

Date : 7/31/03

Count Number : TMC0340

Location : CSAH 14 (Main St.) @

CSAH 23 (Lake Dr.)

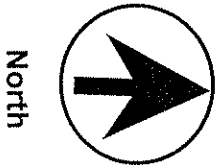
CSAH 23

5608

#2

| |
|--------|
| 2762 |
| D 972 |
| E 1544 |
| F 246 |

2846



CSAH 14

| |
|--------|
| G 251 |
| H 2269 |
| J 1189 |
| 3709 |

#3

3344

7053

7723

#1

3995

CSAH 14

| |
|--------|
| 3728 |
| C 965 |
| B 2042 |
| A 721 |

LANES OF APPROACH

| | RIGHT TURN LANE | LEFT TURN LANE | THRU LANES | TOTAL |
|----|-----------------|----------------|------------|-------|
| #1 | 1 | 0 | 1 | 2 |
| #2 | 0 | 0 | 1 | 1 |
| #3 | 0 | 1 | 1 | 2 |
| #4 | 1 | 1 | 0 | 2 |

CSAH 23

3454

#4

6894

| |
|--------|
| M 754 |
| L 1630 |
| K 1056 |
| 3440 |

Anoka County Highway Department

Traffic Volume and Turning

Movement Study

Anoka County Highway Department
Traffic Engineering

Weather: Sunny & Hot
Counter:
Counted By: Krystal & Shari

Traffic Volume and Turning Movement Study

File Name : TMC0340
Site Code : 03400102
Start Date : 07/31/2003
Page No : 1

Groups Printed- 1 - 1 - Unshifted

| Start Time | CSAH 23 Southbound | | | | | CSAH 14 Westbound | | | | | CSAH 23 Northbound | | | | | CSAH 14 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 | | | | | | | | | | | | | | | | | | | | | | | |
| 06:00 | 1 | 54 | 20 | 4 | 75 | 9 | 37 | 3 | 2 | 49 | 0 | 6 | 5 | 2 | 11 | 8 | 24 | 5 | 0 | 37 | 8 | 21 | 172 | 180 | | | | | | | | | | | | | | | | | | |
| 06:15 | 4 | 73 | 29 | 9 | 106 | 26 | 34 | 4 | 3 | 64 | 3 | 5 | 18 | 3 | 26 | 11 | 41 | 11 | 6 | 63 | 21 | 259 | 280 | | | | | | | | | | | | | | | | | | | |
| 06:30 | 6 | 47 | 37 | 11 | 90 | 23 | 20 | 0 | 3 | 43 | 6 | 12 | 12 | 2 | 30 | 9 | 37 | 12 | 2 | 58 | 18 | 221 | 239 | | | | | | | | | | | | | | | | | | | |
| 06:45 | 2 | 48 | 21 | 8 | 71 | 41 | 18 | 5 | 2 | 64 | 5 | 11 | 11 | 2 | 27 | 10 | 43 | 13 | 6 | 66 | 18 | 228 | 246 | | | | | | | | | | | | | | | | | | | |
| Total | 13 | 222 | 107 | 32 | 342 | 99 | 109 | 12 | 10 | 220 | 14 | 34 | 46 | 9 | 94 | 38 | 145 | 41 | 14 | 224 | 65 | 880 | 945 | | | | | | | | | | | | | | | | | | | |
| 07:00 | 3 | 58 | 18 | 4 | 79 | 27 | 51 | 1 | 7 | 79 | 7 | 7 | 24 | 2 | 38 | 4 | 69 | 7 | 6 | 80 | 19 | 276 | 295 | | | | | | | | | | | | | | | | | | | |
| 07:15 | 4 | 31 | 17 | 1 | 52 | 43 | 57 | 2 | 7 | 102 | 6 | 4 | 36 | 3 | 46 | 11 | 72 | 12 | 9 | 95 | 20 | 295 | 315 | | | | | | | | | | | | | | | | | | | |
| 07:30 | 6 | 35 | 11 | 5 | 52 | 33 | 18 | 3 | 8 | 54 | 8 | 16 | 11 | 7 | 35 | 6 | 47 | 14 | 9 | 67 | 29 | 208 | 237 | | | | | | | | | | | | | | | | | | | |
