

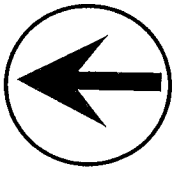
Date : 10/10/13

Count Number : TMC1344

Location : CSAH 52 (Radisson Road)

@ Cloud Drive

Collection Period : 6:00 AM - 7:00 PM



North

9174

#2

CSAH 52

| | | |
|------|---|------|
| 4585 | D | 72 |
| | E | 4051 |
| | F | 462 |

4589

Cloud Drive

| | |
|-----|---|
| 408 | G |
| 179 | H |
| 641 | J |

#3

2624

1396

| | |
|-----|----|
| 963 | #1 |
| 466 | A |
| 186 | B |
| 51 | C |

#1

497

Cloud Drive

| 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 |

| | |
|------|---|
| 748 | K |
| 4130 | L |
| 246 | M |

#4

10045

CSAH 52

4921

Anoka County Highway Department
Traffic Volume and Turning
Movement Study

Date : 10/10/13

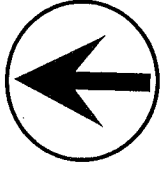
Count Number : TMC1344

Location : CSAH 52 (Radisson Road)

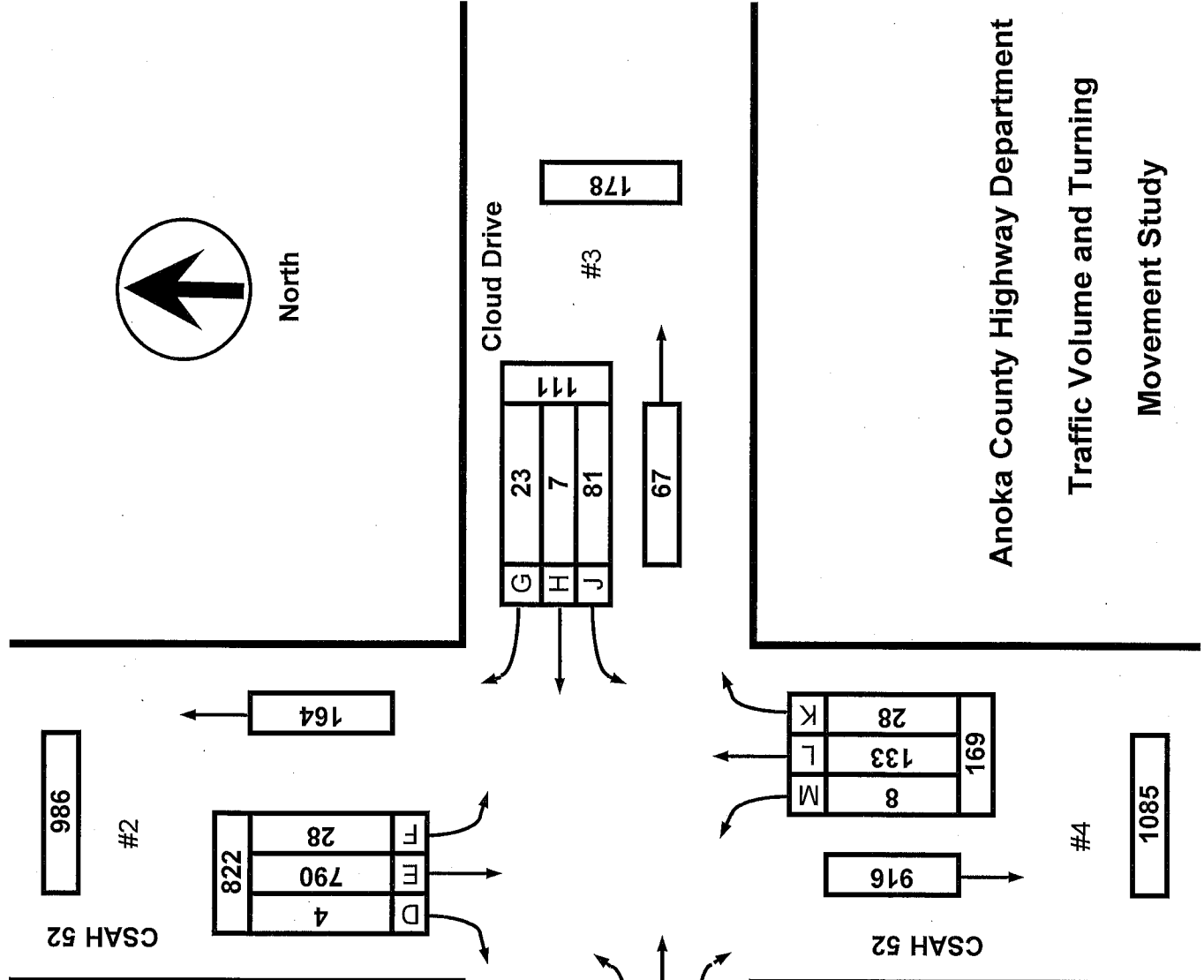
@ Cloud Drive

Collection Period : AM PEAK

Hour : 6:45 AM - 7:45 AM



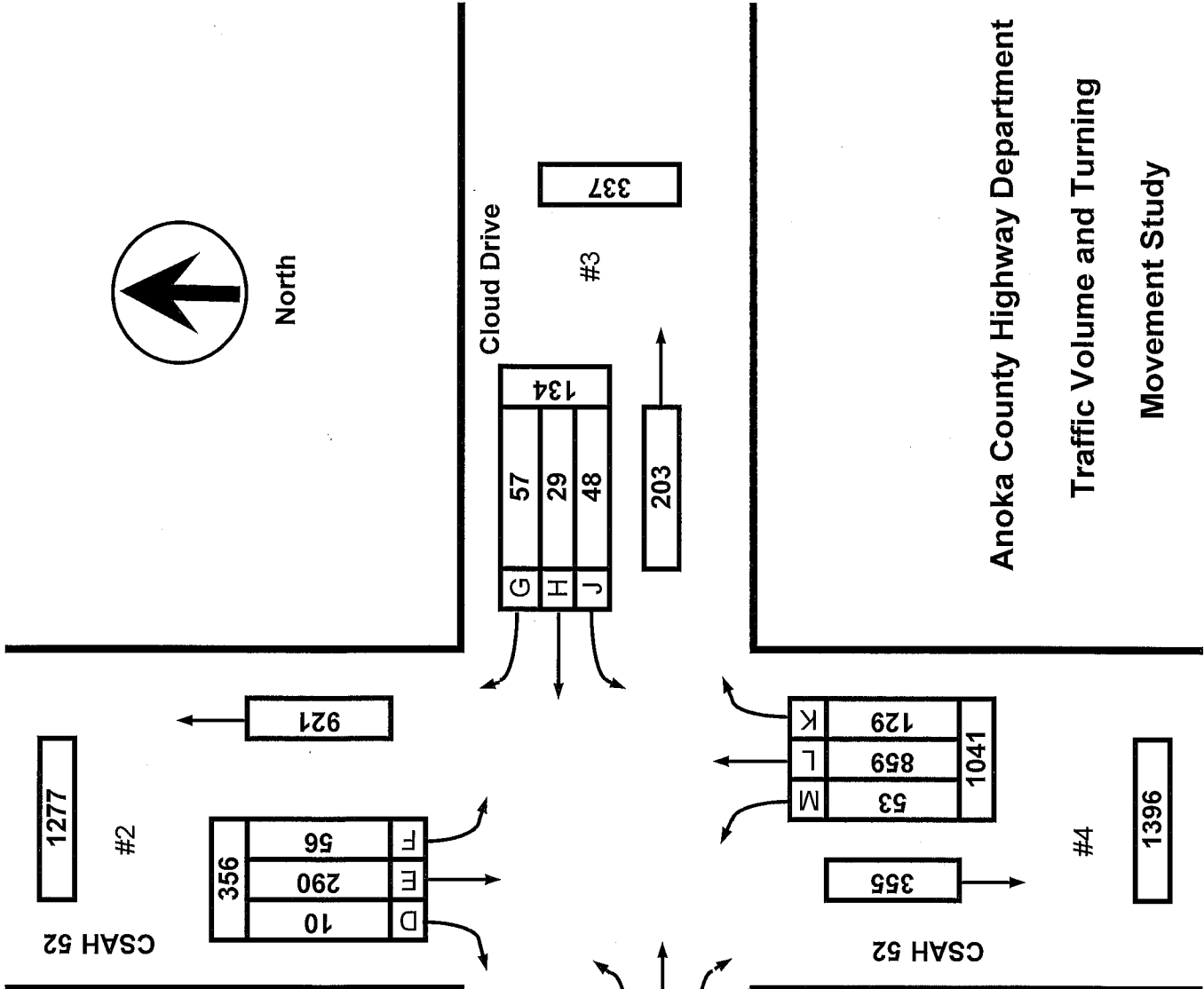
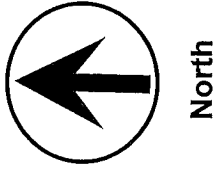
North



| | 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 : 10/23/13
 Count Number : TMC1344
 Location : CSAH 52 (Radisson Road)
 @ Cloud Drive
 Collection Period : PM PEAK
 Hour : 4:45 PM - 5:45 PM



