

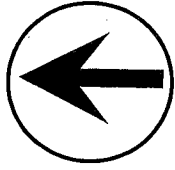
Date: 10/01/13

Count Number: TMC1342

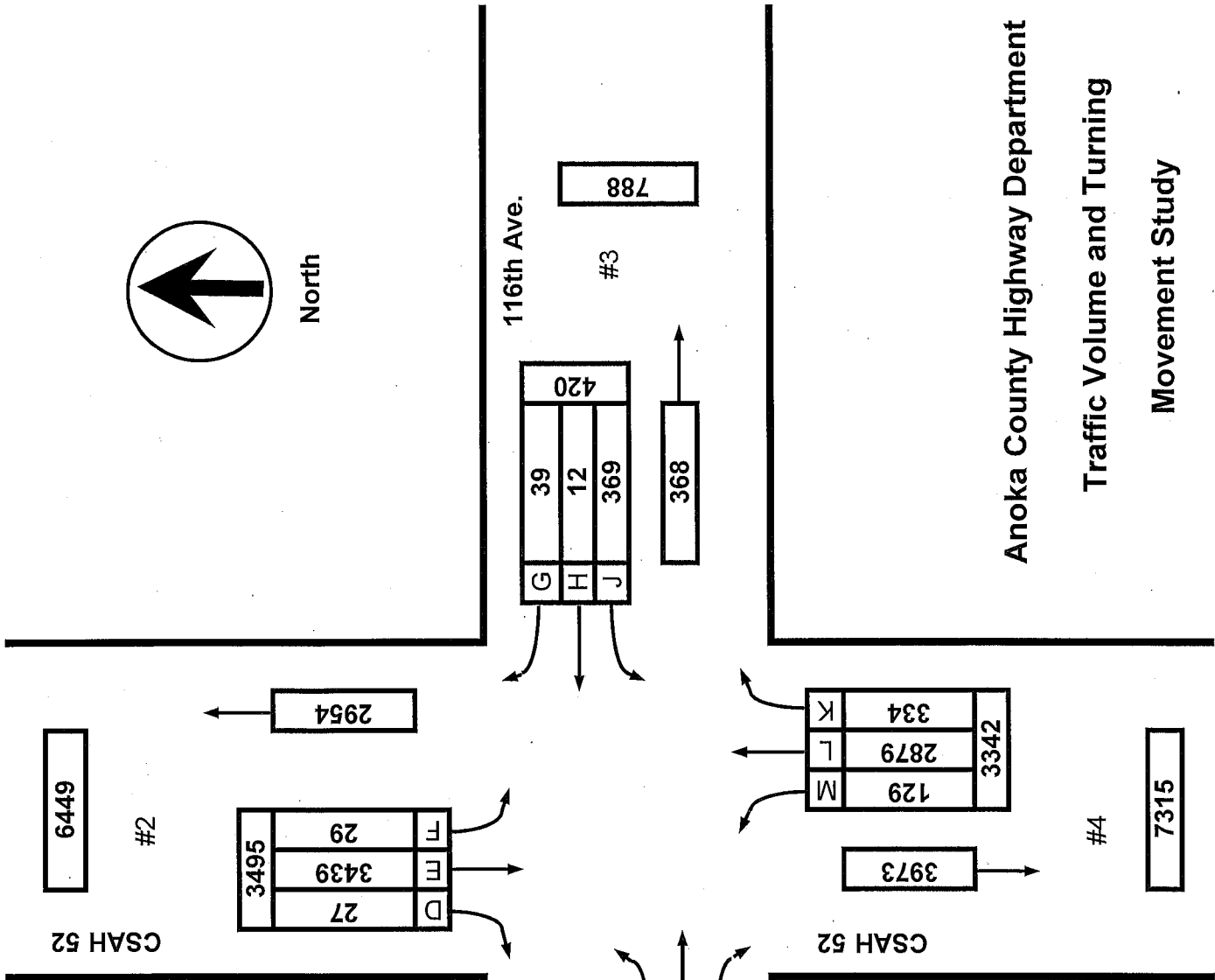
Location: CSAH 52 (Radisson Rd.)
@ Arnold Palmer Dr./116th Ave.

