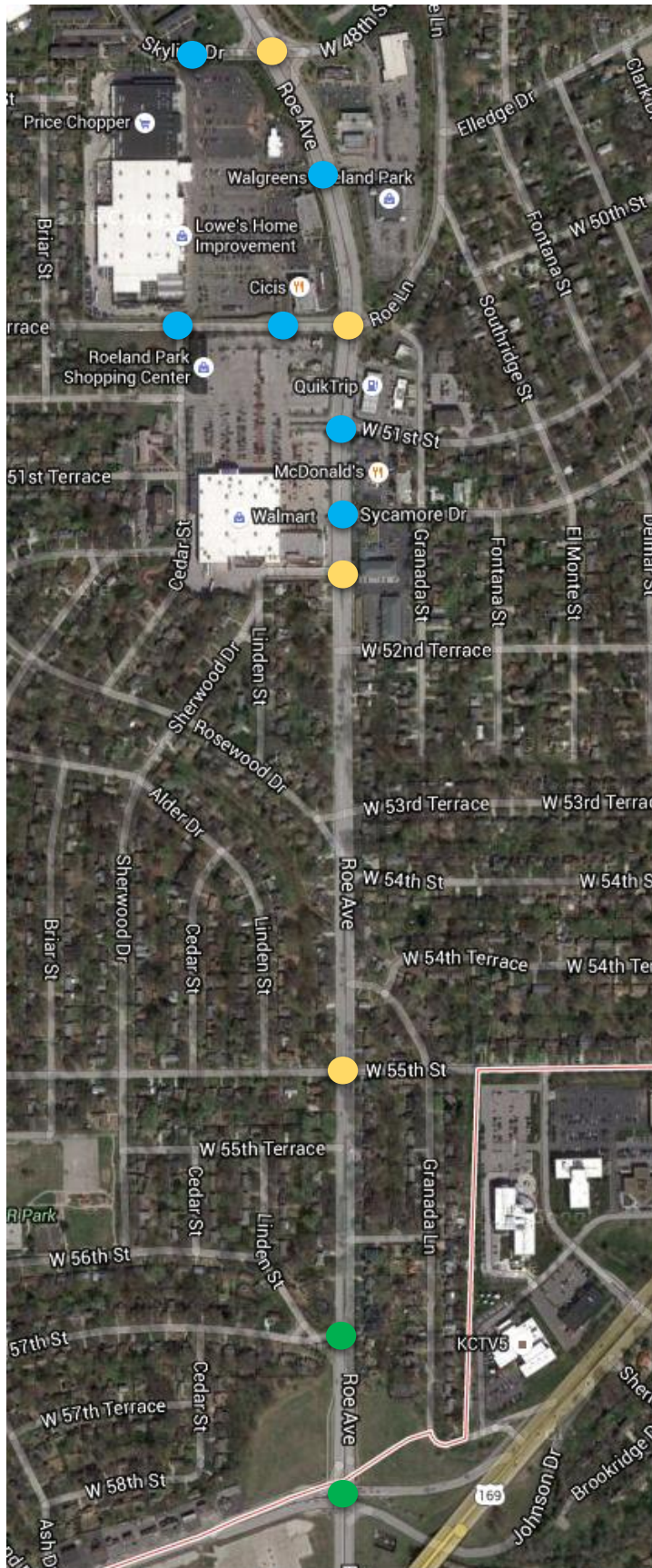




- Collect peak hour counts
- Collect 24-hour counts
- Previously collected traffic counts

Exhibit 1 - Traffic Count Locations and Types

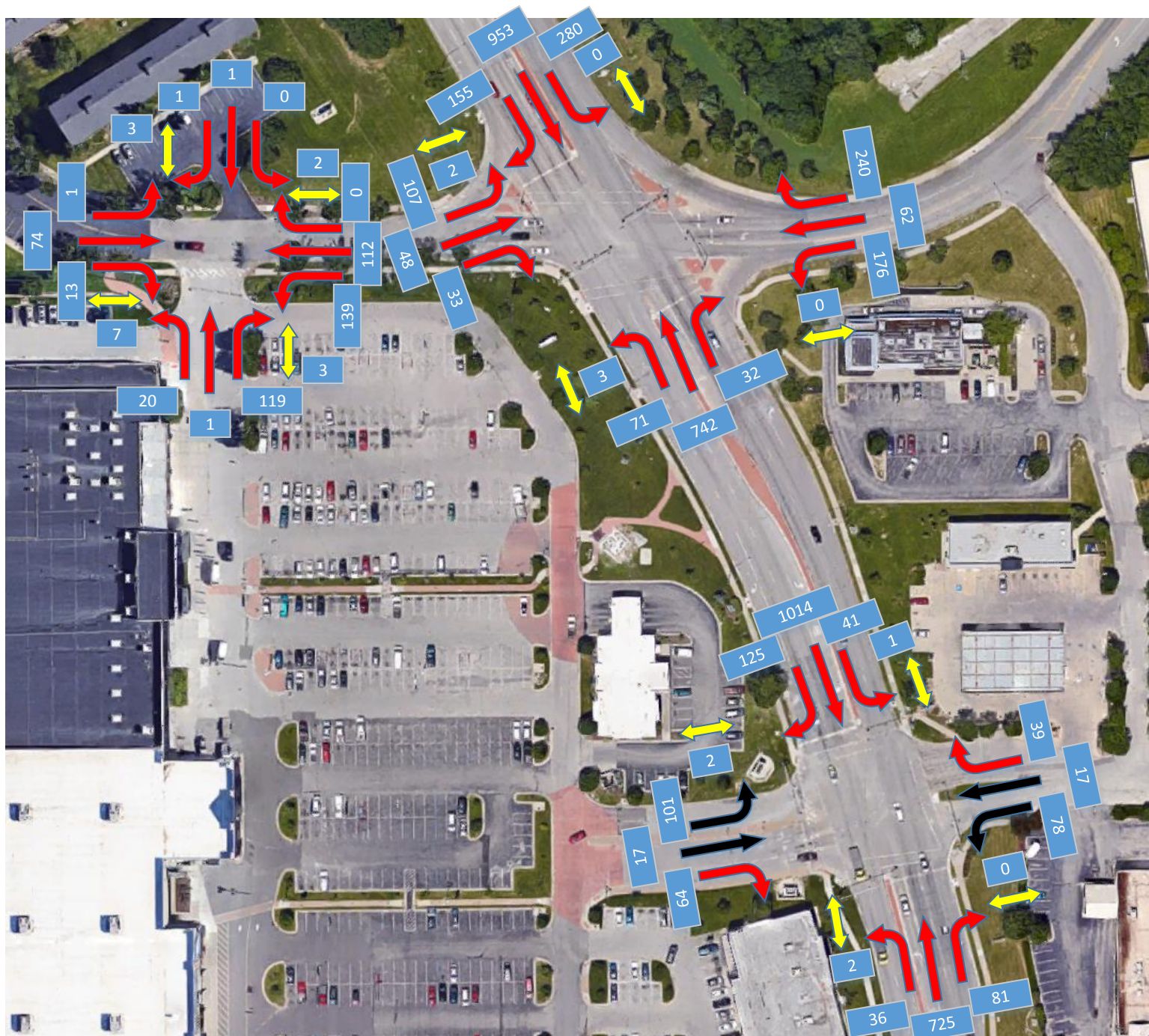


Exhibit 2 - Peak PM Traffic Counts at Skyline Drive and Bella Roe Plaza, W 48th St and Roe Boulevard, and Bella Roe Plaza and Roe Boulevard

Peak Hour:
5:00-6:00

Vehicles
pedestrians



Peak Hour:
5:00-6:00

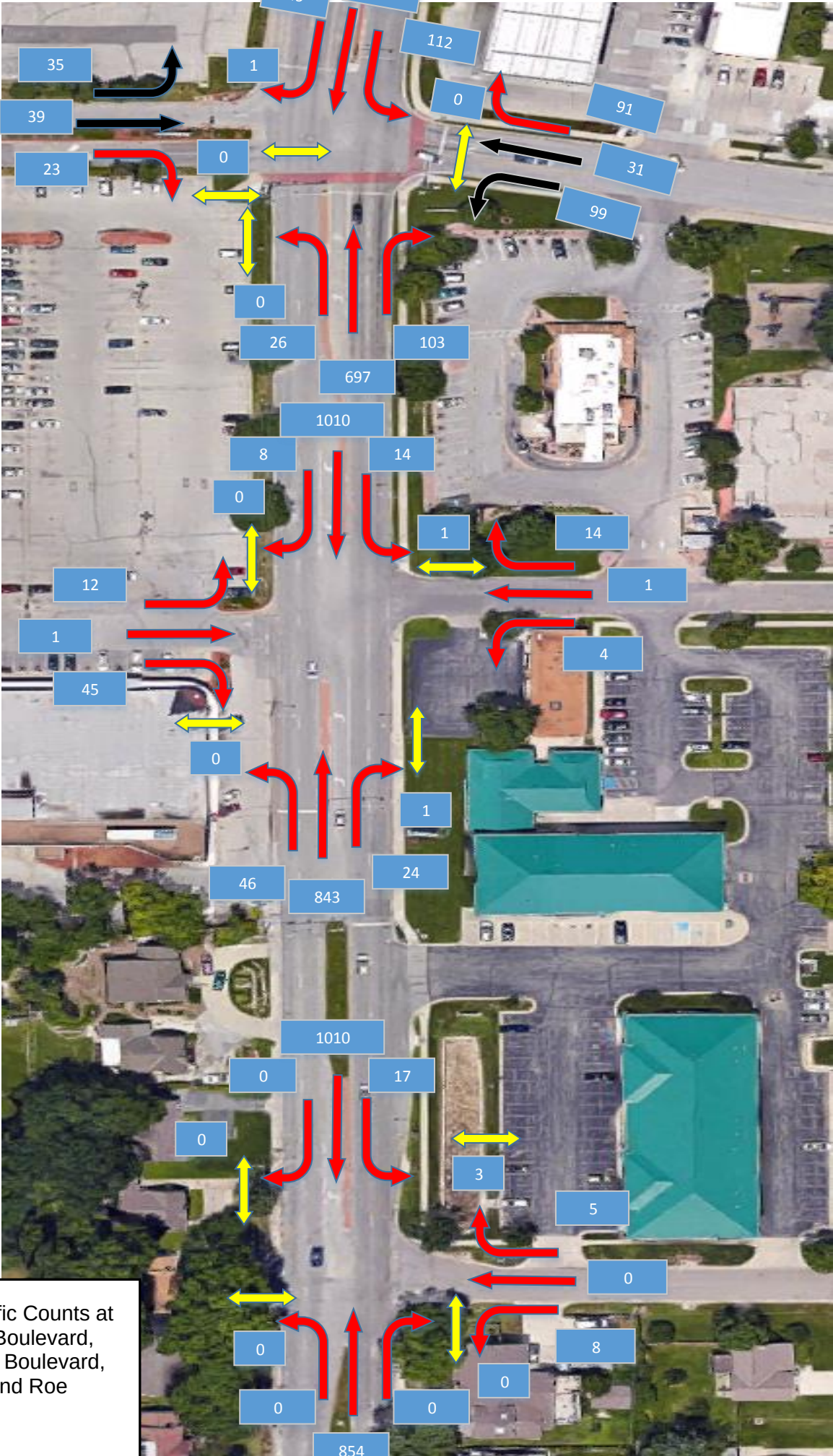
Vehicles
pedestrians



Exhibit 2 - Peak PM Traffic Counts at W 50th Terrace and Roe Boulevard, Bella Roe Plaza and W 50th Terrace, and Cedar Street and W 50th Terrace

Peak Hour:
5:00-6:00

Vehicles
pedestrians



**Exhibit 2 - Peak PM Traffic Counts at
W 51st Street and Roe Boulevard,
Sycamore Drive and Roe Boulevard,
and W 52nd Street and Roe
Boulevard**

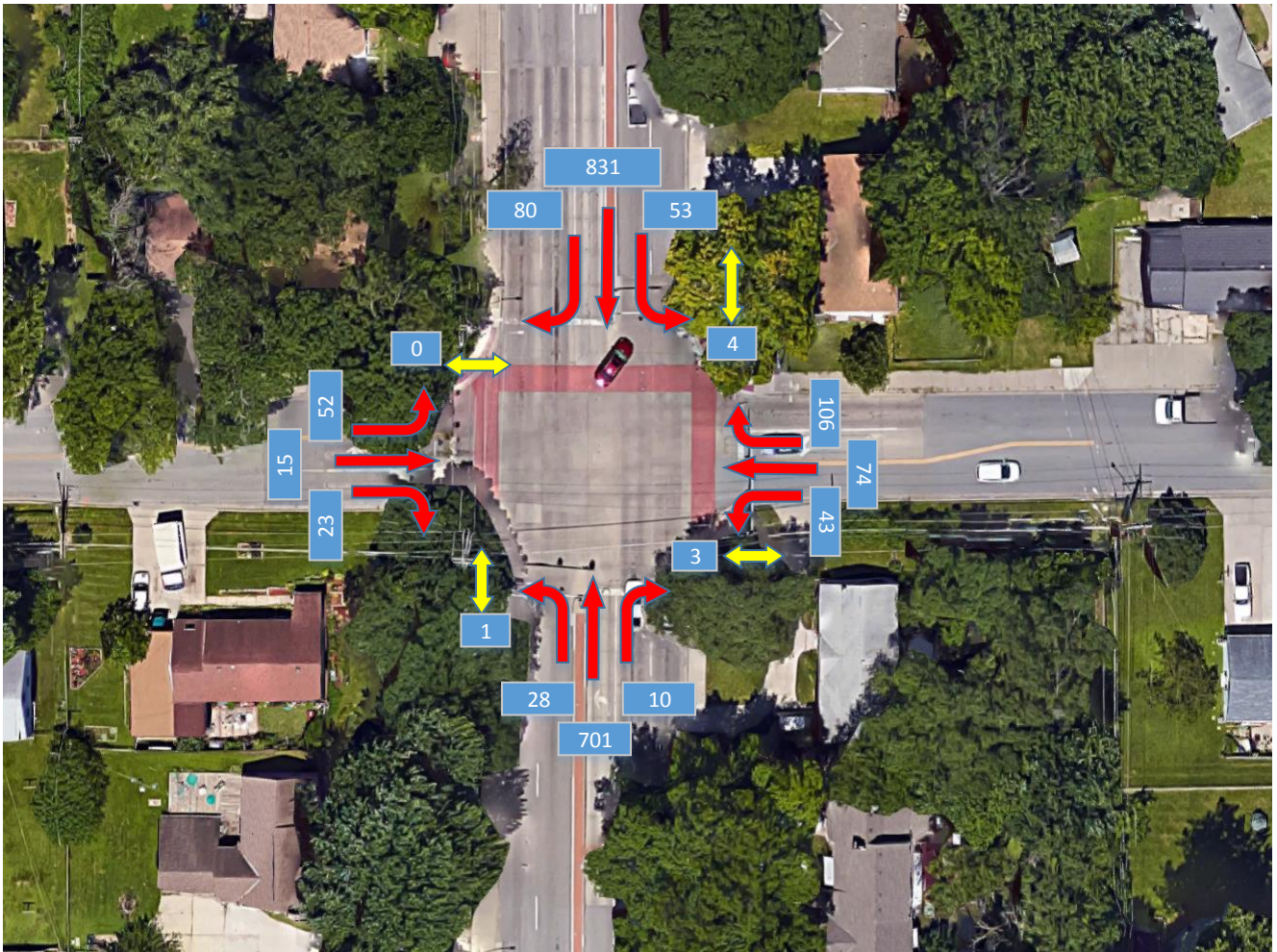
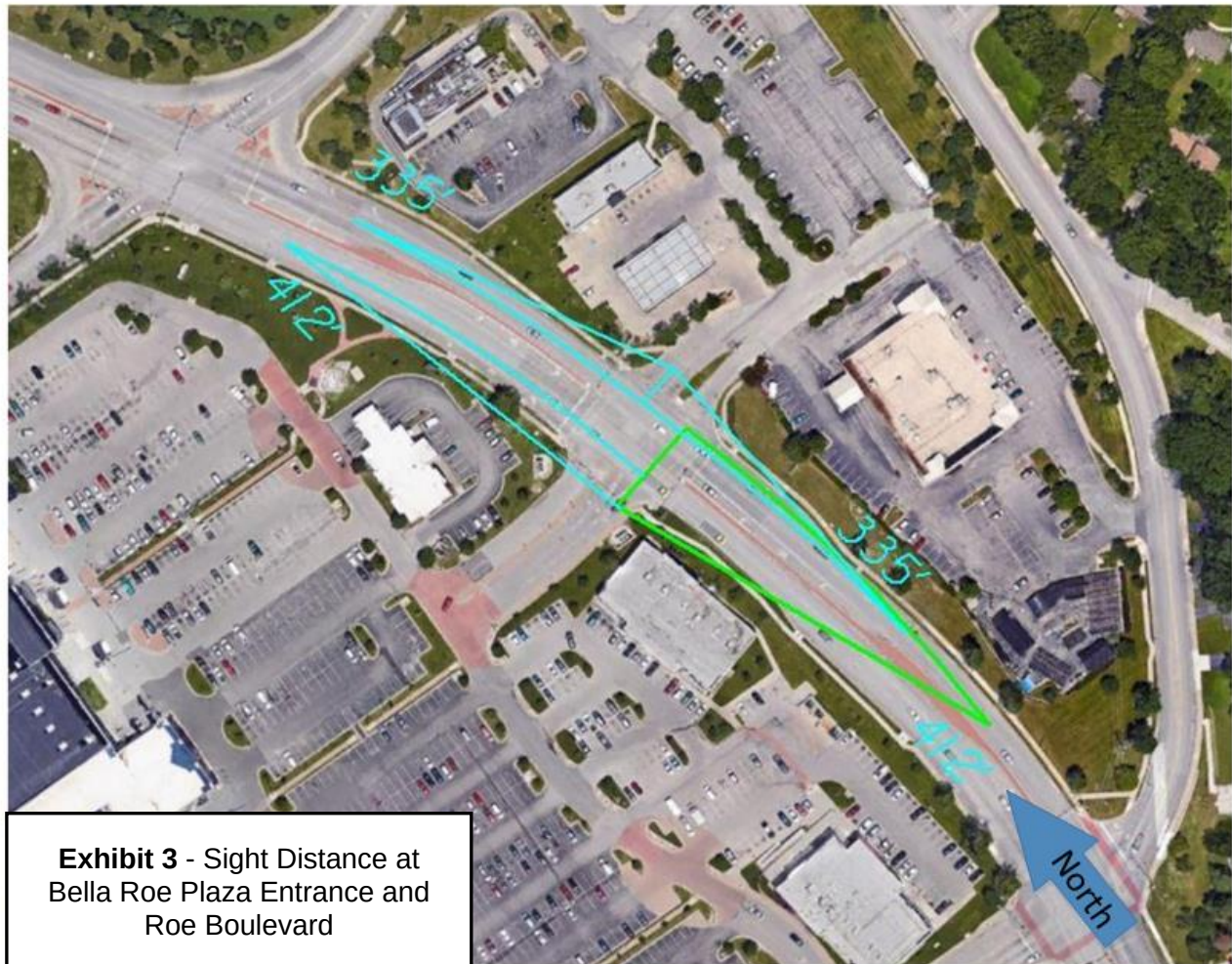


Exhibit 2 - Peak PM Traffic Counts at
55th Street and Roe Boulevard

Peak Hour:
5:00-6:00

Vehicles
pedestrians





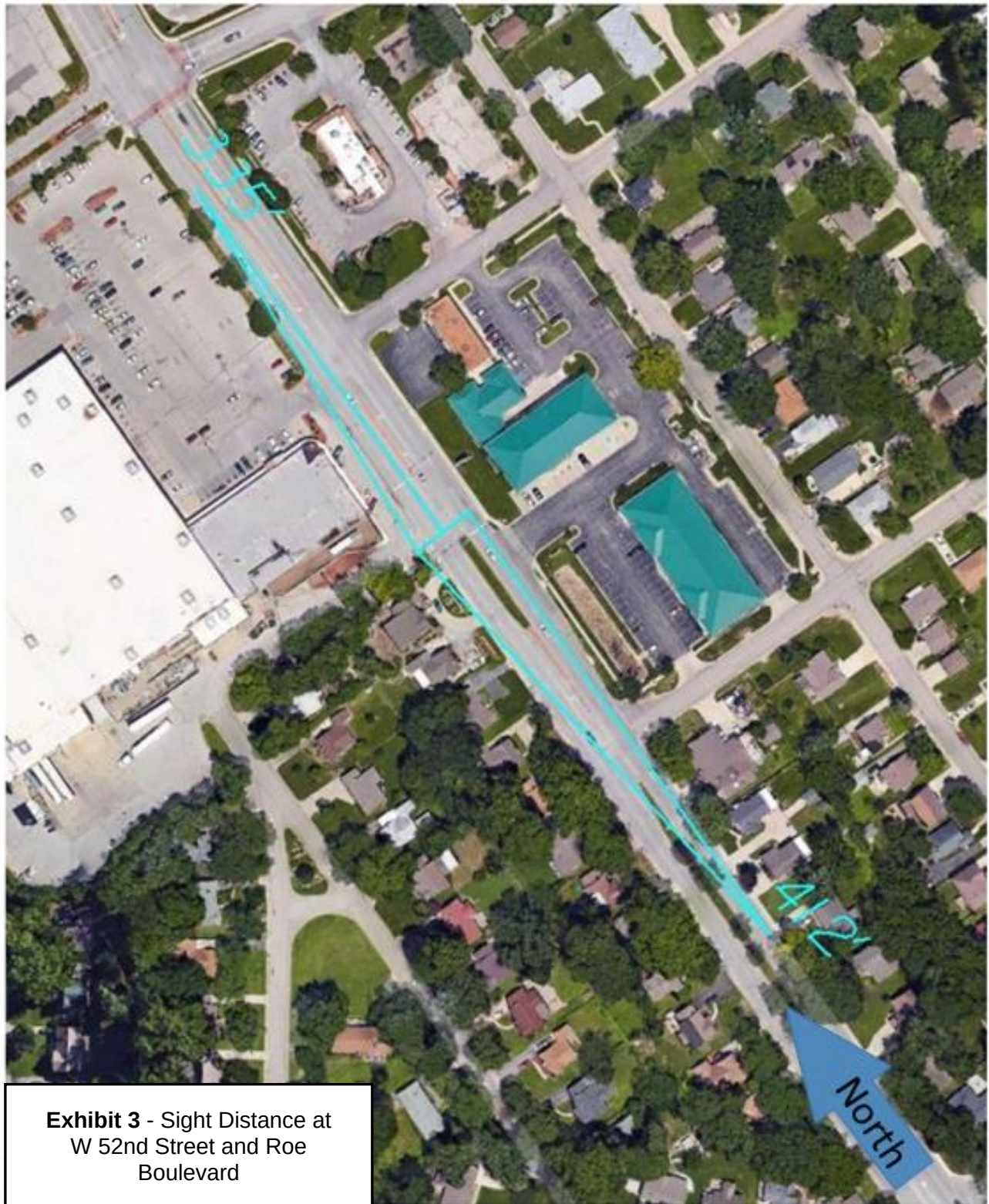


Exhibit 3 - Sight Distance at
W 52nd Street and Roe
Boulevard

APPENDIX

Section 1 – Traffic Count Data

- W 48th Street & Roe Boulevard
- W 50th Terrace & Roe Boulevard
- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
- PM Peak Hour at Remaining Count Intersections

Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor



Shafer, Kline & Warren
11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
Forming Partnerships - Delivering Results

Count Name: 48th & Roe
Site Code:
Start Date: 07/25/2016
Page No: 1

Turning Movement Data

Start Time	Roe Ave Southbound						48th Street Westbound						Roe Ave Northbound						Skyline Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 PM	32	222	57	0	0	311	57	18	35	0	0	110	20	187	5	0	0	212	8	17	22	0	0	47	680
6:15 PM	41	166	61	0	0	268	38	19	25	0	0	82	29	176	3	0	0	208	8	17	24	0	0	49	607
6:30 PM	40	168	49	0	0	257	60	20	26	0	3	106	19	156	3	0	3	178	15	16	25	0	0	56	597
6:45 PM	32	139	59	0	0	230	46	16	17	0	0	79	27	146	9	1	1	183	7	14	16	0	0	37	529
Hourly Total	145	695	226	0	0	1066	201	73	103	0	3	377	95	665	20	1	4	781	38	64	87	0	0	189	2413
7:00 PM	29	127	36	0	0	192	51	17	27	0	0	95	23	144	4	0	0	171	6	13	27	0	2	46	504
7:15 PM	23	139	48	0	0	210	45	9	19	0	0	73	19	130	3	0	0	152	3	25	18	0	0	46	481
7:30 PM	14	133	38	0	0	185	42	13	30	0	0	85	21	115	4	1	0	141	4	11	18	0	0	33	444
7:45 PM	25	101	34	0	0	160	38	14	10	0	0	62	9	109	8	0	0	126	3	10	16	0	0	29	377
Hourly Total	91	500	156	0	0	747	176	53	86	0	0	315	72	498	19	1	0	590	16	59	79	0	2	154	1806
8:00 PM	20	105	32	0	0	157	36	9	22	0	0	67	14	115	2	0	1	131	4	13	24	0	0	41	396
8:15 PM	19	91	34	0	0	144	30	8	25	0	0	63	5	116	4	0	0	125	1	9	18	0	0	28	360
8:30 PM	19	102	38	0	0	159	29	8	19	0	0	56	7	105	3	0	2	115	4	10	20	0	0	34	364
8:45 PM	26	87	32	0	0	145	38	5	11	0	0	54	10	97	4	0	1	111	2	8	15	0	0	25	335
Hourly Total	84	385	136	0	0	605	133	30	77	0	0	240	36	433	13	0	4	482	11	40	77	0	0	128	1455
9:00 PM	21	69	44	0	0	134	36	9	11	0	0	56	12	86	4	0	0	102	5	6	13	0	0	24	316
9:15 PM	21	78	40	0	0	139	33	7	11	0	0	51	10	97	2	0	0	109	1	10	21	0	0	32	331
9:30 PM	14	61	34	0	0	109	22	3	13	0	0	38	11	82	7	0	0	100	2	3	17	0	0	22	269
9:45 PM	15	77	33	0	0	125	16	4	12	0	0	32	5	53	2	0	0	60	9	6	11	0	0	26	243
Hourly Total	71	285	151	0	0	507	107	23	47	0	0	177	38	318	15	0	0	371	17	25	62	0	0	104	1159
10:00 PM	12	54	25	0	0	91	14	4	11	0	0	29	10	70	6	0	3	86	3	8	12	0	0	23	229
10:15 PM	12	37	23	0	0	72	17	2	5	0	0	24	6	38	5	0	0	49	4	8	3	0	0	15	160
10:30 PM	6	42	27	0	0	75	15	6	2	0	0	23	8	59	3	1	0	71	4	3	8	0	0	15	184
10:45 PM	9	35	21	0	0	65	7	4	5	0	0	16	5	40	3	0	0	48	5	1	5	0	0	11	140
Hourly Total	39	168	96	0	0	303	53	16	23	0	0	92	29	207	17	1	3	254	16	20	28	0	0	64	713
11:00 PM	6	31	27	0	0	64	13	5	2	0	0	20	3	43	2	0	0	48	2	5	3	0	0	10	142
11:15 PM	8	33	20	0	0	61	6	1	4	0	0	11	1	24	2	0	0	27	1	3	6	0	0	10	109
11:30 PM	10	13	19	0	0	42	6	1	1	0	0	8	2	21	1	0	0	24	3	3	5	0	0	11	85
11:45 PM	4	14	16	0	0	34	9	0	3	0	0	12	3	15	3	0	0	21	3	0	7	0	0	10	77
Hourly Total	28	91	82	0	0	201	34	7	10	0	0	51	9	103	8	0	0	120	9	11	21	0	0	41	413
12:00 AM	6	10	8	0	0	24	9	1	3	0	0	13	3	13	0	0	0	16	0	0	4	0	0	4	57
12:15 AM	5	7	12	0	0	24	6	0	1	0	0	7	3	9	1	0	0	13	0	0	1	0	0	1	45
12:30 AM	3	8	7	0	0	18	2	0	2	0	0	4	0	5	1	0	0	6	0	0	0	0	0	0	28
12:45 AM	2	11	12	0	0	25	1	2	1	0	0	4	0	8	0	0	0	8	0	0	1	0	2	1	38
Hourly Total	16	36	39	0	0	91	18	3	7	0	0	28	6	35	2	0	0	43	0	0	6	0	2	6	168
1:00 AM	3	11	5	0	0	19	6	0	4	0	0	10	2	5	0	0	0	7	1	0	1	0	0	2	38

