

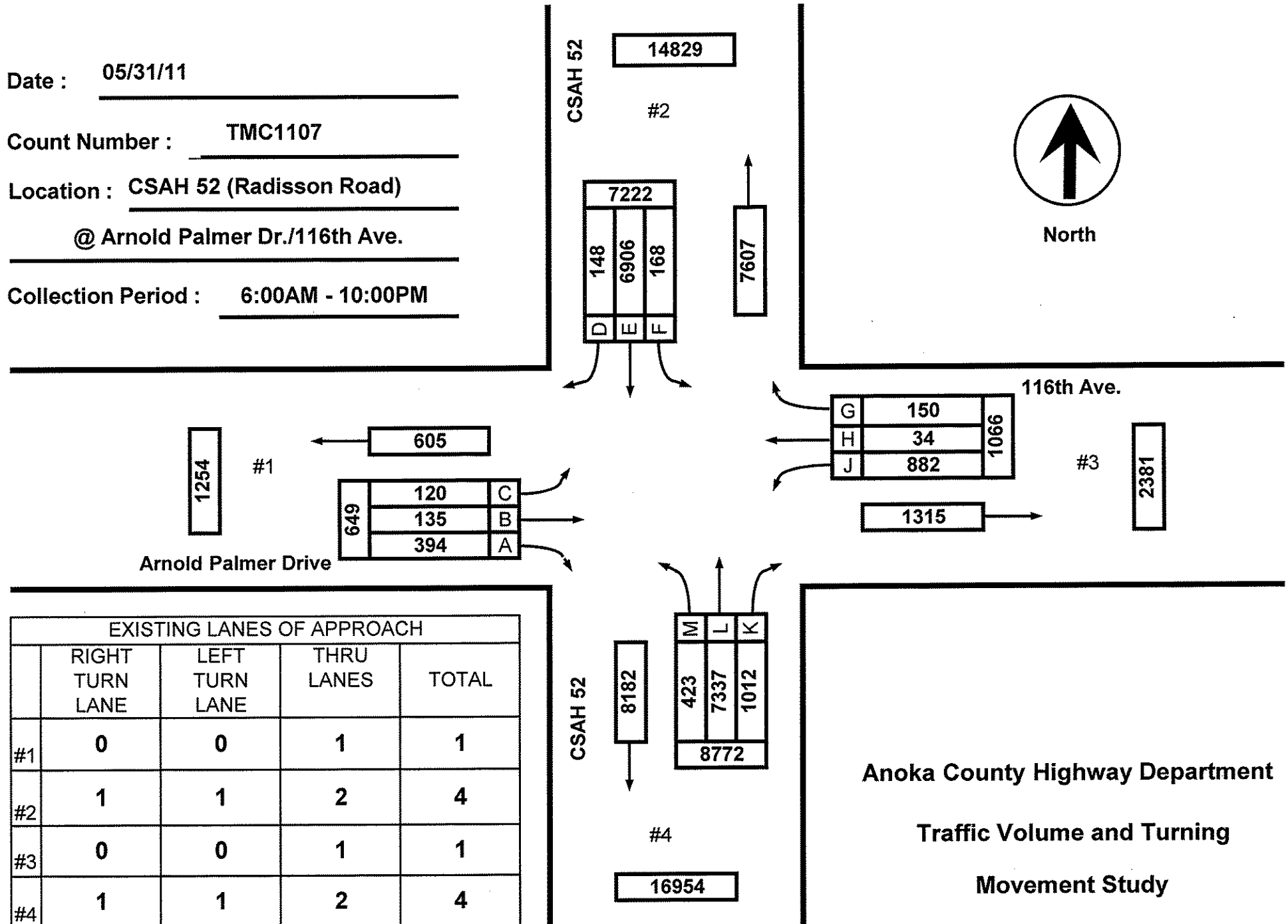
Date : 05/31/11

Count Number : TMC1107

Location : CSAH 52 (Radisson Road)

@ Arnold Palmer Dr./116th Ave.