Collection Period: PEAK HOURS

6:30-8:30AM, 4:30-6:30PM



North



	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	0	1	1
#2	1	1	2	4
#3	0	0	1	1
#4	1	1	2	4

Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date: 10/01/13

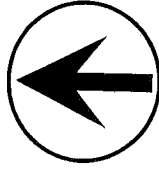
Count Number: TMC1342

Location: CSAH 52 (Radisson Rd.)

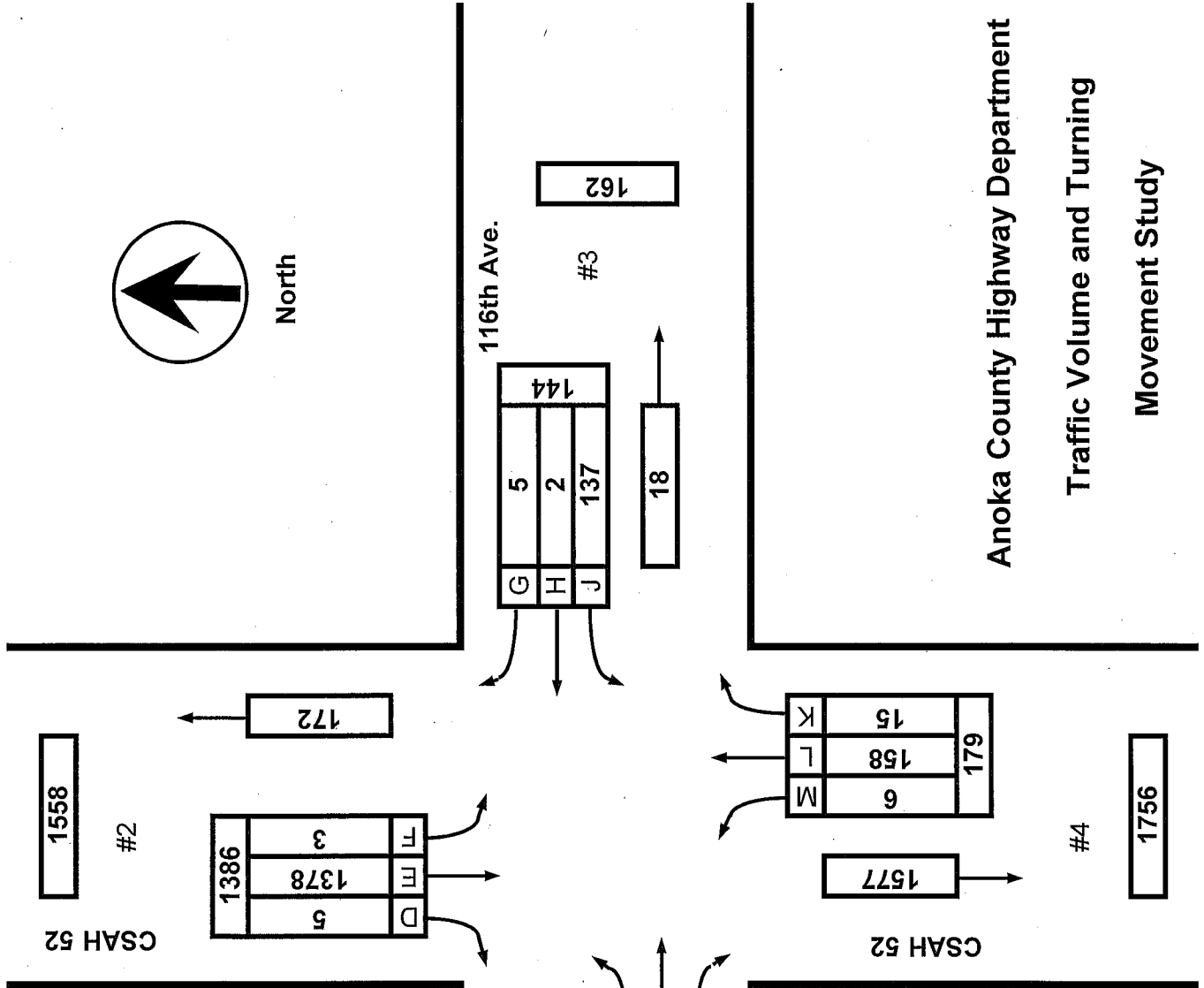
@ Arnold Palmer Dr./116th Ave.

