



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

SIGNAL WARRANTS ANALYSIS

LOCATION: TH 7 AND WILLISTON RD
 COUNTY: HENNEPIN
 REF. POINT: 188+00.039
 DATE: 11/26/1994
 OPERATOR: JJM

Speed	Approach Description	Lanes
50	Major App1: TH 7 EB W OF WILLISTON RD	2
50	Major App3: TH 7 WB E OF WILLISTON RD	2
30	Minor App2: WILLISTON RD SB N OF TH 7	2
30	Minor App4: WILLISTON RD NB S OF TH 7	2

0.70 FACTOR USED? YES
 POPULATION < 10,000? NO
 EXISTING SIGNAL ? NO

HOUR	420/630			140/70		140/70		MET SAME HOURS	
	MAJOR APP. 1	MAJOR APP. 3	TOTAL 1+3	WARRANT MET	MINOR APP. 2	MINOR APP. 4	WARRANT MET APP. 2		WARRANT MET APP. 4
0:00 - 1:00	172	160	332	/	0	0	/	/	/
1:00 - 2:00	89	103	192	/	0	0	/	/	/
2:00 - 3:00	59	55	114	/	0	0	/	/	/
3:00 - 4:00	56	52	108	/	0	0	/	/	/
4:00 - 5:00	107	62	169	/	0	0	/	/	/
5:00 - 6:00	414	164	578	X/	0	0	/	/	/
6:00 - 7:00	1521	594	2115	X/X	198	133	X/X	/X	X/X
7:00 - 8:00	2270	937	3207	X/X	428	290	X/X	X/X	X/X
8:00 - 9:00	1777	940	2717	X/X	374	243	X/X	X/X	X/X
9:00 - 10:00	1257	804	2061	X/X	277	161	X/X	X/X	X/X
10:00 - 11:00	1220	882	2102	X/X	0	0	/	/	/
11:00 - 12:00	1219	1162	2381	X/X	0	0	/	/	/
12:00 - 13:00	1330	1230	2560	X/X	0	0	/	/	/
13:00 - 14:00	1323	1217	2540	X/X	0	0	/	/	/
14:00 - 15:00	1286	1388	2674	X/X	392	230	X/X	X/X	X/X
15:00 - 16:00	1329	1786	3115	X/X	451	246	X/X	X/X	X/X
16:00 - 17:00	1359	2092	3451	X/X	517	252	X/X	X/X	X/X
17:00 - 18:00	1465	2221	3686	X/X	414	351	X/X	X/X	X/X
18:00 - 19:00	1319	1608	2927	X/X	0	0	/	/	/
19:00 - 20:00	1094	1069	2163	X/X	0	0	/	/	/
20:00 - 21:00	942	874	1816	X/X	0	0	/	/	/
21:00 - 22:00	943	881	1824	X/X	0	0	/	/	/
22:00 - 23:00	661	530	1191	X/X	0	0	/	/	/
23:00 - 24:00	358	292	650	X/X	0	0	/	/	/

	Met (Hr)	Required (Hr)	
Warrant 1	8	8	Satisfied
Warrant 2	8	8	Satisfied
Warrant 6	8	8	Satisfied, check accident record
Warrant 8	8	8	Satisfied
Warrant 9	8	4	Satisfied
Warrant 11	8	1	Satisfied

LOCATION: TH 7 AND WILLISTON RD

COUNTY: HENNEPIN

REF. POINT: 188+00.039

DATE: 11/26/1994

OPERATOR: JJM

0.70 FACTOR USED? YES
 POPULATION < 10,000? NO
 EXISTING SIGNAL ? NO

Speed	Approach Description	Lanes
50	Major App1: TH 7 EB W OF WILLISTON RD	2
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30	Minor App2: WILLISTON RD SB N OF TH 7	2
30	Minor App4: WILLISTON RD NB S OF TH 7	2