| 07:45 | 4 | 40 | 15 | 6 | 59 | 24 | 15 | 2 | 2 | 41 | 6 | 22 | 11 | 7 | 39 | 24 | 41 | 19 | 7 | 84 | 22 | 223 | 245 | | | | | | | | | | | | | | | | | | | |
| Total | 17 | 164 | 61 | 16 | 242 | 127 | 141 | 8 | 24 | 276 | 27 | 49 | 82 | 19 | 158 | 45 | 229 | 52 | 31 | 326 | 90 | 1002 | 1092 | | | | | | | | | | | | | | | | | | | |
| 08:00 | 1 | 22 | 8 | 5 | 31 | 22 | 32 | 3 | 7 | 57 | 0 | 2 | 16 | 7 | 18 | 13 | 63 | 11 | 14 | 87 | 33 | 193 | 226 | | | | | | | | | | | | | | | | | | | |
| 08:15 | 4 | 22 | 5 | 6 | 31 | 12 | 17 | 2 | 4 | 31 | 7 | 10 | 11 | 6 | 28 | 4 | 39 | 10 | 11 | 53 | 27 | 143 | 170 | | | | | | | | | | | | | | | | | | | |
| 08:30 | 0 | 30 | 13 | 2 | 43 | 19 | 20 | 1 | 2 | 40 | 4 | 10 | 9 | 3 | 23 | 12 | 33 | 9 | 6 | 54 | 13 | 160 | 173 | | | | | | | | | | | | | | | | | | | |
| 08:45 | 2 | 8 | 9 | 2 | 19 | 16 | 11 | 4 | 2 | 31 | 8 | 9 | 12 | 3 | 29 | 4 | 28 | 6 | 3 | 38 | 10 | 117 | 127 | | | | | | | | | | | | | | | | | | | |
| Total | 7 | 82 | 35 | 15 | 124 | 69 | 80 | 10 | 15 | 159 | 19 | 31 | 48 | 19 | 98 | 33 | 163 | 36 | 34 | 232 | 83 | 613 | 696 | | | | | | | | | | | | | | | | | | | |
| 09:00 | 1 | 15 | 13 | 3 | 29 | 9 | 31 | 1 | 4 | 41 | 5 | 0 | 19 | 6 | 24 | 5 | 54 | 7 | 12 | 66 | 25 | 160 | 185 | | | | | | | | | | | | | | | | | | | |
| 09:15 | 1 | 13 | 6 | 1 | 20 | 10 | 25 | 0 | 4 | 35 | 16 | 14 | 23 | 16 | 53 | 4 | 42 | 4 | 5 | 50 | 26 | 158 | 184 | | | | | | | | | | | | | | | | | | | |
| 09:30 | 3 | 16 | 11 | 2 | 30 | 20 | 11 | 1 | 3 | 32 | 8 | 16 | 14 | 3 | 38 | 14 | 22 | 4 | 3 | 40 | 11 | 140 | 151 | | | | | | | | | | | | | | | | | | | |
| 09:45 | 0 | 2 | 5 | 1 | 7 | 9 | 57 | 2 | 3 | 68 | 3 | 5 | 4 | 16 | 12 | 3 | 46 | 6 | 5 | 55 | 25 | 142 | 167 | | | | | | | | | | | | | | | | | | | |
| Total | 5 | 46 | 35 | 7 | 86 | 48 | 124 | 4 | 14 | 176 | 32 | 35 | 60 | 41 | 127 | 26 | 164 | 21 | 25 | 211 | 87 | 600 | 687 | | | | | | | | | | | | | | | | | | | |
| 10:00 | 0 | 21 | 23 | 9 | 44 | 4 | 43 | 3 | 11 | 50 | 6 | 12 | 0 | 7 | 18 | 9 | 38 | 6 | 4 | 53 | 31 | 165 | 196 | | | | | | | | | | | | | | | | | | | |
| 10:15 | 5 | 30 | 2 | 7 | 37 | 16 | 30 | 2 | 4 | 48 | 4 | 15 | 15 | 4 | 34 | 5 | 19 | 6 | 1 | 30 | 16 | 149 | 165 | | | | | | | | | | | | | | | | | | | |
| 10:30 | 4 | 17 | 8 | 3 | 29 | 7 | 52 | 1 | 7 | 60 | 6 | 4 | 6 | 4 | 16 | 3 | 38 | 9 | 6 | 50 | 20 | 155 | 175 | | | | | | | | | | | | | | | | | | | |
| 10:45 | 3 | 7 | 2 | 5 | 12 | 2 | 47 | 6 | 9 | 55 | 0 | 6 | 3 | 3 | 9 | 4 | 42 | 2 | 9 | 48 | 26 | 124 | 150 | | | | | | | | | | | | | | | | | | | |
| Total | 12 | 75 | 35 | 24 | 122 | 29 | 172 | 12 | 31 | 213 | 16 | 37 | 24 | 18 | 77 | 21 | 137 | 23 | 20 | 181 | 93 | 593 | 686 | | | | | | | | | | | | | | | | | | | |
