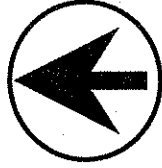


Date : 11/13/02

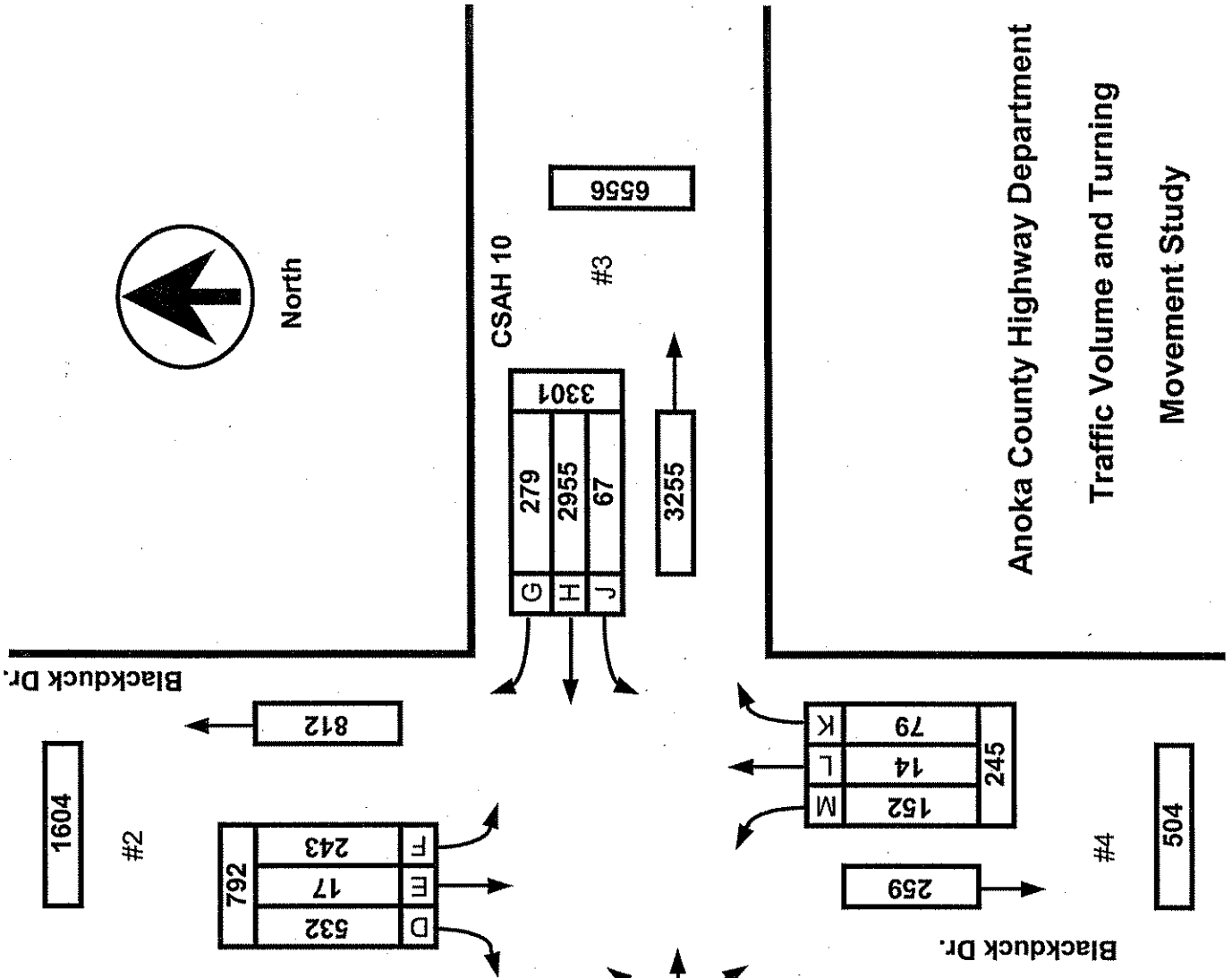
Count Number : TMC0231

Location : CSAH 10 (Birch St.)

@ Blackduck Dr.