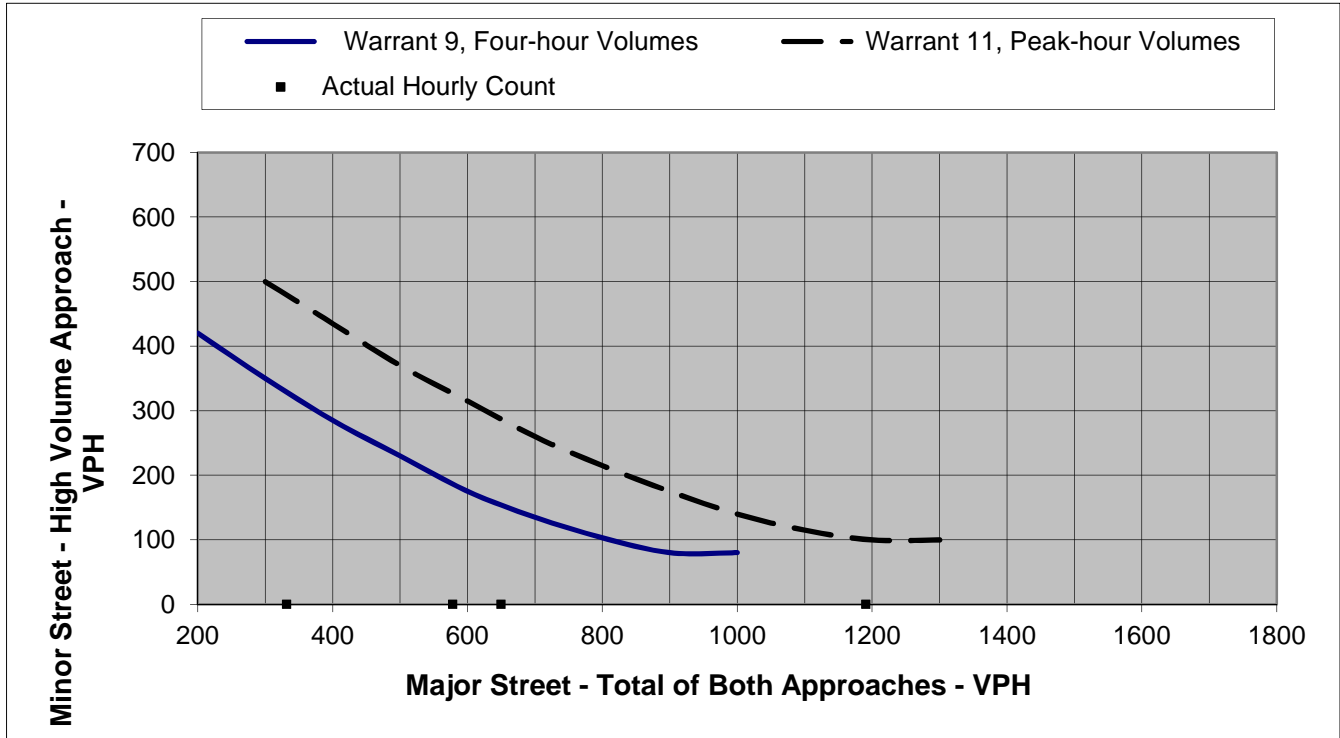


Figure 1. Four Hour and Peak Hour Warrant Analysis

Note: For data points outside the graph range, check the minor street volume against the lower thresholds

Major	Warrant Criteria		Actual Hourly Count	
	Warrant 9, F	Warrant 11, P	Major	Actual Hourly Count
200	420		332	0
300	350	500	192	0
400	285	435	114	0
500	230	370	108	0
600	175	315	169	0
700	135	260	578	0
800	103	215	2115	198
900	80	175	3207	428
1000	80	140	2717	374
1100		115	2061	277
1200		100	2102	0
1300		100	2381	0
1400			2560	0
1500			2540	0
1600			2674	392
1700			3115	451
1800			3451	517
			3686	414
			2927	0
			2163	0
			1816	0
			1824	0
			1191	0
			650	0

Four Hour Warrant

Major App	Minor App		
	1 & 1	2 & 1	2 & 2
300	360	440	590
400	310	390	530
500	260	340	460
600	215	290	390
700	180	245	330
800	150	205	280
900	125	170	235
1000	100	145	195
1100	85	120	165
1200	80	100	135
1300	80	83	110
1400	80	80	110

Peak Hour

Major App	1 & 1
400	475
500	425
600	370
700	330
800	280
900	240
1000	204
1100	175
1200	150
1300	130
1400	115
1500	100
1600	100
1700	100
1800	100

Four Hour Warrant Factored

Major App	Minor App		
	1 & 1	2 & 1	2 & 2
200	250	320	420
300	210	265	350
400	170	215	285
500	130	170	230
600	93	130	175
700	70	100	135
800	60	80	103
900	60	65	80
1000	60	60	80

Peak Hour

Major App	1 & 1
300	320
400	270
500	225
600	180
700	145
800	115
900	90
1000	75
1100	75
1200	75
1300	75

Warrant

Minor App

2 & 1	2 & 2
570	725
520	665
465	600
420	540
370	480
330	425
285	375
250	330
220	285
190	250
160	220
140	187
115	165
100	150
100	150