Collection Period : 6:00AM - 10:00PM



EXISTING LANES OF APPROACH

	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#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 : 06/03/11

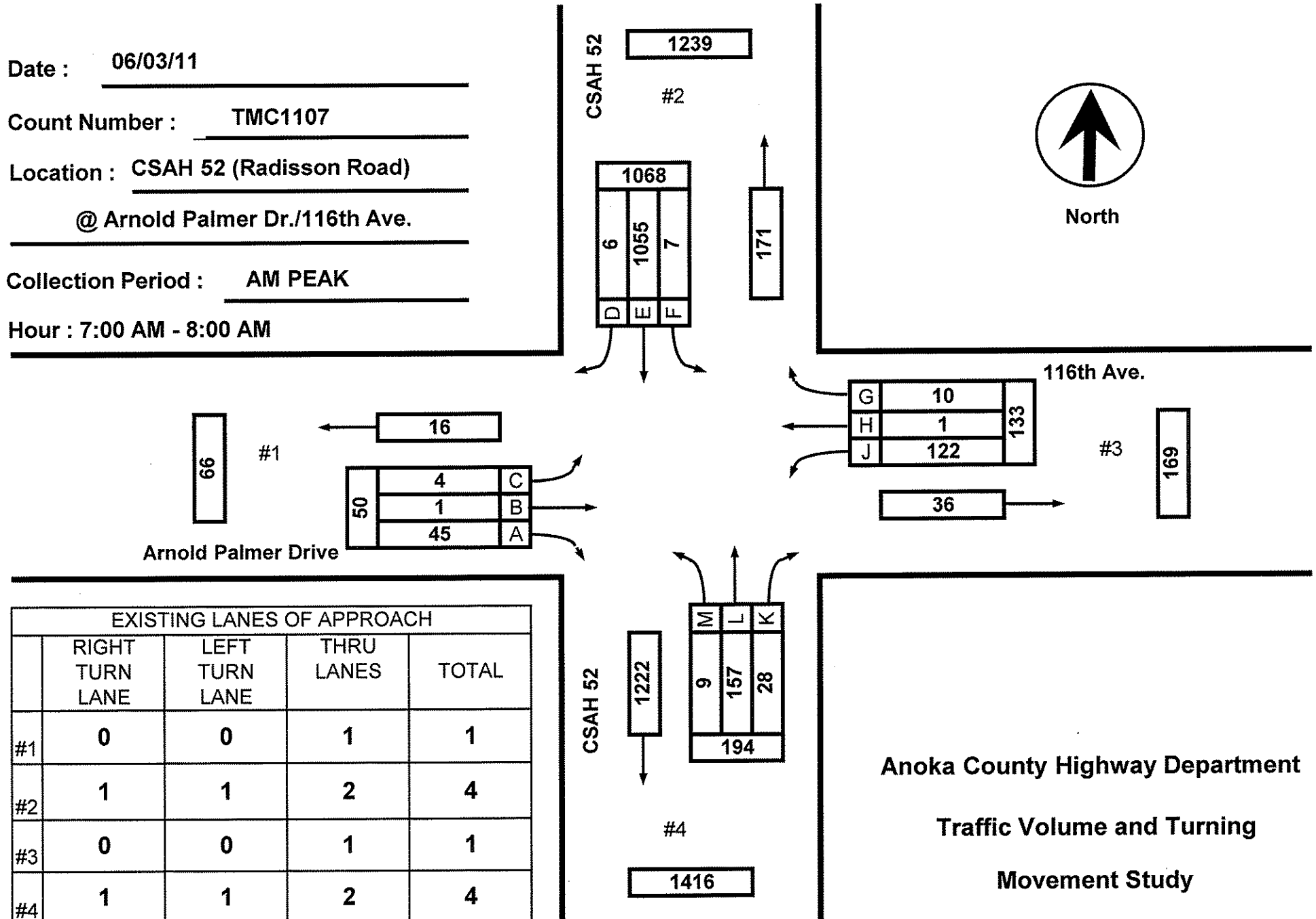
Count Number : TMC1107

Location : CSAH 52 (Radisson Road)

@ Arnold Palmer Dr./116th Ave.