North



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

Anoka County Highway Department
 Traffic Volume and Turning
 Movement Study

Anoka County Highway Department

Traffic Engineering

Traffic Volume and Turning Movement Study

Weather: Cool and Clear
Counter TDC-8

Counted by: Krystal\Sheri

File Name : TMC0231
Site Code : 02310102
Start Date : 11/13/2002
Page No : 1

Groups Printed- Unshifted

Start Time	Blackduck Dr. Southbound					CSAH 10 Westbound					Blackduck Dr. Northbound					CSAH 10 Eastbound					Exclu. Total	Inclu. Total	Int. Total					
	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total								
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
06:00	7	1	10	0	18	0	41	1	2	42	0	0	4	0	4	0	41	0	1	41	0	0	0	0	0	3	105	108
06:15	2	0	10	0	12	0	44	0	0	44	1	0	2	0	3	0	38	0	1	38	0	0	0	0	0	1	97	98
06:30	5	0	18	0	23	0	52	2	2	54	6	0	1	0	7	3	55	0	5	58	0	0	0	0	0	7	142	149
06:45	4	1	12	0	17	0	78	2	3	80	5	0	3	0	8	2	74	2	7	78	0	0	0	0	0	10	183	193
Total	18	2	50	0	70	0	215	5	7	220	12	0	10	0	22	5	208	2	14	215	0	0	0	0	0	21	527	548
07:00	17	0	18	0	35	0	87	2	2	89	9	0	4	0	13	6	94	0	7	100	0	0	0	0	0	9	237	246
07:15	6	0	23	1	29	4	64	2	3	70	8	0	1	0	9	12	83	0	13	95	0	0	0	0	0	17	203	220
07:30	10	0	38	0	48	1	110	1	6	112	8	0	2	0	10	11	81	0	8	92	0	0	0	0	0	14	262	276
07:45	5	0	23	2	28	0	88	2	5	90	7	0	2	0	9	7	61	0	5	68	0	0	0	0	0	12	195	207
Total	38	0	102	3	140	5	349	7	16	361	32	0	9	0	41	36	319	0	33	355	0	0	0	0	0	52	897	949
08:00	9	0	16	0	25	0	61	2	2	63	1	0	3	0	4	5	44	3	2	52	0	0	0	0	0	4	144	148
08:15	4	0	4	0	8	2	46	1	2	49	4	0	2	0	6	6	46	0	11	52	0	0	0	0	0	13	115	128
08:30	6	0	13	3	19	0	47	2	6	49	4	0	0	0	4	6	44	1	8	51	0	0	0	0	0	17	123	140
08:45	6	1	18	3	25	2	48	1	11	51	11	0	3	1	14	6	64	1	5	71	0	0	0	0	0	20	161	181
Total	25	1	51	6	77	4	202	6	21	212	20	0	8	1	28	23	198	5	26	226	0	0	0	0	0	54	543	597
09:00	1	0	15	2	16	0	32	2	2	34	4	0	0	0	4	7	36	0	5	43	0	0	0	0	0	9	97	106
09:15	5	1	6	2	12	0	32	2	1	34	3	0	0	0	3	4	28	0	1	32	0	0	0	0	0	4	81	85
09:30	1	0	6	0	7	0	33	4	4	37	1	0	1	0	2	3	30	1	2	34	0	0	0	0	0	6	80	86
09:45	3	0	5	0	8	1	36	1	3	38	5	0	1	0	6	1	36	0	5	37	0	0	0	0	0	8	89	97
Total	10	1	32	4	43	1	133	9	10	143	13	0	2	0	15	15	130	1	13	146	0	0	0	0	0	27	347	374
10:00	3	0	7	1	10	0	35	1	3	36	8	2	1	0	11	2	47	0	5	49	0	0	0	0	0	9	106	115
10:15	3	0	5	0	8	0	30	4	0	34	2	0	1	0	3	6	42	0	5	48	0	0	0	0	0	5	93	98
10:30	1	0	4	0	5	1	24	1	3	26	0	0	0	0	0	3	29	3	1	35	0	0	0	0	0	4	66	70
10:45	1	0	4	0	5	0	29	3	2	32	0	0	2	0	2	4	25	2	1	31	0	0	0	0	0	3	70	73