1:15 AM	0	7	5	0	0	12	1	0	1	0	0	2	0	6	0	0	0	6	0	0	1	0	0	1	21
1:30 AM	5	6	3	0	0	14	5	0	1	0	0	6	0	9	1	0	0	10	0	0	1	0	0	1	31
1:45 AM	0	3	3	0	0	6	2	0	3	0	0	5	0	6	0	0	0	6	0	0	0	0	0	0	17
Hourly Total	8	27	16	0	0	51	14	0	9	0	0	23	2	26	1	0	0	29	1	0	3	0	0	4	107
2:00 AM	0	5	5	0	0	10	4	1	0	0	0	5	0	3	2	0	0	5	0	0	1	0	0	1	21
2:15 AM	1	4	1	0	0	6	1	3	2	0	0	6	0	6	0	0	0	6	0	1	0	0	0	1	19
2:30 AM	1	3	3	0	0	7	6	0	2	0	0	8	1	5	0	0	0	6	0	0	0	0	0	0	21
2:45 AM	2	4	1	0	0	7	3	1	0	0	0	4	2	6	0	0	0	8	0	0	0	0	0	0	19
Hourly Total	4	16	10	0	0	30	14	5	4	0	0	23	3	20	2	0	0	25	0	1	1	0	0	2	80
3:00 AM	2	3	3	0	0	8	6	0	1	0	0	7	0	7	0	0	0	7	0	0	3	1	0	4	26
3:15 AM	2	11	4	0	0	17	3	1	0	0	0	4	1	1	0	0	0	2	0	0	2	0	0	2	25
3:30 AM	0	5	5	0	0	10	6	0	0	0	0	6	0	5	0	0	0	5	0	0	0	0	0	0	21
3:45 AM	2	7	2	0	0	11	4	1	3	0	0	8	1	3	0	0	0	4	1	0	1	0	0	2	25
Hourly Total	6	26	14	0	0	46	19	2	4	0	0	25	2	16	0	0	0	18	1	0	6	1	0	8	97
4:00 AM	1	6	3	0	0	10	9	0	1	0	0	10	2	10	0	0	0	12	0	0	1	0	0	1	33
4:15 AM	1	4	2	0	0	7	6	0	1	0	0	7	0	9	0	0	0	9	0	0	2	0	0	2	25
4:30 AM	2	7	4	0	0	13	10	0	1	0	0	11	0	17	1	0	0	18	2	1	3	0	0	6	48
4:45 AM	2	13	5	0	0	20	11	0	1	0	0	12	2	11	0	0	0	13	0	1	4	0	0	5	50
Hourly Total	6	30	14	0	0	50	36	0	4	0	0	40	4	47	1	0	0	52	2	2	10	0	0	14	156
5:00 AM	1	19	6	0	0	26	16	1	1	0	0	18	0	21	0	1	0	22	1	0	4	0	0	5	71
5:15 AM	1	29	7	0	0	37	16	0	3	0	0	19	0	27	0	0	0	27	0	1	5	0	0	6	89
5:30 AM	6	32	10	0	0	48	31	1	1	0	0	33	2	47	1	0	0	50	2	1	11	0	0	14	145
5:45 AM	10	42	18	0	0	70	37	1	3	0	0	41	1	56	1	0	0	58	3	0	3	0	0	6	175
Hourly Total	18	122	41	0	0	181	100	3	8	0	0	111	3	151	2	1	0	157	6	2	23	0	0	31	480
6:00 AM	10	31	12	0	0	53	41	2	3	0	0	46	6	67	1	0	0	74	5	5	13	0	0	23	196
6:15 AM	10	53	19	0	0	82	53	1	3	0	0	57	6	82	4	0	0	92	6	2	17	0	0	25	256
6:30 AM	12	103	39	0	0	154	80	1	5	0	0	86	3	124	3	0	0	130	6	1	18	0	0	25	395
6:45 AM	11	147	36	0	0	194	68	2	14	0	0	84	10	135	4	0	0	149	5	4	15	0	0	24	451
Hourly Total	43	334	106	0	0	483	242	6	25	0	0	273	25	408	12	0	0	445	22	12	63	0	0	97	1298
7:00 AM	7	115	33	0	0	155	76	4	8	0	0	88	4	163	1	0	0	168	9	4	24	0	0	37	448
7:15 AM	14	123	36	0	0	173	86	7	8	0	0	101	13	203	1	0	0	217	3	5	22	0	0	30	521
7:30 AM	13	175	39	0	0	227	90	5	19	0	0	114	10	252	1	0	1	263	15	8	32	0	0	55	659
7:45 AM	12	197	39	0	0	248	70	6	15	0	0	91	14	277	2	0	0	293	6	7	24	0	0	37	669
Hourly Total	46	610	147	0	0	803	322	22	50	0	0	394	41	895	5	0	1	941	33	24	102	0	0	159	2297
8:00 AM	19	142	38	0	0	199	61	7	20	0	0	88	11	236	4	0	2	251	6	2	25	0	0	33	571
8:15 AM	20	157	40	0	0	217	75	5	21	0	0	101	13	227	5	0	0	245	6	1	14	0	0	21	584
8:30 AM	19	122	23	0	0	164	62	2	19	0	0	83	13	214	1	0	0	228	8	3	14	0	0	25	500
8:45 AM	15	149	57	0	0	221	59	3	20	0	0	82	8	168	1	0	0	177	8	6	23	0	0	37	517
Hourly Total	73	570	158	0	0	801	257	17	80	0	0	354	45	845	11	0	2	901	28	12	76	0	0	116	2172
9:00 AM	11	123	28	0	0	162	41	4	21	0	0	66	13	162	1	0	0	176	7	7	12	0	0	26	430
9:15 AM	11	102	22	0	0	135	40	7	15	0	0	62	10	139	5	0	0	154	6	6	10	0	0	22	373
9:30 AM	12	126	16	0	0	154	46	4	22	0	0	72	17	142	3	0	0	162	3	6	9	0	0	18	406
9:45 AM	11	137	24	0	0	172	38	3	12	0	0	53	8	122	1	0	0	131	2	4	13	0	0	19	375
Hourly Total	45	488	90	0	0	623	165	18	70	0	0	253	48	565	10	0	0	623	18	23	44	0	0	85	1584
10:00 AM	21	120	29	1	0	171	18	6	16	0	0	40	10	130	1	0	0	141	6	2	14	0	0	22	374
10:15 AM	15	101	28	0	0	144	42	10	20	0	0	72	10	109	3	0	0	122	4	5	11	0	0	20	358
10:30 AM	16	127	28	0	0	171	31	4	20	0	0	55	11	113	1	0	0	125	2	7	19	0	0	28	379
10:45 AM	16	119	41	0	0	176	42	12	21	0	0	75	5	129	2	0	0	136	6	8	18	0	0	32	419
Hourly Total	68	467	126	1	0	662	133	32	77	0	0	242	36	481	7	0	0	524	18	22	62	0	0	102	1530
11:00 AM	21	104	33	1	0	159	35	12	24	0	0	71	15	106	1	0	0	122	2	6	14	0	0	22	374
11:15 AM	22	112	40	0	0	174	43	11	30	0	0	84	19	120	2	0	1	141	6	16	17	0	0	39	438
11:30 AM	29	135	46	0	0	210	52	16	39	0	0	107	22	134	3	0	0	159	4	12	16	0	0	32	508

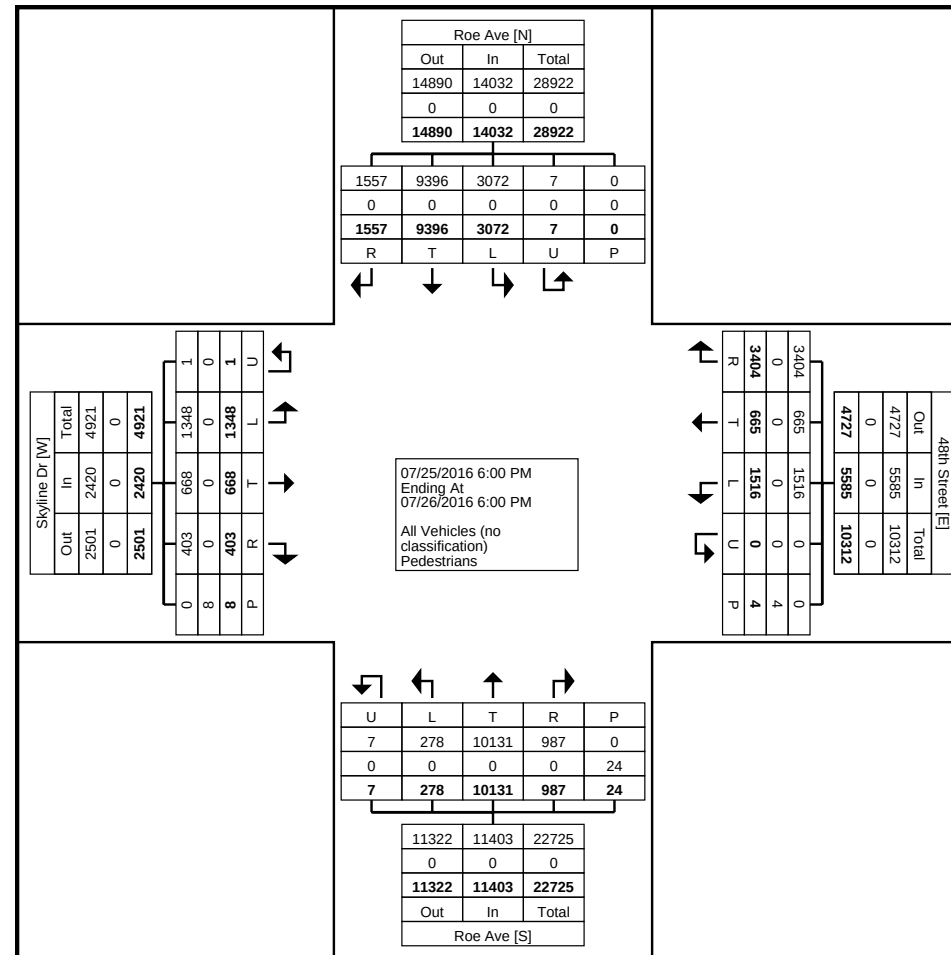
11:45 AM	22	146	47	0	0	215	45	10	22	0	0	77	23	140	3	0	0	166	2	11	21	0	0	34	492
Hourly Total	94	497	166	1	0	758	175	49	115	0	0	339	79	500	9	0	1	588	14	45	68	0	0	127	1812
12:00 PM	14	146	39	0	0	199	49	14	27	0	0	90	18	136	1	0	0	155	6	16	28	0	0	50	494
12:15 PM	27	139	56	0	0	222	36	13	30	0	0	79	19	134	4	0	0	157	4	13	20	0	0	37	495
12:30 PM	20	143	42	0	0	205	44	11	27	0	0	82	18	160	6	0	0	184	5	15	25	0	0	45	516
12:45 PM	30	140	53	0	0	223	52	8	23	0	0	83	18	135	4	0	0	157	7	13	30	0	0	50	513
Hourly Total	91	568	190	0	0	849	181	46	107	0	0	334	73	565	15	0	0	653	22	57	103	0	0	182	2018
1:00 PM	22	138	47	0	0	207	38	10	24	0	0	72	24	131	3	0	1	158	9	16	23	0	0	48	485
1:15 PM	17	132	32	0	0	181	50	7	19	0	0	76	17	150	4	0	0	171	7	11	19	0	0	37	465
1:30 PM	22	130	37	0	0	189	37	12	25	0	1	74	15	135	6	0	1	156	7	13	21	0	0	41	460
1:45 PM	21	133	49	1	0	204	41	15	23	0	0	79	14	140	5	0	0	159	7	14	12	0	0	33	475
Hourly Total	82	533	165	1	0	781	166	44	91	0	1	301	70	556	18	0	2	644	30	54	75	0	0	159	1885
2:00 PM	28	137	43	0	0	208	55	17	27	0	0	99	11	154	6	0	1	171	8	11	23	0	0	42	520
2:15 PM	23	140	40	0	0	203	40	13	32	0	0	85	14	154	4	0	1	172	3	14	13	0	0	30	490
2:30 PM	21	136	54	1	0	212	40	10	23	0	0	73	22	165	4	1	0	192	9	9	19	0	0	37	514
2:45 PM	25	138	38	0	0	201	54	12	21	0	0	87	14	145	5	2	0	166	3	13	18	0	0	34	488
Hourly Total	97	551	175	1	0	824	189	52	103	0	0	344	61	618	19	3	2	701	23	47	73	0	0	143	2012
3:00 PM	24	122	46	0	0	192	52	13	22	0	0	87	18	151	7	0	0	176	4	12	21	0	0	37	492
3:15 PM	19	163	55	1	0	238	59	14	29	0	0	102	28	157	2	0	0	187	5	11	22	0	2	38	565
3:30 PM	22	156	57	0	0	235	54	10	30	0	0	94	17	192	5	0	1	214	3	8	21	0	0	32	575
3:45 PM	32	173	53	0	0	258	52	9	31	0	0	92	7	157	6	0	0	170	8	12	21	0	0	41	561
Hourly Total	97	614	211	1	0	923	217	46	112	0	0	375	70	657	20	0	1	747	20	43	85	0	2	148	2193
4:00 PM	46	170	65	0	0	281	43	10	24	0	0	77	20	198	3	0	0	221	6	10	23	0	0	39	618
4:15 PM	32	215	69	0	0	316	58	6	35	0	0	99	17	208	5	0	1	230	6	14	21	0	0	41	686
4:30 PM	32	220	65	0	0	317	52	21	31	0	0	104	13	182	3	0	0	198	7	19	18	0	0	44	663
4:45 PM	40	225	78	0	0	343	59	19	38	0	0	116	19	192	9	0	0	220	6	14	25	0	0	45	724
Hourly Total	150	830	277	0	0	1257	212	56	128	0	0	396	69	780	20	0	1	869	25	57	87	0	0	169	2691
5:00 PM	42	242	65	0	0	349	71	23	52	0	0	146	19	182	8	0	0	209	9	18	25	0	0	52	756
5:15 PM	39	253	84	1	0	377	64	11	43	0	0	118	19	211	7	0	1	237	7	9	24	0	0	40	772
5:30 PM	31	223	75	1	0	330	48	14	47	0	0	109	13	178	9	0	2	200	10	12	29	0	2	51	690
5:45 PM	43	235	56	0	0	334	57	14	34	0	0	105	20	171	8	0	0	199	7	9	29	0	0	45	683
Hourly Total	155	953	280	2	0	1390	240	62	176	0	0	478	71	742	32	0	3	845	33	48	107	0	2	188	2901
Grand Total	1557	9396	3072	7	0	14032	3404	665	1516	0	4	5585	987	10131	278	7	24	11403	403	668	1348	1	8	2420	33440
Approach %	11.1	67.0	21.9	0.0	-	-	60.9	11.9	27.1	0.0	-	-	8.7	88.8	2.4	0.1	-	-	16.7	27.6	55.7	0.0	-	-	-
Total %	4.7	28.1	9.2	0.0	-	42.0	10.2	2.0	4.5	0.0	-	16.7	3.0	30.3	0.8	0.0	-	34.1	1.2	2.0	4.0	0.0	-	7.2	-
All Vehicles (no classification)	1557	9396	3072	7	-	14032	3404	665	1516	0	-	5585	987	10131	278	7	-	11403	403	668	1348	1	-	2420	33440
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	24	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Turning Movement Peak Hour Data (6:00 PM)

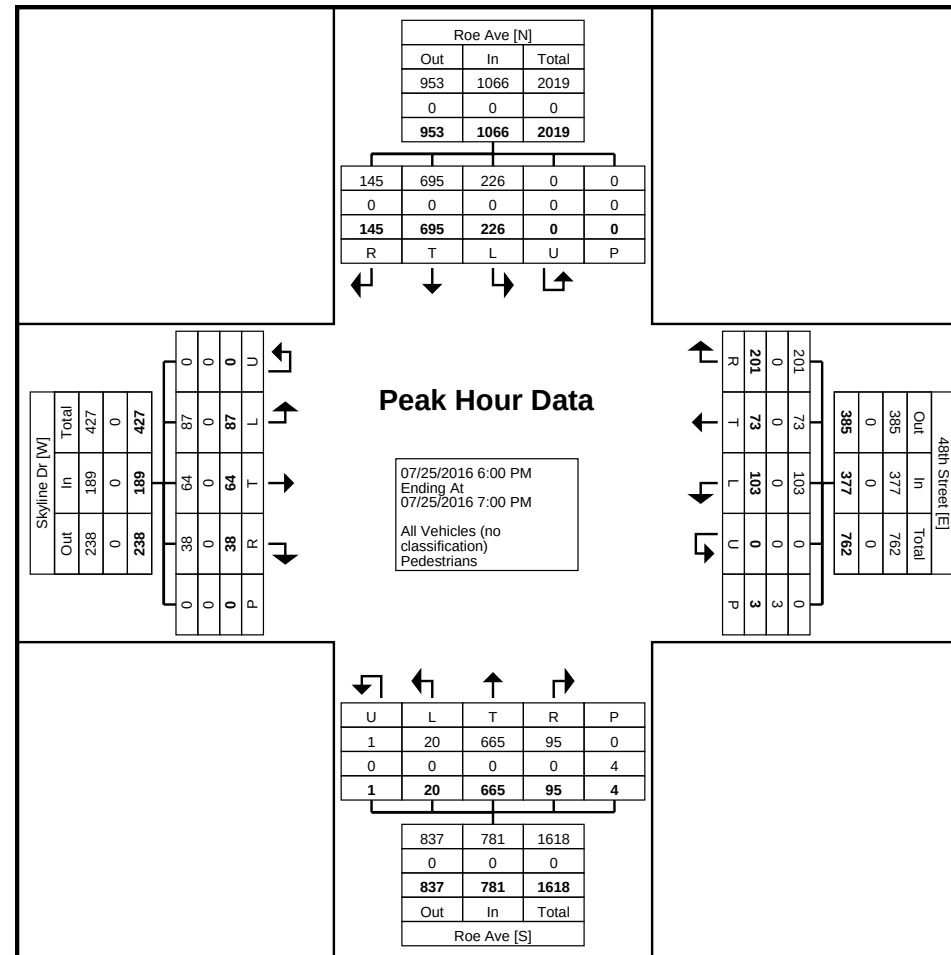
Start Time	Roe Ave Southbound						48th Street Westbound						Roe Ave Northbound						Skyline Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 PM	32	222	57	0	0	311	57	18	35	0	0	110	20	187	5	0	0	212	8	17	22	0	0	47	680
6:15 PM	41	166	61	0	0	268	38	19	25	0	0	82	29	176	3	0	0	208	8	17	24	0	0	49	607
6:30 PM	40	168	49	0	0	257	60	20	26	0	3	106	19	156	3	0	3	178	15	16	25	0	0	56	597
6:45 PM	32	139	59	0	0	230	46	16	17	0	0	79	27	146	9	1	1	183	7	14	16	0	0	37	529
Total	145	695	226	0	0	1066	201	73	103	0	3	377	95	665	20	1	4	781	38	64	87	0	0	189	2413
Approach %	13.6	65.2	21.2	0.0	-	-	53.3	19.4	27.3	0.0	-	-	12.2	85.1	2.6	0.1	-	-	20.1	33.9	46.0	0.0	-	-	-
Total %	6.0	28.8	9.4	0.0	-	44.2	8.3	3.0	4.3	0.0	-	15.6	3.9	27.6	0.8	0.0	-	32.4	1.6	2.7	3.6	0.0	-	7.8	-
PHF	0.884	0.783	0.926	0.000	-	0.857	0.838	0.913	0.736	0.000	-	0.857	0.819	0.889	0.556	0.250	-	0.921	0.633	0.941	0.870	0.000	-	0.844	0.887
All Vehicles (no classification)	145	695	226	0	-	1066	201	73	103	0	-	377	95	665	20	1	-	781	38	64	87	0	-	189	2413
% All Vehicles (no classification)	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



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11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
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Turning Movement Peak Hour Data (7:30 AM)

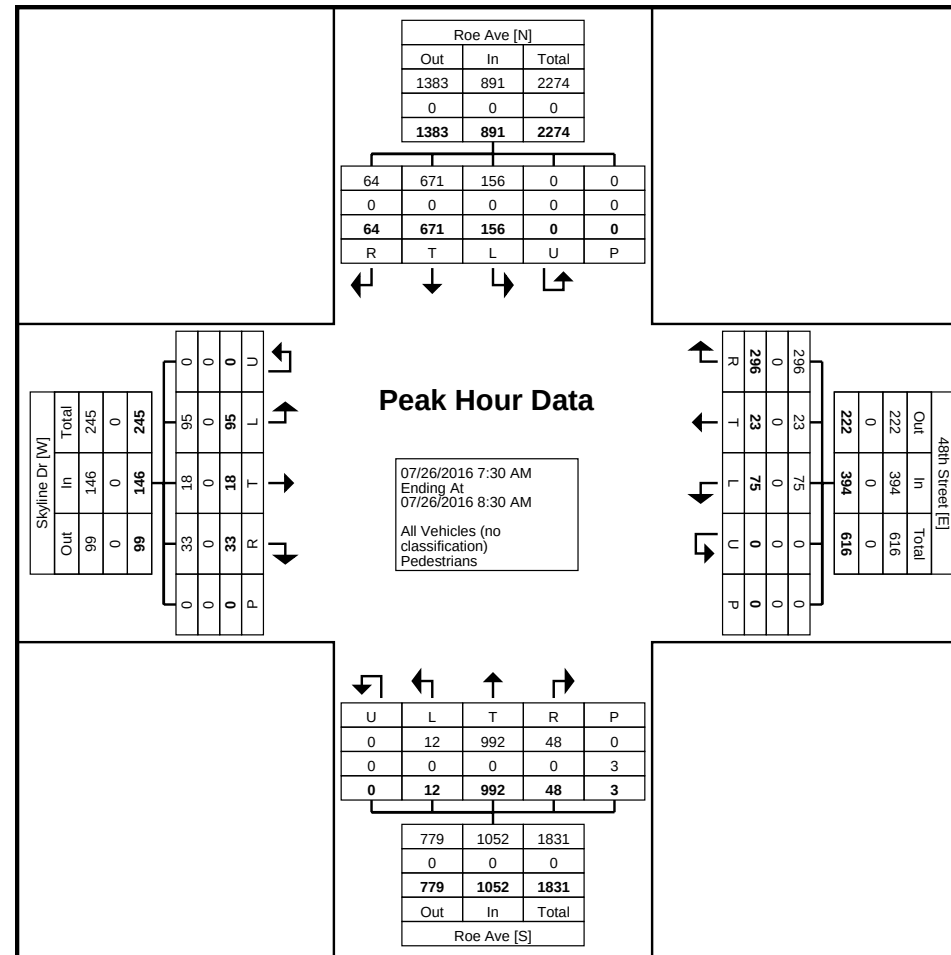
Start Time	Roe Ave Southbound						48th Street Westbound						Roe Ave Northbound						Skyline Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	13	175	39	0	0	227	90	5	19	0	0	114	10	252	1	0	1	263	15	8	32	0	0	55	659
7:45 AM	12	197	39	0	0	248	70	6	15	0	0	91	14	277	2	0	0	293	6	7	24	0	0	37	669
8:00 AM	19	142	38	0	0	199	61	7	20	0	0	88	11	236	4	0	2	251	6	2	25	0	0	33	571
8:15 AM	20	157	40	0	0	217	75	5	21	0	0	101	13	227	5	0	0	245	6	1	14	0	0	21	584
Total	64	671	156	0	0	891	296	23	75	0	0	394	48	992	12	0	3	1052	33	18	95	0	0	146	2483
Approach %	7.2	75.3	17.5	0.0	-	-	75.1	5.8	19.0	0.0	-	-	4.6	94.3	1.1	0.0	-	-	22.6	12.3	65.1	0.0	-	-	-
Total %	2.6	27.0	6.3	0.0	-	35.9	11.9	0.9	3.0	0.0	-	15.9	1.9	40.0	0.5	0.0	-	42.4	1.3	0.7	3.8	0.0	-	5.9	-
PHF	0.800	0.852	0.975	0.000	-	0.898	0.822	0.821	0.893	0.000	-	0.864	0.857	0.895	0.600	0.000	-	0.898	0.550	0.563	0.742	0.000	-	0.664	0.928
All Vehicles (no classification)	64	671	156	0	-	891	296	23	75	0	-	394	48	992	12	0	-	1052	33	18	95	0	-	146	2483
% All Vehicles (no classification)	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



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11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
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Turning Movement Peak Hour Data Plot (7:30 AM)



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Turning Movement Peak Hour Data (4:45 PM)

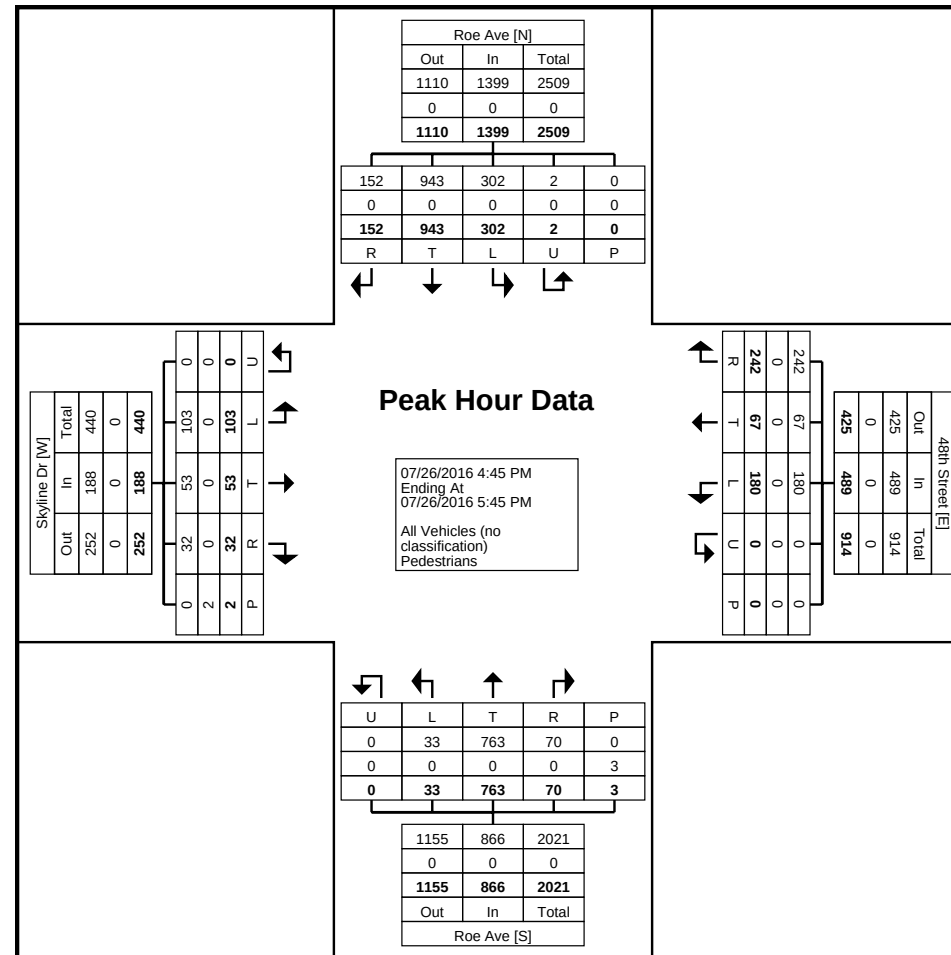
Start Time	Roe Ave Southbound						48th Street Westbound						Roe Ave Northbound						Skyline Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:45 PM	40	225	78	0	0	343	59	19	38	0	0	116	19	192	9	0	0	220	6	14	25	0	0	45	724
5:00 PM	42	242	65	0	0	349	71	23	52	0	0	146	19	182	8	0	0	209	9	18	25	0	0	52	756
5:15 PM	39	253	84	1	0	377	64	11	43	0	0	118	19	211	7	0	1	237	7	9	24	0	0	40	772
5:30 PM	31	223	75	1	0	330	48	14	47	0	0	109	13	178	9	0	2	200	10	12	29	0	2	51	690
Total	152	943	302	2	0	1399	242	67	180	0	0	489	70	763	33	0	3	866	32	53	103	0	2	188	2942
Approach %	10.9	67.4	21.6	0.1	-	-	49.5	13.7	36.8	0.0	-	-	8.1	88.1	3.8	0.0	-	-	17.0	28.2	54.8	0.0	-	-	-
Total %	5.2	32.1	10.3	0.1	-	47.6	8.2	2.3	6.1	0.0	-	16.6	2.4	25.9	1.1	0.0	-	29.4	1.1	1.8	3.5	0.0	-	6.4	-
PHF	0.905	0.932	0.899	0.500	-	0.928	0.852	0.728	0.865	0.000	-	0.837	0.921	0.904	0.917	0.000	-	0.914	0.800	0.736	0.888	0.000	-	0.904	0.953
All Vehicles (no classification)	152	943	302	2	-	1399	242	67	180	0	-	489	70	763	33	0	-	866	32	53	103	0	-	188	2942
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
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Count Name: 48th & Roe
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APPENDIX