Collection Period : AM PEAK

Hour : 7:00 AM - 8:00 AM



EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#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 : 05/31/11

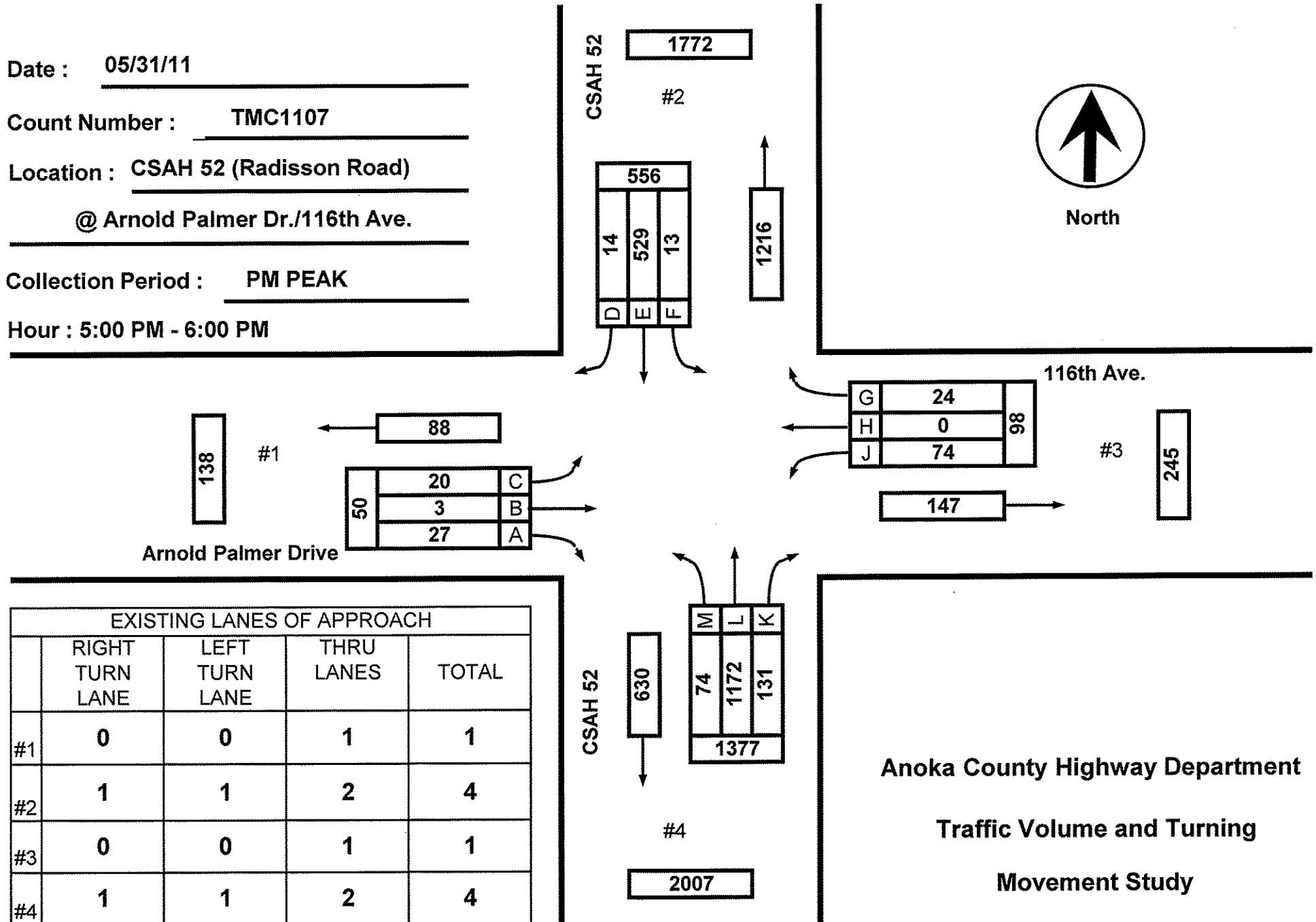
Count Number : TMC1107

Location : CSAH 52 (Radisson Road)

@ Arnold Palmer Dr./116th Ave.