Total	8	0	20	1	28	1	118	9	8	128	10	2	4	0	16	15	143	5	12	163	0	0	0	0	0	21	335	356
11:00	2	0	4	0	6	0	38	4	1	42	0	0	1	0	1	5	30	2	0	37	0	0	0	0	0	1	86	87
11:15	2	0	4	0	6	0	32	4	6	36	2	0	1	0	3	8	48	0	3	56	0	0	0	0	0	9	101	110
11:30	4	5	10	2	19	3	48	11	0	62	1	2	2	0	5	8	52	5	2	65	0	0	0	0	0	4	151	155
11:45	2	1	8	1	11	2	26	2	2	30	2	1	5	0	8	4	26	4	3	34	0	0	0	0	0	6	83	89
Total	10	6	26	3	42	5	144	21	9	170	5	3	9	0	17	25	156	11	8	192	0	0	0	0	0	20	421	441
12:00	1	0	7	0	8	0	36	5	2	41	2	1	1	0	4	5	44	0	3	49	0	0	0	0	0	5	102	107
12:15	3	0	8	1	11	0	25	6	2	31	3	0	0	1	3	12	40	2	3	54	0	0	0	0	0	7	99	106
12:30	6	0	6	1	12	0	22	3	4	25	1	1	1	0	3	5	33	3	4	41	0	0	0	0	0	9	81	90
12:45	3	0	4	0	7	1	37	3	6	41	0	0	1	0	1	4	43	1	3	48	0	0	0	0	0	9	97	106
Total	13	0	25	2	38	1	120	17	14	138	6	2	3	1	11	26	160	6	13	192	0	0	0	0	0	30	379	409
13:00	8	1	9	1	18	1	30	4	1	35	0	0	2	0	2	10	35	3	4	48	0	0	0	0	0	6	103	109
13:15	3	2	9	0	14	2	33	6	4	41	2	0	0	0	2	8	30	0	1	38	0	0	0	0	0	5	95	100
13:30	2	1	3	1	6	0	28	3	5	31	4	1	2	1	7	5	27	1	2	33	0	0	0	0	0	9	77	86
13:45	0	0	3	0	3	0	32	2	5	34	1	0	0	0	1	4	36	1	3	41	0	0	0	0	0	8	79	87
Total	13	4	24	2	41	3	123	15	15	141	7	1	4	1	12	27	128	5	10	160	0	0	0	0	0	28	354	382
14:00	8	0	1	0	9	1	34	7	2	42	0	2	0	1	2	6	34	0	6	40	0	0	0	0	0	9	93	102
14:15	5	0	6	2	11	1	47	10	6	58	2	0	0	0	2	2	32	0	4	34	0	0	0	0	0	12	105	117
14:30	1	2	9	4	12	0	64	10	7	74	0	0	0	0	0	10	48	7	8	65	0	0	0	0	0	19	151	170
14:45	4	0	12	3	16	3	36	9	3	48	2	0	0	0	2	7	44	1	5	52	0	0	0	0	0	11	118	129
Total	18	2	28	9	48	5	181	36	18	222	4	2	0	1	6	25	158	8	23	191	0	0	0	0	0	51	467	518
15:00	5	1	5	2	11	3	66	8	8	77	3	0	1	0	4	15	76	1	9	92	0	0	0	0	0	19	184	203
15:15	4	0	10	0	14	1	81	6	7	88	3	0	2	0	5	11	56	3	4	70	0	0	0	0	0	11	177	188
15:30	1	0	6	0	7	3	83	5	7	91	1	0	0	0	1	19	67	1	7	87	0	0	0	0	0	14	186	200
15:45	7	0	14	5	21	0	74	7	8	81	2	1	1	1	4	10	69	6	1	85	0	0	0	0	0	15	191	206
Total	17	1	35	7	53	7	304	26	30	337	9	1	4	1	14	55	268	11	21	334	0	0	0	0	0	59	738	797
16:00	7	0	9	2	16	4	77	10	3	91	1	0	3	0	4	10	74	13	1	97	0	0	0	0	0	6	208	214
16:15	5	0	4	0	9	4	78	12	2	94	1	1	2	0	4	23	78	2	3	103	0	0	0	0	0	5	210	215
16:30	3	0	6	0	9	4	79	10	4	93	3	0	3	0	6	13	85	8	1	106	0	0	0	0	0	5	214	219
16:45	4	0	6	0	10	3	80	12	1	95	2	0	2	0	4	16	70	9	1	95	0	0	0	0	0	2	204	206
Total	19	0	25	2	44	15	314	44	10	373	7	1	10	0	18	62	307	32	6	401	0	0	0	0	0	18	836	854
17:00	4	0	9	0	13	4	93	8	8	105	4	0	1	0	5	20	77	6	6	103	0	0	0	0	0	14	226	240
17:15	5	0	15	1	20	1	98	7	2	106	2	0	2	0	4	18	103	11	8	132								