Section 1 – Traffic Count Data

- W 48th Street & Roe Boulevard
- W 50th Terrace & Roe Boulevard
- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
- PM Peak Hour at Remaining Count Intersections

Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor



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Site Code:
Start Date: 07/26/2015
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Turning Movement Data

Start Time	Roe Ave Southbound						Roe Ln Westbound						Roe Ave Northbound						50th Terr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 PM	49	108	1	0	0	158	3	8	7	0	1	18	24	89	19	0	0	132	17	18	42	0	0	77	385
7:15 PM	42	84	3	0	0	129	7	12	12	0	0	31	31	100	10	0	0	141	19	12	48	0	6	79	380
7:30 PM	38	80	1	0	0	119	5	10	9	0	0	24	14	71	15	0	0	100	13	19	45	0	0	77	320
7:45 PM	46	82	1	0	0	129	1	14	9	0	0	24	24	84	17	0	0	125	19	20	39	0	0	78	356
Hourly Total	175	354	6	0	0	535	16	44	37	0	1	97	93	344	61	0	0	498	68	69	174	0	6	311	1441
8:00 PM	42	83	1	0	0	126	2	7	15	0	0	24	22	72	10	0	5	104	11	19	40	0	5	70	324
8:15 PM	39	76	2	0	0	117	1	13	12	0	0	26	18	81	7	0	0	106	18	12	46	0	0	76	325
8:30 PM	28	88	1	0	0	117	4	5	14	0	0	23	17	75	13	0	1	105	11	7	25	0	0	43	288
8:45 PM	31	66	0	1	1	98	2	8	5	0	1	15	31	64	6	0	1	101	11	10	26	0	0	47	261
Hourly Total	140	313	4	1	1	458	9	33	46	0	1	88	88	292	36	0	7	416	51	48	137	0	5	236	1198
9:00 PM	27	58	0	0	0	85	0	9	7	0	0	16	14	57	8	0	0	79	20	9	32	0	0	61	241
9:15 PM	36	67	1	0	1	104	3	9	4	0	0	16	15	64	9	0	1	88	5	5	28	0	0	38	246
9:30 PM	22	53	2	0	0	77	4	3	13	0	0	20	24	64	4	0	1	92	9	2	35	0	1	46	235
9:45 PM	25	70	0	0	0	95	0	6	6	0	0	12	13	49	9	0	0	71	3	10	19	0	0	32	210
Hourly Total	110	248	3	0	1	361	7	27	30	0	0	64	66	234	30	0	2	330	37	26	114	0	1	177	932
10:00 PM	25	63	0	0	0	88	0	4	4	0	0	8	17	39	4	0	0	60	7	7	25	0	0	39	195
10:15 PM	15	47	0	0	0	62	1	2	6	0	0	9	6	47	1	0	0	54	4	7	24	0	0	35	160
10:30 PM	15	43	1	0	0	59	0	1	3	0	0	4	15	36	1	0	0	52	6	8	20	0	0	34	149
10:45 PM	11	30	0	0	0	41	1	0	2	0	0	3	10	31	0	0	0	41	5	3	11	0	0	19	104
Hourly Total	66	183	1	0	0	250	2	7	15	0	0	24	48	153	6	0	0	207	22	25	80	0	0	127	608
11:00 PM	10	29	1	0	0	40	0	1	2	0	0	3	8	32	1	0	1	41	2	2	18	0	0	22	106
11:15 PM	4	25	0	1	0	30	0	0	0	0	0	0	6	24	2	0	0	32	1	2	2	0	0	5	67
11:30 PM	3	15	0	0	0	18	0	0	4	0	0	4	3	17	0	0	0	20	1	2	1	0	0	4	46
11:45 PM	2	16	0	0	0	18	0	0	1	0	0	1	2	11	4	0	0	17	1	1	2	0	0	4	40
Hourly Total	19	85	1	1	0	106	0	1	7	0	0	8	19	84	7	0	1	110	5	7	23	0	0	35	259
12:00 AM	4	18	0	0	0	22	0	2	2	0	0	4	1	12	1	0	0	14	0	1	1	0	0	2	42
12:15 AM	2	15	0	0	1	17	1	1	3	0	0	5	3	18	2	0	0	23	1	0	0	0	0	1	46
12:30 AM	0	14	0	0	0	14	0	0	1	0	0	1	5	4	0	0	0	9	2	0	4	0	0	6	30
12:45 AM	2	7	0	0	0	9	0	0	2	0	1	2	2	9	0	0	0	11	0	0	1	0	0	1	23
Hourly Total	8	54	0	0	1	62	1	3	8	0	1	12	11	43	3	0	0	57	3	1	6	0	0	10	141
1:00 AM	3	7	0	0	0	10	0	0	3	0	0	3	3	7	2	0	0	12	1	0	0	0	0	1	26
1:15 AM	3	6	0	0	0	9	0	0	1	0	0	1	1	5	0	0	0	6	0	0	1	0	0	1	17
1:30 AM	2	7	0	0	0	9	0	0	0	0	0	0	5	7	0	0	0	12	2	1	1	0	0	4	25
1:45 AM	1	3	0	0	0	4	1	1	0	0	0	2	0	5	1	0	0	6	3	1	4	0	0	8	20
Hourly Total	9	23	0	0	0	32	1	1	4	0	0	6	9	24	3	0	0	36	6	2	6	0	0	14	88
2:00 AM	4	2	0	0	0	6	0	1	1	0	0	2	0	4	4	0	0	8	1	1	1	0	0	3	19

2:15 AM	1	2	0	0	0	3	0	0	0	0	0	0	0	3	0	0	1	0	0	1	7
2:30 AM	1	9	0	0	0	10	0	0	0	0	0	0	1	7	0	0	0	0	0	2	20
2:45 AM	2	9	0	0	0	11	0	1	0	0	0	1	1	7	0	0	0	0	0	0	20
Hourly Total	8	22	0	0	0	30	0	2	1	0	0	3	2	21	4	0	0	0	6	66	
3:00 AM	0	5	0	0	0	5	0	0	0	0	0	0	1	5	0	0	0	0	0	1	12
3:15 AM	1	3	0	0	0	4	0	0	3	0	0	3	1	8	0	0	0	0	0	0	16
3:30 AM	1	4	0	0	0	5	0	0	0	0	0	0	1	4	1	0	0	0	0	0	11
3:45 AM	1	6	0	0	0	7	0	0	1	0	0	1	2	4	0	0	0	0	0	1	15
Hourly Total	3	18	0	0	0	21	0	0	4	0	0	4	5	21	1	0	0	0	2	54	
4:00 AM	0	3	0	0	0	3	0	0	0	0	0	0	1	7	0	0	0	0	0	1	12
4:15 AM	1	5	0	0	0	6	0	0	0	0	0	0	2	13	0	0	0	1	1	3	24
4:30 AM	1	6	0	0	0	7	0	0	1	0	0	0	1	10	1	0	0	0	0	3	23
4:45 AM	0	12	0	0	0	12	0	0	1	0	0	0	1	16	2	0	0	0	0	1	33
Hourly Total	2	26	0	0	0	28	0	0	2	0	0	2	5	46	3	0	1	54	3	8	92
5:00 AM	1	20	0	0	0	21	0	1	2	0	0	3	1	22	0	0	0	0	0	6	53
5:15 AM	2	24	0	0	0	26	0	0	7	0	0	7	6	22	3	0	0	0	0	7	71
5:30 AM	1	31	0	0	0	32	0	2	7	0	0	9	3	45	4	0	0	0	0	8	101
5:45 AM	3	43	0	1	0	47	1	1	2	0	0	4	4	51	2	0	0	0	0	5	113
Hourly Total	7	118	0	1	0	126	1	4	18	0	0	23	14	140	9	0	0	0	0	26	338
6:00 AM	4	40	0	0	0	44	1	0	8	0	0	9	4	62	6	0	0	0	0	7	132
6:15 AM	5	57	0	0	0	62	2	0	9	0	0	11	9	72	1	0	0	0	0	12	167
6:30 AM	7	115	1	0	0	123	0	5	6	0	0	11	10	107	5	0	0	0	0	19	275
6:45 AM	16	114	1	0	0	131	0	4	9	0	0	13	22	123	6	0	0	0	0	24	319
Hourly Total	32	326	2	0	0	360	3	9	32	0	0	44	45	364	18	0	0	0	0	62	893
7:00 AM	15	104	1	0	0	120	4	5	4	0	0	13	18	158	8	0	0	0	0	32	349
7:15 AM	14	143	0	0	0	157	5	4	15	0	0	24	23	203	5	0	0	0	0	41	453
7:30 AM	16	146	0	0	0	162	1	3	15	0	1	19	14	261	11	0	0	0	0	37	504
7:45 AM	17	161	1	0	0	179	1	3	15	0	0	19	22	226	8	0	0	0	0	58	512
Hourly Total	62	554	2	0	0	618	11	15	49	0	1	75	77	848	32	0	0	0	0	168	1818
8:00 AM	14	143	1	0	0	158	1	4	22	0	0	27	28	241	15	0	0	0	0	55	524
8:15 AM	11	138	1	0	0	150	1	1	20	0	0	22	31	223	14	0	0	0	0	42	482
8:30 AM	14	139	3	0	0	156	5	3	14	0	0	22	28	208	17	0	0	0	0	41	472
8:45 AM	23	129	1	0	0	153	3	8	16	0	0	27	26	170	20	0	0	0	0	40	436
Hourly Total	62	549	6	0	0	617	10	16	72	0	0	98	113	842	66	0	0	0	0	178	1914
9:00 AM	18	117	1	0	0	136	3	5	10	0	0	18	16	166	9	0	0	0	0	55	400
9:15 AM	16	113	2	0	0	131	2	15	13	0	0	30	17	133	16	0	3	166	12	30	357
9:30 AM	19	120	1	0	0	140	3	6	14	0	0	23	15	126	12	0	0	0	0	60	376
9:45 AM	20	95	4	0	0	119	2	11	11	0	0	24	29	92	11	0	0	0	0	35	310
Hourly Total	73	445	8	0	0	526	10	37	48	0	0	95	77	517	48	0	3	642	58	180	1443
10:00 AM	23	92	4	0	0	119	5	8	8	0	0	21	21	103	16	0	4	140	9	31	311
10:15 AM	18	110	3	0	0	131	4	8	18	0	0	30	18	93	14	0	0	125	16	54	340
10:30 AM	23	99	4	1	0	127	2	11	16	0	0	29	21	98	14	0	0	133	21	42	331
10:45 AM	26	94	5	0	0	125	4	10	13	0	0	27	21	92	24	0	0	137	18	63	352
Hourly Total	90	395	16	1	0	502	15	37	55	0	0	107	81	386	68	0	4	535	64	190	1334
11:00 AM	26	83	4	0	0	113	5	13	18	0	0	36	23	95	19	0	0	137	19	61	347
11:15 AM	33	120	4	0	0	157	4	13	9	0	0	26	18	126	17	0	0	161	19	66	410
11:30 AM	31	120	1	0	0	152	6	11	21	0	0	38	32	109	22	0	0	163	31	75	428
11:45 AM	37	128	2	0	0	167	0	7	17	0	0	24	31	114	16	1	0	162	20	70	423
Hourly Total	127	451	11	0	0	589	15	44	65	0	0	124	104	444	74	1	0	623	89	272	1608
12:00 PM	39	111	4	1	0	155	5	13	28	0	0	46	18	102	18	0	0	138	26	65	404
12:15 PM	38	121	2	0	0	161	4	13	13	0	0	30	22	145	19	0	0	186	31	89	466
12:30 PM	36	134	2	0	0	172	3	15	15	0	0	33	26	150	22	0	0	198	24	77	480

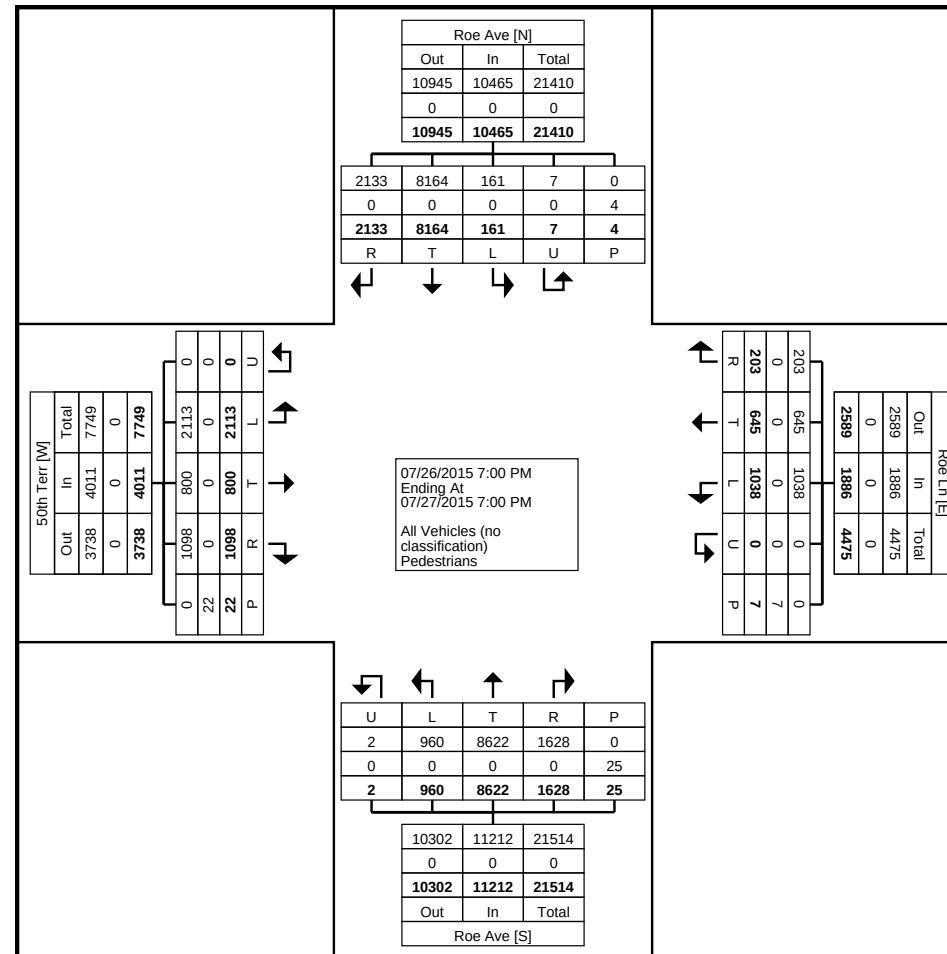
12:45 PM	36	136	3	0	0	175	8	14	24	0	0	46	30	130	16	0	0	176	23	15	27	0	0	65	462
Hourly Total	149	502	11	1	0	663	20	55	80	0	0	155	96	527	75	0	0	698	104	67	125	0	2	296	1812
1:00 PM	40	122	2	0	0	164	4	10	10	0	0	24	24	135	20	0	0	179	24	14	33	0	0	71	438
1:15 PM	24	103	3	0	0	130	1	7	14	0	0	22	28	123	17	0	0	168	26	13	40	0	0	79	399
1:30 PM	39	116	2	0	0	157	5	14	17	0	0	36	23	101	22	0	0	146	21	13	36	0	2	70	409
1:45 PM	47	118	4	0	0	169	3	10	11	0	1	24	20	107	21	0	0	148	20	9	35	0	0	64	405
Hourly Total	150	459	11	0	0	620	13	41	52	0	1	106	95	466	80	0	0	641	91	49	144	0	2	284	1651
2:00 PM	31	104	2	0	0	137	5	14	19	0	0	38	30	121	16	0	0	167	26	6	35	0	0	67	409
2:15 PM	45	106	4	0	0	155	5	11	18	0	1	34	18	108	17	0	1	143	13	18	47	0	0	78	410
2:30 PM	30	122	6	0	0	158	4	8	22	0	0	34	23	141	15	0	0	179	16	20	49	0	0	85	456
2:45 PM	35	136	2	0	0	173	1	10	12	0	0	23	21	146	16	0	0	183	14	16	35	0	0	65	444
Hourly Total	141	468	14	0	0	623	15	43	71	0	1	129	92	516	64	0	1	672	69	60	166	0	0	295	1719
3:00 PM	29	111	5	0	0	145	2	11	28	0	0	41	21	139	18	0	0	178	15	18	28	0	0	61	425
3:15 PM	41	146	7	0	0	194	4	7	16	0	0	27	28	136	15	0	0	179	19	14	30	0	0	63	463
3:30 PM	43	142	6	0	0	191	2	5	6	0	0	13	29	148	18	1	0	196	15	17	27	0	0	59	459
3:45 PM	42	145	5	0	0	192	4	3	23	0	0	30	33	140	6	0	0	179	22	9	34	0	0	65	466
Hourly Total	155	544	23	0	0	722	12	26	73	0	0	111	111	563	57	1	0	732	71	58	119	0	0	248	1813
4:00 PM	51	166	1	0	1	218	3	11	19	0	0	33	44	172	15	0	0	231	16	10	36	0	1	62	544
4:15 PM	42	161	5	0	0	208	5	13	25	0	0	43	26	147	17	0	0	190	22	17	47	0	0	86	527
4:30 PM	36	201	3	0	0	240	3	16	21	0	0	40	30	147	17	0	1	194	19	12	33	0	0	64	538
4:45 PM	44	217	4	0	0	265	7	29	20	0	0	56	43	144	20	0	0	207	15	14	42	0	0	71	599
Hourly Total	173	745	13	0	1	931	18	69	85	0	0	172	143	610	69	0	1	822	72	53	158	0	1	283	2208
5:00 PM	44	221	4	0	0	269	4	19	26	0	0	49	32	154	23	0	4	209	17	20	46	0	0	83	610
5:15 PM	61	227	4	0	0	292	6	15	29	0	1	50	40	141	27	0	0	208	16	18	42	0	0	76	626
5:30 PM	55	239	2	0	0	296	3	23	25	0	0	51	38	183	23	0	0	244	30	20	42	0	1	92	683
5:45 PM	64	188	6	0	0	258	5	19	29	0	0	53	33	174	20	0	1	227	20	26	44	0	0	90	628
Hourly Total	224	875	16	0	0	1115	18	76	109	0	1	203	143	652	93	0	5	888	83	84	174	0	1	341	2547
6:00 PM	14	54	0	0	0	68	0	6	13	0	0	19	8	57	1	0	0	66	6	6	19	0	0	31	184
6:15 PM	48	145	3	1	0	197	1	23	18	0	0	42	33	155	16	0	0	204	18	17	55	0	0	90	533
6:30 PM	46	105	3	0	0	154	2	15	21	0	0	38	30	164	17	0	0	211	29	14	33	0	0	76	479
6:45 PM	40	103	7	1	0	151	3	11	23	0	0	37	20	109	19	0	0	148	18	7	40	0	0	65	401
Hourly Total	148	407	13	2	0	570	6	55	75	0	0	136	91	485	53	0	0	629	71	44	147	0	0	262	1597
Grand Total	2133	8164	161	7	4	10465	203	645	1038	0	7	1886	1628	8622	960	2	25	11212	1098	800	2113	0	22	4011	27574
Approach %	20.4	78.0	1.5	0.1	-	-	10.8	34.2	55.0	0.0	-	-	14.5	76.9	8.6	0.0	-	-	27.4	19.9	52.7	0.0	-	-	-
Total %	7.7	29.6	0.6	0.0	-	38.0	0.7	2.3	3.8	0.0	-	6.8	5.9	31.3	3.5	0.0	-	40.7	4.0	2.9	7.7	0.0	-	14.5	-
All Vehicles (no classification)	2133	8164	161	7	-	10465	203	645	1038	0	-	1886	1628	8622	960	2	-	11212	1098	800	2113	0	-	4011	27574
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	4	-	-	-	-	7	-	-	-	-	-	-	25	-	-	-	-	22	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-



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11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
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Count Name: 50th Terr & Roe
Site Code:
Start Date: 07/26/2015
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Turning Movement Data Plot



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913-888-7800 jason.koehler@skw-inc.com
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Site Code:
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Turning Movement Peak Hour Data (7:00 PM)

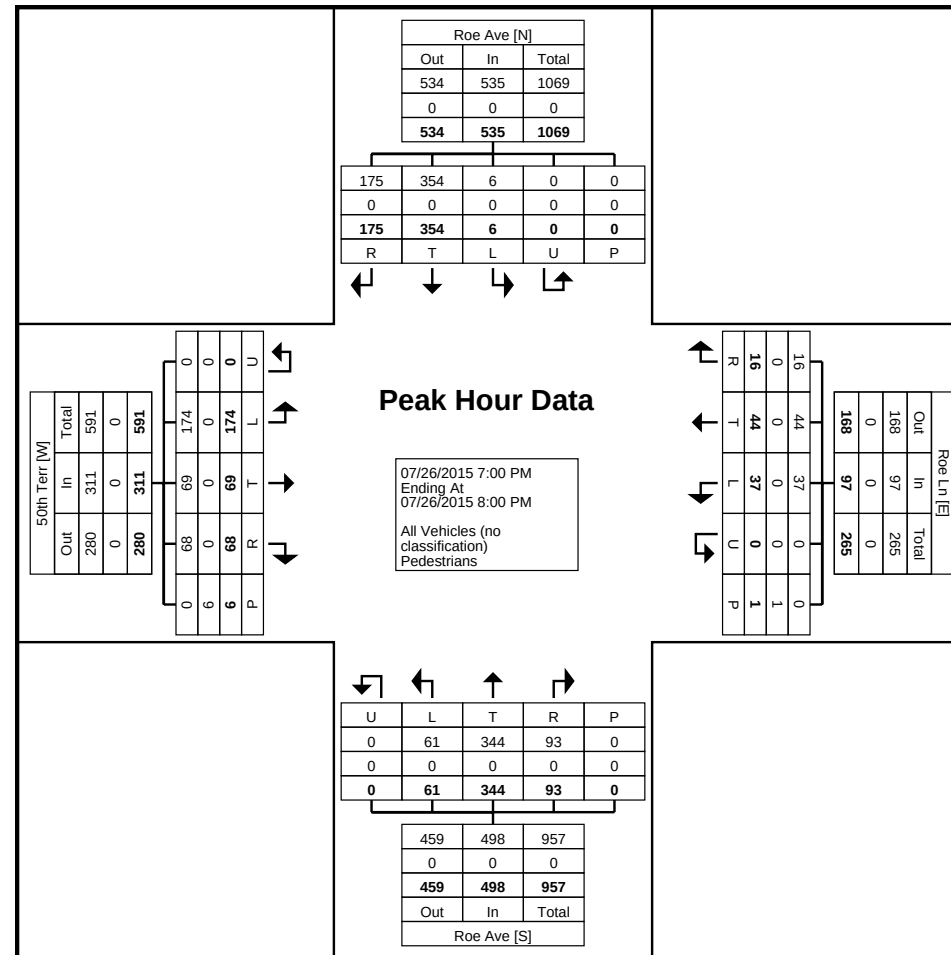
Start Time	Roe Ave Southbound						Roe Ln Westbound						Roe Ave Northbound						50th Terr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 PM	49	108	1	0	0	158	3	8	7	0	1	18	24	89	19	0	0	132	17	18	42	0	0	77	385
7:15 PM	42	84	3	0	0	129	7	12	12	0	0	31	31	100	10	0	0	141	19	12	48	0	6	79	380
7:30 PM	38	80	1	0	0	119	5	10	9	0	0	24	14	71	15	0	0	100	13	19	45	0	0	77	320
7:45 PM	46	82	1	0	0	129	1	14	9	0	0	24	24	84	17	0	0	125	19	20	39	0	0	78	356
Total	175	354	6	0	0	535	16	44	37	0	1	97	93	344	61	0	0	498	68	69	174	0	6	311	1441
Approach %	32.7	66.2	1.1	0.0	-	-	16.5	45.4	38.1	0.0	-	-	18.7	69.1	12.2	0.0	-	-	21.9	22.2	55.9	0.0	-	-	-
Total %	12.1	24.6	0.4	0.0	-	37.1	1.1	3.1	2.6	0.0	-	6.7	6.5	23.9	4.2	0.0	-	34.6	4.7	4.8	12.1	0.0	-	21.6	-
PHF	0.893	0.819	0.500	0.000	-	0.847	0.571	0.786	0.771	0.000	-	0.782	0.750	0.860	0.803	0.000	-	0.883	0.895	0.863	0.906	0.000	-	0.984	0.936
All Vehicles (no classification)	175	354	6	0	-	535	16	44	37	0	-	97	93	344	61	0	-	498	68	69	174	0	-	311	1441
% All Vehicles (no classification)	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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11250 Corporate Ave

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913-888-7800 jason.koehler@skw-inc.com
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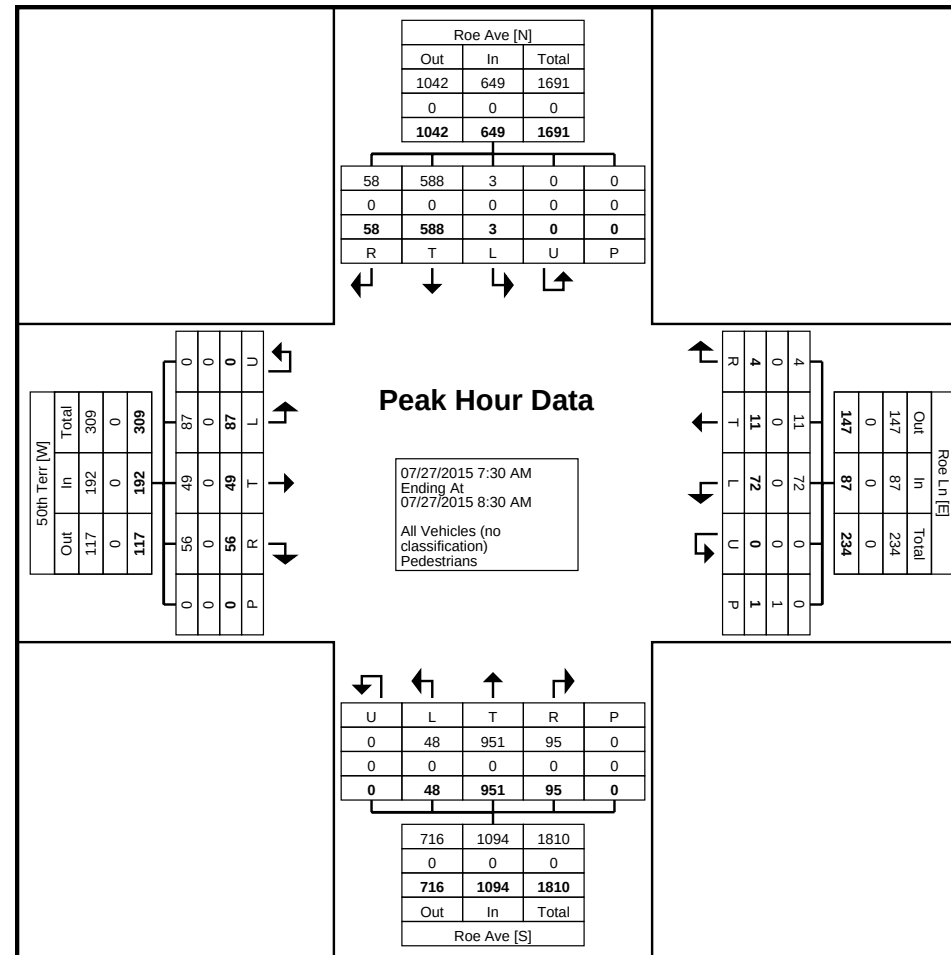




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Count Name: 50th Terr & Roe
Site Code:
Start Date: 07/26/2015
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Turning Movement Peak Hour Data Plot (7:30 AM)



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Count Name: 50th Terr & Roe
Site Code:
Start Date: 07/26/2015
Page No: 9

Turning Movement Peak Hour Data (5:00 PM)