| 11:00 | 5 | 21 | 2 | 2 | 28 | 15 | 14 | 2 | 5 | 31 | 11 | 34 | 14 | 5 | 59 | 3 | 9 | 10 | 2 | 22 | 14 | 140 | 154 | | | | | | | | | | | | | | | | | | | |
| 11:15 | 3 | 23 | 8 | 6 | 34 | 3 | 46 | 5 | 9 | 54 | 2 | 13 | 3 | 8 | 18 | 3 | 48 | 3 | 9 | 54 | 32 | 160 | 192 | | | | | | | | | | | | | | | | | | | |
| 11:30 | 8 | 20 | 7 | 1 | 35 | 20 | 13 | 6 | 8 | 39 | 5 | 27 | 26 | 7 | 58 | 4 | 46 | 9 | 4 | 59 | 20 | 191 | 211 | | | | | | | | | | | | | | | | | | | |
| 11:45 | 2 | 8 | 10 | 6 | 20 | 4 | 57 | 4 | 7 | 65 | 8 | 10 | 5 | 13 | 23 | 5 | 62 | 3 | 8 | 70 | 34 | 178 | 212 | | | | | | | | | | | | | | | | | | | |
| Total | 18 | 72 | 27 | 15 | 117 | 42 | 130 | 17 | 29 | 189 | 26 | 84 | 48 | 33 | 158 | 15 | 165 | 25 | 23 | 205 | 100 | 669 | 769 | | | | | | | | | | | | | | | | | | | |
| 12:00 | 2 | 20 | 16 | 8 | 38 | 23 | 15 | 1 | 6 | 39 | 7 | 21 | 14 | 5 | 42 | 6 | 15 | 4 | 2 | 25 | 21 | 144 | 165 | | | | | | | | | | | | | | | | | | | |
| 12:15 | 2 | 20 | 15 | 0 | 37 | 15 | 25 | 5 | 0 | 45 | 14 | 16 | 19 | 2 | 49 | 17 | 19 | 14 | 2 | 50 | 4 | 181 | 185 | | | | | | | | | | | | | | | | | | | |
| 12:30 | 3 | 27 | 13 | 7 | 43 | 12 | 15 | 2 | 1 | 29 | 7 | 20 | 12 | 5 | 39 | 9 | 21 | 10 | 10 | 40 | 23 | 151 | 174 | | | | | | | | | | | | | | | | | | | |
| 12:45 | 6 | 19 | 6 | 4 | 31 | 6 | 26 | 2 | 3 | 34 | 10 | 13 | 19 | 2 | 42 | 7 | 22 | 6 | 2 | 35 | 11 | 142 | 153 | | | | | | | | | | | | | | | | | | | |
| Total | 13 | 86 | 50 | 19 | 149 | 56 | 81 | 10 | 10 | 147 | 38 | 70 | 64 | 14 | 172 | 39 | 77 | 34 | 16 | 150 | 59 | 618 | 677 | | | | | | | | | | | | | | | | | | | |
| 13:00 | 3 | 32 | 16 | 8 | 51 | 24 | 23 | 1 | 4 | 48 | 13 | 19 | 14 | 6 | 46 | 9 | 27 | 9 | 5 | 45 | 23 | 190 | 213 | | | | | | | | | | | | | | | | | | | |
| 13:15 | 7 | 18 | 15 | 3 | 40 | 11 | 35 | 6 | 10 | 52 | 11 | 15 | 26 | 2 | 52 | 9 | 38 | 12 | 8 | 59 | 23 | 203 | 226 | | | | | | | | | | | | | | | | | | | |
| 13:30 | 3 | 19 | 11 | 8 | 33 | 9 | 30 | 2 | 7 | 41 | 13 | 24 | 11 | 3 | 48 | 13 | 11 | 12 | 2 | 36 | 20 | 158 | 178 | | | | | | | | | | | | | | | | | | | |
| 13:45 | 6 | 0 | 4 | 8 | 10 | 5 | 55 | 6 | 6 | 66 | 6 | 5 | 8 | 5 | 19 | 7 | 53 | 5 | 4 | 65 | 23 | 160 | 183 | | | | | | | | | | | | | | | | | | | |
| Total | 19 | 69 | 46 | 27 | 134 | 49 | 143 | 15 | 27 | 207 | 43 | 63 | 59 | 16 | 165 | 38 | 129 | 38 | 19 | 205 | 89 | 711 | 800 | | | | | | | | | | | | | | | | | | | |
| 14:00 | 18 | 39 | 11 | 8 | 68 | 12 | 17 | 2 | 3 | 31 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Anoka County Highway Department
Traffic Engineering