Anoka County Highway Department
 Traffic Engineering
 Traffic Volume and Turning Movement Stud

Weather: Cool and Clear
 Counter TDC-8
 Counted by: Krystal\Sheri

File Name : TMC0231
 Site Code : 02310102
 Start Date : 11/13/2002
 Page No : 2

Groups Printed- Unshifted

Start Time	Blackduck Dr. Southbound					CSAH 10 Westbound					Blackduck Dr. Northbound					CSAH 10 Eastbound					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total	Left	Thru	Right	Heavy	App. Total			
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
18:00	8	0	13	0	21	3	59	5	1	67	0	0	1	0	1	22	75	8	2	105	3	194	197
18:15	6	0	14	0	20	3	70	5	1	78	2	1	0	0	3	20	65	9	0	94	1	195	196
18:30	8	0	13	0	21	1	49	4	0	54	4	0	3	0	7	10	56	3	1	69	1	151	152
18:45	3	0	10	0	13	0	46	5	1	51	3	0	0	0	3	14	58	7	1	79	2	146	148
Total	25	0	50	0	75	7	224	19	3	250	9	1	4	0	14	66	254	27	4	347	7	686	693
19:00	3	0	6	0	9	1	40	6	3	47	2	0	1	0	3	17	39	8	0	64	3	123	126
19:15	1	0	9	0	10	0	48	6	0	54	2	0	1	0	3	13	56	4	0	73	0	140	140
19:30	4	0	9	1	13	0	50	7	0	57	0	0	2	0	2	11	58	3	0	72	1	144	145
19:45	4	0	4	0	8	4	47	9	0	60	1	0	1	0	2	14	33	5	0	52	0	122	122
Total	12	0	28	1	40	5	185	28	3	218	5	0	5	0	10	55	186	20	0	261	4	529	533
Grand Total	243	17	532	41	792	67	2955	279	180	3301	152	14	79	5	245	519	2933	175	201	3627	427	7965	8392
Approch %	30.7	2.1	67.2			2.0	89.5	8.5			62.0	5.7	32.2			14.3	80.9	4.8					
Total %	3.1	0.2	6.7		9.9	0.8	37.1	3.5		41.4	1.9	0.2	1.0		3.1	6.5	36.8	2.2		45.5	5.1	94.9	

or Street Approaches:

Eastbound:

CSAH 10

Data File: C:\Program Files\PC-Warrants\TMC0231.war
 Count Type: IMC. Channel: 0. Count Date: 11/13/ 2
 Number of Lanes: 2
 Approach Speed: 50.
 Total Approach Traffic: 3627

Westbound:

CSAH 10

Data File: C:\Program Files\PC-Warrants\TMC0231.war
 Count Type: IMC. Channel: 0. Count Date: 11/13/ 2
 Number of Lanes: 2
 Approach Speed: 50
 Total Approach Traffic: 3301

Minor Street Approaches:

Northbound:

Blackduck Dr.

Data File: C:\Program Files\PC-Warrants\TMC0231.war
 Count Type: IMC. Channel: 0. Count Date: 11/13/ 2
 Number of Lanes: 1
 Approach Speed: 30
 Total Approach Traffic: 245

Southbound:

Blackduck Dr.