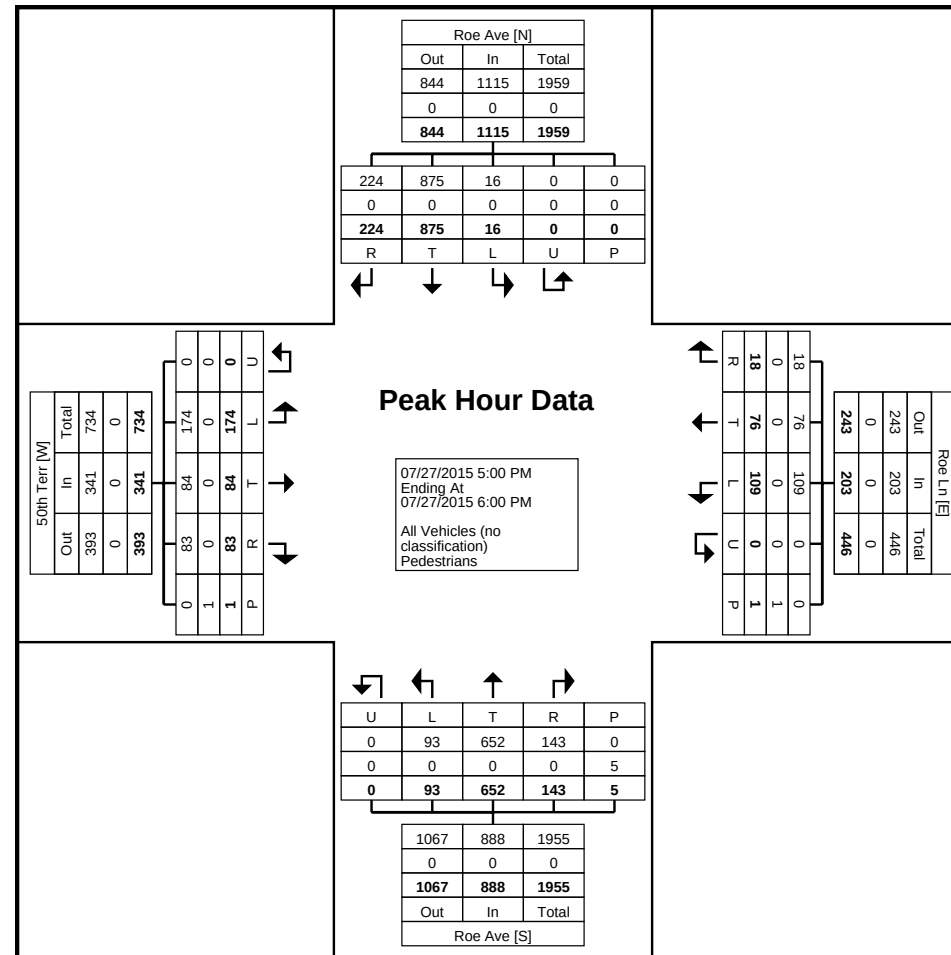
Start Time	Roe Ave Southbound						Roe Ln Westbound						Roe Ave Northbound						50th Terr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
5:00 PM	44	221	4	0	0	269	4	19	26	0	0	49	32	154	23	0	4	209	17	20	46	0	0	83	610
5:15 PM	61	227	4	0	0	292	6	15	29	0	1	50	40	141	27	0	0	208	16	18	42	0	0	76	626
5:30 PM	55	239	2	0	0	296	3	23	25	0	0	51	38	183	23	0	0	244	30	20	42	0	1	92	683
5:45 PM	64	188	6	0	0	258	5	19	29	0	0	53	33	174	20	0	1	227	20	26	44	0	0	90	628
Total	224	875	16	0	0	1115	18	76	109	0	1	203	143	652	93	0	5	888	83	84	174	0	1	341	2547
Approach %	20.1	78.5	1.4	0.0	-	-	8.9	37.4	53.7	0.0	-	-	16.1	73.4	10.5	0.0	-	-	24.3	24.6	51.0	0.0	-	-	-
Total %	8.8	34.4	0.6	0.0	-	43.8	0.7	3.0	4.3	0.0	-	8.0	5.6	25.6	3.7	0.0	-	34.9	3.3	3.3	6.8	0.0	-	13.4	-
PHF	0.875	0.915	0.667	0.000	-	0.942	0.750	0.826	0.940	0.000	-	0.958	0.894	0.891	0.861	0.000	-	0.910	0.692	0.808	0.946	0.000	-	0.927	0.932
All Vehicles (no classification)	224	875	16	0	-	1115	18	76	109	0	-	203	143	652	93	0	-	888	83	84	174	0	-	341	2547
% All Vehicles (no classification)	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
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Count Name: 50th Terr & Roe
Site Code:
Start Date: 07/26/2015
Page No: 10



Turning Movement Peak Hour Data Plot (5:00 PM)

APPENDIX

Section 1 – Traffic Count Data

- W 48th Street & Roe Boulevard
- W 50th Terrace & Roe Boulevard
- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
- PM Peak Hour at Remaining Count Intersections

Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor



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913-888-7800 jason.koehler@skw-inc.com
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Count Name: 52nd & Roe
Site Code:
Start Date: 07/27/2016
Page No: 1

Turning Movement Data

Start Time	Southbound St. Southbound					Northbound St. Northbound					Eastbound St. Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
8:00 PM	1	99	0	0	100	97	0	0	0	97	0	0	0	0	0	197
8:15 PM	3	82	0	0	85	93	0	0	0	93	0	1	0	0	1	179
8:30 PM	1	71	0	0	72	81	1	0	0	82	0	4	0	0	4	158
8:45 PM	0	71	0	0	71	86	0	0	0	86	0	2	0	1	2	159
Hourly Total	5	323	0	0	328	357	1	0	0	358	0	7	0	1	7	693
9:00 PM	0	61	0	0	61	79	0	0	0	79	0	3	0	0	3	143
9:15 PM	1	75	0	0	76	71	0	0	0	71	0	1	0	0	1	148
9:30 PM	2	49	0	0	51	62	2	0	0	64	0	0	0	0	0	115
9:45 PM	0	56	0	0	56	57	0	0	0	57	0	0	0	0	0	113
Hourly Total	3	241	0	0	244	269	2	0	0	271	0	4	0	0	4	519
10:00 PM	0	38	0	0	38	54	0	0	0	54	0	1	0	0	1	93
10:15 PM	1	39	0	0	40	51	0	0	0	51	0	0	0	0	0	91
10:30 PM	2	53	0	0	55	36	0	0	0	36	0	0	0	0	0	91
10:45 PM	1	49	0	0	50	36	0	0	0	36	0	0	0	0	0	86
Hourly Total	4	179	0	0	183	177	0	0	0	177	0	1	0	0	1	361
11:00 PM	0	56	0	0	56	32	0	0	0	32	0	1	0	2	1	89
11:15 PM	0	51	0	0	51	30	0	0	0	30	0	0	0	0	0	81
11:30 PM	0	27	0	0	27	19	0	0	0	19	0	0	0	0	0	46
11:45 PM	0	18	0	0	18	13	0	0	0	13	0	0	0	0	0	31
Hourly Total	0	152	0	0	152	94	0	0	0	94	0	1	0	2	1	247
12:00 AM	0	14	0	0	14	14	0	0	0	14	0	0	0	0	0	28
12:15 AM	0	20	0	0	20	12	0	0	0	12	0	1	0	0	1	33
12:30 AM	0	14	0	0	14	5	0	0	0	5	0	0	0	0	0	19
12:45 AM	0	6	0	0	6	7	0	0	0	7	0	0	0	0	0	13
Hourly Total	0	54	0	0	54	38	0	0	0	38	0	1	0	0	1	93
1:00 AM	0	7	0	0	7	11	0	0	0	11	0	0	0	0	0	18
1:15 AM	1	10	0	0	11	5	0	0	0	5	0	0	0	0	0	16
1:30 AM	0	5	0	0	5	2	0	0	0	2	0	0	0	0	0	7
1:45 AM	0	4	0	0	4	4	0	0	0	4	0	0	0	0	0	8
Hourly Total	1	26	0	0	27	22	0	0	0	22	0	0	0	0	0	49
2:00 AM	0	3	0	0	3	4	0	0	0	4	0	0	0	0	0	7
2:15 AM	0	3	0	0	3	5	0	0	0	5	0	0	0	0	0	8
2:30 AM	1	1	0	0	2	4	0	0	0	4	0	0	0	0	0	6
2:45 AM	0	4	0	0	4	3	0	0	0	3	0	0	0	0	0	7
Hourly Total	1	11	0	0	12	16	0	0	0	16	0	0	0	0	0	28
3:00 AM	0	1	0	0	1	5	0	0	0	5	0	0	0	0	0	6
3:15 AM	0	4	0	0	4	4	0	0	0	4	0	0	0	0	0	8

3:30 AM	0	4	0	0	4	4	0	0	0	4	0	1	0	0	1	9
3:45 AM	0	6	0	0	6	3	0	0	0	3	0	0	0	0	0	9
Hourly Total	0	15	0	0	15	16	0	0	0	16	0	1	0	0	1	32
4:00 AM	0	7	0	0	7	8	0	0	0	8	0	0	0	0	0	15
4:15 AM	0	2	0	0	2	10	0	0	0	10	0	1	0	0	1	13
4:30 AM	0	5	0	0	5	12	0	0	0	12	0	0	0	0	0	17
4:45 AM	0	10	0	0	10	14	0	0	0	14	0	0	0	1	0	24
Hourly Total	0	24	0	0	24	44	0	0	0	44	0	1	0	1	1	69
5:00 AM	0	15	0	0	15	17	0	0	0	17	0	0	0	0	0	32
5:15 AM	1	19	0	0	20	22	0	0	0	22	0	1	0	0	1	43
5:30 AM	1	31	0	0	32	39	0	0	0	39	0	0	0	0	0	71
5:45 AM	0	34	0	0	34	41	0	0	0	41	0	0	0	0	0	75
Hourly Total	2	99	0	0	101	119	0	0	0	119	0	1	0	0	1	221
6:00 AM	0	35	0	0	35	65	0	0	0	65	0	0	0	0	0	100
6:15 AM	0	35	0	0	35	82	0	0	0	82	1	1	0	0	2	119
6:30 AM	0	91	0	0	91	90	1	0	0	91	0	1	0	0	1	183
6:45 AM	0	100	0	0	100	122	0	0	1	122	0	5	0	1	5	227
Hourly Total	0	261	0	0	261	359	1	0	1	360	1	7	0	1	8	629
7:00 AM	1	131	0	0	132	161	0	0	0	161	0	2	0	1	2	295
7:15 AM	1	156	0	0	157	214	0	0	0	214	1	5	0	0	6	377
7:30 AM	4	168	0	0	172	226	0	0	0	226	2	11	0	0	13	411
7:45 AM	2	195	0	0	197	286	0	0	0	286	0	2	0	0	2	485
Hourly Total	8	650	0	0	658	887	0	0	0	887	3	20	0	1	23	1568
8:00 AM	0	148	0	0	148	232	0	0	0	232	1	4	0	0	5	385
8:15 AM	1	155	0	0	156	242	0	0	0	242	0	6	0	2	6	404
8:30 AM	1	171	0	0	172	218	1	0	0	219	2	3	0	1	5	396
8:45 AM	1	150	0	0	151	170	0	0	0	170	1	4	0	0	5	326
Hourly Total	3	624	0	0	627	862	1	0	0	863	4	17	0	3	21	1511
9:00 AM	1	132	0	0	133	143	0	0	0	143	0	3	0	0	3	279
9:15 AM	2	116	0	0	118	138	0	0	0	138	1	3	0	0	4	260
9:30 AM	0	106	0	0	106	143	0	0	0	143	0	3	0	0	3	252
9:45 AM	0	127	0	0	127	128	0	0	0	128	1	2	0	1	3	258
Hourly Total	3	481	0	0	484	552	0	0	0	552	2	11	0	1	13	1049
10:00 AM	1	104	0	0	105	125	0	0	0	125	0	1	0	0	1	231
10:15 AM	1	134	0	0	135	109	1	0	0	110	0	3	0	0	3	248
10:30 AM	0	108	0	0	108	131	0	0	0	131	0	2	0	0	2	241
10:45 AM	1	123	0	0	124	131	1	0	0	132	1	1	0	0	2	258
Hourly Total	3	469	0	0	472	496	2	0	0	498	1	7	0	0	8	978
11:00 AM	0	123	0	0	123	139	0	0	0	139	1	2	0	1	3	265
11:15 AM	1	129	0	0	130	145	0	0	0	145	0	2	0	0	2	277
11:30 AM	1	142	0	0	143	162	1	0	0	163	0	5	0	1	5	311
11:45 AM	2	166	0	0	168	157	0	0	0	157	3	4	0	0	7	332
Hourly Total	4	560	0	0	564	603	1	0	0	604	4	13	0	2	17	1185
12:00 PM	1	169	0	0	170	158	0	0	0	158	1	3	0	0	4	332
12:15 PM	0	152	0	0	152	172	1	0	0	173	0	1	0	0	1	326
12:30 PM	3	155	0	0	158	180	0	0	0	180	2	2	0	0	4	342
12:45 PM	1	159	0	0	160	162	0	0	0	162	0	4	0	3	4	326
Hourly Total	5	635	0	0	640	672	1	0	0	673	3	10	0	3	13	1326
1:00 PM	1	142	0	0	143	164	0	0	0	164	0	4	0	1	4	311
1:15 PM	2	132	0	0	134	159	1	0	0	160	0	3	0	1	3	297
1:30 PM	1	152	0	0	153	162	0	0	0	162	0	2	0	3	2	317
1:45 PM	1	164	0	0	165	133	0	0	0	133	1	1	0	0	2	300

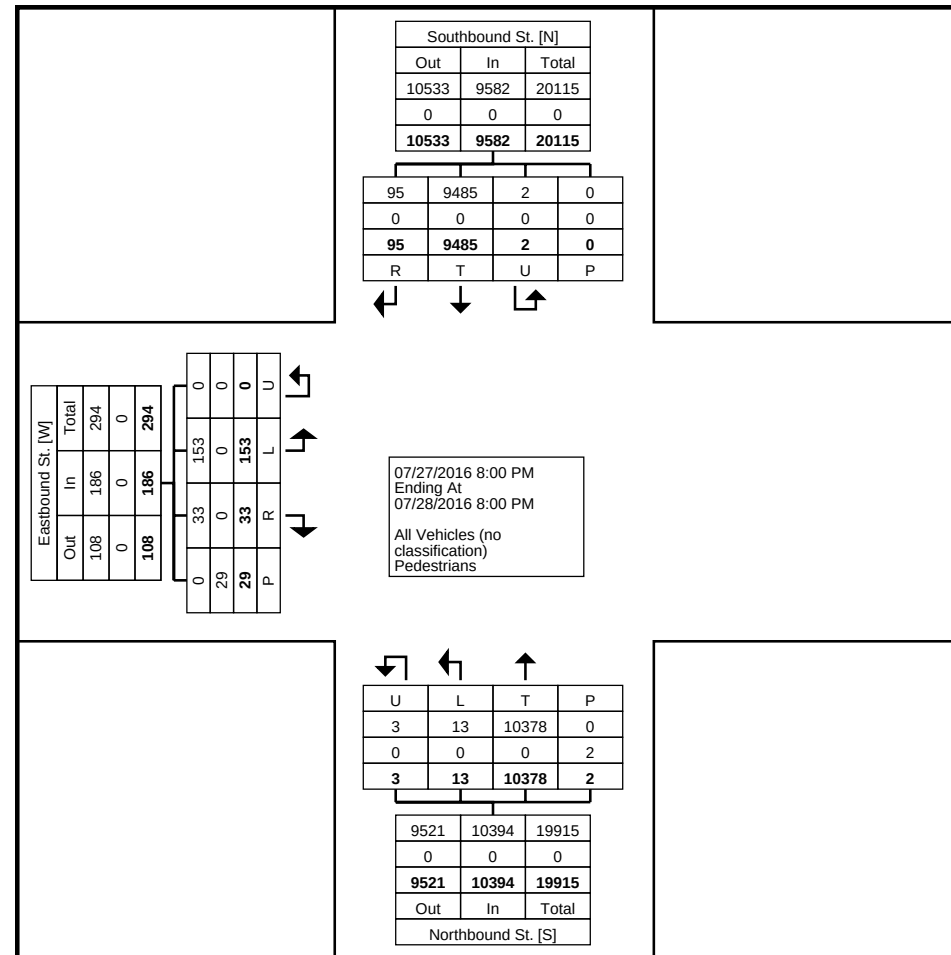
Hourly Total	5	590	0	0	595	618	1	0	0	619	1	10	0	5	11	1225
2:00 PM	3	134	0	0	137	171	0	0	0	171	0	1	0	0	1	309
2:15 PM	4	134	0	0	138	153	1	1	0	155	2	2	0	0	4	297
2:30 PM	3	126	0	0	129	158	0	0	0	158	0	2	0	1	2	289
2:45 PM	0	136	0	0	136	180	0	0	0	180	1	2	0	2	3	319
Hourly Total	10	530	0	0	540	662	1	1	0	664	3	7	0	3	10	1214
3:00 PM	0	134	1	0	135	161	1	0	0	162	0	1	0	0	1	298
3:15 PM	2	156	0	0	158	175	0	0	0	175	2	1	0	0	3	336
3:30 PM	1	155	0	0	156	176	0	0	0	176	1	2	0	1	3	335
3:45 PM	1	182	0	0	183	167	1	0	0	168	0	0	0	0	0	351
Hourly Total	4	627	1	0	632	679	2	0	0	681	3	4	0	1	7	1320
4:00 PM	0	172	0	0	172	211	0	0	0	211	0	3	0	0	3	386
4:15 PM	1	190	0	0	191	181	0	0	0	181	1	2	0	0	3	375
4:30 PM	3	201	0	0	204	193	0	0	0	193	0	2	0	0	2	399
4:45 PM	1	246	0	0	247	219	0	1	0	220	0	1	0	0	1	468
Hourly Total	5	809	0	0	814	804	0	1	0	805	1	8	0	0	9	1628
5:00 PM	4	244	0	0	248	232	0	0	0	232	2	1	0	0	3	483
5:15 PM	3	313	0	0	316	230	0	0	0	230	2	0	0	1	2	548
5:30 PM	3	229	0	0	232	203	0	0	0	203	1	4	0	1	5	440
5:45 PM	7	224	0	0	231	189	0	0	0	189	0	3	0	1	3	423
Hourly Total	17	1010	0	0	1027	854	0	0	0	854	5	8	0	3	13	1894
6:00 PM	1	195	0	0	196	179	0	0	0	179	1	1	0	0	2	377
6:15 PM	3	164	0	0	167	202	0	0	0	202	0	2	0	1	2	371
6:30 PM	1	136	0	0	137	181	0	0	0	181	0	3	0	1	3	321
6:45 PM	3	121	0	0	124	132	0	1	0	133	0	1	0	0	1	258
Hourly Total	8	616	0	0	624	694	0	1	0	695	1	7	0	2	8	1327
7:00 PM	1	137	0	0	138	122	0	0	1	122	0	3	0	0	3	263
7:15 PM	1	117	0	0	118	125	0	0	0	125	0	1	0	0	1	244
7:30 PM	1	122	0	0	123	126	0	0	0	126	0	3	0	0	3	252
7:45 PM	1	123	1	0	125	111	0	0	0	111	1	0	0	0	1	237
Hourly Total	4	499	1	0	504	484	0	0	1	484	1	7	0	0	8	996
Grand Total	95	9485	2	0	9582	10378	13	3	2	10394	33	153	0	29	186	20162
Approach %	1.0	99.0	0.0	-	-	99.8	0.1	0.0	-	-	17.7	82.3	0.0	-	-	-
Total %	0.5	47.0	0.0	-	47.5	51.5	0.1	0.0	-	51.6	0.2	0.8	0.0	-	0.9	-
All Vehicles (no classification)	95	9485	2	-	9582	10378	13	3	-	10394	33	153	0	-	186	20162
% All Vehicles (no classification)	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	0	-	-	-	-	2	-	-	-	-	29	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-



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Count Name: 52nd & Roe
Site Code:
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Turning Movement Data Plot



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Count Name: 52nd & Roe
Site Code:
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Turning Movement Peak Hour Data (8:00 PM)

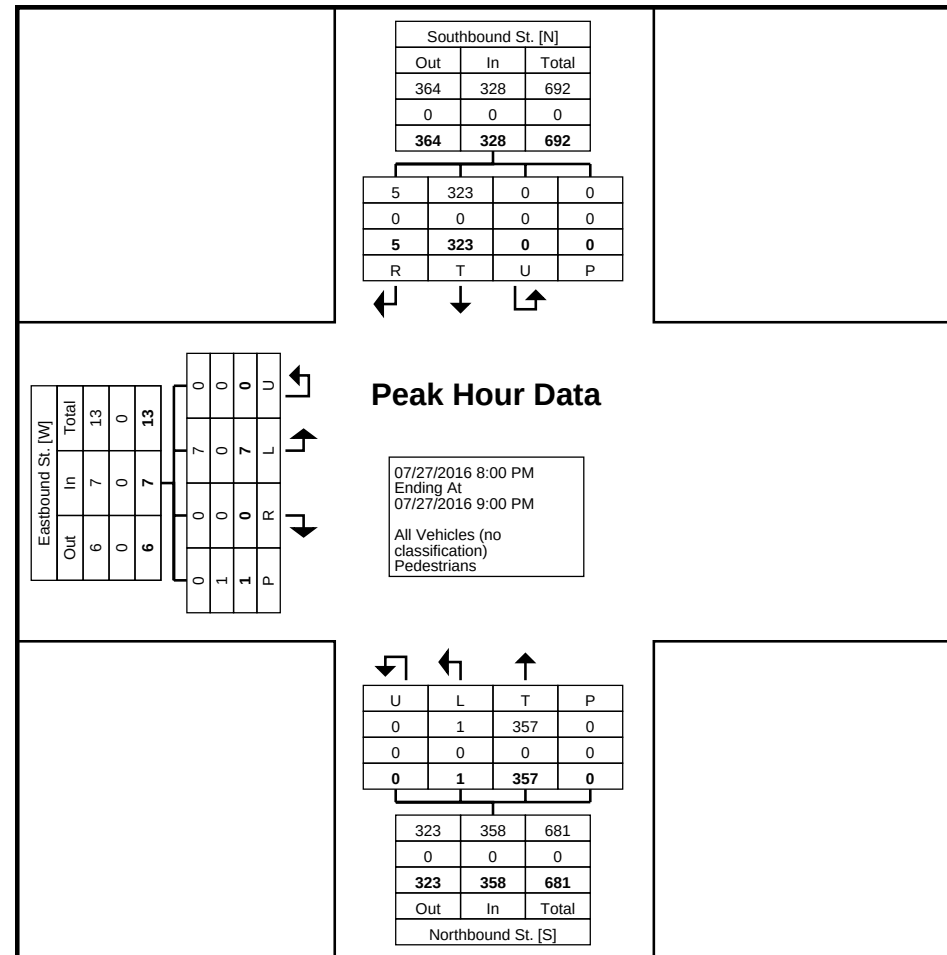
Start Time	Southbound St. Southbound					Northbound St. Northbound					Eastbound St. Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
8:00 PM	1	99	0	0	100	97	0	0	0	97	0	0	0	0	0	197
8:15 PM	3	82	0	0	85	93	0	0	0	93	0	1	0	0	1	179
8:30 PM	1	71	0	0	72	81	1	0	0	82	0	4	0	0	4	158
8:45 PM	0	71	0	0	71	86	0	0	0	86	0	2	0	1	2	159
Total	5	323	0	0	328	357	1	0	0	358	0	7	0	1	7	693
Approach %	1.5	98.5	0.0	-	-	99.7	0.3	0.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.7	46.6	0.0	-	47.3	51.5	0.1	0.0	-	51.7	0.0	1.0	0.0	-	1.0	-
PHF	0.417	0.816	0.000	-	0.820	0.920	0.250	0.000	-	0.923	0.000	0.438	0.000	-	0.438	0.879
All Vehicles (no classification)	5	323	0	-	328	357	1	0	-	358	0	7	0	-	7	693
% All Vehicles (no classification)	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	-	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Site Code:
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Turning Movement Peak Hour Data Plot (8:00 PM)



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Count Name: 52nd & Roe
Site Code:
Start Date: 07/27/2016
Page No: 7

Turning Movement Peak Hour Data (7:30 AM)

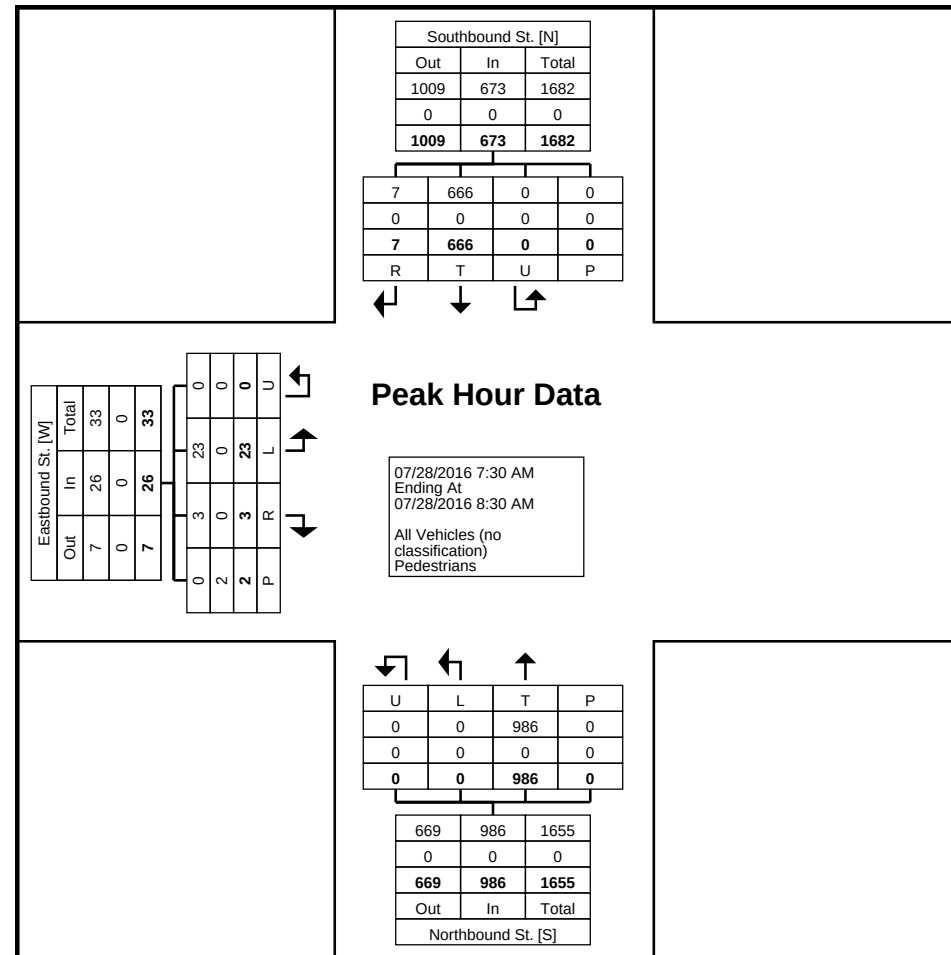
Start Time	Southbound St. Southbound					Northbound St. Northbound					Eastbound St. Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
7:30 AM	4	168	0	0	172	226	0	0	0	226	2	11	0	0	13	411
7:45 AM	2	195	0	0	197	286	0	0	0	286	0	2	0	0	2	485
8:00 AM	0	148	0	0	148	232	0	0	0	232	1	4	0	0	5	385
8:15 AM	1	155	0	0	156	242	0	0	0	242	0	6	0	2	6	404
Total	7	666	0	0	673	986	0	0	0	986	3	23	0	2	26	1685
Approach %	1.0	99.0	0.0	-	-	100.0	0.0	0.0	-	-	11.5	88.5	0.0	-	-	-
Total %	0.4	39.5	0.0	-	39.9	58.5	0.0	0.0	-	58.5	0.2	1.4	0.0	-	1.5	-
PHF	0.438	0.854	0.000	-	0.854	0.862	0.000	0.000	-	0.862	0.375	0.523	0.000	-	0.500	0.869
All Vehicles (no classification)	7	666	0	-	673	986	0	0	-	986	3	23	0	-	26	1685
% All Vehicles (no classification)	100.0	100.0	-	-	100.0	100.0	-	-	-	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Turning Movement Peak Hour Data Plot (7:30 AM)



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Count Name: 52nd & Roe
Site Code:
Start Date: 07/27/2016
Page No: 9

Turning Movement Peak Hour Data (4:45 PM)