| | 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

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

File Name : TMC 1344
 Site Code : 13440203
 Start Date : 10/23/2013
 Page No : 1

Groups Printed- Unshifted

| Start Time | CSAH 52 Southbound | | | | | Cloud Dr. Westbound | | | | | CSAH 52 Northbound | | | | | Cloud 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 | | | |
| 06:00 | 3 | 135 | 0 | 2 | 138 | 7 | 0 | 0 | 0 | 7 | 1 | 10 | 1 | 0 | 12 | 0 | 1 | 5 | 0 | 6 | 2 | 163 | 165 |
| 06:15 | 6 | 157 | 0 | 1 | 163 | 7 | 1 | 1 | 0 | 9 | 0 | 18 | 2 | 4 | 20 | 0 | 1 | 7 | 0 | 8 | 5 | 200 | 205 |
| 06:30 | 9 | 179 | 2 | 1 | 190 | 12 | 0 | 5 | 0 | 17 | 0 | 25 | 3 | 2 | 28 | 1 | 3 | 9 | 0 | 13 | 3 | 248 | 251 |
| 06:45 | 11 | 230 | 0 | 2 | 241 | 18 | 1 | 5 | 0 | 24 | 3 | 29 | 7 | 2 | 39 | 4 | 1 | 12 | 0 | 17 | 4 | 321 | 325 |
| Total | 29 | 701 | 2 | 6 | 732 | 44 | 2 | 11 | 0 | 57 | 4 | 82 | 13 | 8 | 99 | 5 | 6 | 33 | 0 | 44 | 14 | 932 | 946 |
| 07:00 | 5 | 185 | 2 | 3 | 192 | 21 | 4 | 2 | 1 | 27 | 3 | 28 | 4 | 2 | 35 | 3 | 4 | 12 | 1 | 19 | 7 | 273 | 280 |
| 07:15 | 6 | 166 | 1 | 3 | 173 | 16 | 1 | 9 | 1 | 26 | 1 | 42 | 7 | 2 | 50 | 1 | 3 | 9 | 0 | 13 | 6 | 262 | 268 |
| 07:30 | 6 | 209 | 1 | 5 | 216 | 26 | 1 | 7 | 0 | 34 | 1 | 34 | 10 | 1 | 45 | 0 | 3 | 12 | 1 | 15 | 7 | 310 | 317 |
| 07:45 | 9 | 212 | 2 | 7 | 223 | 17 | 1 | 6 | 1 | 24 | 1 | 32 | 15 | 3 | 48 | 0 | 4 | 8 | 0 | 12 | 11 | 307 | 318 |
| Total | 26 | 772 | 6 | 18 | 804 | 80 | 7 | 24 | 3 | 111 | 6 | 136 | 36 | 8 | 178 | 4 | 14 | 41 | 2 | 59 | 31 | 1152 | 1183 |
| 08:00 | 14 | 128 | 0 | 7 | 142 | 24 | 2 | 7 | 0 | 33 | 2 | 32 | 7 | 3 | 41 | 1 | 4 | 9 | 0 | 14 | 10 | 230 | 240 |
| 08:15 | 5 | 87 | 0 | 4 | 92 | 15 | 4 | 9 | 0 | 28 | 6 | 34 | 13 | 7 | 53 | 0 | 5 | 8 | 1 | 13 | 12 | 186 | 198 |
| 08:30 | 8 | 82 | 1 | 5 | 91 | 6 | 3 | 4 | 1 | 13 | 0 | 29 | 6 | 5 | 35 | 1 | 2 | 7 | 1 | 10 | 12 | 149 | 161 |
| 08:45 | 9 | 77 | 0 | 3 | 86 | 17 | 2 | 5 | 1 | 24 | 3 | 48 | 13 | 4 | 64 | 0 | 3 | 5 | 0 | 8 | 8 | 182 | 190 |
| Total | 36 | 374 | 1 | 19 | 411 | 62 | 11 | 25 | 2 | 98 | 11 | 143 | 39 | 19 | 193 | 2 | 14 | 29 | 2 | 45 | 42 | 747 | 789 |
| 09:00 | 8 | 74 | 0 | 5 | 82 | 24 | 6 | 4 | 0 | 34 | 2 | 38 | 26 | 7 | 66 | 0 | 15 | 2 | 2 | 17 | 14 | 199 | 213 |
| 09:15 | 10 | 62 | 1 | 0 | 73 | 51 | 7 | 6 | 12 | 64 | 4 | 37 | 10 | 3 | 51 | 1 | 4 | 3 | 0 | 8 | 15 | 196 | 211 |
| 09:30 | 3 | 61 | 1 | 0 | 65 | 7 | 2 | 1 | 0 | 10 | 0 | 24 | 5 | 2 | 29 | 0 | 1 | 2 | 0 | 3 | 2 | 107 | 109 |