Data File: C:\Program Files\PC-Warrants\TMC0231.war
 Count Type: IMC. Channel: 0. Count Date: 11/13/ 2
 Number of Lanes: 1
 Approach Speed: 30
 Total Approach Traffic: 792

Analysis of 8-Hour Volume Warrants (Criteria refers to high volume side street for that hour):

Hour	Main	Side	Warrant 1		Warrant 2		Warrant 8	
Begin	(Total)	Vol.	Dir.	Rank	Meets?	Criteria	Meets?	Criteria
0	0	0	S	15		105		52
1	0	0	S	16		105		52
2	0	0	S	17		105		52
3	0	0	S	18		105		52
4	0	0	S	19		105		52
5	0	0	S	20		105		52
6	435	70	S	4	MAIN	105	SIDE	52
7	716	140	S	1	--BOTH--	105	--BOTH--	52
8	438	77	S	2	MAIN	105	SIDE	52
9	289	43	S	9		105		52
10	291	28	S	14		105		52
11	362	42	S	10		105		52
12	330	38	S	13		105		52
13	301	41	S	11		105		52
14	413	48	S	7		105		52
15	671	53	S	5	MAIN	105	--BOTH--	52
16	774	44	S	8	MAIN	105	MAIN	52
17	832	53	S	6	MAIN	105	--BOTH--	52
18	597	75	S	3	MAIN	105	SIDE	52
19	479	40	S	12	MAIN	105		52
20	0	0	S	21		105		52
21	0	0	S	22		105		52
22	0	0	S	23		105		52
23	0	0	S	24		105		52

Warrant Summary:

Rural values apply.

Warrant 1 - Minimum Vehicular Volumes

NOT SATISFIED. Required values reached for 1 hours. Criteria--Main St.: 420; Side St.: See Volume Summary.

Warrant 2 - Interruption of Continuous Traffic

NOT SATISFIED. Required values reached for 3 hours. Criteria--Main St.: 630; Side St.: See Volume Summary.

Warrant 3 - Minimum Pedestrian Volumes

NOT SATISFIED. 8th-High Hour--Pedestrians: 0. Criteria--Pedestrians: 105; Vehicles: 420.

Warrant 4 - School Crossing

NOT APPLICABLE. Gap data has not been defined.

Warrant 5 - Progressive Movement

NOT SATISFIED. Adjacent signals closer than 1000 feet and/or not part of coordinated system.

Warrant 6 - Accident Experience

NOT SATISFIED. 0 correctable accidents is fewer than required 5.

Correctable Accidents: 0; Right Angle Accidents: 0; Left Turn Accidents: 0; Other Accidents: 0.

Warrant 7 - Systems Warrant

NOT SATISFIED. At least one street has no major approaches. Peak hour total entering volume: 906.

- Approaches which are part of the principal through traffic roadway network.
- Approaches which connect areas of principal traffic generation.
- Approaches which include rural or suburban highways outside, entering or traversing a city.
- Approaches which have surface street freeway or expressway ramp terminals.
- Approaches which appear as a major route in an official transportation plan.

Warrant 8 - Combination of Warrants

NOT SATISFIED. Required values reached for 1 hours. Criteria--Main: 504; Side: See Volume Summary.

Warrant 9 - Four Hour Volumes

NOT SATISFIED. Required values reached for 1 hours.