Collection Period: AM PEAK

Hour: 6:45 - 7:45AM



North



	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	0	1	1
#2	1	1	2	4
#3	0	0	1	1
#4	1	1	2	4

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Date: 10/02/13

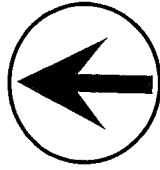
Count Number: TMC1342

Location: CSAH 52 (Radisson Rd.)

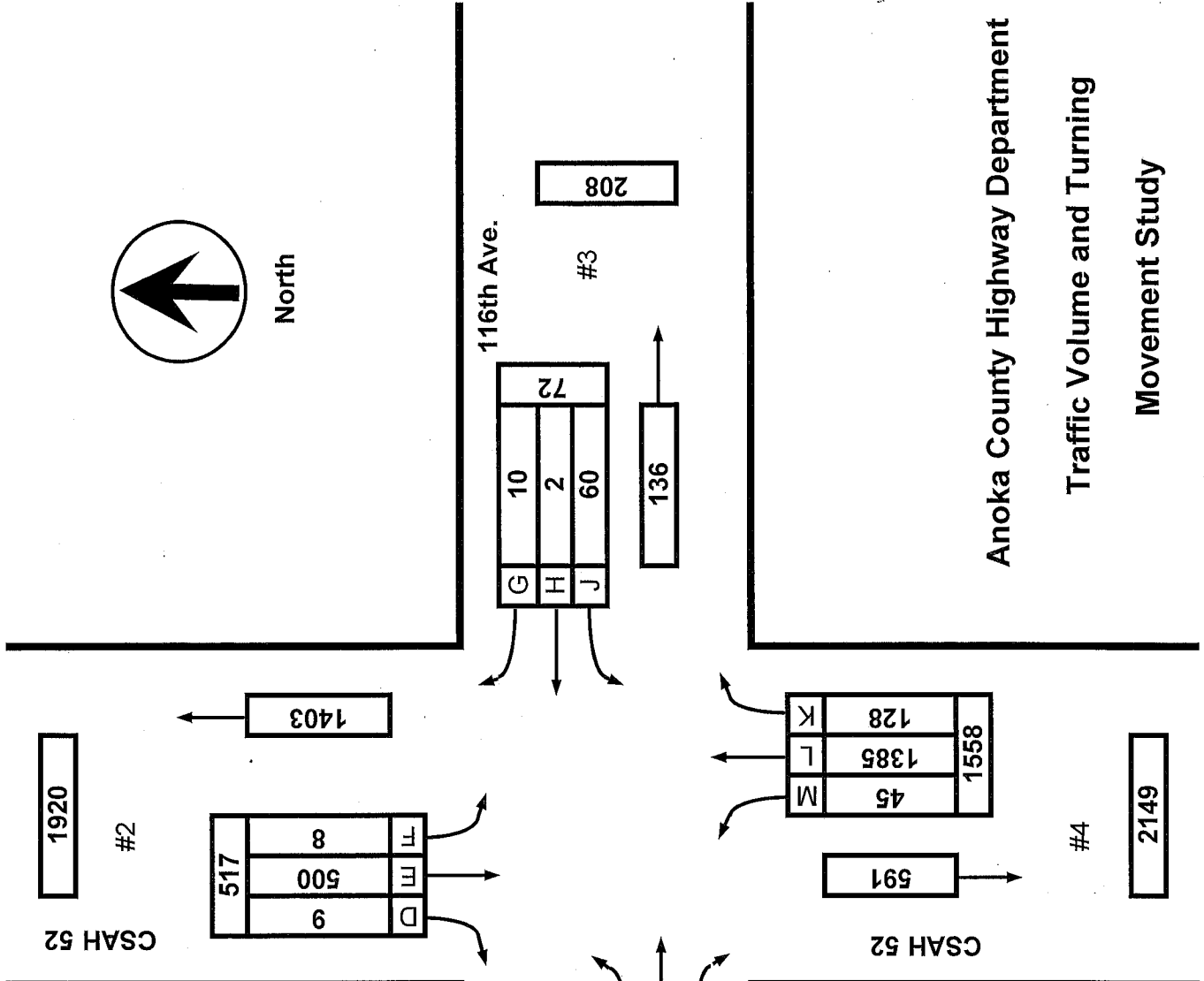
@ Arnold Palmer Dr./116th Ave.