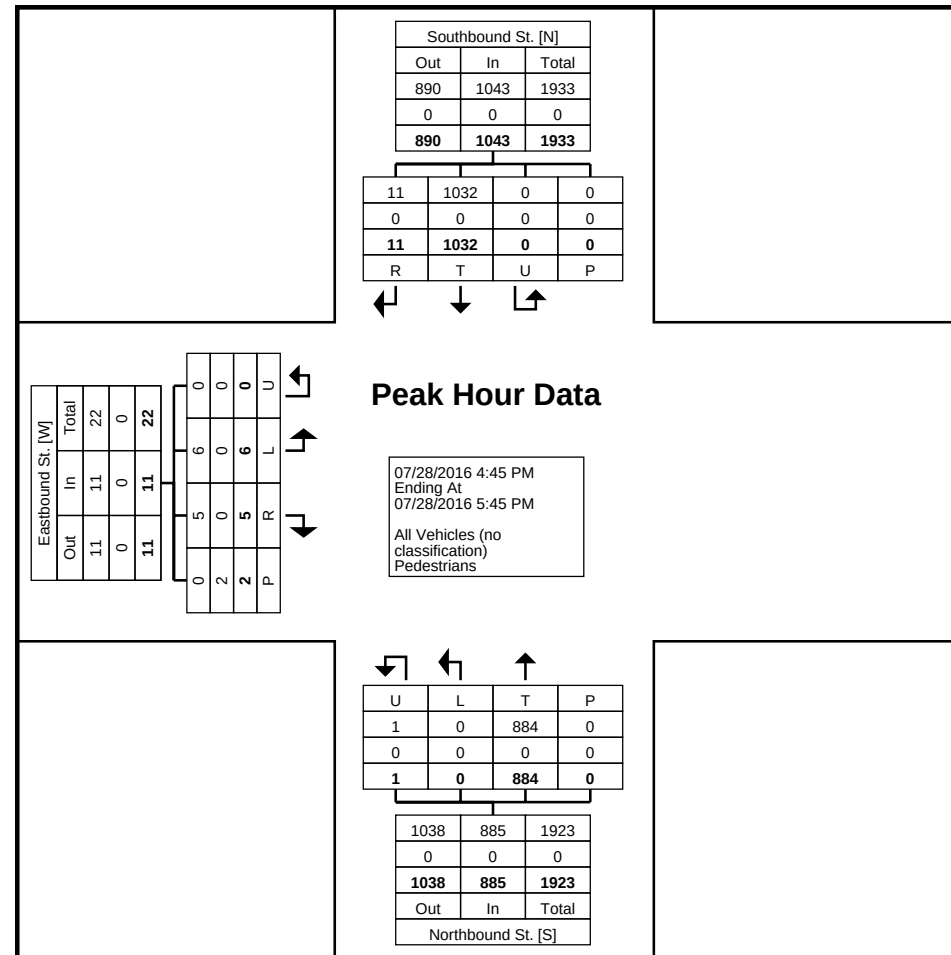
Start Time	Southbound St. Southbound					Northbound St. Northbound					Eastbound St. Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
4:45 PM	1	246	0	0	247	219	0	1	0	220	0	1	0	0	1	468
5:00 PM	4	244	0	0	248	232	0	0	0	232	2	1	0	0	3	483
5:15 PM	3	313	0	0	316	230	0	0	0	230	2	0	0	1	2	548
5:30 PM	3	229	0	0	232	203	0	0	0	203	1	4	0	1	5	440
Total	11	1032	0	0	1043	884	0	1	0	885	5	6	0	2	11	1939
Approach %	1.1	98.9	0.0	-	-	99.9	0.0	0.1	-	-	45.5	54.5	0.0	-	-	-
Total %	0.6	53.2	0.0	-	53.8	45.6	0.0	0.1	-	45.6	0.3	0.3	0.0	-	0.6	-
PHF	0.688	0.824	0.000	-	0.825	0.953	0.000	0.250	-	0.954	0.625	0.375	0.000	-	0.550	0.885
All Vehicles (no classification)	11	1032	0	-	1043	884	0	1	-	885	5	6	0	-	11	1939
% All Vehicles (no classification)	100.0	100.0	-	-	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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Turning Movement Peak Hour Data Plot (4:45 PM)



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Count Name: 52nd & Roe
Site Code:
Start Date: 07/27/2016
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APPENDIX

Section 1 – Traffic Count Data

- W 48th Street & Roe Boulevard
- W 50th Terrace & Roe Boulevard
- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
- PM Peak Hour at Remaining Count Intersections

Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor



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Count Name: 55th & Roe
Site Code:
Start Date: 07/27/2016
Page No: 1

Turning Movement Data

Start Time	Roe Ave Southbound						55th St Westbound						Roe Ave Northbound						55th St Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
8:00 PM	5	83	9	0	0	97	11	7	1	0	1	19	0	84	6	0	0	90	1	3	10	0	0	14	220
8:15 PM	5	60	8	2	0	75	11	6	2	0	0	19	0	64	4	0	0	68	2	7	9	0	0	18	180
8:30 PM	5	53	4	0	0	62	5	10	0	0	0	15	0	63	6	1	0	70	1	8	8	0	0	17	164
8:45 PM	7	48	10	0	0	65	12	9	2	0	0	23	1	75	2	0	0	78	2	6	11	0	2	19	185
Hourly Total	22	244	31	2	0	299	39	32	5	0	1	76	1	286	18	1	0	306	6	24	38	0	2	68	749
9:00 PM	7	53	8	0	0	68	10	12	2	0	0	24	1	64	5	0	0	70	1	4	2	0	0	7	169
9:15 PM	5	55	6	0	0	66	10	7	2	0	0	19	1	64	4	0	0	69	5	2	3	0	0	10	164
9:30 PM	3	43	4	1	0	51	8	7	0	0	0	15	1	48	3	0	0	52	1	2	2	0	0	5	123
9:45 PM	7	40	3	0	0	50	7	3	0	0	0	10	0	49	1	0	0	50	1	6	1	0	0	8	118
Hourly Total	22	191	21	1	0	235	35	29	4	0	0	68	3	225	13	0	0	241	8	14	8	0	0	30	574
10:00 PM	5	27	3	0	0	35	9	5	0	0	0	14	0	42	5	0	0	47	1	3	3	0	0	7	103
10:15 PM	1	37	4	0	0	42	9	3	2	0	0	14	1	42	1	0	0	44	1	2	4	0	0	7	107
10:30 PM	5	43	4	0	0	52	5	2	0	0	0	7	0	27	1	0	0	28	1	2	2	0	0	5	92
10:45 PM	4	47	2	0	0	53	1	2	0	0	0	3	1	33	3	0	0	37	3	0	1	0	0	4	97
Hourly Total	15	154	13	0	0	182	24	12	2	0	0	38	2	144	10	0	0	156	6	7	10	0	0	23	399
11:00 PM	5	42	1	0	0	48	8	4	0	0	0	12	0	27	1	0	0	28	1	2	3	0	0	6	94
11:15 PM	6	44	2	0	0	52	2	2	1	0	0	5	0	29	2	0	0	31	0	1	3	0	0	4	92
11:30 PM	2	20	4	0	0	26	2	4	0	0	0	6	1	18	0	0	0	19	0	0	0	0	0	0	51
11:45 PM	1	19	2	0	0	22	4	3	1	0	0	8	0	10	2	0	0	12	1	0	1	0	0	2	44
Hourly Total	14	125	9	0	0	148	16	13	2	0	0	31	1	84	5	0	0	90	2	3	7	0	0	12	281
12:00 AM	1	9	2	0	0	12	1	2	0	0	0	3	0	11	1	0	0	12	0	0	1	0	0	1	28
12:15 AM	2	11	4	0	0	17	0	2	0	0	0	2	0	13	1	0	0	14	0	0	0	0	0	0	33
12:30 AM	1	12	1	0	0	14	1	0	0	0	0	1	0	3	0	0	0	3	0	0	2	0	0	2	20
12:45 AM	2	3	0	0	0	5	3	0	0	0	0	3	0	4	1	0	0	5	0	0	0	0	0	0	13
Hourly Total	6	35	7	0	0	48	5	4	0	0	0	9	0	31	3	0	0	34	0	0	3	0	0	3	94
1:00 AM	0	6	1	0	0	7	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	0	15
1:15 AM	1	9	0	0	0	10	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	14
1:30 AM	0	5	1	0	0	6	1	2	0	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	10
1:45 AM	1	2	0	0	0	3	0	1	0	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	8
Hourly Total	2	22	2	0	0	26	1	3	0	0	0	4	0	17	0	0	0	17	0	0	0	0	0	0	47
2:00 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0	3	1	0	1	0	0	2	7
2:15 AM	0	1	0	0	0	1	1	0	0	0	0	1	0	5	0	0	0	5	0	1	0	0	0	1	8
2:30 AM	1	0	2	0	0	3	1	1	0	0	0	2	0	2	0	0	0	2	0	0	1	0	0	1	8
2:45 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	6
Hourly Total	1	6	2	0	0	9	2	1	0	0	0	3	0	13	0	0	0	13	1	1	2	0	0	4	29
3:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	5

3:15 AM	1	2	1	0	0	4	1	0	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0	7	
3:30 AM	0	4	0	0	0	4	0	0	0	0	0	0	0	3	0	0	0	3	0	0	1	0	0	1	8
3:45 AM	1	3	1	0	0	5	1	0	0	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	10
Hourly Total	2	9	3	0	0	14	2	0	0	0	0	2	0	13	0	0	0	13	0	0	1	0	0	1	30
4:00 AM	0	5	2	0	2	7	1	0	0	0	0	1	1	5	0	0	0	6	0	0	0	0	0	0	14
4:15 AM	0	2	1	0	0	3	2	0	0	0	0	2	0	8	0	0	0	8	0	0	0	0	1	0	13
4:30 AM	0	5	2	0	0	7	0	0	0	0	0	0	0	7	0	0	0	7	1	0	4	0	0	5	19
4:45 AM	0	4	3	0	1	7	1	0	0	0	0	1	1	8	0	0	0	9	0	0	1	0	0	1	18
Hourly Total	0	16	8	0	3	24	4	0	0	0	0	4	2	28	0	0	0	30	1	0	5	0	1	6	64
5:00 AM	0	13	3	0	0	16	2	0	0	0	0	2	0	13	0	0	0	13	0	1	1	0	0	2	33
5:15 AM	0	19	0	0	0	19	2	2	0	0	0	4	0	15	0	0	0	15	0	2	2	0	0	4	42
5:30 AM	1	26	4	0	2	31	0	0	0	0	0	0	0	29	0	0	0	29	0	4	6	0	0	10	70
5:45 AM	0	34	3	0	0	37	3	2	1	0	0	6	0	35	1	0	0	36	2	4	2	0	0	8	87
Hourly Total	1	92	10	0	2	103	7	4	1	0	0	12	0	92	1	0	0	93	2	11	11	0	0	24	232
6:00 AM	2	24	4	0	0	30	7	0	0	0	0	7	0	40	0	0	0	40	1	3	7	0	0	11	88
6:15 AM	0	30	10	0	2	40	3	1	0	0	0	4	0	63	0	0	0	63	2	8	11	0	0	21	128
6:30 AM	2	82	12	0	0	96	7	2	1	0	0	10	5	70	1	0	0	76	5	2	9	0	0	16	198
6:45 AM	2	89	12	0	2	103	7	1	0	0	0	8	2	102	2	0	0	106	7	6	13	0	0	26	243
Hourly Total	6	225	38	0	4	269	24	4	1	0	0	29	7	275	3	0	0	285	15	19	40	0	0	74	657
7:00 AM	5	111	16	0	0	132	11	1	1	0	0	13	0	127	1	1	0	129	3	4	19	0	0	26	300
7:15 AM	6	126	25	0	1	157	12	5	2	0	1	19	7	171	1	1	0	180	7	3	30	0	0	40	396
7:30 AM	13	148	19	0	1	180	7	4	2	0	0	13	9	201	3	0	0	213	8	8	20	0	3	36	442
7:45 AM	12	144	31	1	0	188	15	7	5	0	0	27	7	197	6	0	0	210	18	7	33	0	0	58	483
Hourly Total	36	529	91	1	2	657	45	17	10	0	1	72	23	696	11	2	0	732	36	22	102	0	3	160	1621
8:00 AM	15	116	40	0	0	171	19	4	1	0	1	24	10	207	1	0	0	218	10	8	19	0	0	37	450
8:15 AM	9	131	23	0	0	163	18	4	3	0	0	25	13	179	0	0	0	192	8	12	24	0	0	44	424
8:30 AM	6	153	24	0	0	183	16	9	2	0	0	27	10	176	1	0	0	187	9	8	22	0	0	39	436
8:45 AM	9	134	31	0	0	174	19	3	0	0	0	22	8	128	3	0	0	139	6	5	14	0	0	25	360
Hourly Total	39	534	118	0	0	691	72	20	6	0	1	98	41	690	5	0	0	736	33	33	79	0	0	145	1670
9:00 AM	6	99	23	0	0	128	18	9	3	0	0	30	4	101	0	0	0	105	7	4	13	0	0	24	287
9:15 AM	2	112	21	0	0	135	11	6	3	0	0	20	3	103	1	0	0	107	4	3	9	0	0	16	278
9:30 AM	10	88	19	1	0	118	15	12	2	0	0	29	6	111	5	0	0	122	3	5	18	0	0	26	295
9:45 AM	8	99	21	0	0	128	15	4	6	0	0	25	4	93	3	0	0	100	7	7	10	0	0	24	277
Hourly Total	26	398	84	1	0	509	59	31	14	0	0	104	17	408	9	0	0	434	21	19	50	0	0	90	1137
10:00 AM	5	95	9	0	0	109	13	7	4	0	1	24	2	98	3	1	0	104	6	7	12	0	0	25	262
10:15 AM	11	110	14	0	0	135	15	4	4	0	0	23	3	83	1	0	0	87	1	7	8	0	1	16	261
10:30 AM	4	88	16	0	0	108	21	8	3	0	1	32	3	96	7	0	0	106	4	4	8	0	0	16	262
10:45 AM	1	108	12	0	0	121	20	4	1	0	0	25	3	101	1	0	0	105	2	1	8	0	0	11	262
Hourly Total	21	401	51	0	0	473	69	23	12	0	2	104	11	378	12	1	0	402	13	19	36	0	1	68	1047
11:00 AM	8	101	18	0	0	127	16	10	5	0	0	31	1	100	0	0	0	101	2	6	13	0	0	21	280
11:15 AM	9	115	11	0	0	135	23	4	9	0	0	36	5	117	1	0	0	123	4	2	11	0	1	17	311
11:30 AM	14	116	12	1	0	143	27	9	6	0	0	42	7	118	8	0	0	133	9	5	11	0	0	25	343
11:45 AM	8	133	19	0	0	160	21	5	8	0	0	34	8	123	2	0	0	133	2	7	16	0	0	25	352
Hourly Total	39	465	60	1	0	565	87	28	28	0	0	143	21	458	11	0	0	490	17	20	51	0	1	88	1286
12:00 PM	12	146	17	0	0	175	24	13	13	0	0	50	6	121	1	0	0	128	6	4	17	0	0	27	380
12:15 PM	9	138	14	0	0	161	33	15	9	0	0	57	12	133	3	0	0	148	6	4	8	0	0	18	384
12:30 PM	12	113	24	0	1	149	37	3	9	0	0	49	9	133	4	0	0	146	5	8	10	0	0	23	367
12:45 PM	6	130	32	0	0	168	13	10	3	0	0	26	14	146	7	0	0	167	4	8	8	0	0	20	381
Hourly Total	39	527	87	0	1	653	107	41	34	0	0	182	41	533	15	0	0	589	21	24	43	0	0	88	1512
1:00 PM	5	120	19	0	0	144	21	9	2	0	0	32	11	138	4	0	0	153	4	8	15	0	0	27	356
1:15 PM	6	110	16	0	1	132	13	10	2	0	0	25	11	138	2	0	0	151	5	8	13	0	1	26	334
1:30 PM	6	131	15	0	0	152	18	8	6	0	0	32	6	121	4	0	0	131	4	4	18	0	0	26	341

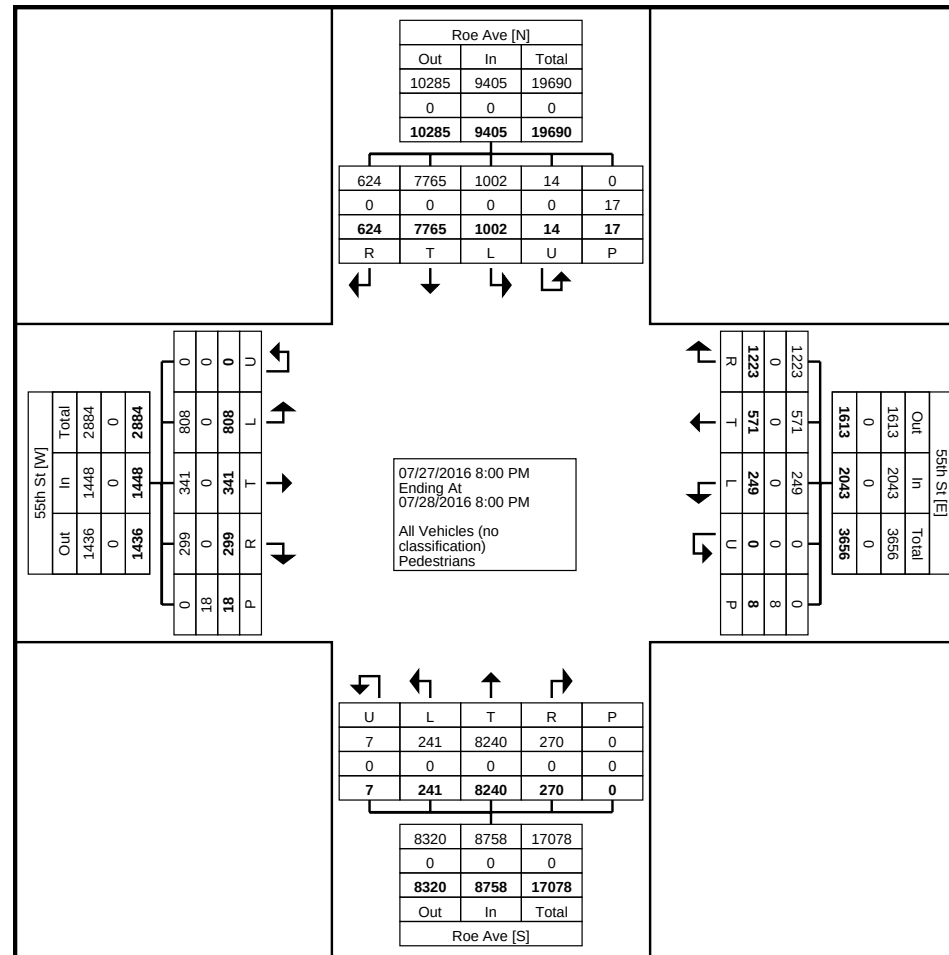
1:45 PM	13	124	20	1	0	158	22	5	2	0	1	29	5	107	5	0	0	117	2	7	4	0	0	13	317
Hourly Total	30	485	70	1	1	586	74	32	12	0	1	118	33	504	15	0	0	552	15	27	50	0	1	92	1348
2:00 PM	10	116	10	0	0	136	34	12	3	0	0	49	7	133	2	1	0	143	2	7	11	0	0	20	348
2:15 PM	11	101	16	0	1	128	23	6	3	0	1	32	3	121	8	0	0	132	8	3	9	0	0	20	312
2:30 PM	6	104	10	0	0	120	21	8	2	0	0	31	3	123	4	0	0	130	5	5	12	0	0	22	303
2:45 PM	6	116	11	0	1	133	24	4	4	0	0	32	2	132	3	1	0	138	1	4	11	0	0	16	319
Hourly Total	33	437	47	0	2	517	102	30	12	0	1	144	15	509	17	2	0	543	16	19	43	0	0	78	1282
3:00 PM	6	88	18	0	0	112	21	9	7	0	0	37	5	137	1	0	0	143	3	3	11	0	0	17	309
3:15 PM	12	129	15	0	0	156	19	12	4	0	0	35	1	146	2	0	0	149	7	8	12	0	0	27	367
3:30 PM	22	121	10	1	0	154	31	6	4	0	1	41	3	130	4	0	0	137	7	2	11	0	0	20	352
3:45 PM	4	136	17	0	0	157	31	10	5	0	0	46	2	138	9	0	0	149	3	3	3	0	1	9	361
Hourly Total	44	474	60	1	0	579	102	37	20	0	1	159	11	551	16	0	0	578	20	16	37	0	1	73	1389
4:00 PM	12	137	15	0	0	164	43	10	4	0	0	57	5	163	4	0	0	172	6	5	9	0	2	20	413
4:15 PM	6	149	19	0	0	174	21	14	5	0	0	40	2	141	4	0	0	147	3	4	12	0	2	19	380
4:30 PM	14	156	9	0	1	179	29	15	10	0	0	54	3	158	6	0	0	167	1	3	15	0	0	19	419
4:45 PM	18	208	15	1	0	242	28	19	11	0	0	58	2	177	3	0	0	182	6	2	18	0	0	26	508
Hourly Total	50	650	58	1	1	759	121	58	30	0	0	209	12	639	17	0	0	668	16	14	54	0	4	84	1720
5:00 PM	13	211	16	1	0	241	37	18	18	0	0	73	2	177	9	0	0	188	6	3	14	0	0	23	525
5:15 PM	35	236	12	2	0	285	28	15	9	0	0	52	4	197	7	1	0	209	7	4	12	0	0	23	569
5:30 PM	13	205	13	1	0	232	18	19	9	0	0	46	2	168	4	0	0	174	6	3	14	0	0	23	475
5:45 PM	19	179	12	0	0	210	23	22	7	0	0	52	2	159	8	0	0	169	4	5	12	0	0	21	452
Hourly Total	80	831	53	4	0	968	106	74	43	0	0	223	10	701	28	1	0	740	23	15	52	0	0	90	2021
6:00 PM	11	163	12	0	0	186	21	12	2	0	0	35	3	139	6	0	0	148	3	5	23	0	2	31	400
6:15 PM	14	144	6	0	0	164	12	9	2	0	0	23	4	167	3	0	0	174	4	10	14	0	1	28	389
6:30 PM	9	111	7	0	1	127	16	12	0	0	0	28	0	148	4	0	0	152	3	2	10	0	0	15	322
6:45 PM	15	92	15	0	0	122	19	14	5	0	0	38	6	99	7	0	0	112	6	7	7	0	0	20	292
Hourly Total	49	510	40	0	1	599	68	47	9	0	0	124	13	553	20	0	0	586	16	24	54	0	3	94	1403
7:00 PM	17	99	13	1	0	130	16	11	1	0	0	28	0	94	1	0	0	95	3	2	9	0	0	14	267
7:15 PM	11	101	5	0	0	117	12	8	0	0	0	20	4	102	6	0	0	112	2	1	9	0	0	12	261
7:30 PM	10	108	8	0	0	126	14	9	1	0	0	24	1	110	2	0	0	113	2	6	5	0	0	13	276
7:45 PM	9	97	13	0	0	119	10	3	2	0	0	15	1	106	3	0	0	110	4	1	9	0	1	14	258
Hourly Total	47	405	39	1	0	492	52	31	4	0	0	87	6	412	12	0	0	430	11	10	32	0	1	53	1062
Grand Total	624	7765	1002	14	17	9405	1223	571	249	0	8	2043	270	8240	241	7	0	8758	299	341	808	0	18	1448	21654
Approach %	6.6	82.6	10.7	0.1	-	-	59.9	27.9	12.2	0.0	-	-	3.1	94.1	2.8	0.1	-	-	20.6	23.5	55.8	0.0	-	-	-
Total %	2.9	35.9	4.6	0.1	-	43.4	5.6	2.6	1.1	0.0	-	9.4	1.2	38.1	1.1	0.0	-	40.4	1.4	1.6	3.7	0.0	-	6.7	-
All Vehicles (no classification)	624	7765	1002	14	-	9405	1223	571	249	0	-	2043	270	8240	241	7	-	8758	299	341	808	0	-	1448	21654
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	17	-	-	-	-	8	-	-	-	-	-	0	-	-	-	-	-	18	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-



Shafer, Kline & Warren
11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
Forming Partnerships - Delivering Results

Count Name: 55th & Roe
Site Code:
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Turning Movement Data Plot



Shafer, Kline & Warren
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Site Code:
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Turning Movement Peak Hour Data (8:00 PM)

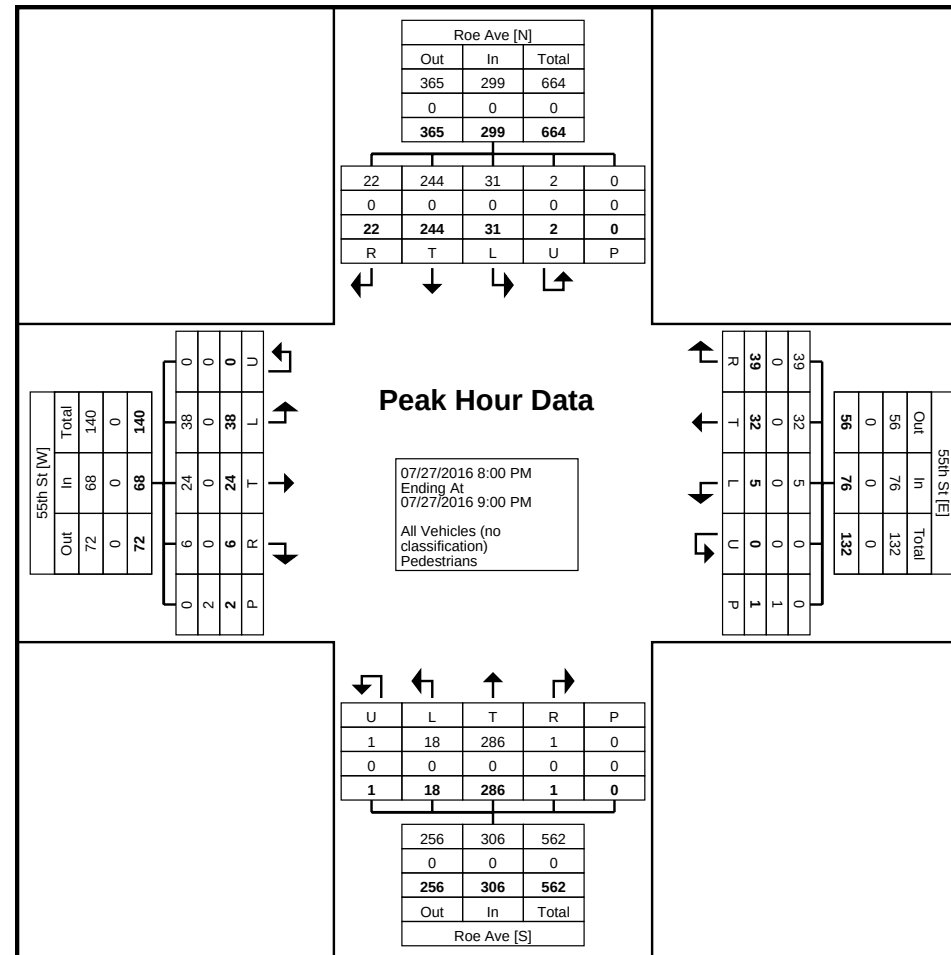
Start Time	Roe Ave Southbound						55th St Westbound						Roe Ave Northbound						55th St Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
8:00 PM	5	83	9	0	0	97	11	7	1	0	1	19	0	84	6	0	0	90	1	3	10	0	0	14	220
8:15 PM	5	60	8	2	0	75	11	6	2	0	0	19	0	64	4	0	0	68	2	7	9	0	0	18	180
8:30 PM	5	53	4	0	0	62	5	10	0	0	0	15	0	63	6	1	0	70	1	8	8	0	0	17	164
8:45 PM	7	48	10	0	0	65	12	9	2	0	0	23	1	75	2	0	0	78	2	6	11	0	2	19	185
Total	22	244	31	2	0	299	39	32	5	0	1	76	1	286	18	1	0	306	6	24	38	0	2	68	749
Approach %	7.4	81.6	10.4	0.7	-	-	51.3	42.1	6.6	0.0	-	-	0.3	93.5	5.9	0.3	-	-	8.8	35.3	55.9	0.0	-	-	-
Total %	2.9	32.6	4.1	0.3	-	39.9	5.2	4.3	0.7	0.0	-	10.1	0.1	38.2	2.4	0.1	-	40.9	0.8	3.2	5.1	0.0	-	9.1	-
PHF	0.786	0.735	0.775	0.250	-	0.771	0.813	0.800	0.625	0.000	-	0.826	0.250	0.851	0.750	0.250	-	0.850	0.750	0.750	0.864	0.000	-	0.895	0.851
All Vehicles (no classification)	22	244	31	2	-	299	39	32	5	0	-	76	1	286	18	1	-	306	6	24	38	0	-	68	749
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



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11250 Corporate Ave

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913-888-7800 jason.koehler@skw-inc.com
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Turning Movement Peak Hour Data Plot (8:00 PM)



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913-888-7800 jason.koehler@skw-inc.com
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Turning Movement Peak Hour Data (7:30 AM)