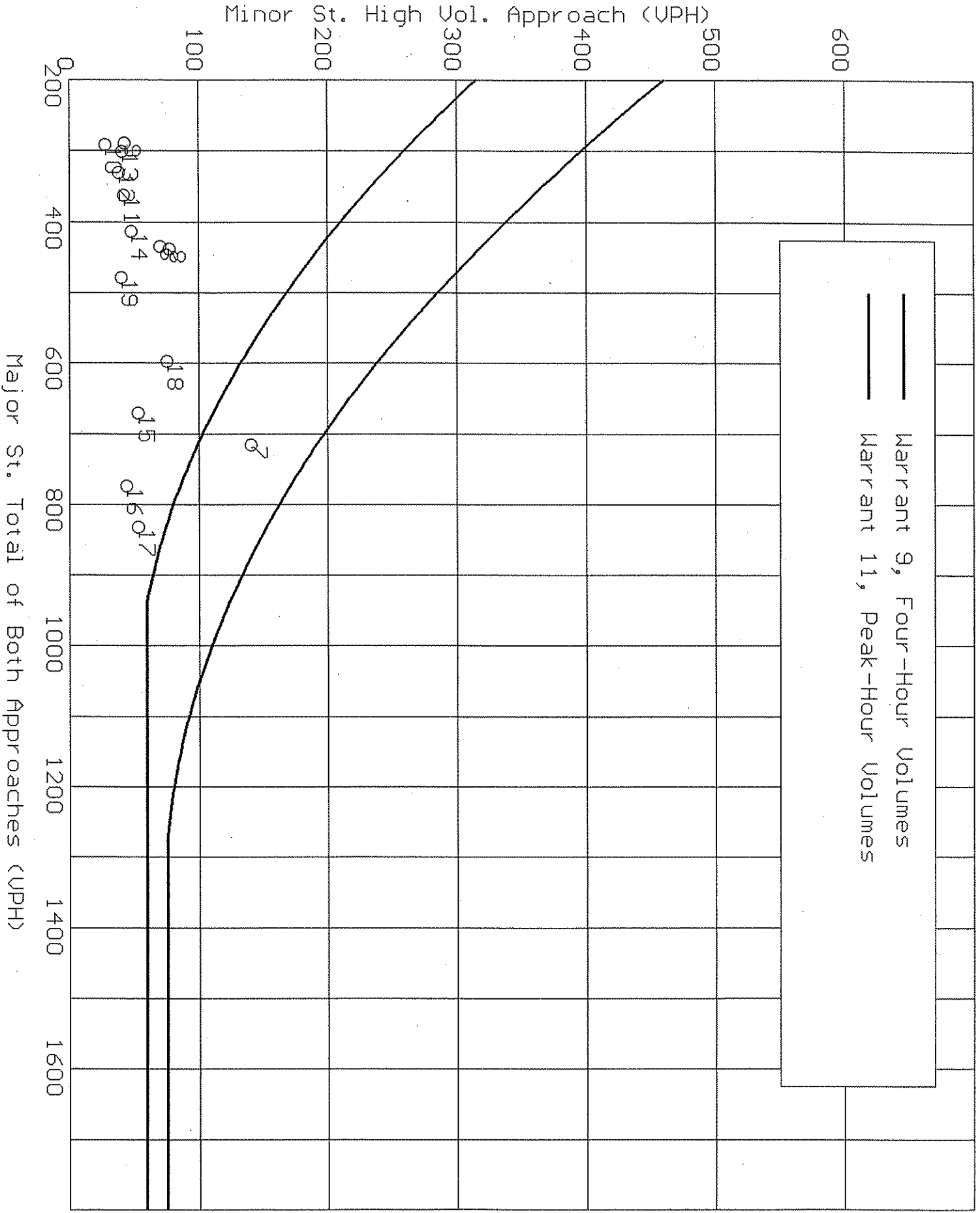
Warrant 10 - Peak Hour Delay

NOT SATISFIED. Peak hour (1700 hours) volume not adequate.

Criteria--Main St.: 800 (4 approaches), 650 (3 approaches); Side St.: 100.

Warrant 11 - Peak Hour Volume

NOT SATISFIED.



Multiway Stop Warrant Analysis
TMC 0231 CSAH 10 (Birch St.) @ Blackduck St.
Speed Limit of Major Roadway..... 50

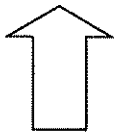
Minimum Traffic Volumes Multiway Stop Warrant Criteria:

- a) The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour (vph) for any 8 hours of an average day, AND:
- b) The combined vehicular and pedestrian volume from the minor street or highway must average at least 200 vph for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, BUT:
- c) When the 85-percentile approach speed of the major street traffic exceeds 40 miles per hour, the minimum volume warrant is 70% of the above requirements.

Hour	Total Vehicular Traffic Entering the Intersection	Vehicular Traffic Entering on First Minor Roadway	Vehicular Traffic Entering on Second Minor Roadway	Sum of Minor Approaches	Hours Stop Warrant Met
6 AM - 7 AM	527	70	22	92	NO
7 AM - 8 AM	897	140	41	181	YES
8 AM - 9 AM	543	77	28	105	NO
9 AM - 10 AM	347	43	15	58	NO
10 AM - 11 AM	335	28	16	44	NO
11 AM - 12 PM	421	42	17	59	NO
12 PM - 13 PM	379	38	11	49	NO
1 PM - 2 PM	354	41	12	53	NO
2 PM - 3 PM	467	48	6	54	NO
3 PM - 4 PM	738	53	14	67	NO
4 PM - 5 PM	836	44	18	62	NO
5 PM - 6 PM	906	53	21	74	NO
6 PM - 7 PM	686	75	14	89	NO
7 PM - 8 PM	529	40	10	50	NO