Collection Period : PM PEAK

Hour : 5:00 PM - 6:00 PM



EXISTING LANES OF APPROACH				
	RIGHT TURN LANE	LEFT TURN LANE	THRU LANES	TOTAL
#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 : tmc1107
 Site Code : 11070202
 Start Date : 05/31/2011
 Page No : 2

Weather: Cloudy/Mild
 Counter: DB-400
 Counted by: Paige/Rachel

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			
18:00	5	97	1	0	103	9	0	2	0	11	16	252	35	2	303	3	1	11	0	15	2	432	434
18:15	7	117	2	4	126	14	0	3	0	17	10	191	29	0	230	2	1	5	0	8	4	381	385
18:30	3	108	0	1	111	9	0	1	0	10	9	152	28	0	189	0	0	8	0	8	1	318	319
18:45	2	103	1	0	106	17	1	4	0	22	12	140	20	0	172	4	1	6	0	11	0	311	311
Total	17	425	4	5	446	49	1	10	0	60	47	735	112	2	894	9	3	30	0	42	7	1442	1449
19:00	3	106	1	0	110	12	0	2	1	14	4	166	25	1	195	0	0	3	0	3	2	322	324
19:15	5	76	3	0	84	9	0	1	0	10	7	139	19	2	165	1	2	9	0	12	2	271	273
19:30	4	66	4	0	74	6	0	3	0	9	9	144	14	0	167	1	0	7	0	8	0	258	258
19:45	7	71	4	0	82	5	0	3	0	8	9	108	19	1	136	2	2	7	0	11	1	237	238
Total	19	319	12	0	350	32	0	9	1	41	29	557	77	4	663	4	4	26	0	34	5	1088	1093
20:00	3	65	4	0	72	4	0	0	0	4	8	124	22	1	154	2	2	2	0	6	1	236	237
20:15	4	57	5	0	66	6	0	2	0	8	7	139	21	3	167	1	0	2	0	3	3	244	247
20:30	7	50	1	0	58	11	0	1	0	12	10	118	22	0	150	2	0	4	0	6	0	226	226
20:45	0	58	1	0	59	9	0	0	0	9	5	82	18	0	105	1	1	1	0	3	0	176	176
Total	14	230	11	0	255	30	0	3	0	33	30	463	83	4	576	6	3	9	0	18	4	882	886
21:00	3	37	2	0	42	7	0	1	0	8	2	72	9	1	83	1	0	0	0	1	1	134	135
21:15	1	31	0	0	32	6	0	4	0	10	5	67	14	0	86	1	1	3	0	5	0	133	133
21:30	1	29	0	0	30	3	0	0	0	3	6	99	11	0	116	1	2	1	0	4	0	153	153
21:45	0	23	0	0	23	2	0	1	0	3	6	65	14	0	85	0	0	0	0	0	0	111	111
Total	5	120	2	0	127	18	0	6	0	24	19	303	48	1	370	3	3	4	0	10	1	531	532
Grand Total	168	6906	148	168	7222	882	34	150	20	1066	423	7337	1012	224	8772	120	135	394	10	649	422	17709	18131
Apprch %	2.3	95.6	2			82.7	3.2	14.1			4.8	83.6	11.5			18.5	20.8	60.7					
Total %	0.9	39	0.8		40.8	5	0.2	0.8		6	2.4	41.4	5.7		49.5	0.7	0.8	2.2		3.7	2.3	97.7	