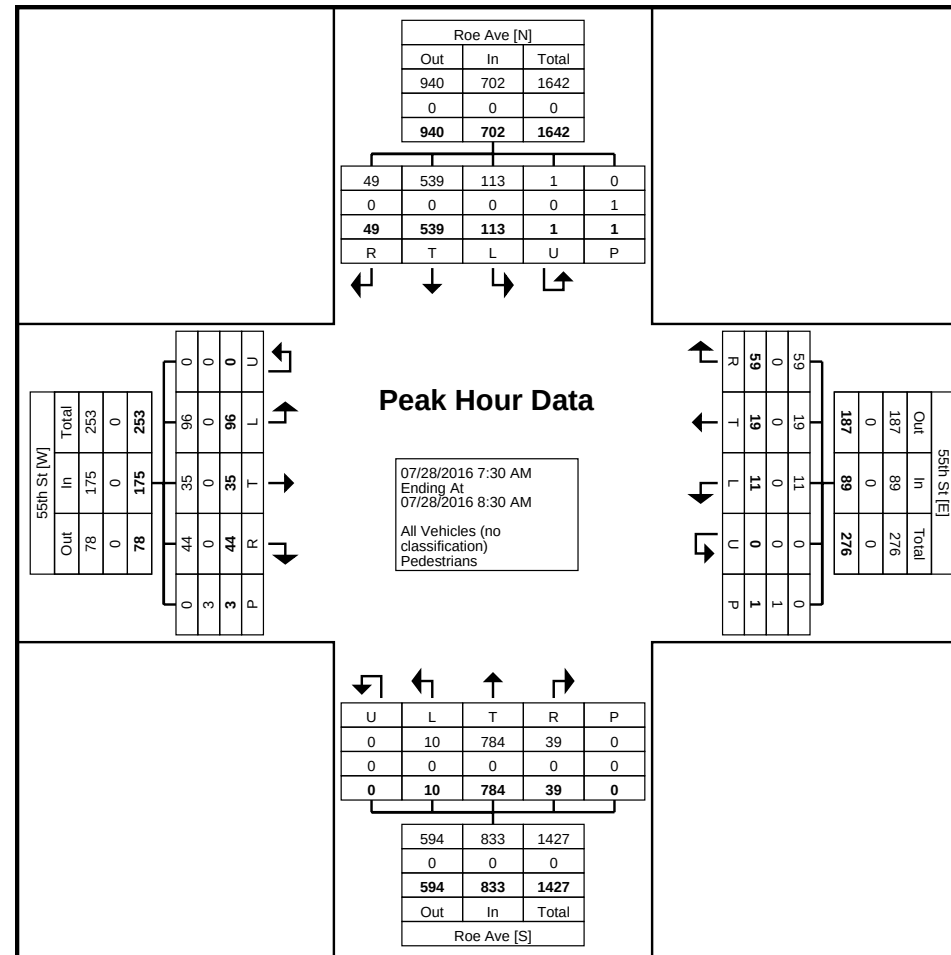
Start Time	Roe Ave Southbound						55th St Westbound						Roe Ave Northbound						55th St Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	13	148	19	0	1	180	7	4	2	0	0	13	9	201	3	0	0	213	8	8	20	0	3	36	442
7:45 AM	12	144	31	1	0	188	15	7	5	0	0	27	7	197	6	0	0	210	18	7	33	0	0	58	483
8:00 AM	15	116	40	0	0	171	19	4	1	0	1	24	10	207	1	0	0	218	10	8	19	0	0	37	450
8:15 AM	9	131	23	0	0	163	18	4	3	0	0	25	13	179	0	0	0	192	8	12	24	0	0	44	424
Total	49	539	113	1	1	702	59	19	11	0	1	89	39	784	10	0	0	833	44	35	96	0	3	175	1799
Approach %	7.0	76.8	16.1	0.1	-	-	66.3	21.3	12.4	0.0	-	-	4.7	94.1	1.2	0.0	-	-	25.1	20.0	54.9	0.0	-	-	-
Total %	2.7	30.0	6.3	0.1	-	39.0	3.3	1.1	0.6	0.0	-	4.9	2.2	43.6	0.6	0.0	-	46.3	2.4	1.9	5.3	0.0	-	9.7	-
PHF	0.817	0.910	0.706	0.250	-	0.934	0.776	0.679	0.550	0.000	-	0.824	0.750	0.947	0.417	0.000	-	0.955	0.611	0.729	0.727	0.000	-	0.754	0.931
All Vehicles (no classification)	49	539	113	1	-	702	59	19	11	0	-	89	39	784	10	0	-	833	44	35	96	0	-	175	1799
% All Vehicles (no classification)	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Shafer, Kline & Warren
11250 Corporate Ave

Lenexa, Kansas, United States 66219
913-888-7800 jason.koehler@skw-inc.com
Forming Partnerships - Delivering Results

Count Name: 55th & Roe
Site Code:
Start Date: 07/27/2016
Page No: 8



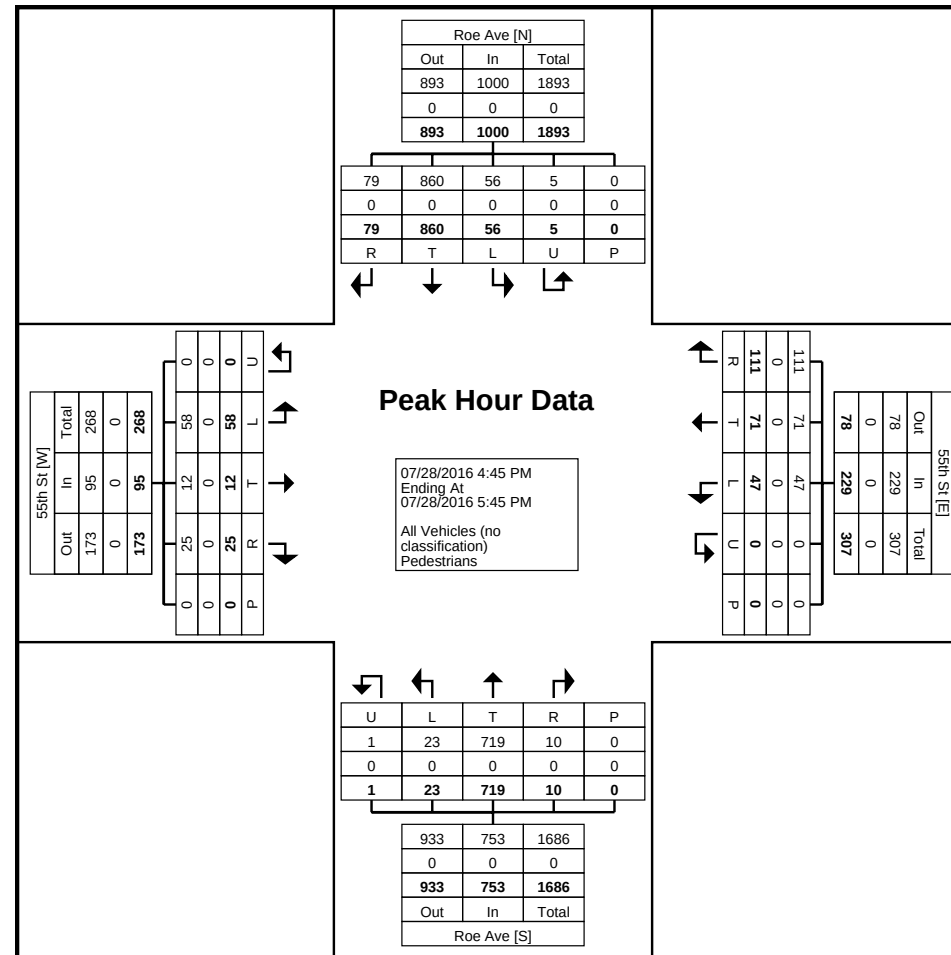
Turning Movement Peak Hour Data Plot (7:30 AM)



Shafer, Kline & Warren
11250 Corporate Ave

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Forming Partnerships - Delivering Results

Count Name: 55th & Roe
Site Code:
Start Date: 07/27/2016
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Turning Movement Peak Hour Data Plot (4:45 PM)



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11250 Corporate Ave

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Forming Partnerships - Delivering Results

Count Name: 55th & Roe
Site Code:
Start Date: 07/27/2016
Page No: 11

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- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

Boulevard Apartments					Skyline Drive				Price Chopper				Skyline Drive				
From North					From East				From South				From West				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
4:00	1	0	0	0	0	18	32	0	23	0	5	0	5	11	0	0	95
4:15	0	0	0	0	1	17	27	1	29	0	3	0	4	14	0	0	96
4:30	0	1	0	0	0	25	31	0	29	0	8	0	2	19	0	2	117
4:45	1	0	0	1	2	17	43	0	22	0	1	0	4	16	0	0	107
5:00	0	0	0	0	0	27	43	0	36	0	6	0	74	19	1	7	213
5:15	0	0	0	0	0	32	32	0	22	0	5	1	2	16	0	0	110
5:30	0	1	0	2	0	30	28	2	29	0	5	0	4	20	0	0	121
5:45	0	0	1	1	0	23	36	0	32	1	4	2	3	19	0	0	122

Roe Ave					Walgreens				Roe Ave				Lowes				
From North					From East				From South				From West				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
4:00	21	170	13	0	10	4	9	0	9	178	7	0	12	1	28	0	462
4:15	32	218	12	0	10	5	11	0	14	184	17	0	10	2	23	0	538
4:30	38	215	9	0	11	3	12	0	23	181	7	0	14	4	22	0	539
4:45	28	227	13	0	11	2	19	0	13	172	14	0	12	5	23	0	539
5:00	39	257	8	0	7	3	12	0	17	189	11	0	15	5	28	1	592
5:15	29	266	10	0	8	6	28	0	18	194	5	1	15	6	22	0	608
5:30	25	257	11	1	8	3	17	0	21	181	14	1	16	2	21	1	579
5:45	32	234	12	0	16	5	21	0	25	161	6	0	18	4	30	0	564

Lowes					50 th Terrace				Cedar St.				50 th Terrace				
From North					From East				From South				From West				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
4:00	10	7	3	3	2	20	14	0	8	5	0	0	1	13	5	0	91
4:15	2	5	7	0	3	21	9	0	19	10	0	0	0	18	1	0	95
4:30	7	10	5	1	2	18	14	0	17	5	0	1	0	8	3	1	92
4:45	5	9	5	0	3	23	16	0	10	6	1	0	0	15	6	0	99
5:00	3	14	4	0	1	27	15	0	13	6	0	0	0	19	3	0	105
5:15	4	9	3	0	2	38	20	1	13	10	2	0	0	27	4	0	133
5:30	6	14	4	0	7	34	22	0	18	7	0	1	1	16	0	0	130
5:45	4	9	5	2	4	30	20	0	20	13	0	1	0	11	3	0	122

Western Union					50 th Terrace				T-Mobile				50 th Terrace				
From North					From East				From South				From West				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
4:00	1	12	12	0	12	23	27	0	41	10	4	0	3	18	2	0	95
4:15	6	6	21	0	13	31	31	0	33	5	2	0	3	31	5	0	187
4:30	9	8	4	0	9	22	32	1	35	9	0	0	2	30	1	0	162
4:45	4	8	8	0	22	34	31	0	38	4	2	0	3	23	5	0	182
5:00	6	9	8	3	16	39	36	0	40	4	3	3	1	23	3	0	194
5:15	8	7	13	0	18	44	33	1	38	4	2	0	4	34	3	0	209
5:30	15	10	10	0	13	50	32	0	33	9	4	0	8	43	1	0	228
5:45	2	9	22	0	18	53	44	1	37	7	4	0	2	33	0	0	232

Roe Ave					Sycamore Dr.				Roe Ave				CVS Pharmacy				
From North					From East				From South				From West				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
4:00	3	167	2	0	6	0	0	0	3	159	12	0	15	0	4	0	371
4:15	5	166	3	0	2	1	2	0	5	209	4	1	16	0	1	0	415
4:30	4	195	0	0	1	0	0	0	2	158	15	0	10	1	2	0	388
4:45	3	211	6	0	5	0	4	0	3	208	5	0	8	0	2	0	455
5:00	1	249	1	0	4	0	0	0	2	214	12	1	14	1	7	0	506
5:15	3	268	2	0	5	0	0	1	9	234	7	0	16	0	1	0	546
5:30	3	252	6	0	1	0	2	0	5	199	16	0	10	0	3	0	497
5:45	1	241	5	0	4	1	2	0	8	196	11	0	5	0	1	0	475

Roe Ave					W 51 st St				Roe Ave				Walmart				
From North					From East				From South				From West				
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
4:00	14	138	30	0	19	4	19	0	18	186	7	0	7	13	9	1	465
4:15	11	172	27	0	13	7	16	1	22	137	6	0	1	11	10	0	434
4:30	8	175	19	0	13	5	14	0	18	165	10	0	5	8	8	1	449
4:45	16	206	40	0	17	9	29	1	25	179	8	0	3	9	10	0	552
5:00	18	218	33	0	28	6	30	0	29	187	6	0	3	9	8	0	575
5:15	13	266	20	0	23	10	27	0	31	187	6	0	5	15	14	0	617
5:30	8	211	32	0	17	5	20	0	23	167	7	0	8	6	5	0	509
5:45	10	186	27	0	23	10	22	0	20	156	7	0	7	9	8	1	486

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Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

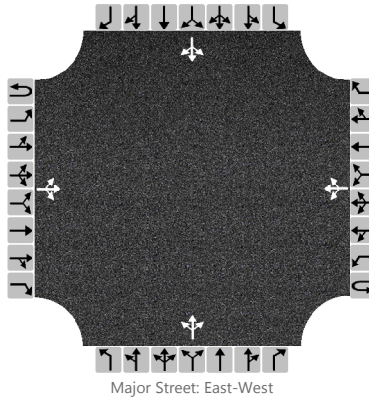
Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	Lowes/PC & Skyline
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	Skyline Drive
Analysis Year	2016	North/South Street	PC/Lowes North Access Pt
Time Analyzed	Peak PM	Peak Hour Factor	0.87
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	74	13		139	112	0		20	1	119		1	1	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

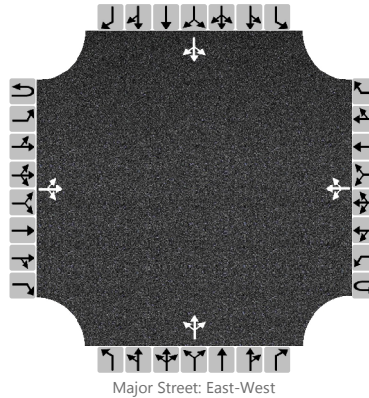
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		1				160					161				2	
Capacity		1441				1477					787				343	
v/c Ratio		0.00				0.11					0.20				0.01	
95% Queue Length		0.0				0.4					0.8				0.0	
Control Delay (s/veh)		7.5				7.7					10.7				15.6	
Level of Service (LOS)		A				A					B				C	
Approach Delay (s/veh)	0.1				4.7				10.7				15.6			
Approach LOS									B				C			

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	Lowes/PC & Skyline
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	Skyline Drive
Analysis Year	2016	North/South Street	PC/Lowes North Access Pt
Time Analyzed	Peak PM	Peak Hour Factor	0.87
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	74	13		139	112	0		20	1	192		1	1	0
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		1				160					245				2	
Capacity		1441				1477					837				310	
v/c Ratio		0.00				0.11					0.29				0.01	
95% Queue Length		0.0				0.4					1.2				0.0	
Control Delay (s/veh)		7.5				7.7					11.1				16.7	
Level of Service (LOS)		A				A					B				C	
Approach Delay (s/veh)	0.1				4.7				11.1				16.7			
Approach LOS									B				C			

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Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

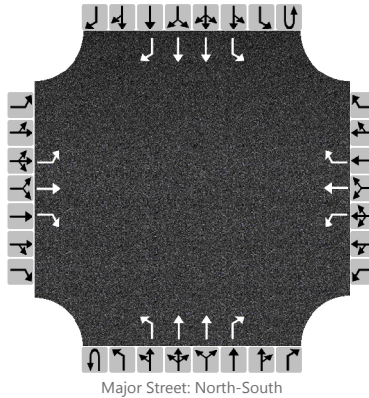
Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	LowesWalgreens & Roe Blvd
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	LowesWalgreens Entrance
Analysis Year	2016	North/South Street	Roe Blvd
Time Analyzed	Peak PM	Peak Hour Factor	0.96
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	1		1	1	1	0	1	2	1	0	1	2	1
Configuration		L	T	R		L	T	R		L	T	R		L	T	R
Volume (veh/h)		101	17	64		78	17	39		36	725	81		41	1014	125
Percent Heavy Vehicles		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

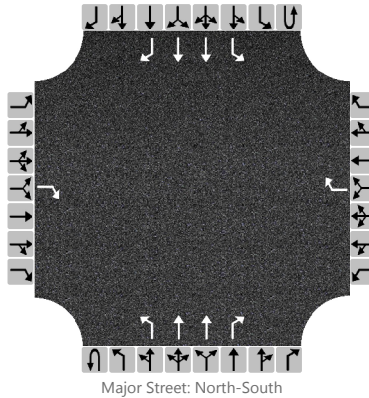
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		105	18	67		81	18	41		38				43		
Capacity		44	53	488		53	53	616		577				785		
v/c Ratio		2.41	0.34	0.14		1.54	0.34	0.07		0.07				0.05		
95% Queue Length		35.2	1.4	0.5		20.2	1.4	0.2		0.2				0.2		
Control Delay (s/veh)		2754.2	105.5	13.6		1216.3	105.5	11.3		11.7				9.9		
Level of Service (LOS)		F	F	B		F	F	B		B				A		
Approach Delay (s/veh)	1536.8				720.6				0.5				0.3			
Approach LOS	F				F											

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	LowesWalgreens & Roe Blvd
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	LowesWalgreens Entrance
Analysis Year	2016	North/South Street	Roe Blvd
Time Analyzed	Peak PM	Peak Hour Factor	0.96
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	1	0	1	2	1	0	1	2	1
Configuration				R				R		L	T	R		L	T	R
Volume (veh/h)				64				39		36	725	81		41	1014	125
Percent Heavy Vehicles				3				3		3				3		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)				67				41		38				43		
Capacity				488				616		577				785		
v/c Ratio				0.14				0.07		0.07				0.05		
95% Queue Length				0.5				0.2		0.2				0.2		
Control Delay (s/veh)				13.6				11.3		11.7				9.9		
Level of Service (LOS)				B				B		B				A		
Approach Delay (s/veh)	13.6				11.3				0.5				0.3			
Approach LOS	B				B											

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Section 3 – Warrant Analysis

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- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

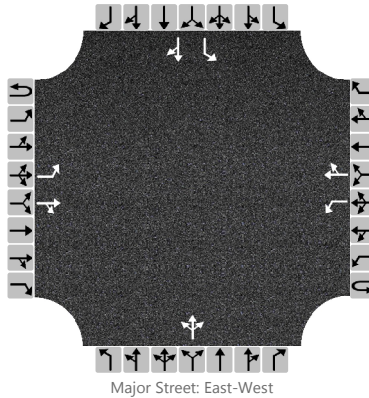
Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	50th Terr & T-Mobile Ent
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	50th Terrace
Analysis Year	2016	North/South Street	T-Moblle/Lowes Ent
Time Analyzed	Peak PM	Peak Hour Factor	0.93
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		7	133	15		145	186	65		13	24	148		53	35	31
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

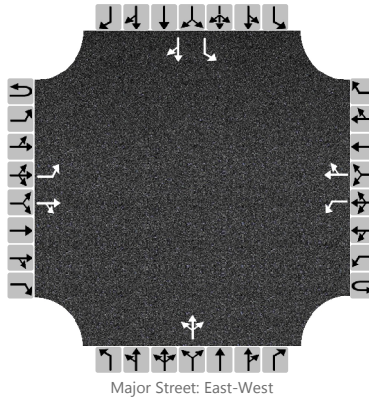
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		8				156					199			57		71
Capacity		1279				1405					616			206		429
v/c Ratio		0.01				0.11					0.32			0.28		0.17
95% Queue Length		0.0				0.4					1.4			1.1		0.6
Control Delay (s/veh)		7.8				7.9					13.6			29.2		15.1
Level of Service (LOS)		A				A					B			D		C
Approach Delay (s/veh)	0.4				2.9				13.6				21.4			
Approach LOS									B				C			

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	50th Terr & T-Mobile Prop
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	50th Terrace
Analysis Year	2016	North/South Street	T-Moblle/Lowes Ent
Time Analyzed	Peak PM	Peak Hour Factor	0.93
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	1	1	0		0	1	0		1	1	0
Configuration		L		TR		L		TR			LTR			L		TR
Volume (veh/h)		7	133	15		145	186	65		13	24	148		77	35	31
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		8				156					199			83		71
Capacity		1279				1405					616			206		429
v/c Ratio		0.01				0.11					0.32			0.40		0.17
95% Queue Length		0.0				0.4					1.4			2.0		0.6
Control Delay (s/veh)		7.8				7.9					13.6			34.2		15.1
Level of Service (LOS)		A				A					B			D		C
Approach Delay (s/veh)	0.4				2.9				13.6				25.4			
Approach LOS									B				D			

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- W 55th Street & Roe Boulevard
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Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

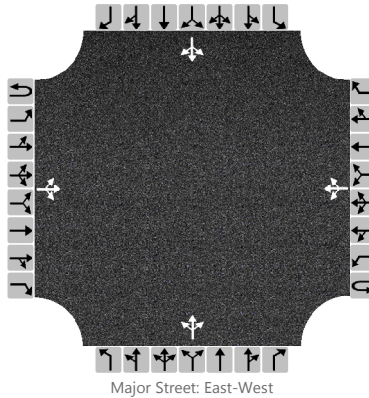
Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	Cedar St. & 50th Terr
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	50th Terrace
Analysis Year	2016	North/South Street	Cedar St./Lowes South Ent
Time Analyzed	Peak PM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	73	1		77	129	14		2	36	64		16	46	17
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

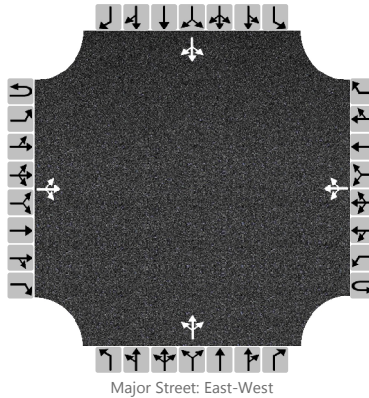
Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		11				84					111				85	
Capacity		1412				1504					703				515	
v/c Ratio		0.01				0.06					0.16				0.16	
95% Queue Length		0.0				0.2					0.6				0.6	
Control Delay (s/veh)		7.6				7.5					11.1				13.4	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	1.0				2.9				11.1				13.4			
Approach LOS									B				B			

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	Cedar St. & 50th Terr
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	50th Terrace
Analysis Year	2016	North/South Street	Cedar St./Lowes South Ent
Time Analyzed	Peak PM	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	73	1		77	129	14		2	36	64		26	46	17
Percent Heavy Vehicles		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		11				84					111				96	
Capacity		1412				1504					703				501	
v/c Ratio		0.01				0.06					0.16				0.19	
95% Queue Length		0.0				0.2					0.6				0.7	
Control Delay (s/veh)		7.6				7.5					11.1				13.9	
Level of Service (LOS)		A				A					B				B	
Approach Delay (s/veh)	1.0				2.9				11.1				13.9			
Approach LOS									B				B			

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Section 1 – Traffic Count Data

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- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
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Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

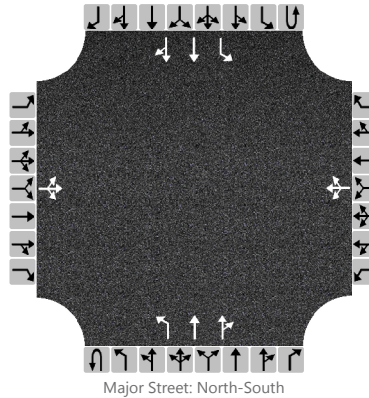
Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	Sycamore Dr & Roe Blvd
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	Sycamore Dr
Analysis Year	2016	North/South Street	Roe Blvd
Time Analyzed	Peak PM	Peak Hour Factor	0.93
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic SStudy		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		12	1	45		4	1	14		46	843	24		14	1010	8
Percent Heavy Vehicles		3	3	3		3	3	3		3				3		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			62				20			49				15		
Capacity			172				167			627				723		
v/c Ratio			0.36				0.12			0.08				0.02		
95% Queue Length			1.6				0.4			0.3				0.1		
Control Delay (s/veh)			37.8				29.5			11.2				10.1		
Level of Service (LOS)			E				D			B				B		
Approach Delay (s/veh)	37.8				29.5				0.6				0.1			
Approach LOS	E				D											

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Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

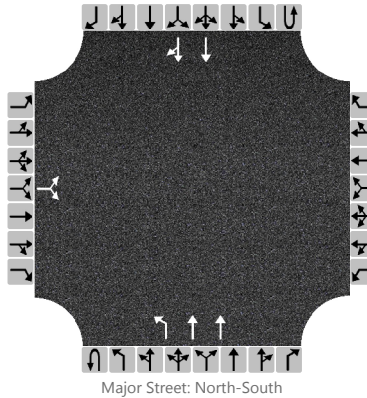
Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010 Two-Way Stop Control Summary Report

General Information		Site Information	
Analyst	CLB	Intersection	52nd St & Roe Blvd
Agency/Co.	SKW	Jurisdiction	Roeland Park
Date Performed	8/25/2016	East/West Street	52nd St
Analysis Year	2016	North/South Street	Roe Blvd
Time Analyzed	Peak PM	Peak Hour Factor	0.88
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	Roe Blvd Traffic Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	1	2	0	0	0	2	0
Configuration			LR							L	T				T	TR
Volume (veh/h)		6		5						0	884				1032	11
Percent Heavy Vehicles		3		3						3						
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			13													
Capacity			101							578						
v/c Ratio			0.13													
95% Queue Length			0.4													
Control Delay (s/veh)			45.8							11.2						
Level of Service (LOS)			E							B						
Approach Delay (s/veh)	45.8															
Approach LOS	E															

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- W 55th Street & Roe Boulevard
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Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010: MUTCD Signal Warrants Release 6.80

Analyst: Cheryl Bornheimer Intersection: Lowes/Walgreens Entrance
 Agency: SKW Jurisdiction: Roeland Park
 Date: 8/16/2016 Units: U.S. Customary
 Project ID: RB-Existing, no LT/Thru out Analyysis Year: 2016
 EW Street: Lowes/Walgreens Entrance NS Street: Roe Blvd

General Information

Major St. Speed (mph): 0 Population: Not less than 10000
 Nearest Signal (ft): 500 Coordinated Signal System: N
 Crashes per Yr: 0

School Crossing

Students in Highest Hour: 0
 Adequate Gaps in Period: 0
 Minutes in Period: 0

Roadway Network

Two Major Routes: 0
 Weekend Count: 0
 5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	1	0	0	1	1	2	1	1	2	1
LaneUsage			R			R	L	T	R	L	T	R

Results

Warrant 1: Eight-Hour Vehicular Volume []
 1 A. Minimum Vehicular Volumes []
 1 B. Interruption of Continuous Traffic []
 1 80% Vehicular --and-- Interruption Volumes []

 Warrant 2: Four-Hour Vehicular Volume []
 2 A. Four-Hour Vehicular Volumes []

 Warrant 3: Peak Hour []
 3 A. Peak-Hour Conditions []
 3 B. Peak-Hour Vehicular Volume Hours Met []

 Warrant 4: Pedestrian Volume []
 4 A. Four Hour Volumes []
 4 B. One-Hour Volumes []

 Warrant 5: School Crossing []
 5 A. Student Volumes []
 5 B. Gaps Same Period []

 Warrant 6: Coordinated Signal System []
 6 Degree of Platooning []

 Warrant 7: Crash Experience []
 7 A. Adequate trials of alternatives []
 7 B. Reported crashes []
 7 80% Volumes for Warrants 1A, 1B --or-- 4 [X]

 Warrant 8: Roadway Network []
 8 A. Weekday Volume []
 8 B. Weekend Volume []

 Warrant 9: Grade Crossing []
 9 A. Grade Crossing within 140 ft --and-- []
 9 B. Peak-Hour Vehicular Volumes []

Summary

HCS 2010: MUTCD Signal Warrants Release 6.80

Analyst: Cheryl Bornheimer Intersection: Lowes/Walgreens Entrance
 Agency: SKW Jurisdiction: Roeland Park
 Date: 8/16/2016 Units: U.S. Customary
 Project ID: Roe Blvd Traffic Study - Existysis Year: 2016
 EW Street: Lowes/Walgreens Entrance NS Street: Roe Blvd

General Information

Major St. Speed (mph): 0 Population: Not less than 10000
 Nearest Signal (ft): 500 Coordinated Signal System: N
 Crashes per Yr: 0

School Crossing

Students in Highest Hour: 0
 Adequate Gaps in Period: 0
 Minutes in Period: 0

Roadway Network

Two Major Routes: 0
 Weekend Count: 0
 5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	1	0	1	1	1	1	2	1	1	2	1
LaneUsage	L	TR		L	T	R	L	T	R	L	T	R

Results

Warrant 1: Eight-Hour Vehicular Volume [X]
 1 A. Minimum Vehicular Volumes []
 1 B. Interruption of Continuous Traffic [X]
 1 80% Vehicular --and-- Interruption Volumes []