Collection Period: PM PEAK

Hour: 4:45 - 5:45PM



North



	EXISTING LANES OF APPROACH			TOTAL
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	
#1	0	0	1	1
#2	1	1	2	4
#3	0	0	1	1
#4	1	1	2	4

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

File Name : TMC 1342
 Site Code : 13420202
 Start Date : 10/02/2013
 Page No : 1

Weather: Cloudy and Warm
 Counter: DB-400
 study conducted by: Josie/Terri

Groups Printed- Unshifted

Start Time	CSAH 52 Southbound					116th Ave. Westbound					CSAH 52 Northbound					Arnold Palmer Dr. Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total	Left	Thru	Right	Heavys	App. Total			
06:30	1	317	1	6	319	18	0	3	0	21	2	26	3	3	31	2	0	9	0	11	9	382	391
06:45	0	365	1	3	366	29	0	1	0	30	3	33	5	7	41	2	0	16	1	18	11	455	466
Total	1	682	2	9	685	47	0	4	0	51	5	59	8	10	72	4	0	25	1	29	20	837	857
07:00	0	356	2	5	358	37	1	1	2	39	0	37	4	2	41	3	0	20	0	23	9	461	470
07:15	1	343	1	6	345	34	1	1	1	36	0	44	4	3	48	3	0	12	1	15	11	444	455
07:30	2	314	1	2	317	37	0	2	0	39	3	44	2	3	49	1	0	14	0	15	5	420	425
07:45	1	308	4	8	313	36	0	2	0	38	3	65	8	5	76	3	0	13	0	16	13	443	456
Total	4	1321	8	21	1333	144	2	6	3	152	6	190	18	13	214	10	0	59	1	69	38	1768	1806
08:00	2	233	0	3	235	32	4	1	2	37	1	49	8	7	58	1	1	10	1	12	13	342	355
08:15	1	194	0	1	195	25	1	2	1	28	4	34	6	1	44	3	0	10	0	13	3	280	283
*** BREAK ***																							
Total	3	427	0	4	430	57	5	3	3	65	5	83	14	8	102	4	1	20	1	25	16	622	638
*** BREAK ***																							
16:30	3	107	1	7	111	9	1	3	0	13	20	345	24	4	389	1	2	8	0	11	11	524	535
16:45	4	110	3	5	117	9	1	2	0	12	14	368	31	4	413	3	0	9	1	12	10	554	564
Total	7	217	4	12	228	18	2	5	0	25	34	713	55	8	802	4	2	17	1	23	21	1078	1099
17:00	1	116	2	4	119	12	0	2	0	14	14	313	35	4	362	3	0	9	0	12	8	507	515
17:15	1	134	3	4	138	18	0	2	0	20	14	354	35	6	403	0	0	4	0	4	10	565	575
17:30	2	140	1	1	143	21	1	4	0	26	3	350	27	3	380	2	0	9	0	11	4	560	564
17:45	2	142	4	2	148	22	1	4	0	27	13	261	40	3	314	3	1	7	1	11	6	500	506
Total	6	532	10	11	548	73	2	12	0	87	44	1278	137	16	1459	8	1	29	1	38	28	2132	2160
18:00	5	132	0	1	137	15	0	4	0	19	17	261	48	3	326	2	0	8	0	10	4	492	496
18:15	3	128	3	1	134	15	1	5	0	21	18	295	54	5	367	4	1	7	0	12	6	534	540
Grand Total	29	3439	27	59	3495	369	12	39	6	420	129	2879	334	63	3342	36	5	165	5	206	133	7463	7596
Apprch %	0.8	98.4	0.8			87.9	2.9	9.3			3.9	86.1	10			17.5	2.4	80.1					
Total %	0.4	46.1	0.4		46.8	4.9	0.2	0.5		5.6	1.7	38.6	4.5		44.8	0.5	0.1	2.2		2.8	1.8	98.2	