| 09:45 | 12 | 48 | 1 | 2 | 61 | 10 | 3 | 6 | 0 | 19 | 0 | 27 | 8 | 4 | 35 | 1 | 2 | 2 | 1 | 5 | 7 | 120 | 127 |
| Total | 33 | 245 | 3 | 7 | 281 | 92 | 18 | 17 | 12 | 127 | 6 | 126 | 49 | 16 | 181 | 2 | 22 | 9 | 3 | 33 | 38 | 622 | 660 |
| 10:00 | 7 | 39 | 0 | 2 | 46 | 9 | 0 | 7 | 1 | 16 | 1 | 37 | 2 | 2 | 40 | 1 | 4 | 2 | 0 | 7 | 5 | 109 | 114 |
| 10:15 | 13 | 57 | 1 | 3 | 71 | 8 | 1 | 7 | 1 | 16 | 1 | 40 | 5 | 5 | 46 | 3 | 2 | 3 | 1 | 8 | 10 | 141 | 151 |
| 10:30 | 9 | 51 | 3 | 4 | 63 | 9 | 2 | 6 | 2 | 17 | 3 | 45 | 9 | 3 | 57 | 1 | 4 | 2 | 0 | 7 | 9 | 144 | 153 |
| 10:45 | 5 | 48 | 1 | 1 | 54 | 7 | 1 | 6 | 2 | 14 | 3 | 46 | 5 | 1 | 54 | 0 | 0 | 4 | 0 | 4 | 4 | 126 | 130 |
| Total | 34 | 195 | 5 | 10 | 234 | 33 | 4 | 26 | 6 | 63 | 8 | 168 | 21 | 11 | 197 | 5 | 10 | 11 | 1 | 26 | 28 | 520 | 548 |
| 11:00 | 4 | 44 | 2 | 2 | 50 | 6 | 4 | 2 | 0 | 12 | 2 | 42 | 6 | 0 | 50 | 2 | 2 | 0 | 0 | 4 | 2 | 116 | 118 |
| 11:15 | 11 | 55 | 1 | 3 | 67 | 8 | 3 | 6 | 0 | 17 | 4 | 48 | 9 | 2 | 61 | 2 | 5 | 1 | 1 | 8 | 6 | 153 | 159 |
| 11:30 | 7 | 51 | 3 | 3 | 61 | 9 | 5 | 2 | 1 | 16 | 1 | 46 | 9 | 5 | 56 | 1 | 2 | 2 | 0 | 5 | 9 | 138 | 147 |
| 11:45 | 11 | 52 | 1 | 3 | 64 | 7 | 3 | 9 | 3 | 19 | 1 | 46 | 12 | 8 | 59 | 1 | 2 | 1 | 0 | 4 | 14 | 146 | 160 |
| Total | 33 | 202 | 7 | 11 | 242 | 30 | 15 | 19 | 4 | 64 | 8 | 182 | 36 | 15 | 226 | 6 | 11 | 4 | 1 | 21 | 31 | 553 | 584 |
| 12:00 | 8 | 29 | 1 | 1 | 38 | 15 | 3 | 5 | 5 | 23 | 4 | 42 | 9 | 3 | 55 | 0 | 2 | 2 | 0 | 4 | 9 | 120 | 129 |
| 12:15 | 12 | 48 | 1 | 4 | 61 | 7 | 1 | 7 | 1 | 15 | 3 | 49 | 7 | 3 | 59 | 1 | 2 | 6 | 0 | 9 | 8 | 144 | 152 |
| 12:30 | 8 | 68 | 3 | 5 | 79 | 13 | 2 | 2 | 1 | 17 | 1 | 39 | 11 | 3 | 51 | 1 | 1 | 3 | 0 | 5 | 9 | 152 | 161 |
| 12:45 | 8 | 48 | 3 | 3 | 59 | 9 | 5 | 5 | 1 | 19 | 0 | 39 | 13 | 4 | 52 | 0 | 4 | 0 | 1 | 4 | 9 | 134 | 143 |
| Total | 36 | 193 | 8 | 13 | 237 | 44 | 11 | 19 | 8 | 74 | 8 | 169 | 40 | 13 | 217 | 2 | 9 | 11 | 1 | 22 | 35 | 550 | 585 |
| 13:00 | 11 | 42 | 1 | 2 | 54 | 13 | 1 | 8 | 1 | 22 | 2 | 50 | 14 | 5 | 66 | 2 | 0 | 6 | 1 | 8 | 9 | 150 | 159 |
| 13:15 | 8 | 51 | 1 | 4 | 60 | 10 | 1 | 11 | 1 | 22 | 5 | 48 | 7 | 6 | 60 | 1 | 2 | 5 | 0 | 8 | 11 | 150 | 161 |
| 13:30 | 8 | 36 | 0 | 1 | 44 | 9 | 2 | 5 | 0 | 16 | 8 | 51 | 9 | 2 | 68 | 1 | 0 | 6 | 1 | 7 | 4 | 135 | 139 |
| 13:45 | 2 | 49 | 3 | 4 | 54 | 6 | 1 | 7 | 1 | 14 | 1 | 45 | 10 | 3 | 56 | 1 | 6 | 1 | 0 | 8 | 8 | 132 | 140 |