Warrant 2: Four-Hour Vehicular Volume
 2 A. Four-Hour Vehicular Volumes [X]

Warrant 3: Peak Hour [X]
 3 A. Peak-Hour Conditions []
 3 B. Peak-Hour Vehicular Volume Hours Met [X]

Warrant 4: Pedestrian Volume []
 4 A. Four Hour Volumes []
 4 B. One-Hour Volumes []

Warrant 5: School Crossing []
 5 A. Student Volumes []
 5 B. Gaps Same Period []

Warrant 6: Coordinated Signal System
 6 Degree of Platooning []

Warrant 7: Crash Experience []
 7 A. Adequate trials of alternatives []
 7 B. Reported crashes []
 7 80% Volumes for Warrants 1A, 1B --or-- 4 [X]

	0.0	0.0		0.0	0.0		0.0	0.0	
	0.0	0.0		0.0	0.0		0.0	0.0	
	0.0	0.0		0.0	0.0		0.0	0.0	
	0.0	0.0		0.0	0.0		0.0	0.0	

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Section 1 – Traffic Count Data

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- W 55th Street & Roe Boulevard
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- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

HCS 2010: MUTCD Signal Warrants Release 6.80

Analyst: Cheryl Bornheimer	Intersection: Lowes/Walgreens Entrance
Agency: SKW	Jurisdiction: Roeland Park
Date: 8/16/2016	Units: U.S. Customary
Project ID: RB & Lowes - Exist As Is	Analysis Year: 2016
EW Street: Lowes/Walgreens Entrance	NS Street: Roe Blvd

General Information

Major St. Speed (mph): 0	Population: Not less than 10000
Nearest Signal (ft): 500	Coordinated Signal System: N
Crashes per Yr: 0	

School Crossing

Students in Highest Hour: 0
 Adequate Gaps in Period: 0
 Minutes in Period: 0

Roadway Network

Two Major Routes: 0
 Weekend Count: 0
 5-yr Growth Factor: 0

Geometry and Traffic

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	1	0	1	1	1	1	2	1	1	2	1
LaneUsage	L	TR		L	T	R	L	T	R	L	T	R

Results

Warrant 1: Eight-Hour Vehicular Volume	[X]
1 A. Minimum Vehicular Volumes	[]
1 B. Interruption of Continuous Traffic	[X]
1 80% Vehicular --and-- Interruption Volumes	[]
Warrant 2: Four-Hour Vehicular Volume	
2 A. Four-Hour Vehicular Volumes	[X]
Warrant 3: Peak Hour	[X]
3 A. Peak-Hour Conditions	[]
3 B. Peak-Hour Vehicular Volume Hours Met	[X]
Warrant 4: Pedestrian Volume	[]
4 A. Four Hour Volumes	[]
4 B. One-Hour Volumes	[]
Warrant 5: School Crossing	[]
5 A. Student Volumes	[]
5 B. Gaps Same Period	[]
Warrant 6: Coordinated Signal System	
6 Degree of Platooning	[]
Warrant 7: Crash Experience	[]
7 A. Adequate trials of alternatives	[]
7 B. Reported crashes	[]
7 80% Volumes for Warrants 1A, 1B --or-- 4	[X]

	0.0	0.0		0.0	0.0		0.0	0.0	
	0.0	0.0		0.0	0.0		0.0	0.0	
	0.0	0.0		0.0	0.0		0.0	0.0	
	0.0	0.0		0.0	0.0		0.0	0.0	

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Section 1 – Traffic Count Data

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Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

Lanes, Volumes, Timings

7: Roe Avenue & Lowes Access/Walgreens/Phillips 66

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	17	64	78	17	39	36	725	81	41	1014	125
Future Volume (vph)	101	17	64	78	17	39	36	725	81	41	1014	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		90	135		0
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	25			25			72			80		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.881				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1641	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.213			0.322		
Satd. Flow (perm)	3433	1641	0	1770	1863	1583	397	3539	1583	600	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70				115			115			136
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		239			83			617			523	
Travel Time (s)		5.4			1.9			12.0			10.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	110	18	70	85	18	42	39	788	88	45	1102	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	110	88	0	85	18	42	39	788	88	45	1102	136
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		32			24			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50		50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Detector Phase	7	4		3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	11.0	34.0		10.0	33.0	33.0	10.0	46.0	46.0	10.0	46.0	46.0

Lanes, Volumes, Timings

7: Roe Avenue & Lowes Access/Walgreens/Phillips 66

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	11.0%	34.0%		10.0%	33.0%	33.0%	10.0%	46.0%	46.0%	10.0%	46.0%	46.0%
Maximum Green (s)	6.5	29.5		5.5	28.5	28.5	5.5	41.5	41.5	5.5	41.5	41.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0			11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
Act Effct Green (s)	6.5	7.8		5.7	7.0	7.0	72.2	68.4	68.4	72.4	68.4	68.4
Actuated g/C Ratio	0.06	0.08		0.06	0.07	0.07	0.72	0.68	0.68	0.72	0.68	0.68
v/c Ratio	0.50	0.46		0.85	0.14	0.19	0.11	0.33	0.08	0.09	0.45	0.12
Control Delay	53.3	22.7		105.4	44.9	2.0	6.7	10.0	3.4	3.1	5.2	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	22.7		105.4	44.9	2.0	6.7	10.0	3.4	3.1	5.3	0.5
LOS	D	C		F	D	A	A	A	A	A	A	A
Approach Delay		39.7			67.9			9.2			4.7	
Approach LOS		D			E			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 12 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 52.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Roe Avenue & Lowes Access/Walgreens/Phillips 66

 Ø1	 Ø2 (R)	 Ø3	 Ø4
10 s	46 s	10 s	34 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
10 s	46 s	11 s	33 s

Lanes, Volumes, Timings

12: Roe Avenue & Wal Mart Access/51st Street

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	39	23	99	31	91	26	697	103	112	881	49
Future Volume (vph)	35	39	23	99	31	91	26	697	103	112	881	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	96		0	80		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	0			25			60			55		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.944			0.888			0.981				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1758	0	1770	1654	0	1770	3472	0	1770	3539	1583
Flt Permitted	0.551			0.713			0.282			0.275		
Satd. Flow (perm)	1026	1758	0	1328	1654	0	525	3472	0	512	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			99			22				65
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		201			321			382			394	
Travel Time (s)		4.6			7.3			7.4			7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	42	25	108	34	99	28	758	112	122	958	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	67	0	108	133	0	28	870	0	122	958	53
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			12			16			16	
Link Offset(ft)		0			10			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left											Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		9.5	22.5		9.5	22.5	22.5
Total Split (s)	31.0	31.0		31.0	31.0		12.0	51.0		18.0	57.0	57.0

Lanes, Volumes, Timings

12: Roe Avenue & Wal Mart Access/51st Street

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.0%	31.0%		31.0%	31.0%		12.0%	51.0%		18.0%	57.0%	57.0%
Maximum Green (s)	26.5	26.5		26.5	26.5		7.5	46.5		13.5	52.5	52.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0						7.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
Act Effct Green (s)	13.4	13.4		13.4	13.4		71.7	65.8		76.0	71.2	71.2
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.72	0.66		0.76	0.71	0.71
v/c Ratio	0.28	0.26		0.61	0.43		0.06	0.38		0.25	0.38	0.05
Control Delay	42.1	27.5		54.2	16.8		3.8	8.4		2.8	2.9	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	0.0
Total Delay	42.1	27.5		54.2	16.8		3.8	8.4		2.8	3.0	0.2
LOS	D	C		D	B		A	A		A	A	A
Approach Delay		32.7			33.5			8.2			2.8	
Approach LOS		C			C			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 48 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 9.3

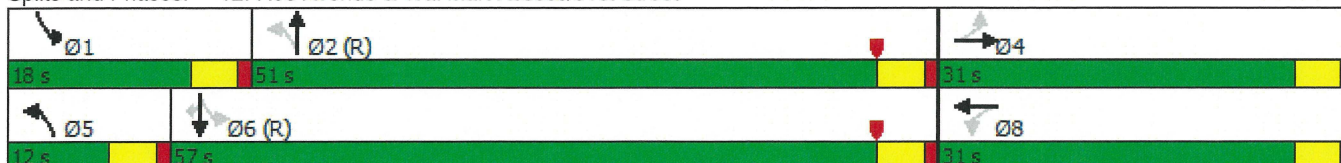
Intersection LOS: A

Intersection Capacity Utilization 55.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Roe Avenue & Wal Mart Access/51st Street



Lanes, Volumes, Timings
13: Roe Avenue & Skyline Dr/48th Street

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	48	33	176	62	240	32	742	71	280	953	155
Future Volume (vph)	107	48	33	176	62	240	32	742	71	280	953	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	240		0	75		165	250		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	80			25			75			130		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	0.91
Frt		0.939			0.881				0.850		0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1749	0	1770	1641	0	1770	3539	1583	1770	4979	0
Flt Permitted	0.294			0.610			0.222			0.213		
Satd. Flow (perm)	548	1749	0	1136	1641	0	414	3539	1583	397	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			193				164		37	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		405			337			523			412	
Travel Time (s)		9.2			7.7			10.2			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	52	36	191	67	261	35	807	77	304	1036	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	88	0	191	328	0	35	807	77	304	1204	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	12.0	32.0		12.0	32.0		11.0	33.0	33.0	23.0	45.0	

Lanes, Volumes, Timings

13: Roe Avenue & Skyline Dr/48th Street

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	12.0%	32.0%		12.0%	32.0%		11.0%	33.0%	33.0%	23.0%	45.0%	
Maximum Green (s)	7.5	27.5		7.5	27.5		6.5	28.5	28.5	18.5	40.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	21.0	14.7		23.0	14.7		49.3	42.9	42.9	64.4	57.6	
Actuated g/C Ratio	0.21	0.15		0.23	0.15		0.49	0.43	0.43	0.64	0.58	
v/c Ratio	0.56	0.31		0.60	0.81		0.12	0.53	0.10	0.62	0.42	
Control Delay	38.4	25.2		37.9	31.8		12.3	26.4	1.5	15.7	14.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	38.4	25.2		37.9	31.8		12.3	26.4	1.5	15.7	14.1	
LOS	D	C		D	C		B	C	A	B	B	
Approach Delay		32.7			34.0			23.8			14.4	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow, Master Intersection
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 21.6
 Intersection Capacity Utilization 75.0%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 13: Roe Avenue & Skyline Dr/48th Street

 Ø1	 Ø2 (R)	 Ø3	 Ø4
23 s	33 s	12 s	32 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	45 s	12 s	32 s

Lanes, Volumes, Timings

14: Roe Avenue & Roe Lane/50th Terrace

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	84	83	109	76	18	93	652	143	16	875	224
Future Volume (vph)	174	84	83	109	76	18	93	652	143	16	875	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	142		0	108		0	122		0	85		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			75			83			85		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.925			0.971			0.973				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1723	0	1770	1809	0	1770	3444	0	1770	3539	1583
Flt Permitted	0.950			0.643			0.216			0.296		
Satd. Flow (perm)	1770	1723	0	1198	1809	0	402	3444	0	551	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			11			34				243
Link Speed (mph)		30			30			35				35
Link Distance (ft)		249			111			394				617
Travel Time (s)		5.7			2.5			7.7				12.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	91	90	118	83	20	101	709	155	17	951	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	181	0	118	103	0	101	864	0	17	951	243
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	22.5
Total Split (s)	14.0	31.0		10.0	27.0		14.0	49.0		10.0	45.0	45.0

Lanes, Volumes, Timings

14: Roe Avenue & Roe Lane/50th Terrace

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	14.0%	31.0%		10.0%	27.0%		14.0%	49.0%		10.0%	45.0%	45.0%
Maximum Green (s)	9.5	26.5		5.5	22.5		9.5	44.5		5.5	40.5	40.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0						7.0			7.0	7.0
Flash Dont Walk (s)		11.0						11.0			11.0	11.0
Pedestrian Calls (#/hr)		0						0			0	0
Act Effct Green (s)	11.0	14.0		14.8	10.6		66.3	62.7		61.8	57.0	57.0
Actuated g/C Ratio	0.11	0.14		0.15	0.11		0.66	0.63		0.62	0.57	0.57
v/c Ratio	0.97	0.64		0.57	0.52		0.27	0.40		0.04	0.47	0.24
Control Delay	104.3	39.6		43.1	45.9		7.9	8.3		2.8	12.0	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.1		0.0	0.0	0.0
Total Delay	104.3	39.6		43.1	45.9		7.9	8.5		2.8	12.0	3.3
LOS	F	D		D	D		A	A		A	B	A
Approach Delay		72.6			44.4			8.4			10.1	
Approach LOS		E			D			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 32 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 20.6

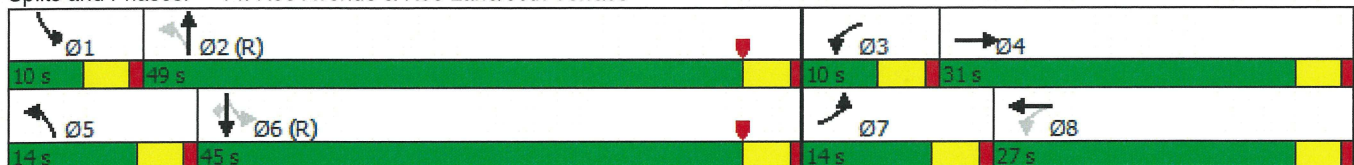
Intersection LOS: C

Intersection Capacity Utilization 59.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: Roe Avenue & Roe Lane/50th Terrace



Lanes, Volumes, Timings
17: Roe Avenue & 52nd Street

9/19/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	5	0	854	1010	17
Future Volume (vph)	8	5	0	854	1010	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.952				0.998	
Flt Protected	0.969					
Satd. Flow (prot)	1718	0	0	3539	3532	0
Flt Permitted	0.969					
Satd. Flow (perm)	1718	0	0	3539	3532	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5				4	
Link Speed (mph)	30			35	35	
Link Distance (ft)	138			238	182	
Travel Time (s)	3.1			4.6	3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	5	0	928	1098	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	928	1116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	6			6	6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	15			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (ft)	20			100	100	
Trailing Detector (ft)	0			0	0	
Detector 1 Position(ft)	0			0	0	
Detector 1 Size(ft)	20			6	6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						
Minimum Initial (s)	5.0			5.0	5.0	

Lanes, Volumes, Timings

17: Roe Avenue & 52nd Street

9/19/2016



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Split (s)	24.0			24.0	24.0	
Total Split (s)	25.0			75.0	75.0	
Total Split (%)	25.0%			75.0%	75.0%	
Maximum Green (s)	19.0			69.0	69.0	
Yellow Time (s)	3.5			4.0	4.0	
All-Red Time (s)	2.5			2.0	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0			1.0	1.0	
Recall Mode	None			C-Max	C-Max	
Act Effect Green (s)	5.1			96.5	96.5	
Actuated g/C Ratio	0.05			0.96	0.96	
v/c Ratio	0.15			0.27	0.33	
Control Delay	39.8			0.8	0.5	
Queue Delay	0.0			0.0	0.0	
Total Delay	39.8			0.8	0.5	
LOS	D			A	A	
Approach Delay	39.8			0.8	0.5	
Approach LOS	D			A	A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 69 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 0.9

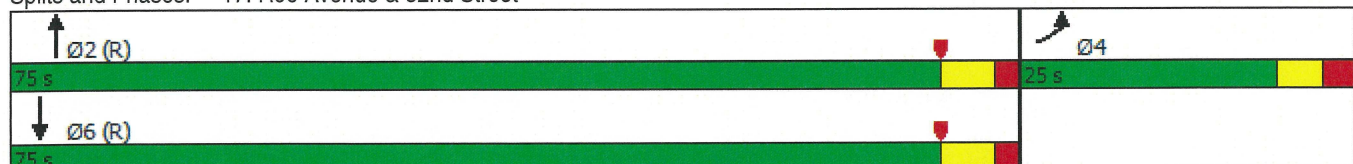
Intersection LOS: A

Intersection Capacity Utilization 42.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 17: Roe Avenue & 52nd Street



APPENDIX

Section 1 – Traffic Count Data

- W 48th Street & Roe Boulevard
- W 50th Terrace & Roe Boulevard
- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
- PM Peak Hour at Remaining Count Intersections

Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

Roe Boulevard Traffic Study

Proposed

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	75	0	0	39	36	759	81	44	1034	128
Future Volume (vph)	0	0	75	0	0	39	36	759	81	44	1034	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	200		90	135		0
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			72			80		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1611	0	0	1611	1770	3539	1583	1770	3539	1583
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		239			83			617			523	
Travel Time (s)		5.4			1.9			12.0			10.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	82	0	0	42	39	825	88	48	1124	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	82	0	0	42	39	825	88	48	1124	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		32			0			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 39.9%

ICU Level of Service A

Analysis Period (min) 15

Roe Boulevard Traffic Study

Proposed

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	39	23	99	31	91	26	697	103	112	881	49
Future Volume (vph)	35	39	23	99	31	91	26	697	103	112	881	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	96		0	80		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	0			25			60			55		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.944			0.888			0.981				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1758	0	1770	1654	0	1770	3472	0	1770	3539	1583
Flt Permitted	0.659			0.713			0.253			0.279		
Satd. Flow (perm)	1228	1758	0	1328	1654	0	471	3472	0	520	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			99			29				94
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		201			321			382			394	
Travel Time (s)		4.6			7.3			7.4			7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	42	25	108	34	99	28	758	112	122	958	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	67	0	108	133	0	28	870	0	122	958	53
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			12			16			16	
Link Offset(ft)		0			10			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left											Right
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		9.5	22.5		9.5	22.5	22.5
Total Split (s)	24.0	24.0		24.0	24.0		10.0	34.0		12.0	36.0	36.0

Roe Boulevard Traffic Study

Proposed

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	34.3%	34.3%		34.3%	34.3%		14.3%	48.6%		17.1%	51.4%	51.4%
Maximum Green (s)	19.5	19.5		19.5	19.5		5.5	29.5		7.5	31.5	31.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag							Lag	Lead		Lag	Lead	Lead
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0						7.0				
Flash Dont Walk (s)	11.0	11.0						11.0				
Pedestrian Calls (#/hr)	0	0						0				
Act Effct Green (s)	11.0	11.0		11.0	11.0		46.7	41.2		50.1	46.0	46.0
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.67	0.59		0.72	0.66	0.66
v/c Ratio	0.20	0.23		0.52	0.39		0.07	0.42		0.25	0.41	0.05
Control Delay	26.3	18.5		35.0	12.2		4.8	9.9		3.1	2.8	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	0.0
Total Delay	26.3	18.5		35.0	12.2		4.8	9.9		3.1	2.9	0.1
LOS	C	B		D	B		A	A		A	A	A
Approach Delay		21.3			22.5			9.7			2.8	
Approach LOS		C			C			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 41 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 8.2

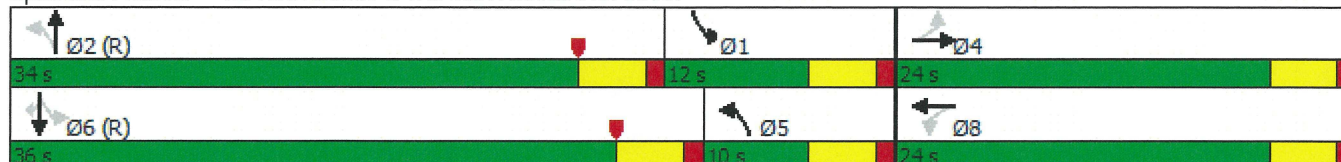
Intersection LOS: A

Intersection Capacity Utilization 55.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Roe Avenue & Wal Mart Access/51st Street



Roe Boulevard Traffic Study

Proposed

9/19/2016

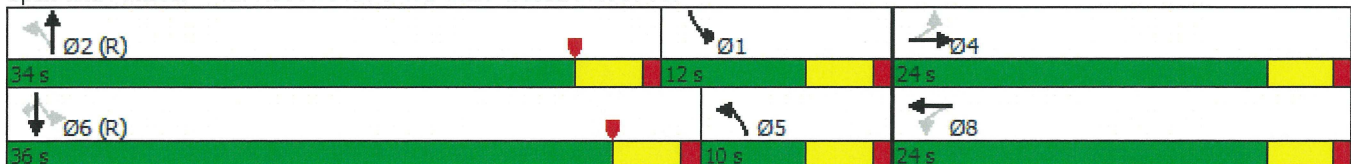


Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	None	None	C-Max	None
Maximum Split (s)	12	34	24	10	36	24
Maximum Split (%)	17.1%	48.6%	34.3%	14.3%	51.4%	34.3%
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		7	7			
Flash Dont Walk (s)		11	11			
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	45.5	11.5	57.5	47.5	11.5	57.5
End Time (s)	57.5	45.5	11.5	57.5	47.5	11.5
Yield/Force Off (s)	53	41	7	53	43	7
Yield/Force Off 170(s)	53	30	66	53	43	7
Local Start Time (s)	4.5	40.5	16.5	6.5	40.5	16.5
Local Yield (s)	12	0	36	12	2	36
Local Yield 170(s)	12	59	25	12	2	36

Intersection Summary

Cycle Length 70
Control Type Actuated-Coordinated
Natural Cycle 60
Offset: 41 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Splits and Phases: 12: Roe Avenue & Wal Mart Access/51st Street



Roe Boulevard Traffic Study

Proposed

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	51	36	199	65	240	32	675	71	280	953	155
Future Volume (vph)	174	51	36	199	65	240	32	675	71	280	953	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	240		0	75		165	250		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	80			25			75			130		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.91	0.91
Frt		0.938			0.882				0.850		0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1747	0	1770	1643	0	1770	3539	1583	1770	4979	0
Flt Permitted	0.440			0.571			0.191			0.353		
Satd. Flow (perm)	820	1747	0	1064	1643	0	356	3539	1583	658	4979	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			255				164		48	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		405			337			523			412	
Travel Time (s)		9.2			7.7			10.2			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	55	39	216	71	261	35	734	77	304	1036	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	94	0	216	332	0	35	734	77	304	1204	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	50	50		50	50		50	50	50	50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	9.6	22.6		9.6	22.6		9.5	23.8	23.8	14.0	28.3	

Roe Boulevard Traffic Study

Proposed

9/19/2016



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	13.7%	32.3%		13.7%	32.3%		13.6%	34.0%	34.0%	20.0%	40.4%	
Maximum Green (s)	5.1	18.1		5.1	18.1		5.0	19.3	19.3	9.5	23.8	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0			0			0	0		0	
Act Effct Green (s)	14.2	10.2		16.2	10.2		27.2	27.2	27.2	36.9	36.9	
Actuated g/C Ratio	0.20	0.15		0.23	0.15		0.39	0.39	0.39	0.53	0.53	
v/c Ratio	0.81	0.33		0.68	0.73		0.13	0.53	0.11	0.61	0.46	
Control Delay	46.5	18.8		32.9	17.1		7.8	12.2	1.8	24.9	12.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	46.5	18.8		32.9	17.1		7.8	12.2	1.8	24.9	12.7	
LOS	D	B		C	B		A	B	A	C	B	
Approach Delay		37.3			23.3			11.0			15.1	
Approach LOS		D			C			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow, Master Intersection

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 17.4

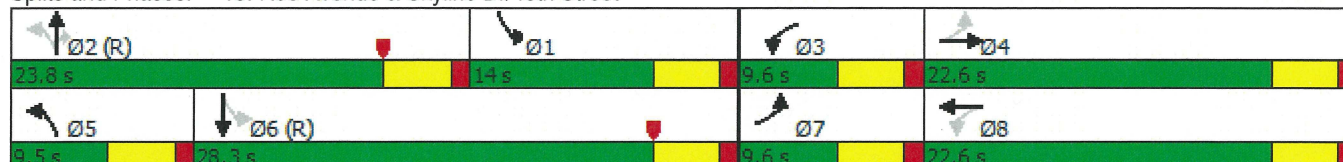
Intersection Capacity Utilization 77.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service D

Splits and Phases: 13: Roe Avenue & Skyline Dr/48th Street



Roe Boulevard Traffic Study

Proposed

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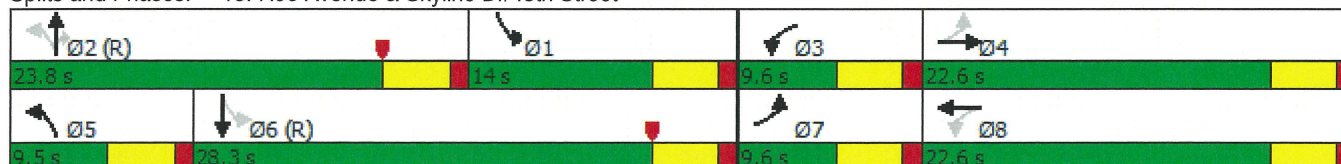


Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	14	23.8	9.6	22.6	9.5	28.3	9.6	22.6
Maximum Split (%)	20.0%	34.0%	13.7%	32.3%	13.6%	40.4%	13.7%	32.3%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		7
Flash Dont Walk (s)		11		11		11		11
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	4.5	50.7	18.5	28.1	50.7	60.2	18.5	28.1
End Time (s)	18.5	4.5	28.1	50.7	60.2	18.5	28.1	50.7
Yield/Force Off (s)	14	0	23.6	46.2	55.7	14	23.6	46.2
Yield/Force Off 170(s)	14	59	23.6	35.2	55.7	3	23.6	35.2
Local Start Time (s)	4.5	50.7	18.5	28.1	50.7	60.2	18.5	28.1
Local Yield (s)	14	0	23.6	46.2	55.7	14	23.6	46.2
Local Yield 170(s)	14	59	23.6	35.2	55.7	3	23.6	35.2

Intersection Summary

Cycle Length 70
Control Type Actuated-Coordinated
Natural Cycle 70
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow, Master Intersection

Splits and Phases: 13: Roe Avenue & Skyline Dr/48th Street



Roe Boulevard Traffic Study

Proposed

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	84	83	109	87	18	93	652	143	27	895	224
Future Volume (vph)	208	84	83	109	87	18	93	652	143	27	895	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	142		0	108		0	122		0	85		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			75			83			85		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.925			0.974			0.973				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1723	0	1770	1814	0	1770	3444	0	1770	3539	1583
Flt Permitted	0.950			0.643			0.147			0.272		
Satd. Flow (perm)	1770	1723	0	1198	1814	0	274	3444	0	507	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74			15			37				243
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		249			111			394			617	
Travel Time (s)		5.7			2.5			7.7			12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	91	90	118	95	20	101	709	155	29	973	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	226	181	0	118	115	0	101	864	0	29	973	243
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		6			6			6			6	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		15	15		15	15		15	15		15
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases				8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	22.5
Total Split (s)	14.0	26.2		10.3	22.5		9.5	24.0		9.5	24.0	24.0

Roe Boulevard Traffic Study

Proposed

9/19/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	20.0%	37.4%		14.7%	32.1%		13.6%	34.3%		13.6%	34.3%	34.3%
Maximum Green (s)	9.5	21.7		5.8	18.0		5.0	19.5		5.0	19.5	19.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0						7.0			7.0	7.0
Flash Dont Walk (s)		11.0						11.0			11.0	11.0
Pedestrian Calls (#/hr)		0						0			0	0
Act Effct Green (s)	9.5	13.0		13.9	9.2		38.9	35.3		34.8	29.8	29.8
Actuated g/C Ratio	0.14	0.19		0.20	0.13		0.56	0.50		0.50	0.43	0.43
v/c Ratio	0.94	0.48		0.41	0.46		0.32	0.49		0.08	0.65	0.30
Control Delay	78.9	19.1		21.5	29.5		14.7	8.9		5.6	17.6	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	78.9	19.1		21.5	29.5		14.7	8.9		5.6	17.6	2.0
LOS	E	B		C	C		B	A		A	B	A
Approach Delay		52.3			25.5			9.5			14.2	
Approach LOS		D			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 34 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 62.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: Roe Avenue & Roe Lane/50th Terrace

 Ø1	 Ø2 (R)	 Ø3	 Ø4
9.5 s	24 s	10.3 s	26.2 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
9.5 s	24 s	14 s	22.5 s

Roe Boulevard Traffic Study

Proposed

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Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBT	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes			Yes	Yes		
Recall Mode	None	C-Max	None	None	None	C-Max	None	None
Maximum Split (s)	9.5	24	10.3	26.2	9.5	24	14	22.5
Maximum Split (%)	13.6%	34.3%	14.7%	37.4%	13.6%	34.3%	20.0%	32.1%
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	1	1	1	1	1
Minimum Initial (s)	5	5	5	5	5	5	5	5
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		7		7		7		
Flash Dont Walk (s)		11		11		11		
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	5	14.5	38.5	48.8	5	14.5	38.5	52.5
End Time (s)	14.5	38.5	48.8	5	14.5	38.5	52.5	5
Yield/Force Off (s)	10	34	44.3	0.5	10	34	48	0.5
Yield/Force Off 170(s)	10	23	44.3	59.5	10	23	48	0.5
Local Start Time (s)	41	50.5	4.5	14.8	41	50.5	4.5	18.5
Local Yield (s)	46	0	10.3	36.5	46	0	14	36.5
Local Yield 170(s)	46	59	10.3	25.5	46	59	14	36.5