Start Time	CSAH 52 Southbound				116th Ave. Westbound				CSAH 52 Northbound				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 06:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	4	270	1	275	29	0	1	30	1	34	9	44	0	1	15	16	365
07:15	2	298	0	300	35	1	3	39	2	39	1	42	1	0	15	16	397
07:30	0	258	2	260	27	0	2	29	3	29	10	42	1	0	8	9	340
07:45	1	229	3	233	31	0	4	35	3	55	8	66	2	0	7	9	343
Total Volume	7	1055	6	1068	122	1	10	133	9	157	28	194	4	1	45	50	1445
% App. Total	0.7	98.8	0.6		91.7	0.8	7.5		4.6	80.9	14.4		8	2	90		
PHF	.438	.885	.500	.890	.871	.250	.625	.853	.750	.714	.700	.735	.500	.250	.750	.781	.910

Start Time	CSAH 52 Southbound				116th Ave. Westbound				CSAH 52 Northbound				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 21:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	1	94	3	98	14	0	5	19	20	281	28	329	4	0	3	7	453
17:15	4	123	2	129	17	0	6	23	21	321	37	379	9	0	12	21	552
17:30	3	161	2	166	25	0	6	31	17	290	30	337	2	1	5	8	542
17:45	5	151	7	163	18	0	7	25	16	280	36	332	5	2	7	14	534
Total Volume	13	529	14	556	74	0	24	98	74	1172	131	1377	20	3	27	50	2081
% App. Total	2.3	95.1	2.5		75.5	0	24.5		5.4	85.1	9.5		40	6	54		
PHF	.650	.821	.500	.837	.740	.000	.857	.790	.881	.913	.885	.908	.556	.375	.563	.595	.942



Anoka County Highway
PC-WARRANTS
 Traffic Signal Warrant Analysis

Study Name : TMC1107
 Study Date : 06/07/11
 Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 52
 Number of Lanes: 2
 Approach Speed: 50
 Total Approach Volume: 8,772

Southbound: CSAH 52
 Number of Lanes: 2
 Approach Speed: 50
 Total Approach Volume: 7,222

Minor Street Approaches

Eastbound: Arnold Palmer Dr.
 Number of Lanes: 1
 Total Approach Volume: 649

Westbound: 116th Ave.
 Number of Lanes: 1
 Total Approach Volume: 1,066

Warrant Summary (Rural values apply.)