| Total | 29 | 178 | 5 | 11 | 212 | 38 | 5 | 31 | 3 | 74 | 16 | 194 | 40 | 16 | 250 | 5 | 8 | 18 | 2 | 31 | 32 | 567 | 599 |
| 14:00 | 7 | 49 | 4 | 3 | 60 | 6 | 7 | 4 | 0 | 17 | 4 | 70 | 9 | 6 | 83 | 1 | 2 | 4 | 1 | 7 | 10 | 167 | 177 |
| 14:15 | 5 | 58 | 1 | 1 | 64 | 8 | 1 | 4 | 0 | 13 | 0 | 83 | 10 | 1 | 93 | 1 | 3 | 3 | 1 | 7 | 3 | 177 | 180 |
| 14:30 | 9 | 44 | 0 | 0 | 53 | 4 | 5 | 6 | 0 | 15 | 6 | 86 | 5 | 4 | 97 | 2 | 2 | 3 | 0 | 7 | 4 | 172 | 176 |
| 14:45 | 11 | 50 | 0 | 2 | 61 | 3 | 2 | 9 | 2 | 14 | 5 | 86 | 12 | 3 | 103 | 2 | 4 | 1 | 1 | 7 | 8 | 185 | 193 |
| Total | 32 | 201 | 5 | 6 | 238 | 21 | 15 | 23 | 2 | 59 | 15 | 325 | 36 | 14 | 376 | 6 | 11 | 11 | 3 | 28 | 25 | 701 | 726 |
| 15:00 | 5 | 45 | 1 | 3 | 51 | 5 | 5 | 10 | 1 | 20 | 7 | 81 | 21 | 3 | 109 | 0 | 1 | 2 | 0 | 3 | 7 | 183 | 190 |
| 15:15 | 11 | 45 | 0 | 1 | 56 | 8 | 5 | 13 | 2 | 26 | 6 | 142 | 22 | 8 | 170 | 3 | 6 | 3 | 2 | 12 | 13 | 264 | 277 |
| 15:30 | 7 | 49 | 1 | 3 | 57 | 9 | 4 | 14 | 0 | 27 | 11 | 159 | 30 | 8 | 200 | 0 | 10 | 1 | 1 | 11 | 12 | 295 | 307 |
| 15:45 | 8 | 43 | 2 | 3 | 53 | 8 | 4 | 8 | 1 | 20 | 7 | 151 | 36 | 6 | 194 | 1 | 10 | 5 | 2 | 16 | 12 | 283 | 295 |
| Total | 31 | 182 | 4 | 10 | 217 | 30 | 18 | 45 | 4 | 93 | 31 | 533 | 109 | 25 | 673 | 4 | 27 | 11 | 5 | 42 | 44 | 1025 | 1069 |
| 16:00 | 7 | 54 | 1 | 0 | 62 | 30 | 16 | 24 | 7 | 70 | 10 | 186 | 23 | 2 | 219 | 1 | 5 | 5 | 0 | 11 | 9 | 362 | 371 |
| 16:15 | 11 | 69 | 3 | 0 | 83 | 17 | 7 | 12 | 0 | 36 | 12 | 189 | 19 | 4 | 220 | 0 | 7 | 1 | 1 | 8 | 5 | 347 | 352 |
| 16:30 | 14 | 54 | 2 | 1 | 70 | 7 | 1 | 16 | 1 | 24 | 12 | 220 | 25 | 4 | 257 | 0 | 2 | 3 | 1 | 5 | 7 | 356 | 363 |
| 16:45 | 10 | 71 | 4 | 1 | 85 | 13 | 5 | 8 | 0 | 26 | 13 | 226 | 29 | 4 | 268 | 2 | 7 | 3 | 1 | 12 | 6 | 391 | 397 |
| Total | 42 | 248 | 10 | 2 | 300 | 67 | 29 | 60 | 8 | 156 | 47 | 821 | 96 | 14 | 964 | 3 | 21 | 12 | 3 | 36 | 27 | 1456 | 1483 |
| 17:00 | 9 | 85 | 0 | 2 | 94 | 10 | 10 | 17 | 0 | 37 | 13 | 235 | 41 | 2 | 289 | 0 | 1 | 4 | 0 | 5 | 4 | 425 | 429 |
| 17:15 | 15 | 66 | 4 | 1 | 85 | 17 | 4 | 15 | 1 | 36 | 11 | 210 | 23 | 1 | 244 | 1 | 5 | 8 | 0 | 14 | 3 | 379 | 382 |
| 17:30 | 22 | 68 | 2 | 2 | 92 | 8 | 10 | 17 | 0 | 35 | 16 | 188 | 36 | 3 | 240 | 2 | 5 | 2 | 1 | 9 | 6 | 376 | 382 |
| 17:45 | 15 | 77 | 3 | 1 | 95 | 17 | 3 | 11 | 0 | 31 | 11 | 168 | 34 | 2 | 213 | 2 | 6 | 5 | 0 | 13 | 3 | 352 | 355 |
| Total | 61 | 296 | 9 | 6 | 366 | 52 | 27 | 60 | 1 | 139 | 51 | 801 | 134 | 8 | 986 | 5 | 17 | 19 | 1 | 41 | 16 | 1532 | 1548 |