Traffic Volume and Turning Movement Study

Weather: Sunny & Hot
Counter:
Counted By: Krystal & Shari

File Name : TMC0340
Site Code : 03400102
Start Date : 07/31/2003
Page No : 2

Groups Printed- 1 - 1 - Unshifted

| Start Time | CSAH 23 Southbound | | | | | CSAH 14 Westbound | | | | | CSAH 23 Northbound | | | | | CSAH 14 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 | 4 | 7 | 11 | 0 | 22 | 46 | 73 | 4 | 5 | 123 | 9 | 26 | 10 | 2 | 45 | 57 | 43 | 25 | 12 | 125 | 19 | 315 | 334 |
| 18:15 | 1 | 13 | 14 | 3 | 28 | 40 | 92 | 5 | 5 | 137 | 15 | 24 | 12 | 2 | 51 | 39 | 38 | 21 | 3 | 98 | 13 | 314 | 327 |
| 18:30 | 6 | 21 | 15 | 0 | 42 | 36 | 55 | 7 | 7 | 98 | 19 | 24 | 10 | 0 | 53 | 31 | 51 | 19 | 7 | 101 | 14 | 294 | 308 |
| 18:45 | 1 | 25 | 17 | 4 | 43 | 33 | 46 | 7 | 4 | 86 | 19 | 34 | 25 | 7 | 78 | 59 | 41 | 20 | 11 | 120 | 26 | 327 | 353 |
| Total | 12 | 66 | 57 | 7 | 135 | 155 | 266 | 23 | 21 | 444 | 62 | 106 | 57 | 11 | 227 | 186 | 173 | 85 | 33 | 444 | 72 | 1250 | 1322 |
| 19:00 | 1 | 15 | 11 | 1 | 27 | 10 | 21 | 3 | 1 | 34 | 21 | 34 | 15 | 3 | 70 | 16 | 14 | 12 | 2 | 42 | 7 | 173 | 180 |
| 19:15 | 4 | 17 | 12 | 1 | 33 | 19 | 19 | 4 | 1 | 42 | 20 | 32 | 15 | 1 | 67 | 9 | 20 | 10 | 1 | 39 | 4 | 181 | 185 |
| 19:30 | 0 | 12 | 12 | 1 | 24 | 10 | 17 | 11 | 1 | 38 | 13 | 25 | 13 | 0 | 51 | 13 | 13 | 13 | 1 | 39 | 3 | 152 | 155 |
| 19:45 | 3 | 19 | 14 | 1 | 36 | 6 | 20 | 4 | 0 | 30 | 17 | 21 | 12 | 0 | 50 | 10 | 11 | 11 | 3 | 32 | 4 | 148 | 152 |
| Total | 8 | 63 | 49 | 4 | 120 | 45 | 77 | 22 | 3 | 144 | 71 | 112 | 55 | 4 | 238 | 48 | 58 | 46 | 7 | 152 | 18 | 654 | 672 |
| 20:00 | 0 | 15 | 15 | 0 | 30 | 6 | 18 | 4 | 1 | 28 | 12 | 28 | 17 | 0 | 57 | 8 | 14 | 11 | 0 | 33 | 1 | 148 | 149 |
| 20:15 | 1 | 22 | 13 | 1 | 36 | 6 | 24 | 3 | 2 | 33 | 10 | 20 | 11 | 1 | 41 | 7 | 15 | 12 | 0 | 34 | 4 | 144 | 148 |
| 20:30 | 1 | 15 | 13 | 0 | 29 | 4 | 14 | 5 | 0 | 23 | 15 | 22 | 12 | 0 | 49 | 12 | 9 | 14 | 0 | 35 | 0 | 136 | 136 |
| 20:45 | 0 | 13 | 18 | 1 | 31 | 4 | 15 | 1 | 1 | 20 | 18 | 19 | 13 | 0 | 50 | 17 | 13 | 12 | 0 | 42 | 2 | 143 | 145 |
| Total | 2 | 65 | 59 | 2 | 126 | 20 | 71 | 13 | 4 | 104 | 55 | 89 | 53 | 1 | 197 | 44 | 51 | 49 | 0 | 144 | 7 | 571 | 578 |
| 21:00 | 2 | 20 | 16 | 0 | 38 | 4 | 17 | 3 | 0 | 24 | 13 | 19 | 16 | 0 | 48 | 15 | 10 | 10 | 0 | 35 | 0 | 145 | 145 |
| 21:15 | 0 | 18 | 12 | 0 | 30 | 7 | 19 | 5 | 0 | 31 | 19 | 21 | 14 | 0 | 54 | 12 | 12 | 13 | 0 | 37 | 0 | 152 | 152 |
| 21:30 | 1 | 21 | 15 | 2 | 37 | 5 | 16 | 7 | 0 | 28 | 16 | 17 | 11 | 1 | 44 | 13 | 15 | 11 | 1 | 39 | 4 | 148 | 152 |
| 21:45 | 0 | 17 | 10 | 0 | 27 | 9 | 22 | 2 | 0 | 33 | 14 | 22 | 9 | 0 | 45 | 10 | 11 | 14 | 0 | 35 | 0 | 140 | 140 |
| Total | 3 | 76 | 53 | 2 | 132 | 25 | 74 | 17 | 0 | 116 | 62 | 79 | 50 | 1 | 191 | 50 | 48 | 48 | 1 | 146 | 4 | 585 | 589 |
| Grand Total | 246 | 154 | 972 | 253 | 2762 | 118 | 226 | 251 | 267 | 3709 | 754 | 163 | 105 | 296 | 3440 | 965 | 204 | 721 | 318 | 3728 | 1134 | 13639 | 14773 |
| Approch % | 8.9 | 55.9 | 35.2 | | | 32.1 | 61.2 | 6.8 | | | 21.9 | 47.4 | 30.7 | | | 25.9 | 54.8 | 19.3 | | | | | |
| Total % | 1.8 | 11.3 | 7.1 | | 20.3 | 8.7 | 16.6 | 1.8 | | 27.2 | 5.5 | 12.0 | 7.7 | | 25.2 | 7.1 | 15.0 | 5.3 | | 27.3 | 7.7 | 92.3 | |