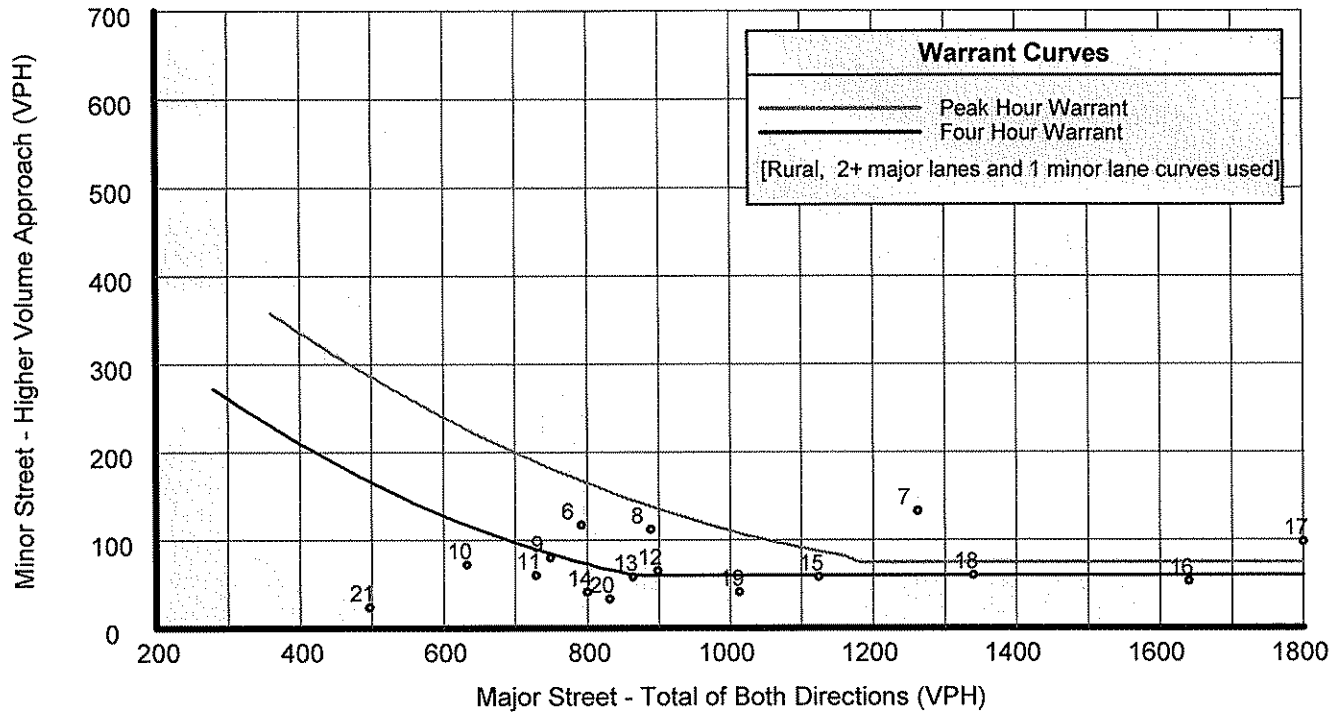
Warrant 1 - Eight Hour Vehicular Volumes	Satisfied
Warrant 1A - Minimum Vehicular Volume	Not Satisfied
Required volumes reached for 3 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic	Satisfied
Required volumes reached for 12 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants	Not Satisfied
Required volumes reached for 4 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Satisfied
Number of hours (6) volumes exceed minimum >= minimum required (4).	
Warrant 3 - Peak Hour	Satisfied
Warrant 3A - Peak Hour Delay	Satisfied
Number of hours (9) 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



Anoka County Highway PC-WARRANTS Traffic Signal Warrant Analysis

Study Name : TMC1107
Study Date : 06/07/11
Page No. : 2

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War-1A			War-1B			War-1A&B		
				Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
01:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
02:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
03:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
04:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
05:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
06:00	792	117	EB	420-Yes	105-Yes	Both	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
07:00	1,262	133	WB	420-Yes	105-Yes	Both	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
08:00	889	112	WB	420-Yes	105-Yes	Both	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
09:00	749	80	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
10:00	633	72	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
11:00	729	60	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
12:00	898	65	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
13:00	864	58	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
14:00	800	41	WB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
15:00	1,124	58	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
16:00	1,640	53	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
17:00	1,933	98	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-Yes	Both
18:00	1,340	60	WB	420-Yes	105-No	Major	630-Yes	53-Yes	Both	504-Yes	84-No	Major
19:00	1,013	41	WB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
20:00	831	33	WB	420-Yes	105-No	Major	630-Yes	53-No	Major	504-Yes	84-No	Major
21:00	497	24	WB	420-Yes	105-No	Major	630-No	53-No	---	504-No	84-No	---
22:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---
23:00	0	0	EB	420-No	105-No	---	630-No	53-No	---	504-No	84-No	---



**Anoka County Highway
PC-WARRANTS
Traffic Signal Warrant Analysis**

Study Name : TMC1107
Study Date : 06/07/11
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 52
Total Approach Volume: 8,772
Approach Speed: 50

Southbound: CSAH 52
Total Approach Volume: 7,222
Approach Speed: 50

Minor Street Approaches

Eastbound: Arnold Palmer Dr.
Total Approach Volume: 649

Westbound: 116th Ave.
Total Approach Volume: 1,066

Warrant Summary

Criteria A - Interim Measure Not Evaluated
If traffic signals are justified, stop signs can be installed as an interim measure.