Anoka County Highway Department

Traffic Engineering Section

Traffic Volume and Turning Movement Study

Weather: Cool and Cloudy

Counter: DB-400

study conducted by: Josie/Terri

File Name : TMC 1344

Site Code : 13440203

Start Date : 10/23/2013

Page No : 2

Groups Printed- Unshifted

| Start Time | CSAH 52 Southbound | | | | | Cloud Dr. Westbound | | | | | CSAH 52 Northbound | | | | | Cloud 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 | 15 | 68 | 2 | 0 | 85 | 12 | 3 | 11 | 0 | 26 | 10 | 153 | 26 | 0 | 189 | 1 | 3 | 4 | 0 | 8 | 0 | 308 | 308 |
| 18:15 | 8 | 73 | 2 | 1 | 83 | 12 | 5 | 13 | 0 | 30 | 10 | 124 | 23 | 0 | 157 | 1 | 8 | 6 | 0 | 15 | 1 | 285 | 286 |
| 18:30 | 12 | 74 | 0 | 1 | 86 | 11 | 4 | 10 | 0 | 25 | 9 | 86 | 25 | 2 | 120 | 0 | 2 | 5 | 0 | 7 | 3 | 238 | 241 |
| 18:45 | 5 | 49 | 3 | 0 | 57 | 13 | 5 | 14 | 0 | 32 | 6 | 87 | 25 | 0 | 118 | 0 | 3 | 5 | 0 | 8 | 0 | 215 | 215 |
| Total | 40 | 264 | 7 | 2 | 311 | 48 | 17 | 48 | 0 | 113 | 35 | 450 | 99 | 2 | 584 | 2 | 16 | 20 | 0 | 38 | 4 | 1046 | 1050 |
| Grand Total | 462 | 4051 | 72 | 121 | 4585 | 641 | 179 | 408 | 53 | 1228 | 246 | 4130 | 748 | 169 | 5124 | 51 | 186 | 229 | 24 | 466 | 367 | 11403 | 11770 |
| Apprch % | 10.1 | 88.4 | 1.6 | | | 52.2 | 14.6 | 33.2 | | | 4.8 | 80.6 | 14.6 | | | 10.9 | 39.9 | 49.1 | | | | | |
| Total % | 4.1 | 35.5 | 0.6 | | 40.2 | 5.6 | 1.6 | 3.6 | | 10.8 | 2.2 | 36.2 | 6.6 | | 44.9 | 0.4 | 1.6 | 2 | | 4.1 | 3.1 | 96.9 | |

| Start Time | CSAH 52 Southbound | | | | Cloud Dr. Westbound | | | | CSAH 52 Northbound | | | | Cloud 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 06:45 | | | | | | | | | | | | | | | | | |
| 06:45 | 11 | 230 | 0 | 241 | 18 | 1 | 5 | 24 | 3 | 29 | 7 | 39 | 4 | 1 | 12 | 17 | 321 |
| 07:00 | 5 | 185 | 2 | 192 | 21 | 4 | 2 | 27 | 3 | 28 | 4 | 35 | 3 | 4 | 12 | 19 | 273 |
| 07:15 | 6 | 166 | 1 | 173 | 16 | 1 | 9 | 26 | 1 | 42 | 7 | 50 | 1 | 3 | 9 | 13 | 262 |
| 07:30 | 6 | 209 | 1 | 216 | 26 | 1 | 7 | 34 | 1 | 34 | 10 | 45 | 0 | 3 | 12 | 15 | 310 |
| Total Volume | 28 | 790 | 4 | 822 | 81 | 7 | 23 | 111 | 8 | 133 | 28 | 169 | 8 | 11 | 45 | 64 | 1166 |
| % App. Total | 3.4 | 96.1 | 0.5 | | 73 | 6.3 | 20.7 | | 4.7 | 78.7 | 16.6 | | 12.5 | 17.2 | 70.3 | | |
| PHF | .636 | .859 | .500 | .853 | .779 | .438 | .639 | .816 | .667 | .792 | .700 | .845 | .500 | .688 | .938 | .842 | .908 |

| Start Time | CSAH 52 Southbound | | | | Cloud Dr. Westbound | | | | CSAH 52 Northbound | | | | Cloud 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 18:45 - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 16:45 | | | | | | | | | | | | | | | | | |
| 16:45 | 10 | 71 | 4 | 85 | 13 | 5 | 8 | 26 | 13 | 226 | 29 | 268 | 2 | 7 | 3 | 12 | 391 |
| 17:00 | 9 | 85 | 0 | 94 | 10 | 10 | 17 | 37 | 13 | 235 | 41 | 289 | 0 | 1 | 4 | 5 | 425 |
| 17:15 | 15 | 66 | 4 | 85 | 17 | 4 | 15 | 36 | 11 | 210 | 23 | 244 | 1 | 5 | 8 | 14 | 379 |
| 17:30 | 22 | 68 | 2 | 92 | 8 | 10 | 17 | 35 | 16 | 188 | 36 | 240 | 2 | 5 | 2 | 9 | 376 |
| Total Volume | 56 | 290 | 10 | 356 | 48 | 29 | 57 | 134 | 53 | 859 | 129 | 1041 | 5 | 18 | 17 | 40 | 1571 |
| % App. Total | 15.7 | 81.5 | 2.8 | | 35.8 | 21.6 | 42.5 | | 5.1 | 82.5 | 12.4 | | 12.5 | 45 | 42.5 | | |
| PHF | .636 | .853 | .625 | .947 | .706 | .725 | .838 | .905 | .828 | .914 | .787 | .901 | .625 | .643 | .531 | .714 | .924 |