Intersection Summary

Cycle Length 70
Control Type Actuated-Coordinated
Natural Cycle 80
Offset: 34 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Splits and Phases: 14: Roe Avenue & Roe Lane/50th Terrace

Ø1	Ø2 (R)	Ø3	Ø4
9.5 s	24 s	10.3 s	26.2 s
Ø5	Ø6 (R)	Ø7	Ø8
9.5 s	24 s	14 s	22.5 s

Roe Boulevard Traffic Study

Proposed

9/19/2016



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	5	0	854	1010	17
Future Volume (vph)	8	5	0	854	1010	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt	0.952				0.998	
Flt Protected	0.969					
Satd. Flow (prot)	1718	0	0	3539	3532	0
Flt Permitted	0.969					
Satd. Flow (perm)	1718	0	0	3539	3532	0
Link Speed (mph)	30			35	35	
Link Distance (ft)	138			238	182	
Travel Time (s)	3.1			4.6	3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	5	0	928	1098	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	928	1116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	6			6	6	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	15			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.5% ICU Level of Service A

Analysis Period (min) 15

APPENDIX

Section 1 – Traffic Count Data

- W 48th Street & Roe Boulevard
- W 50th Terrace & Roe Boulevard
- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
- PM Peak Hour at Remaining Count Intersections

Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

Summary of All Intervals

Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4467
Vehs Exited	4456
Starting Vehs	70
Ending Vehs	81
Travel Distance (mi)	1289
Travel Time (hr)	82.8
Total Delay (hr)	40.5
Total Stops	4550
Fuel Used (gal)	63.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	4467
Vehs Exited	4456
Starting Vehs	70
Ending Vehs	81
Travel Distance (mi)	1289
Travel Time (hr)	82.8
Total Delay (hr)	40.5
Total Stops	4550
Fuel Used (gal)	63.0

7: Roe Avenue & Lowes Access/Walgreens/Phillips 66 Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (hr)	1.2	0.3	0.3	1.1	0.2	0.1	0.1	1.0	0.1	0.1	1.3	0.1
Total Del/Veh (s)	41.7	45.3	17.3	47.5	44.8	6.0	12.0	4.9	3.5	9.8	4.7	2.9
Stop Delay (hr)	1.1	0.2	0.3	1.1	0.2	0.1	0.1	0.5	0.0	0.1	0.5	0.0
Stop Del/Veh (s)	39.5	42.2	15.4	47.2	43.7	5.5	9.5	2.3	1.1	6.1	1.9	1.1
Total Stops	91	19	67	48	14	33	26	151	23	30	148	22
Stop/Veh	0.90	0.90	0.93	0.59	0.82	0.97	0.81	0.20	0.24	0.70	0.15	0.20
Travel Time (hr)	1.3	0.3	0.5	1.1	0.2	0.1	0.2	3.6	0.5	0.3	4.2	0.5
Avg Speed (mph)	3	3	6	1	1	4	15	24	23	15	23	22
Fuel Used (gal)	0.4	0.1	0.1	0.3	0.1	0.0	0.1	3.6	0.4	0.2	4.3	0.4
Fuel Eff. (mpg)	9.3	9.5	17.3	2.7	3.0	17.8	25.5	23.5	23.9	24.1	22.7	24.8
HC Emissions (g)	2	0	0	0	0	0	1	39	6	1	55	4
CO Emissions (g)	56	9	21	17	3	1	55	1706	246	41	1913	236
NOx Emissions (g)	5	1	2	1	0	0	4	145	21	4	203	16
Density (ft/veh)												

7: Roe Avenue & Lowes Access/Walgreens/Phillips 66 Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	5.9
Total Del/Veh (s)	9.0
Stop Delay (hr)	4.2
Stop Del/Veh (s)	6.5
Total Stops	672
Stop/Veh	0.29
Travel Time (hr)	12.9
Avg Speed (mph)	17
Fuel Used (gal)	10.1
Fuel Eff. (mpg)	21.9
HC Emissions (g)	108
CO Emissions (g)	4305
NOx Emissions (g)	403
Density (ft/veh)	396

12: Roe Avenue & Wal Mart Access/51st Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	3.9	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.5	0.3	0.1	1.3	0.3	0.3	0.0	1.0	0.1	0.3	1.1	0.0
Total Del/Veh (s)	38.8	34.3	13.8	43.9	39.0	13.3	7.3	4.4	3.2	11.5	4.3	1.7
Stop Delay (hr)	0.5	0.3	0.1	1.2	0.2	0.2	0.0	0.5	0.1	0.2	0.3	0.0
Stop Del/Veh (s)	37.0	31.6	12.4	41.0	35.7	11.2	5.2	2.5	1.9	7.7	1.2	0.5
Total Stops	36	22	16	99	19	66	14	145	23	84	88	8
Stop/Veh	0.82	0.71	0.80	0.95	0.79	0.86	0.67	0.19	0.23	0.80	0.10	0.11
Travel Time (hr)	0.5	0.3	0.1	1.6	0.3	0.5	0.1	2.5	0.4	0.6	3.0	0.2
Avg Speed (mph)	2	3	6	4	4	9	15	21	19	12	21	22
Fuel Used (gal)	0.1	0.1	0.0	0.6	0.1	0.2	0.0	1.7	0.2	0.4	3.8	0.2
Fuel Eff. (mpg)	9.0	9.6	17.3	10.0	14.0	23.1	36.2	30.4	39.6	19.8	17.3	24.0
HC Emissions (g)	0	0	0	5	0	4	1	22	1	3	46	3
CO Emissions (g)	14	16	4	170	15	84	28	700	38	135	1888	146
NOx Emissions (g)	1	1	1	14	1	9	3	70	3	14	183	11
Density (ft/veh)												

12: Roe Avenue & Wal Mart Access/51st Street Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.2
Total Delay (hr)	5.2
Total Del/Veh (s)	8.2
Stop Delay (hr)	3.6
Stop Del/Veh (s)	5.7
Total Stops	620
Stop/Veh	0.27
Travel Time (hr)	10.2
Avg Speed (mph)	15
Fuel Used (gal)	7.4
Fuel Eff. (mpg)	20.6
HC Emissions (g)	87
CO Emissions (g)	3238
NOx Emissions (g)	313
Density (ft/veh)	336

13: Roe Avenue & Skyline Dr/48th Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0
Denied Del/Veh (s)	3.8	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.4	0.3
Total Delay (hr)	1.1	0.4	0.1	2.0	0.9	0.1	0.2	3.5	0.1	0.9	2.1	0.1
Total Del/Veh (s)	34.0	40.7	10.7	44.8	42.1	1.7	19.2	16.7	3.3	11.1	7.7	2.2
Stop Delay (hr)	1.0	0.4	0.1	1.9	0.8	0.0	0.1	2.5	0.0	0.7	1.2	0.0
Stop Del/Veh (s)	31.2	37.0	8.4	42.2	37.6	0.1	15.7	12.0	0.2	8.4	4.7	0.1
Total Stops	98	31	23	147	71	4	30	356	0	198	285	2
Stop/Veh	0.86	0.84	0.82	0.92	0.88	0.02	0.91	0.47	0.00	0.68	0.30	0.01
Travel Time (hr)	1.5	0.5	0.2	2.4	1.1	0.4	0.3	5.8	0.3	1.9	4.1	0.3
Avg Speed (mph)	5	5	12	4	4	20	11	13	22	12	17	22
Fuel Used (gal)	0.5	0.2	0.1	0.7	0.3	0.1	0.1	3.4	0.2	0.9	2.7	0.2
Fuel Eff. (mpg)	13.7	14.9	22.6	13.2	15.2	67.6	23.4	22.0	28.6	23.8	24.6	42.5
HC Emissions (g)	4	0	0	2	2	1	1	31	2	8	27	2
CO Emissions (g)	151	30	27	94	56	18	28	1165	84	399	1039	67
NOx Emissions (g)	13	2	2	8	6	1	3	109	8	26	94	5
Density (ft/veh)												

13: Roe Avenue & Skyline Dr/48th Street Performance by movement

Movement	All
Denied Delay (hr)	0.4
Denied Del/Veh (s)	0.5
Total Delay (hr)	11.5
Total Del/Veh (s)	14.1
Stop Delay (hr)	8.8
Stop Del/Veh (s)	10.8
Total Stops	1245
Stop/Veh	0.43
Travel Time (hr)	18.7
Avg Speed (mph)	12
Fuel Used (gal)	9.4
Fuel Eff. (mpg)	22.5
HC Emissions (g)	81
CO Emissions (g)	3159
NOx Emissions (g)	278
Density (ft/veh)	251

14: Roe Avenue & Roe Lane/50th Terrace Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.9	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	3.1	0.9	0.5	1.0	0.8	0.0	0.3	1.6	0.2	0.1	3.6	0.2
Total Del/Veh (s)	64.8	37.9	18.9	34.8	35.3	6.2	13.0	8.4	5.5	15.4	14.0	4.3
Stop Delay (hr)	3.0	0.8	0.4	1.0	0.8	0.0	0.3	1.0	0.1	0.1	2.1	0.1
Stop Del/Veh (s)	62.5	34.5	17.0	33.8	33.5	5.9	10.5	5.5	3.6	11.1	8.2	2.4
Total Stops	167	74	62	89	66	4	63	198	52	19	437	85
Stop/Veh	0.98	0.88	0.72	0.82	0.77	0.29	0.73	0.29	0.35	1.00	0.47	0.42
Travel Time (hr)	3.4	1.0	0.6	1.1	0.9	0.0	0.6	3.1	0.7	0.2	6.8	1.1
Avg Speed (mph)	2	3	5	2	1	2	11	16	16	14	16	22
Fuel Used (gal)	1.0	0.4	0.2	0.3	0.2	0.0	0.3	2.3	0.4	0.1	4.2	0.7
Fuel Eff. (mpg)	6.4	9.3	13.8	5.6	5.4	8.5	23.6	21.3	25.8	27.6	25.2	31.9
HC Emissions (g)	2	2	1	2	3	0	5	25	9	0	40	8
CO Emissions (g)	102	67	47	46	60	0	123	1061	233	27	1547	364
NOx Emissions (g)	10	7	5	5	5	0	16	91	29	2	142	26
Density (ft/veh)												

14: Roe Avenue & Roe Lane/50th Terrace Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	12.4
Total Del/Veh (s)	17.0
Stop Delay (hr)	9.8
Stop Del/Veh (s)	13.5
Total Stops	1316
Stop/Veh	0.50
Travel Time (hr)	19.4
Avg Speed (mph)	11
Fuel Used (gal)	10.2
Fuel Eff. (mpg)	21.0
HC Emissions (g)	98
CO Emissions (g)	3678
NOx Emissions (g)	336
Density (ft/veh)	207

17: Roe Avenue & 52nd Street Performance by movement

Movement	EBL	EBR	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.0	0.1
Total Delay (hr)	0.1	0.0	0.2	0.2	0.0	0.5
Total Del/Veh (s)	56.1	10.1	0.8	0.5	0.0	0.9
Stop Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.2
Stop Del/Veh (s)	55.0	8.9	0.2	0.2	0.0	0.4
Total Stops	8	10	23	19	0	60
Stop/Veh	1.00	1.00	0.03	0.02	0.00	0.03
Travel Time (hr)	0.1	0.0	1.4	1.2	0.0	2.8
Avg Speed (mph)	1	5	29	30	23	28
Fuel Used (gal)	0.0	0.0	2.0	1.2	0.0	3.2
Fuel Eff. (mpg)	5.0	17.3	19.2	29.3	93.5	23.0
HC Emissions (g)	0	0	29	15	0	45
CO Emissions (g)	2	1	1658	415	0	2077
NOx Emissions (g)	0	0	88	52	0	140
Density (ft/veh)						350

19: Roe Lane Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	4.2	0.3	0.1	0.0	0.0	0.0	0.1	0.3	1.9	2.2	2.6	0.8
Total Delay (hr)	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.3	0.1	0.0
Total Del/Veh (s)	3.4	3.1	1.7	2.8	1.4	1.0	8.7	9.5	9.6	17.6	5.8	3.9
Stop Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0
Stop Del/Veh (s)	1.8	2.0	1.3	0.7	0.3	0.3	8.3	8.4	9.4	17.1	4.0	3.2
Total Stops	2	13	1	16	0	0	10	15	96	48	32	31
Stop/Veh	0.50	0.09	0.08	0.12	0.00	0.00	0.91	0.83	0.74	0.89	1.00	0.97
Travel Time (hr)	0.0	0.2	0.0	0.4	0.4	0.2	0.0	0.1	0.5	0.3	0.1	0.1
Avg Speed (mph)	10	13	14	15	20	18	3	3	3	3	7	8
Fuel Used (gal)	0.0	0.2	0.0	0.3	0.6	0.2	0.0	0.0	0.1	0.1	0.0	0.0
Fuel Eff. (mpg)	11.2	14.0	24.2	16.0	11.8	17.4	14.0	12.3	10.1	9.2	20.2	23.4
HC Emissions (g)	0	3	0	9	11	1	0	0	0	0	0	0
CO Emissions (g)	1	124	3	213	420	62	1	1	10	6	2	2
NOx Emissions (g)	0	10	0	29	40	6	0	0	1	1	0	0
Density (ft/veh)												

19: Roe Lane Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.7
Total Delay (hr)	1.1
Total Del/Veh (s)	4.9
Stop Delay (hr)	0.9
Stop Del/Veh (s)	3.8
Total Stops	264
Stop/Veh	0.33
Travel Time (hr)	2.2
Avg Speed (mph)	11
Fuel Used (gal)	1.6
Fuel Eff. (mpg)	13.6
HC Emissions (g)	25
CO Emissions (g)	845
NOx Emissions (g)	88
Density (ft/veh)	396

23: Roe Avenue & CVS/Wal Mart Access/Sycamore Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.0
Total Del/Veh (s)	26.5	49.4	11.7	11.5	9.7	5.7	8.8	0.4	0.1	5.0	1.0	0.4
Stop Delay (hr)	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	25.7	47.7	11.0	10.1	7.2	4.3	7.3	0.0	0.0	3.5	0.1	0.0
Total Stops	12	1	48	5	2	13	27	0	0	7	0	0
Stop/Veh	1.00	1.00	0.98	1.00	1.00	0.93	0.63	0.00	0.00	0.54	0.00	0.00
Travel Time (hr)	0.1	0.0	0.2	0.0	0.0	0.0	0.2	1.0	0.0	0.1	2.4	0.0
Avg Speed (mph)	2	1	4	6	7	9	8	31	22	17	29	22
Fuel Used (gal)	0.0	0.0	0.1	0.0	0.0	0.0	0.1	1.0	0.0	0.0	3.1	0.0
Fuel Eff. (mpg)	8.6	5.3	15.4	24.2	30.2	31.1	26.7	29.8	78.9	29.1	22.8	28.0
HC Emissions (g)	0	0	1	0	0	0	0	14	0	0	43	0
CO Emissions (g)	2	0	12	0	0	1	7	414	2	7	1633	4
NOx Emissions (g)	0	0	1	0	0	0	1	49	0	1	153	0
Density (ft/veh)												

23: Roe Avenue & CVS/Wal Mart Access/Sycamore Drive Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	0.8
Total Del/Veh (s)	1.4
Stop Delay (hr)	0.4
Stop Del/Veh (s)	0.7
Total Stops	115
Stop/Veh	0.06
Travel Time (hr)	4.1
Avg Speed (mph)	26
Fuel Used (gal)	4.4
Fuel Eff. (mpg)	24.6
HC Emissions (g)	59
CO Emissions (g)	2083
NOx Emissions (g)	206
Density (ft/veh)	433

Total Network Performance

Denied Delay (hr)	1.0
Denied Del/Veh (s)	0.8
Total Delay (hr)	39.5
Total Del/Veh (s)	31.4
Stop Delay (hr)	28.8
Stop Del/Veh (s)	22.9
Total Stops	4550
Stop/Veh	1.00
Travel Time (hr)	82.8
Avg Speed (mph)	16
Fuel Used (gal)	63.0
Fuel Eff. (mpg)	20.5
HC Emissions (g)	739
CO Emissions (g)	29238
NOx Emissions (g)	2584
Density (ft/veh)	265

Arterial Level of Service: NB Roe Avenue

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
52nd Street	17	0.8	5.5	0.0	31
Sycamore Drive	23	0.4	4.0	0.0	31
51st Street	12	4.3	11.3	0.1	23
50th Terrace	14	8.2	15.7	0.1	17
Walgreens/Phillips 6	7	5.6	17.4	0.1	24
48th Street	13	15.6	25.6	0.1	14
Total		34.9	79.5	0.4	20

Arterial Level of Service: SB Roe Avenue

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Skyline Dr	13	7.7	15.4	0.1	19
Lowes Access	7	2.9	13.0	0.1	27
Roe Lane	14	13.1	24.9	0.1	17
Wal Mart Access	12	3.2	10.8	0.1	25
CVS/Wal Mart Access	23	1.0	8.4	0.1	31
52nd Street	17	0.4	4.0	0.0	31
Total		28.3	76.5	0.5	22

APPENDIX

Section 1 – Traffic Count Data

- W 48th Street & Roe Boulevard
- W 50th Terrace & Roe Boulevard
- W 52nd Street & Roe Boulevard
- W 55th Street & Roe Boulevard
- PM Peak Hour at Remaining Count Intersections

Section 2 –Level of Service (LOS) Reports for Unsignalized Intersections

- Bella Roe Plaza & Skyline Drive – Existing and Proposed
- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- Bella Roe Plaza & W 50th Terrace – Existing and Proposed
- W 50th Terrace & Cedar Street – Existing and Proposed
- Sycamore Drive & Roe Boulevard – Existing
- W 52nd Street & Roe Boulevard - Proposed

Section 3 – Warrant Analysis

- Bella Roe Plaza & Roe Boulevard – Existing and Proposed
- W 52nd Street & Roe Boulevard – Existing

Section 5 – Synchro LOS Corridor Reports

- Existing Corridor
- Proposed Corridor

Section 6 – SimTraffic Corridor Reports

- Existing Corridor
- Proposed Corridor

Summary of All Intervals

Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4413
Vehs Exited	4419
Starting Vehs	80
Ending Vehs	74
Travel Distance (mi)	1282
Travel Time (hr)	74.2
Total Delay (hr)	32.1
Total Stops	4100
Fuel Used (gal)	60.6

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4413
Vehs Exited	4419
Starting Vehs	80
Ending Vehs	74
Travel Distance (mi)	1282
Travel Time (hr)	74.2
Total Delay (hr)	32.1
Total Stops	4100
Fuel Used (gal)	60.6

7: Roe Avenue & Lowes Access/Walgreens/Phillips 66 Performance by movement

Movement	EBR	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.0	0.1	0.4	0.0	0.1	0.4	0.1	1.3
Total Del/Veh (s)	6.0	5.0	10.6	1.6	1.6	8.0	1.6	1.7	2.1
Total Stops	86	30	30	24	2	26	0	0	198
Stop/Veh	1.00	1.00	0.83	0.03	0.02	0.67	0.00	0.00	0.09
Avg Speed (mph)	11	5	16	29	26	17	29	25	27
Fuel Used (gal)	0.1	0.0	0.2	4.0	0.4	0.2	4.6	0.5	10.0
HC Emissions (g)	0	0	1	49	6	1	54	5	117
CO Emissions (g)	12	2	69	2099	253	56	2276	293	5058
NOx Emissions (g)	1	0	5	172	20	5	209	19	431
Density (ft/veh)									568

12: Roe Avenue & Wal Mart Access/51st Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.1	3.6	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.2	0.3	0.1	1.0	0.2	0.3	0.1	1.2	0.1	0.3	0.9	0.0
Total Del/Veh (s)	23.0	22.0	17.9	31.1	23.9	10.6	16.1	5.4	2.8	11.4	3.4	1.7
Total Stops	25	34	21	91	21	70	23	190	25	63	87	2
Stop/Veh	0.81	0.79	0.91	0.83	0.70	0.74	0.85	0.25	0.24	0.77	0.09	0.05
Avg Speed (mph)	4	4	5	5	6	10	10	19	20	12	23	23
Fuel Used (gal)	0.1	0.1	0.0	0.5	0.1	0.2	0.1	1.7	0.2	0.3	3.7	0.1
HC Emissions (g)	0	3	0	2	0	1	0	12	1	2	41	2
CO Emissions (g)	6	56	6	123	15	44	11	502	30	92	1837	87
NOx Emissions (g)	1	7	1	10	1	4	1	47	3	10	166	7
Density (ft/veh)												

12: Roe Avenue & Wal Mart Access/51st Street Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.2
Total Delay (hr)	4.5
Total Del/Veh (s)	7.1
Total Stops	652
Stop/Veh	0.28
Avg Speed (mph)	16
Fuel Used (gal)	7.1
HC Emissions (g)	65
CO Emissions (g)	2810
NOx Emissions (g)	257
Density (ft/veh)	359

13: Roe Avenue & Skyline Dr/48th Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0
Denied Del/Veh (s)	3.8	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.4	0.3
Total Delay (hr)	2.0	0.5	0.1	1.3	0.7	0.1	0.2	2.3	0.0	1.9	2.2	0.1
Total Del/Veh (s)	42.8	28.5	13.8	28.1	35.8	1.5	22.4	11.9	2.6	21.7	8.7	2.6
Total Stops	147	59	31	140	64	0	25	325	0	250	350	5
Stop/Veh	0.88	0.87	0.82	0.85	0.91	0.00	0.93	0.46	0.00	0.79	0.38	0.03
Avg Speed (mph)	4	6	10	6	5	21	10	16	24	8	16	21
Fuel Used (gal)	0.9	0.3	0.1	0.5	0.2	0.1	0.1	2.2	0.1	1.2	2.7	0.2
HC Emissions (g)	4	1	3	2	0	1	0	17	1	8	26	2
CO Emissions (g)	177	53	67	82	19	20	12	573	49	396	1050	79
NOx Emissions (g)	15	4	8	6	1	1	1	60	5	27	95	7
Density (ft/veh)												

13: Roe Avenue & Skyline Dr/48th Street Performance by movement

Movement	All
Denied Delay (hr)	0.5
Denied Del/Veh (s)	0.6
Total Delay (hr)	11.6
Total Del/Veh (s)	14.2
Total Stops	1396
Stop/Veh	0.48
Avg Speed (mph)	11
Fuel Used (gal)	8.7
HC Emissions (g)	65
CO Emissions (g)	2577
NOx Emissions (g)	232
Density (ft/veh)	250

14: Roe Avenue & Roe Lane/50th Terrace Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	2.3	0.6	0.4	0.5	0.7	0.0	0.4	1.5	0.2	0.1	2.3	0.2
Total Del/Veh (s)	42.4	26.5	13.9	19.1	32.4	0.6	15.3	7.7	5.4	14.3	9.8	3.2
Total Stops	178	66	78	88	71	1	81	184	38	16	299	77
Stop/Veh	0.93	0.76	0.71	0.91	0.87	0.04	0.88	0.27	0.31	0.84	0.35	0.36
Avg Speed (mph)	3	4	7	3	2	11	10	17	17	15	19	24
Fuel Used (gal)	0.9	0.3	0.3	0.2	0.2	0.0	0.3	2.5	0.4	0.1	3.2	0.6
HC Emissions (g)	4	1	2	1	2	0	3	23	2	0	32	6
CO Emissions (g)	141	62	65	20	42	0	105	1045	125	7	930	202
NOx Emissions (g)	16	6	8	2	4	0	11	92	10	1	107	19
Density (ft/veh)												

14: Roe Avenue & Roe Lane/50th Terrace Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.0
Total Delay (hr)	9.2
Total Del/Veh (s)	12.9
Total Stops	1177
Stop/Veh	0.46
Avg Speed (mph)	13
Fuel Used (gal)	8.8
HC Emissions (g)	76
CO Emissions (g)	2745
NOx Emissions (g)	277
Density (ft/veh)	250

17: Roe Avenue & 52nd Street Performance by movement

Movement	EBL	EBR	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.0	0.1
Total Delay (hr)	0.0	0.0	0.1	0.1	0.0	0.2
Total Del/Veh (s)	17.7	6.4	0.4	0.3	0.1	0.4
Total Stops	9	4	0	0	0	13
Stop/Veh	1.00	1.00	0.00	0.00	0.00	0.01
Avg Speed (mph)	3	7	32	31	22	31
Fuel Used (gal)	0.0	0.0	2.0	1.2	0.0	3.3
HC Emissions (g)	0	0	25	13	0	39
CO Emissions (g)	1	0	1610	423	3	2038
NOx Emissions (g)	0	0	78	48	0	126
Density (ft/veh)						390

19: Roe Lane Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	4.0	0.2	0.2	0.0	0.0	0.0	9.1	7.9	3.1	0.2	0.2	0.3
Total Delay (hr)	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.3	0.3	0.1	0.0
Total Del/Veh (s)	4.2	2.0	1.8	2.8	1.2	1.2	15.3	9.2	8.3	10.4	5.9	4.3
Total Stops	2	8	1	25	0	1	6	16	99	94	36	30
Stop/Veh	0.50	0.06	0.06	0.17	0.00	0.02	0.40	0.57	0.68	0.92	1.00	1.00
Avg Speed (mph)	9	16	13	15	19	18	2	3	3	4	7	7
Fuel Used (gal)	0.0	0.2	0.0	0.4	0.7	0.1	0.0	0.0	0.1	0.1	0.0	0.0
HC Emissions (g)	0	2	0	3	9	4	0	0	0	0	0	0
CO Emissions (g)	1	106	5	123	394	104	2	3	14	9	2	1
NOx Emissions (g)	0	9	0	16	33	12	0	0	1	1	0	0
Density (ft/veh)												

19: Roe Lane Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	1.0
Total Delay (hr)	1.1
Total Del/Veh (s)	4.6
Total Stops	318
Stop/Veh	0.36
Avg Speed (mph)	11
Fuel Used (gal)	1.7
HC Emissions (g)	19
CO Emissions (g)	765
NOx Emissions (g)	75
Density (ft/veh)	374

23: Roe Avenue & CVS/Wal Mart Access/Sycamore Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	12.0	0.1	7.3	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (hr)	0.2	0.0	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.0
Total Del/Veh (s)	37.5	32.6	30.1	9.4	29.8	8.8	6.3	0.3	0.0	4.4	1.0	0.3
Total Stops	18	3	37	1	1	16	25	0	0	15	0	0
Stop/Veh	0.95	1.00	0.92	1.00	0.50	1.00	0.64	0.00	0.00	0.68	0.00	0.00
Avg Speed (mph)	2	2	2	7	2	7	10	32	23	17	29	26
Fuel Used (gal)	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.9	0.0	0.0	3.2	0.0
HC Emissions (g)	0	0	0	0	0	0	0	8	0	0	35	0
CO Emissions (g)	4	0	8	0	0	1	7	269	1	12	1474	6
NOx Emissions (g)	0	0	1	0	0	0	1	30	0	1	130	0
Density (ft/veh)												

23: Roe Avenue & CVS/Wal Mart Access/Sycamore Drive Performance by movement

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.3
Total Delay (hr)	1.1
Total Del/Veh (s)	1.9
Total Stops	116
Stop/Veh	0.06
Avg Speed (mph)	25
Fuel Used (gal)	4.4
HC Emissions (g)	44
CO Emissions (g)	1783
NOx Emissions (g)	163
Density (ft/veh)	397

Total Network Performance

Denied Delay (hr)	1.2
Denied Del/Veh (s)	0.9
Total Delay (hr)	30.9
Total Del/Veh (s)	24.8
Total Stops	4100
Stop/Veh	0.91
Avg Speed (mph)	18
Fuel Used (gal)	60.6
HC Emissions (g)	623
CO Emissions (g)	27176
NOx Emissions (g)	2287
Density (ft/veh)	288

Arterial Level of Service: NB Roe Avenue

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
52nd Street	17	0.4	5.1	0.0	33
Sycamore Drive	23	0.3	3.9	0.0	32
51st Street	12	5.2	12.2	0.1	21
50th Terrace	14	7.6	15.2	0.1	18
Walgreens/Phillips 6	7	1.5	13.3	0.1	32
48th Street	13	11.9	21.9	0.1	16
Total		26.9	71.7	0.4	22

Arterial Level of Service: SB Roe Avenue

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Skyline Dr	13	8.7	16.4	0.1	17
Lowe's Access	7	1.8	12.0	0.1	30
Roe Lane	14	9.7	21.7	0.1	19
Wal Mart Access	12	2.4	10.1	0.1	27
CVS/Wal Mart Access	23	1.0	8.4	0.1	31
52nd Street	17	0.3	3.8	0.0	32
Total		23.9	72.5	0.5	24