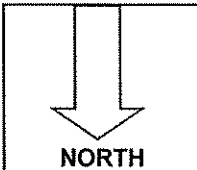
Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Not Satisfied
Delay data not evaluated
Required volumes reached for 4 hours, 8 are needed

Criteria D - 80% of Volumes, Delays, and Crashes Not Evaluated
Delay data not evaluated
Number of crashes (-1) is less than the minimum required (4).
Required volumes reached for 0 hours, 8 are needed

Analysis of 8-Hour Volume Warrants:

Time	Major Total	Minor Total	Crit C			Crit D		
			Major	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
05:45 - 06:45	501	152	210-Yes	140-Yes	Both	240-Yes	160-No	Major
06:45 - 07:45	1,254	182	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
07:45 - 08:45	981	170	210-Yes	140-Yes	Both	240-Yes	160-Yes	Both
17:00 - 18:00	1,933	148	210-Yes	140-Yes	Both	240-Yes	160-No	Major
05:30 - 06:30	280	130	210-Yes	140-No	Major	240-Yes	160-No	Major
08:45 - 09:45	783	128	210-Yes	140-No	Major	240-Yes	160-No	Major
09:00 - 10:00	749	117	210-Yes	140-No	Major	240-Yes	160-No	Major
09:15 - 10:15	686	96	210-Yes	140-No	Major	240-Yes	160-No	Major
09:30 - 10:30	675	103	210-Yes	140-No	Major	240-Yes	160-No	Major
09:45 - 10:45	647	105	210-Yes	140-No	Major	240-Yes	160-No	Major
10:00 - 11:00	633	109	210-Yes	140-No	Major	240-Yes	160-No	Major
10:15 - 11:15	652	107	210-Yes	140-No	Major	240-Yes	160-No	Major
10:30 - 11:30	668	94	210-Yes	140-No	Major	240-Yes	160-No	Major
10:45 - 11:45	697	94	210-Yes	140-No	Major	240-Yes	160-No	Major
11:00 - 12:00	729	100	210-Yes	140-No	Major	240-Yes	160-No	Major
11:15 - 12:15	789	104	210-Yes	140-No	Major	240-Yes	160-No	Major
11:30 - 12:30	838	118	210-Yes	140-No	Major	240-Yes	160-No	Major
11:45 - 12:45	860	122	210-Yes	140-No	Major	240-Yes	160-No	Major
12:00 - 13:00	898	115	210-Yes	140-No	Major	240-Yes	160-No	Major
12:15 - 13:15	899	111	210-Yes	140-No	Major	240-Yes	160-No	Major
12:30 - 13:30	862	98	210-Yes	140-No	Major	240-Yes	160-No	Major
12:45 - 13:45	871	86	210-Yes	140-No	Major	240-Yes	160-No	Major
13:00 - 14:00	864	98	210-Yes	140-No	Major	240-Yes	160-No	Major
13:15 - 14:15	795	94	210-Yes	140-No	Major	240-Yes	160-No	Major



COUNT LOCATION:

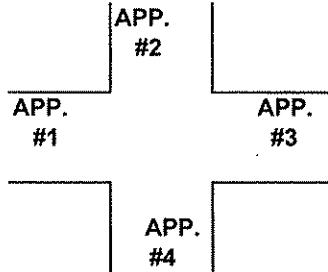
CSAH 52 (Radisson Road)

DATE:

06/03/2011

@ Arnold Palmer Dr./116th Ave.