TOTAL HOURS MET: 1

MULTIWAY STOP WARRANT IS NOT MET



NORTH

COUNT LOCATION:

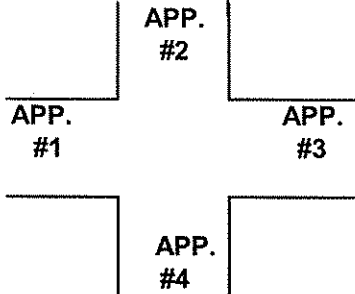
CSAH 10 (Birch St.) @

DATE:

11/13/02

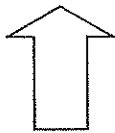
Blackduck Dr.

APP. #1= CSAH 10
APP. #2 = Blackduck Dr.
APP. #3= CSAH 10
APP. #4= S. Blackduck Dr.



- 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		2	2		4	3		
6:15-6:30			1	1	2	1		
6:30-6:45						6		
6:45-7:00						5		5
HOURLY TOTAL					6	HOURLY TOTAL		20
7:00-7:15		2	2			4		5
7:15-7:30			2		2	11		6
7:30-7:45				1		7		7
7:45-8:00						4		8
HOURLY TOTAL					2	HOURLY TOTAL		52
8:00-8:15						2		2
8:15-8:30						7		6
8:30-8:45						7	1	9
8:45-9:00						9		10
HOURLY TOTAL						HOURLY TOTAL		53
9:00-9:15						5		4
9:15-9:30						5		
9:30-9:45						5		1
9:45-10:00						8		
HOURLY TOTAL						HOURLY TOTAL		28
10:00-10:15						8		1
10:15-10:30		1			1	5		
10:30-10:45		1			1	4		
10:45-11:00						3		
HOURLY TOTAL					2	HOURLY TOTAL		21
11:00-11:15						1		
11:15-11:30						8		1
11:30-11:45						4		1
11:45-12:00						5		1
HOURLY TOTAL						HOURLY TOTAL		21
12:00-12:15						4		1
12:15-12:30						4		3
12:30-12:45						7		2
12:45-1:00						6	1	2
HOURLY TOTAL						HOURLY TOTAL		30
1:00-1:15						4		3
1:15-1:30						4		1
1:30-1:45						9		
1:45-2:00				1	1	7		1
HOURLY TOTAL					1	HOURLY TOTAL		29



NORTH

COUNT LOCATION:

CSAH 10 (Birch St.) @

DATE:

11/14/02

Blackduck Dr.

APP. #1= CSAH 10

APP. #2 = Blackduck Dr.

APP. #3= CSAH 10

APP. #4= S. Blackduck Dr.

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
2:00-2:15PM						9		
2:15-2:30						10	2	
2:30-2:45		1			1	13		6
2:45-3:00		1				7		5
HOURLY TOTAL					2	HOURLY TOTAL		52
3:00-3:15						10		9
3:15-3:30						6		5
3:30-3:45			2		2	4		10
3:45-4:00		2	1		3	3		12
HOURLY TOTAL					5	HOURLY TOTAL		59
4:00-4:15						2		3
4:15-4:30						2	2	1
4:30-4:45		1			1	4		1
4:45-5:00		4			4	2		1
HOURLY TOTAL					5	HOURLY TOTAL		18
5:00-5:15						12		2
5:15-5:30		1			1	8	1	2
5:30-5:45						4		2
5:45-6:00						4		
HOURLY TOTAL					1	HOURLY TOTAL		35
6:00-6:15						3		
6:15-6:30	2				2	1		
6:30-6:45	2				2	1		
6:45-7:00						2		
HOURLY TOTAL					4	HOURLY TOTAL		7
7:00-7:15				1	1	3		
7:15-7:30								
7:30-7:45							1	
7:45-8:00		1		4	5			
HOURLY TOTAL					6	HOURLY TOTAL		4