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

Study Name : TMC 1344
Study Date : 10/31/13
Page No. : 1

Signal Warrants - Summary

Major Street Approaches

Northbound: CSAH 52
Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: **5,124**

Southbound: CSAH 52
Number of Lanes: 2
85% Speed > 40 MPH.
Total Approach Volume: **4,585**

Minor Street Approaches

Eastbound: Cloud Dr.
Number of Lanes: 1

Total Approach Volume: **466**

Westbound: Cloud Dr.
Number of Lanes: 1

Total Approach Volume: **1,228**

Warrant Summary (Rural values apply.)

- Warrant 1 - Eight Hour Vehicular Volumes** **Not Satisfied**
 - Warrant 1A - Minimum Vehicular Volume** **Not Satisfied**
Required volumes reached for 5 hours, 8 are needed
 - Warrant 1B - Interruption of Continuous Traffic** **Not Satisfied**
Required volumes reached for 6 hours, 8 are needed
 - Warrant 1 A&B - Combination of Warrants** **Not Satisfied**
Required volumes reached for 7 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 (16) 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**

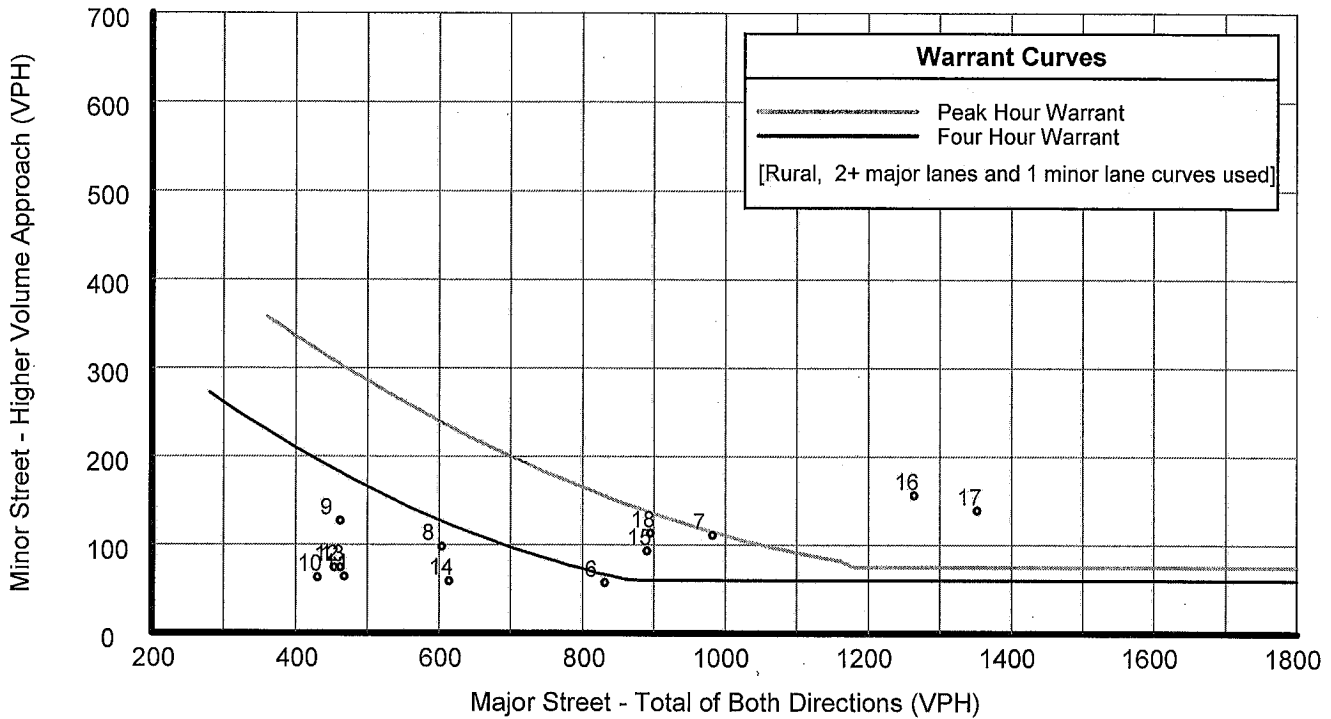
- Warrant 9 - Intersection Near a Grade Crossing** **Not Evaluated**



ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC 1344
Study Date : 10/31/13
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 | Maj Dir | Min 420 | Min 105 | Hour Begin | Major Total | Minor Vol | Maj Dir | Min 630 | Min 53 | Hour Begin | Major Total | Minor Vol | Maj Dir | Min 504 | Min 84 |
|------------|-------------|-----------|---------|---------|---------|------------|-------------|-----------|---------|---------|--------|------------|-------------|-----------|---------|---------|--------|
| 16:15 | 1,366 | 123 | W | Yes | Yes | 16:15 | 1,366 | 123 | W | Yes | Yes | 16:45 | 1,397 | 134 | W | Yes | Yes |
| 17:15 | 1,243 | 128 | W | Yes | Yes | 17:15 | 1,243 | 128 | W | Yes | Yes | 15:45 | 1,158 | 150 | W | Yes | Yes |
| 15:15 | 1,011 | 143 | W | Yes | Yes | 15:15 | 1,011 | 143 | W | Yes | Yes | 17:45 | 1,028 | 112 | W | Yes | Yes |
| 06:45 | 991 | 111 | W | Yes | Yes | 07:00 | 982 | 111 | W | Yes | Yes | 06:30 | 948 | 94 | W | Yes | Yes |
| 08:30 | 548 | 135 | W | Yes | Yes | 06:00 | 831 | 57 | W | Yes | Yes | 07:30 | 860 | 119 | W | Yes | Yes |
| 06:30 | 948 | 94 | W | Yes | No | 14:15 | 631 | 62 | W | Yes | Yes | 14:45 | 807 | 87 | W | Yes | Yes |
| 06:15 | 908 | 77 | W | Yes | No | 18:15 | 621 | 87 | W | No | Yes | 08:30 | 548 | 135 | W | Yes | Yes |
| 15:00 | 890 | 93 | W | Yes | No | 14:00 | 614 | 59 | W | No | Yes | 06:15 | 908 | 77 | W | Yes | No |
| 06:00 | 831 | 57 | W | Yes | No | 08:00 | 604 | 98 | W | No | Yes | 06:00 | 831 | 57 | W | Yes | No |
| 14:45 | 807 | 87 | W | Yes | No | 08:15 | 569 | 99 | W | No | Yes | 14:30 | 700 | 75 | W | Yes | No |
| 07:45 | 725 | 98 | W | Yes | No | 13:45 | 560 | 59 | W | No | Yes | 14:15 | 631 | 62 | W | Yes | No |
| 14:30 | 700 | 75 | W | Yes | No | 05:45 | 551 | 33 | W | No | No | 14:00 | 614 | 59 | W | Yes | No |
| 14:15 | 631 | 62 | W | Yes | No | 08:30 | 548 | 135 | W | No | Yes | 13:45 | 560 | 59 | W | Yes | No |
| 18:15 | 621 | 87 | W | Yes | No | 13:30 | 522 | 60 | W | No | Yes | 05:45 | 551 | 33 | W | Yes | No |
| 14:00 | 614 | 59 | W | Yes | No | 08:45 | 516 | 132 | W | No | Yes | 13:30 | 522 | 60 | W | Yes | No |
| 08:00 | 604 | 98 | W | Yes | No | 13:15 | 485 | 69 | W | No | Yes | 13:15 | 485 | 69 | W | No | No |
| 08:15 | 569 | 99 | W | Yes | No | 12:30 | 481 | 80 | W | No | Yes | 12:30 | 481 | 80 | W | No | No |
| 13:45 | 560 | 59 | W | Yes | No | 12:15 | 481 | 73 | W | No | Yes | 12:15 | 481 | 73 | W | No | No |
| 05:45 | 551 | 33 | W | Yes | No | 11:00 | 468 | 64 | W | No | Yes | 11:00 | 468 | 64 | W | No | No |
| 13:30 | 522 | 60 | W | Yes | No | 11:45 | 466 | 74 | W | No | Yes | 11:45 | 466 | 74 | W | No | No |
| 13:15 | 485 | 69 | W | Yes | No | 12:45 | 463 | 79 | W | No | Yes | 12:45 | 463 | 79 | W | No | No |
| 12:30 | 481 | 80 | W | Yes | No | 13:00 | 462 | 74 | W | No | Yes | 13:00 | 462 | 74 | W | No | No |
| 12:15 | 481 | 73 | W | Yes | No | 09:00 | 462 | 127 | W | No | Yes | 11:15 | 461 | 75 | W | No | No |
| 11:00 | 468 | 64 | W | Yes | No | 11:15 | 461 | 75 | W | No | Yes | 10:30 | 456 | 60 | W | No | No |



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

Study Name : TMC 1344
Study Date : 10/31/13
Page No. : 1

Multi-Way Stop Warrant Report

Major Street Approaches

Northbound: CSAH 52

Total Approach Volume: 5,124
85% Speed > 40 MPH.

Southbound: CSAH 52

Total Approach Volume: 4,585
85% Speed > 40 MPH.

Minor Street Approaches

Eastbound: Cloud Dr.

Total Approach Volume: 466

Westbound: Cloud Dr.

Total Approach Volume: 1,228

Warrant Summary

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

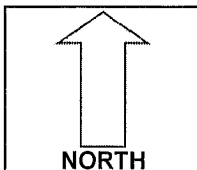
Criteria B - Crash Experience Not Evaluated

Criteria C - Minimum Volumes and Delays Not Satisfied
Delay data not evaluated
Required volumes reached for 6 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? |
| 06:30 - 07:30 | 948 | 156 | 210-Yes | 140-Yes | Both | 240-Yes | 160-No | Major |
| 07:30 - 08:30 | 860 | 173 | 210-Yes | 140-Yes | Both | 240-Yes | 160-Yes | Both |
| 08:30 - 09:30 | 548 | 178 | 210-Yes | 140-Yes | Both | 240-Yes | 160-Yes | Both |
| 15:15 - 16:15 | 1,011 | 193 | 210-Yes | 140-Yes | Both | 240-Yes | 160-Yes | Both |
| 16:15 - 17:15 | 1,366 | 153 | 210-Yes | 140-Yes | Both | 240-Yes | 160-No | Major |
| 17:15 - 18:15 | 1,243 | 172 | 210-Yes | 140-Yes | Both | 240-Yes | 160-Yes | Both |
| 05:30 - 06:30 | 333 | 30 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 05:45 - 06:45 | 551 | 60 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 06:00 - 07:00 | 831 | 101 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 06:15 - 07:15 | 908 | 134 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 09:30 - 10:30 | 393 | 84 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 09:45 - 10:45 | 419 | 95 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 10:00 - 11:00 | 431 | 89 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 10:15 - 11:15 | 445 | 82 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 10:30 - 11:30 | 456 | 83 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 10:45 - 11:45 | 453 | 80 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 11:00 - 12:00 | 468 | 85 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 11:15 - 12:15 | 461 | 96 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 11:30 - 12:30 | 453 | 95 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 11:45 - 12:45 | 466 | 96 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 12:00 - 13:00 | 454 | 96 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 12:15 - 13:15 | 481 | 99 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 12:30 - 13:30 | 481 | 105 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |
| 12:45 - 13:45 | 463 | 106 | 210-Yes | 140-No | Major | 240-Yes | 160-No | Major |