Start Time	CSAH 52 Southbound				App. Total	116th Ave. Westbound				App. Total	CSAH 52 Northbound				App. Total	Arnold Palmer Dr. Eastbound				Int. Total
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:30 to 11:45 - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 06:45																				
06:45	0	365	1	366	29	0	1	30	3	33	5	41	2	0	16	18	455			
07:00	0	356	2	358	37	1	1	39	0	37	4	41	3	0	20	23	461			
07:15	1	343	1	345	34	1	1	36	0	44	4	48	3	0	12	15	444			
07:30	2	314	1	317	37	0	2	39	3	44	2	49	1	0	14	15	420			
Total Volume	3	1378	5	1386	137	2	5	144	6	158	15	179	9	0	62	71	1780			
% App. Total	0.2	99.4	0.4		95.1	1.4	3.5		3.4	88.3	8.4		12.7	0	87.3					
PHF	.375	.944	.625	.947	.926	.500	.625	.923	.500	.898	.750	.913	.750	.000	.775	.772	.965			

Start Time	CSAH 52 Southbound				App. Total	116th Ave. Westbound				App. Total	CSAH 52 Northbound				App. Total	Arnold Palmer Dr. Eastbound				Int. Total
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 16:45																				
16:45	4	110	3	117	9	1	2	12	14	368	31	413	3	0	9	12	554			
17:00	1	116	2	119	12	0	2	14	14	313	35	362	3	0	9	12	507			
17:15	1	134	3	138	18	0	2	20	14	354	35	403	0	0	4	4	565			
17:30	2	140	1	143	21	1	4	26	3	350	27	380	2	0	9	11	560			
Total Volume	8	500	9	517	60	2	10	72	45	1385	128	1558	8	0	31	39	2186			
% App. Total	1.5	96.7	1.7		83.3	2.8	13.9		2.9	88.9	8.2		20.5	0	79.5					
PHF	.500	.893	.750	.904	.714	.500	.625	.692	.804	.941	.914	.943	.667	.000	.861	.813	.967			



**ANOKA COUNTY HIGHWAY
PC-WARRANTS
TRAFFIC SIGNAL WARRANT ANALYSIS**

Study Name : TMC 1342
Study Date : 10/09/13
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 52

Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: 3,344

Southbound: CSAH 52

Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: 3,497

Minor Street Approaches

Eastbound: Arnold Palmer Dr.

Number of Lanes: 1

Total Approach Volume: 208

Westbound: 116th Ave.

Number of Lanes: 1

Total Approach Volume: 422

Warrant Summary (Rural values apply.)