ANOKA COUNTY HIGHWAY DEPARTMENT

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0340

Study Date : 08/14/03

Multi-Way Stop Warrant Report

Major Street Approaches

Eastbound: CSAH 14

Total Approach Volume: 2,763

Approach Speed: 40

Westbound: CSAH 14

Total Approach Volume: 2,520

Approach Speed: 40

Minor Street Approaches

Northbound: CSAH 23

Total Approach Volume: 2,686

Southbound: CSAH 23

Total Approach Volume: 2,516

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

Number of crashes (0) is less than the minimum required (5).

Criteria C - Minimum Volumes and Delays Satisfied

Delay data not evaluated

Required volumes reached for 8 hours, 8 are needed

Criteria D - 80% of Volumes, Delays, and Crashes Not Evaluated

Delay data not evaluated

Required volumes reached for 1 hours, 8 are needed

Analysis of 8-Hour Volume Warrants:

| Time | Major Crit Total | Minor Total | Crit C | | | Crit D | | |
|---------------|---------------------|----------------|------------|------------|--------|------------|------------|--------|
| | | | Major Crit | Minor Crit | Meets? | Major Crit | Minor Crit | Meets? |
| 00:00 - 01:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |
| 01:00 - 02:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |
| 02:00 - 03:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |
| 03:00 - 04:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |
| 04:00 - 05:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |
| 05:00 - 06:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |
| 06:00 - 07:00 | 307 | 409 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 07:00 - 08:00 | 430 | 356 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 08:00 - 09:00 | 289 | 196 | 300-No | 200-No | No | 240-Yes | 160-Yes | Both |
| 09:00 - 10:00 | 313 | 176 | 300-Yes | 200-No | Major | 240-Yes | 160-Yes | Both |
| 10:00 - 11:00 | 344 | 171 | 300-Yes | 200-No | Major | 240-Yes | 160-Yes | Both |
| 11:00 - 12:00 | 337 | 231 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 12:00 - 13:00 | 202 | 270 | 300-No | 200-Yes | Minor | 240-No | 160-Yes | Minor |
| 13:00 - 14:00 | 325 | 237 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 14:00 - 15:00 | 243 | 413 | 300-No | 200-Yes | Minor | 240-Yes | 160-Yes | Both |
| 15:00 - 16:00 | 373 | 481 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 16:00 - 17:00 | 519 | 737 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 17:00 - 18:00 | 480 | 434 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 18:00 - 19:00 | 547 | 288 | 300-Yes | 200-Yes | Both | 240-Yes | 160-Yes | Both |
| 19:00 - 20:00 | 203 | 279 | 300-No | 200-Yes | Minor | 240-No | 160-Yes | Minor |
| 20:00 - 21:00 | 184 | 266 | 300-No | 200-Yes | Minor | 240-No | 160-Yes | Minor |
| 21:00 - 22:00 | 187 | 258 | 300-No | 200-Yes | Minor | 240-No | 160-Yes | Minor |
| 22:00 - 23:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |
| 23:00 - 00:00 | 0 | 0 | 300-No | 200-No | No | 240-No | 160-No | No |