APP. #1 = 116th Ave.
APP. #2 = CSAH 52
APP. #3 = Arnold Palmer Dr.
APP. #4 = CSAH 52

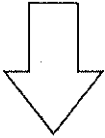


HEAVY VEHICLE- ANY VEHICLE HAVING MORE THAN FOUR TIRES TOUCHING THE PAVEMENT

- 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
6:00-6:15AM						5	1	1
6:15-6:30		1		1	2	3		1
6:30-6:45		1		1	2			
6:45-7:00						5		5
HOURLY TOTAL					4	HOURLY TOTAL		21
7:00-7:15						7		4
7:15-7:30		1		1	2	6		
7:30-7:45						8	1	2
7:45-8:00		1		1	2	4		1
HOURLY TOTAL					4	HOURLY TOTAL		33
8:00-8:15						6		2
8:15-8:30		1		1	2	7		
8:30-8:45						6	1	4
8:45-9:00						8		3
HOURLY TOTAL					2	HOURLY TOTAL		37
9:00-9:15						7		10
9:15-9:30						5		5
9:30-9:45						8	1	
9:45-10:00						3		
HOURLY TOTAL						HOURLY TOTAL		39
10:00-10:15						8		
10:15-10:30						15	1	
10:30-10:45						5		
10:45-11:00						8		
HOURLY TOTAL						HOURLY TOTAL		37
11:00-11:15						8		
11:15-11:30	1	2	1	2	6	3		
11:30-11:45						5		4
11:45-12:00		1		1	2	3		1
HOURLY TOTAL					8	HOURLY TOTAL		24
12:00-12:15						6		
12:15-12:30	2		2		4	2		2
12:30-12:45						8		1
12:45-1:00						5		1
HOURLY TOTAL					4	HOURLY TOTAL		25
1:00-1:15						4		4
1:15-1:30		1		1	2	4		2
1:30-1:45		1		1	2	6		
1:45-2:00						9		
HOURLY TOTAL					4	HOURLY TOTAL		29
					TOTAL		TOTAL	245
					26			

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NORTH

APP. #1 = 116th Ave.
APP. #2 = CSAH 52
APP. #3 = Arnold Palmer Dr.
APP. #4 = CSAH 52

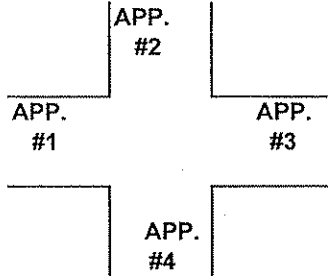
COUNT LOCATION:

CSAH 52 (Radisson Road)

DATE:

05/31/2011

@ Arnold Palmer Dr./116th Ave.



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
2:00-2:15PM						5		
2:15-2:30						1		
2:30-2:45		4	1	3	8	5		3
2:45-3:00		1		1	2	7		
HOURLY TOTAL					10	HOURLY TOTAL		21
3:00-3:15		1		1	2	10		4
3:15-3:30						10	1	7
3:30-3:45		1		1	2	7		6
3:45-4:00	1	1	1	1	4	7		1
HOURLY TOTAL					8	HOURLY TOTAL		53
4:00-4:15						6		7
4:15-4:30	2	2	3	1	8	10		4
4:30-4:45						9		2
4:45-5:00	1	3		4	8	6		2
HOURLY TOTAL					16	HOURLY TOTAL		46
5:00-5:15		1		1	2	2		2
5:15-5:30	1		1		2	6		3
5:30-5:45						4	1	
5:45-6:00		1		1	2	5		
HOURLY TOTAL					6	HOURLY TOTAL		23
6:00-6:15						3		
6:15-6:30						2		1
6:30-6:45		3	2		5	1		
6:45-7:00								
HOURLY TOTAL					5	HOURLY TOTAL		7
7:00-7:15		6		6	12	1		1
7:15-7:30		1		1	2	3		
7:30-7:45		3	1	2	6			
7:45-8:00						1		
HOURLY TOTAL					20	HOURLY TOTAL		6
8:00-8:15						1		
8:15-8:30						2		
8:30-8:45		4	1	3	8	1		
8:45-9:00								
HOURLY TOTAL					8	HOURLY TOTAL		4
9:00-9:15							1	
9:15-9:30								
9:30-9:45		1		1	2			
9:45-10:00								
HOURLY TOTAL					2	HOURLY TOTAL		1
TOTAL					101	TOTAL		406

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