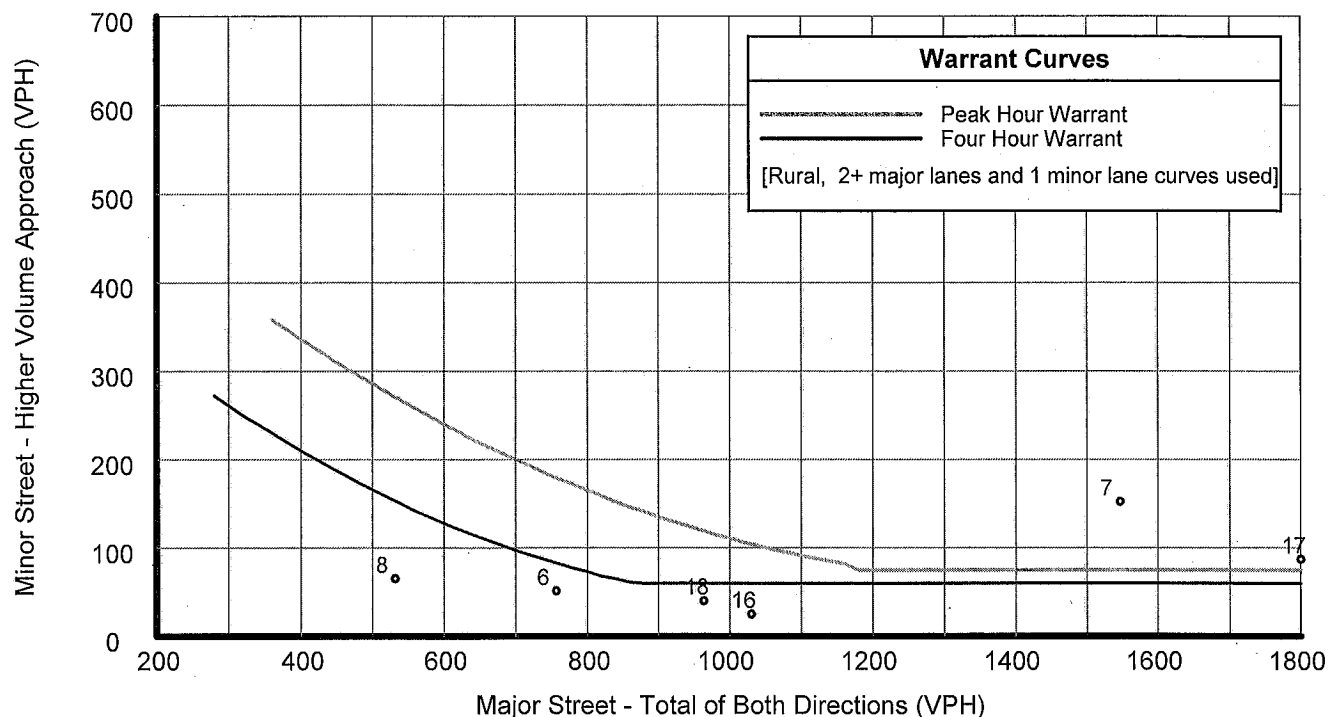
Warrant 1 - Eight Hour Vehicular Volumes	Not Satisfied
Warrant 1A - Minimum Vehicular Volume	Not Satisfied
Required volumes reached for 2 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Not Satisfied
Required volumes reached for 4 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Not Satisfied
Required volumes reached for 3 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (4) volumes exceed minimum < minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (6) volumes exceed minimum >= required (1). Delay data not evaluated.	
Warrant 3B - Peak Hour Volumes	Satisfied
Volumes exceed minimums for at least one hour.	
Warrant 4 - Pedestrian Volumes	Not Evaluated
Warrant 5 - School Crossing	Not Evaluated
Warrant 6 - Coordinated Signal System	Not Evaluated
Warrant 7 - Crash Experience	Not Evaluated
Warrant 8 - Roadway Network	Not Evaluated
Warrant 9 - Intersection Near a Grade Crossing	Not Evaluated



ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC 1342
Study Date : 10/09/13
Page No. : 2

Signal Warrants - Summary



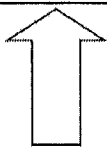
Analysis of 8-Hour Volume Warrants:

War 1A-Minimum Volume

War 1B-Interruption of Traffic

War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol	Dir	Maj 420	Min 105	Hour Begin	Major Total	Minor Vol	Dir	Maj 630	Min 53	Hour Begin	Major Total	Minor Vol	Dir	Maj 504	Min 84
06:30	1,549	126	W	Yes	Yes	16:30	2,052	59	W	Yes	Yes	17:00	2,007	87	W	Yes	Yes
07:30	1,287	142	W	Yes	Yes	17:30	1,949	93	W	Yes	Yes	07:15	1,441	150	W	Yes	Yes
16:45	2,075	72	W	Yes	No	07:15	1,441	150	W	Yes	Yes	06:15	1,156	90	W	Yes	Yes
16:30	2,052	59	W	Yes	No	06:15	1,156	90	W	Yes	Yes	16:45	2,075	72	W	Yes	No
17:00	2,007	87	W	Yes	No	16:15	1,511	39	W	Yes	No	16:30	2,052	59	W	Yes	No
17:15	1,989	92	W	Yes	No	16:00	1,030	25	W	Yes	No	16:15	1,511	39	W	Yes	No
17:30	1,949	93	W	Yes	No	06:00	757	51	W	Yes	No	16:00	1,030	25	W	Yes	No
16:15	1,511	39	W	Yes	No	15:45	501	13	W	No	No	18:00	964	40	W	Yes	No
17:45	1,426	67	W	Yes	No	05:45	350	21	W	No	No	06:00	757	51	W	Yes	No
06:15	1,156	90	W	Yes	No	08:15	240	28	W	No	No	18:15	501	21	W	No	No
16:00	1,030	25	W	Yes	No	15:30	2	0	W	No	No	15:45	501	13	W	No	No
18:00	964	40	W	Yes	No	15:15	2	1	EB	No	No	05:45	350	21	W	No	No
06:00	757	51	W	Yes	No	15:00	2	1	W	No	No	08:15	240	28	W	No	No
18:15	501	21	W	Yes	No	09:00	2	1	W	No	No	15:30	2	0	W	No	No
15:45	501	13	W	Yes	No	08:45	2	1	EB	No	No	15:15	2	1	EB	No	No
05:45	350	21	W	No	No	08:30	2	0	W	No	No	15:00	2	1	W	No	No
15:30	2	0	W	No	No	14:45	1	1	W	No	No	09:00	2	1	W	No	No
15:15	2	1	EB	No	No	09:15	1	1	W	No	No	08:45	2	1	EB	No	No
15:00	2	1	W	No	No	22:45	0	0	W	No	No	08:30	2	0	W	No	No
09:00	2	1	W	No	No	22:30	0	0	W	No	No	14:45	1	1	W	No	No
08:45	2	1	EB	No	No	22:15	0	0	W	No	No	09:15	1	1	W	No	No
08:30	2	0	W	No	No	22:00	0	0	W	No	No	22:45	0	0	W	No	No
14:45	1	1	W	No	No	21:45	0	0	W	No	No	22:30	0	0	W	No	No
09:15	1	1	W	No	No	21:30	0	0	W	No	No	22:15	0	0	W	No	No



NORTH

COUNT LOCATION:

CSAH 52 (Radisson Rd.) @

DATE:

10/01/2013

Arnold Palmer Dr./116th Ave.

APP. #1 = Arnold Palmer Dr.

APP. #2 = CSAH 52

APP. #3= 116th Ave.

APP. #4= CSAH 52

APP. #2

APP. #1

APP. #3

APP. #4

- HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT
- A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.
 - B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.
 - C. BUSES- A HEAVY VEHICLE INVOLVED IN THE TRANSPORTATION OF GROUPS OF PEOPLE.

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
6:30-6:45AM						6		4
6:45-7:00						4		6
HOURLY TOTAL						HOURLY TOTAL		20
7:00-7:15AM						5		4
7:15-7:30						8		3
7:30-7:45						4		1
7:45-8:00						8		5
HOURLY TOTAL						HOURLY TOTAL		38
8:00-8:15AM						7		6
8:15-8:30		1			1	2		1
HOURLY TOTAL					1	HOURLY TOTAL		16
					TOTAL		TOTAL	74

TIME	PEDESTRIANS					HEAVY VEHICLES		
	APP. #1	APP. #2	APP. #3	APP. #4	15 MIN TOT	TRUCKS	RV	BUS
4:30-4:45PM			2	2	4	5		5
4:45-5:00						6		4
HOURLY TOTAL					4	HOURLY TOTAL		20
5:00-5:15PM						7		1
5:15-5:30			1		1	9		1
5:30-5:45			1		1	4		
5:45-6:00						6		
HOURLY TOTAL					2	HOURLY TOTAL		28
6:00-6:15PM						4		
6:15-6:30						5		1
HOURLY TOTAL						HOURLY TOTAL		10
					TOTAL		TOTAL	58