ANOKA COUNTY HIGHWAY DEPARTMENT

PC-WARRANTS

TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0340

Study Date : 08/14/03

Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Eastbound: CSAH 14

Number of Lanes: 2

Approach Speed: 40

Total Approach Volume: 2,763

Westbound: CSAH 14

Number of Lanes: 2

Approach Speed: 40

Total Approach Volume: 2,520

Minor Street Approaches

Northbound: CSAH 23

Number of Lanes: 2

Total Approach Volume: 2,686

Southbound: CSAH 23

Number of Lanes: 2

Total Approach Volume: 2,516

Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes Not Satisfied

Warrant 1A - Minimum Vehicular Volume Not Satisfied

Required volumes reached for 0 hours, 8 are needed

Warrant 1B - Interruption of Continuous Traffic Not Satisfied

Required volumes reached for 0 hours, 8 are needed

Warrant 1 A&B - Combination of Warrants Not Satisfied

Required volumes reached for 0 hours, 8 are needed

Warrant 2 - Four Hour Volumes Not Satisfied

Number of hours (1) volumes exceed minimum < minimum required (4).

Warrant 3 - Peak Hour Satisfied

Warrant 3A - Peak Hour Volumes Not Satisfied

Volumes do not exceed minimums for any hour.

Warrant 3B - Peak Hour Delay Satisfied

Number of hours (11) volumes exceed minimum >= required (1). Delay data not evaluated.

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 DEPARTMENT

PC-WARRANTS

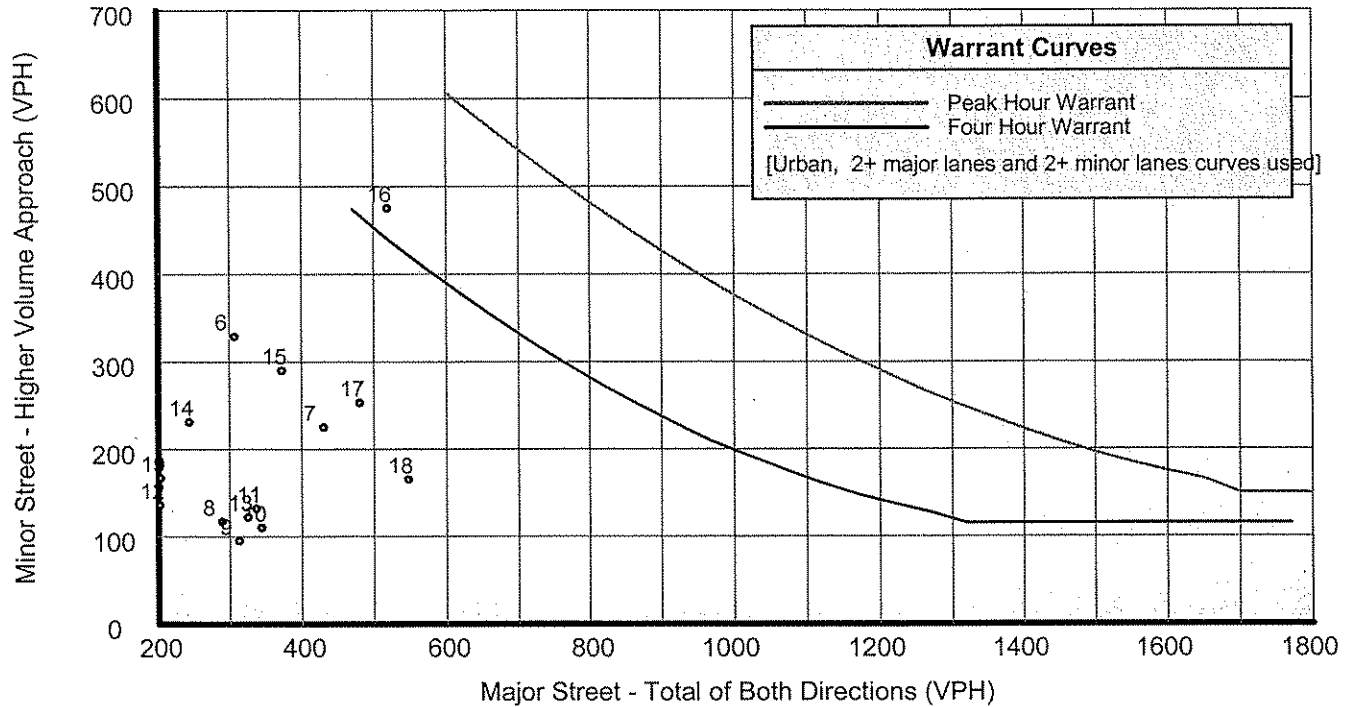
TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0340