Warrant Factored

Minor App

2 & 1	2 & 2
380	500
335	435
285	370
240	315
200	260
160	215
135	175
110	140
95	115
75	100
75	100



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

ALL WAY STOP WARRANT

LOCATION: TH 7 AND WILLISTON RD

COUNTY: HENNEPIN

REF. POINT: 188+00.039

DATE: 11/26/1994

OPERATOR: JJM

Speed	Approach Description	Lanes
50	Major App1: TH 7 EB W OF WILLISTON RD	2
50	Major App3: TH 7 WB E OF WILLISTON RD	2
30	Minor App2: WILLISTON RD SB N OF TH 7	2
30	Minor App4: WILLISTON RD NB S OF TH 7	2

0.70 FACTOR USED? Yes

HOUR	MAJOR APP. 1	MAJOR APP. 3	MINOR APP. 2	MINOR APP. 4	350	140	WARRANT MET
					TOTAL Σ (APP.1 to APP. 4)	MINOR TOTAL APP. 2 + APP. 4	
0:00 - 1:00	172	160	0	0	332	0	/
1:00 - 2:00	89	103	0	0	192	0	/
2:00 - 3:00	59	55	0	0	114	0	/
3:00 - 4:00	56	52	0	0	108	0	/
4:00 - 5:00	107	62	0	0	169	0	/
5:00 - 6:00	414	164	0	0	578	0	X/
6:00 - 7:00	1521	594	198	133	2446	331	X/X
7:00 - 8:00	2270	937	428	290	3925	718	X/X
8:00 - 9:00	1777	940	374	243	3334	617	X/X
9:00 - 10:00	1257	804	277	161	2499	438	X/X
10:00 - 11:00	1220	882	0	0	2102	0	X/
11:00 - 12:00	1219	1162	0	0	2381	0	X/
12:00 - 13:00	1330	1230	0	0	2560	0	X/
13:00 - 14:00	1323	1217	0	0	2540	0	X/
14:00 - 15:00	1286	1388	392	230	3296	622	X/X
15:00 - 16:00	1329	1786	451	246	3812	697	X/X
16:00 - 17:00	1359	2092	517	252	4220	769	X/X
17:00 - 18:00	1465	2221	414	351	4451	765	X/X
18:00 - 19:00	1319	1608	0	0	2927	0	X/
19:00 - 20:00	1094	1069	0	0	2163	0	X/
20:00 - 21:00	942	874	0	0	1816	0	X/
21:00 - 22:00	943	881	0	0	1824	0	X/
22:00 - 23:00	661	530	0	0	1191	0	X/
23:00 - 24:00	358	292	0	0	650	0	X/

Met (Hr) Required (Hr)

Allway Stop Warrant: **8** 8 **Satisfied**

REMARKS: _____



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: TH 7 EB AND TONKAWOOD & WOODLAND RD

COUNTY: HENNEPIN

REF. PT.: 187+00.285

SITE CODE: APPROCH

OPERATOR: JJM

FOR COUNTS BEGINNING: **November 9, 1994**

DATE HOUR \ DAY	7 MON.	8 TUE.	9 WED.	10 THU.	11 FRI.	12 SAT.	13 SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00				99				99	
1:00 - 2:00				73				73	
2:00 - 3:00				48				48	
3:00 - 4:00				90				90	
4:00 - 5:00				112				112	
5:00 - 6:00				514				514	
6:00 - 7:00				1638				1638	
7:00 - 8:00				2416				2416	
8:00 - 9:00				1681				1681	
9:00 - 10:00				1397				1397	
10:00 - 11:00				1170				1170	
11:00 - 12:00				1130				1130	
12:00 - 13:00				1236				1236	
13:00 - 14:00				1257				1257	
14:00 - 15:00			1209					1209	
15:00 - 16:00			1417					1417	
16:00 - 17:00			1582					1582	
17:00 - 18:00			1607					1607	
18:00 - 19:00			1289					1289	
19:00 - 20:00			861					861	
20:00 - 21:00			782					782	
21:00 - 22:00			512					512	
22:00 - 23:00			371					371	
23:00 - 24:00			189					189	
TOTAL			9819	12861				22680	

24 HOURS FACTOR:

FACTORED ADT:

REMARKS:

CORRECTED AADT:

DATA FILE --> a:\TH7TONKA.DA1



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: WOODLAND RD NB S OF TH 7

COUNTY: HENNEPIN

REF. PT.: 187+00.285

SITE CODE: APPROCH

OPERATOR: JJM

FOR COUNTS BEGINNING: **November 9, 1994**

DATE HOUR \ DAY	7 MON.	8 TUE.	9 WED.	10 THU.	11 FRI.	12 SAT.	13 SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00				6				6	
1:00 - 2:00				3				3	
2:00 - 3:00				4				4	
3:00 - 4:00				1				1	
4:00 - 5:00				3				3	
5:00 - 6:00				28				28	
6:00 - 7:00				140				140	
7:00 - 8:00				216				216	
8:00 - 9:00				138				138	
9:00 - 10:00				103				103	
10:00 - 11:00				89				89	
11:00 - 12:00				102				102	
12:00 - 13:00				78				78	
13:00 - 14:00				74				74	
14:00 - 15:00			96					96	
15:00 - 16:00			133					133	
16:00 - 17:00			147					147	
17:00 - 18:00			169					169	
18:00 - 19:00			168					168	
19:00 - 20:00			125					125	
20:00 - 21:00			78					78	
21:00 - 22:00			41					41	
22:00 - 23:00			26					26	
23:00 - 24:00			12					12	
TOTAL			995	985				1980	

24 HOURS FACTOR:

FACTORED ADT:

REMARKS: _____

CORRECTED AADT: _____

DATA FILE --> a:\TH7TONKA.DA2



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: TH 7 WB AND TONKAWOOD & WOODLAND RD

COUNTY: HENNEPIN

REF. PT.: 187+00.285

SITE CODE: APPROCH

OPERATOR: JJM

FOR COUNTS BEGINNING: **November 9, 1994**

DATE HOUR \ DAY	7 MON.	8 TUE.	9 WED.	10 THU.	11 FRI.	12 SAT.	13 SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00				199				199	
1:00 - 2:00				131				131	
2:00 - 3:00				73				73	
3:00 - 4:00				70				70	
4:00 - 5:00				103				103	
5:00 - 6:00				257				257	
6:00 - 7:00				843				843	
7:00 - 8:00				1232				1232	
8:00 - 9:00				1149				1149	
9:00 - 10:00				1048				1048	
10:00 - 11:00				1142				1142	
11:00 - 12:00				1506				1506	
12:00 - 13:00				1595				1595	
13:00 - 14:00				1455				1455	
14:00 - 15:00			1486					1486	
15:00 - 16:00			1895					1895	
16:00 - 17:00			2116					2116	
17:00 - 18:00			2373					2373	
18:00 - 19:00			1820					1820	
19:00 - 20:00			1268					1268	
20:00 - 21:00			1150					1150	
21:00 - 22:00			1147					1147	
22:00 - 23:00			687					687	
23:00 - 24:00			324					324	
TOTAL			14266	10803				25069	

24 HOURS FACTOR:

FACTORED ADT:

REMARKS:

CORRECTED AADT:

DATA FILE --> a:\TH7TONKA.DA3



MINNESOTA DEPARTMENT OF TRANSPORTATION

METRO DIVISION - TRAFFIC ENGINEERING

TRAFFIC COUNT DATA

ROUTE #: TONKAWOOD RD SB N OF TH 7

COUNTY: HENNEPIN

REF. PT.: 187+00.285

SITE CODE: APPROCH

OPERATOR: JJM

FOR COUNTS BEGINNING: **November 9, 1994**

DATE HOUR \ DAY	7 MON.	8 TUE.	9 WED.	10 THU.	11 FRI.	12 SAT.	13 SUN.	AVE. WK.DAY	AVE. WKEND
0:00 - 1:00				3				3	
1:00 - 2:00				0				0	
2:00 - 3:00				1				1	
3:00 - 4:00				0				0	
4:00 - 5:00				0				0	
5:00 - 6:00				12				12	
6:00 - 7:00				80				80	
7:00 - 8:00				122				122	
8:00 - 9:00				80				80	
9:00 - 10:00				80				80	
10:00 - 11:00				48				48	
11:00 - 12:00				66				66	
12:00 - 13:00				51				51	
13:00 - 14:00				58				58	
14:00 - 15:00			95					95	
15:00 - 16:00			84					84	
16:00 - 17:00			117					117	
17:00 - 18:00			114					114	
18:00 - 19:00			71					71	
19:00 - 20:00			56					56	
20:00 - 21:00			34					34	
21:00 - 22:00			31					31	
22:00 - 23:00			11					11	
23:00 - 24:00			9					9	
TOTAL			622	601				1223	

24 HOURS FACTOR:

FACTORED ADT:

REMARKS: _____

CORRECTED AADT: _____

DATA FILE --> a:\TH7TONKA.DA4