Study Date : 08/14/03

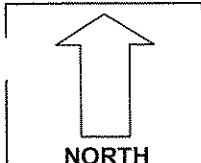
Page No. : 2

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 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 01:00 | 0 | 0 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 02:00 | 0 | 0 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 03:00 | 0 | 0 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 04:00 | 0 | 0 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 05:00 | 0 | 0 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 06:00 | 307 | 329 | SB | 600-No | 200-Yes | Minor | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 07:00 | 430 | 225 | SB | 600-No | 200-Yes | Minor | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 08:00 | 289 | 117 | SB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-No | --- |
| 09:00 | 313 | 95 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 10:00 | 344 | 110 | SB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-No | --- |
| 11:00 | 337 | 132 | NB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-No | --- |
| 12:00 | 202 | 136 | SB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-No | --- |
| 13:00 | 325 | 122 | NB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-No | --- |
| 14:00 | 243 | 231 | NB | 600-No | 200-Yes | Minor | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 15:00 | 373 | 290 | NB | 600-No | 200-Yes | Minor | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 16:00 | 519 | 475 | NB | 600-No | 200-Yes | Minor | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 17:00 | 480 | 253 | NB | 600-No | 200-Yes | Minor | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 18:00 | 547 | 165 | NB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 19:00 | 203 | 167 | NB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-Yes | Minor |
| 20:00 | 184 | 142 | NB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-No | --- |
| 21:00 | 187 | 129 | NB | 600-No | 200-No | --- | 900-No | 100-Yes | Minor | 720-No | 160-No | --- |
| 22:00 | 0 | 0 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |
| 23:00 | 0 | 0 | NB | 600-No | 200-No | --- | 900-No | 100-No | --- | 720-No | 160-No | --- |



COUNT LOCATION:

CSAH 14 (Main St.) @

DATE:

8/13/03

CSAH 23 (Lake Dr.) @

APP. #1 = CSAH 14

APP. #2

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

APP. #2 = CSAH 23 (Lake Dr.)

APP. #1

APP. #3

A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.

APP. #3 = CSAH 14

B. RV- A HEAVY VEHICLE OPERATED BY A PRIVATE MOTORIST AND INVOLVED IN THE TRANSPORT OF RECREATIONAL EQUIPMENT OR FACILITIES.

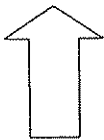
APP. #4=CSAH 23 (Lake Dr.)

APP. #4

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 | | | | | | 8 | | |
| 6:15-6:30 | | | | | | 21 | | |
| 6:30-6:45 | | | | | | 16 | 1 | 1 |
| 6:45-7:00 | | | | | | 20 | 1 | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 68 |
| 7:00-7:15 | | | | | | 17 | 1 | 1 |
| 7:15-7:30 | | | | | | 20 | 1 | |
| 7:30-7:45 | | | | | | 19 | 1 | 1 |
| 7:45-8:00 | | | | | | 19 | 2 | 1 |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 83 |
| 8:00-8:15 | | | | | | 32 | 1 | |
| 8:15-8:30 | | | | | | 22 | 5 | |
| 8:30-8:45 | | | | | | 15 | | 1 |
| 8:45-9:00 | | | | | | 10 | | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 86 |
| 9:00-9:15 | | | | | | 29 | 1 | |
| 9:15-9:30 | | | | | | 25 | 2 | |
| 9:30-9:45 | | | | | | 17 | 1 | |
| 9:45-10:00 | | | | | | 27 | | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 102 |
| 10:00-10:15 | | | | | | 29 | | |
| 10:15-10:30 | | | | | | 14 | 2 | |
| 10:30-10:45 | | | | 1 | 1 | 20 | | |
| 10:45-11:00 | | | | | | 27 | 2 | |
| HOURLY TOTAL | | | | | 1 | HOURLY TOTAL | | 94 |
| 11:00-11:15 | | | 2 | 4 | 6 | 23 | | 1 |
| 11:15-11:30 | | | 2 | 4 | 6 | 32 | 2 | |
| 11:30-11:45 | 3 | | 4 | | 7 | 14 | 4 | 1 |
| 11:45-12:00 | | | 4 | | 4 | 35 | 2 | 1 |
| HOURLY TOTAL | | | | | 23 | HOURLY TOTAL | | 115 |
| 12:00-12:15 | | | | | | 18 | 3 | |
| 12:15-12:30 | | | | | | 4 | | |
| 12:30-12:45 | | | | | | 21 | 1 | |
| 12:45-1:00 | 1 | | 1 | 2 | 4 | 12 | 1 | |
| HOURLY TOTAL | | | | | 4 | HOURLY TOTAL | | 60 |
| 1:00-1:15 | | 3 | | | 3 | 23 | | 1 |
| 1:15-1:30 | 4 | | 4 | | 8 | 21 | 2 | |
| 1:30-1:45 | | | | | | 18 | 2 | |
| 1:45-2:00 | | | | | | 23 | 2 | |
| HOURLY TOTAL | | | | | 11 | HOURLY TOTAL | | 92 |
| | | | | | TOTAL | | TOTAL | |

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NORTH

COUNT LOCATION:

CSAH 14 (Main St.) @

DATE:

8/13/03

CSAH 23 (Lake Dr.) @

APP. #1 = CSAH 14

APP. #2 = CSAH 23 (Lake Dr.)

APP. #3 = CSAH 14

APP. #4 = CSAH 23 (Lake 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 | | | | | | 25 | 2 | |
| 2:15-2:30 | | | | | | 25 | 2 | |
| 2:30-2:45 | | | | | | 22 | 2 | |
| 2:45-3:00 | | | | | | 20 | 5 | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 103 |
| 3:00-3:15 | | | | | | 30 | 1 | |
| 3:15-3:30 | | | 1 | 1 | 2 | 27 | | |
| 3:30-3:45 | | | | | | 11 | 1 | |
| 3:45-4:00 | | | | | | 19 | 1 | |
| HOURLY TOTAL | | | | | 2 | HOURLY TOTAL | | 90 |
| 4:00-4:15 | | | | | | 21 | 2 | 3 |
| 4:15-4:30 | | | | | | 28 | 3 | |
| 4:30-4:45 | | | | | | 22 | 1 | |
| 4:45-5:00 | | | | | | 27 | 3 | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 110 |
| 5:00-5:15 | | | | | | 19 | 3 | |
| 5:15-5:30 | | | | | | 17 | 1 | |
| 5:30-5:45 | | | | | | 13 | 3 | |
| 5:45-6:00 | | | | | | 20 | 3 | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 79 |
| 6:00-6:15 | | | | | | 20 | 1 | 1 |
| 6:15-6:30 | | | | | | 8 | 2 | |
| 6:30-6:45 | | | | | | 11 | 2 | |
| 6:45-7:00 | | | | | | 13 | 1 | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 59 |
| 7:00-7:15 | | | 1 | 1 | 2 | 7 | 2 | |
| 7:15-7:30 | | | | | | 3 | 3 | |
| 7:30-7:45 | 2 | | | | 2 | 4 | 2 | |
| 7:45-8:00 | | | | | | 2 | 1 | |
| HOURLY TOTAL | | | | | 4 | HOURLY TOTAL | | 24 |
| 8:00-8:15 | | | | | | 6 | 1 | |
| 8:15-8:30 | | | 1 | | 1 | 4 | 1 | |
| 8:30-8:45 | | | | | | 3 | | |
| 8:45-9:00 | | | | | | 4 | | |
| HOURLY TOTAL | | | | | 1 | HOURLY TOTAL | | 19 |
| 9:00-9:15 | | | | | | | | |
| 9:15-9:30 | | | | | | 2 | 1 | |
| 9:30-9:45 | | | | | | 4 | | |
| 9:45-10:00 | | | | | | 1 | 2 | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 10 |
| | TOTAL | | | | | | TOTAL | |

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