COUNT LOCATION:

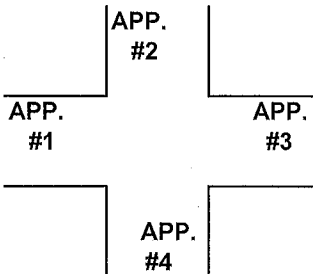
CSAH 52 (Radisson Road)

DATE:

10/10/2013

@ Cloud Drive

| |
|---------------------|
| APP. #1 = Cloud Dr. |
| APP. #2 = CSAH 52 |
| APP. #3 = Cloud Dr. |
| APP. #4 = CSAH 52 |



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

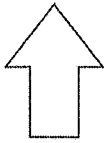
A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.

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 | | | | | | 4 | | |
| 6:15-6:30 | | | | | | 3 | | 1 |
| 6:30-6:45 | | | | | | 2 | | 1 |
| 6:45-7:00 | | | | | | 2 | | 1 |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 14 |
| 7:00-7:15 | | | | | | 3 | | 3 |
| 7:15-7:30 | | | | | | 5 | | 1 |
| 7:30-7:45 | | | | | | 7 | | 1 |
| 7:45-8:00 | | | | | | 9 | | 1 |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 30 |
| 8:00-8:15 | | | | | | 4 | | 6 |
| 8:15-8:30 | | | | | | 11 | | |
| 8:30-8:45 | | | | | | 4 | | 4 |
| 8:45-9:00 | | | | | | 10 | | 2 |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 41 |
| 9:00-9:15 | | | | | | 6 | | 9 |
| 9:15-9:30 | | | | | | 3 | | 12 |
| 9:30-9:45 | | | | | | 2 | | |
| 9:45-10:00 | | | | | | 6 | | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 38 |
| 10:00-10:15 | | | | | | 5 | | |
| 10:15-10:30 | | | | | | 10 | | |
| 10:30-10:45 | | | | | | 9 | | |
| 10:45-11:00 | | | | | | 4 | | |
| HOURLY TOTAL | | | | | | HOURLY TOTAL | | 28 |
| 11:00-11:15 | | | | | | 2 | | |
| 11:15-11:30 | | | | | | 5 | | 1 |
| 11:30-11:45 | | 1 | | | 1 | 7 | | 2 |
| 11:45-12:00 | | | | | | 12 | | 2 |
| HOURLY TOTAL | | | | | 1 | HOURLY TOTAL | | 31 |
| 12:00-12:15 | | | | | | 6 | | 3 |
| 12:15-12:30 | | | | | | 8 | | |
| 12:30-12:45 | | | | | | 8 | | 1 |
| 12:45-1:00 | 1 | | | | 1 | 8 | | 1 |
| HOURLY TOTAL | | | | | 1 | HOURLY TOTAL | | 35 |
| 1:00-1:15 | | | | | | 8 | | 1 |
| 1:15-1:30 | | | | | | 11 | | |
| 1:30-1:45 | | | | | | 4 | | |
| 1:45-2:00 | 1 | | | | 1 | 6 | | |
| HOURLY TOTAL | | | | | 1 | HOURLY TOTAL | | 30 |
| TOTAL | | | | | 3 | TOTAL | | 247 |

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NORTH

| |
|---------------------|
| APP. #1 = Cloud Dr. |
| APP. #2 = CSAH 52 |
| APP. #3 = Cloud Dr. |
| APP. #4 = CSAH 52 |

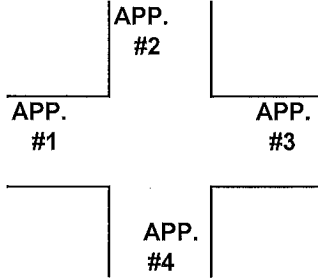
COUNT LOCATION:

CSAH 52 (Radisson Road)

DATE:

10/23/2013

@ Cloud Drive



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 | | | | | | 10 | | 1 |
| 2:15-2:30 | | | | | | 2 | | 1 |
| 2:30-2:45 | 1 | | | | 1 | 4 | | |
| 2:45-3:00 | | | | 2 | 2 | 7 | | 1 |
| HOURLY TOTAL | | | | | | 3 | HOURLY TOTAL | 26 |
| 3:00-3:15 | | | | | | 5 | | 2 |
| 3:15-3:30 | | | | | | 8 | | 5 |
| 3:30-3:45 | | | | | | 8 | | 3 |
| 3:45-4:00 | | | | | | 5 | | 8 |
| HOURLY TOTAL | | | | | | | HOURLY TOTAL | 44 |
| 4:00-4:15 | | | | | | 2 | | 7 |
| 4:15-4:30 | | | | 2 | 2 | 5 | | |
| 4:30-4:45 | | 2 | | | 2 | 5 | | 2 |
| 4:45-5:00 | | | | | | 4 | | 2 |
| HOURLY TOTAL | | | | | | 4 | HOURLY TOTAL | 27 |
| 5:00-5:15 | | | | | | 4 | | |
| 5:15-5:30 | | | | | | 3 | | |
| 5:30-5:45 | | | | | | 6 | | |
| 5:45-6:00 | | | | | | 3 | | |
| HOURLY TOTAL | | | | | | | HOURLY TOTAL | 16 |
| 6:00-6:15 | | | | | | | | |
| 6:15-6:30 | | | | | | 1 | | |
| 6:30-6:45 | | | | | | 3 | | |
| 6:45-7:00 | | | | | | | | |
| HOURLY TOTAL | | | | | | | HOURLY TOTAL | 4 |
| | | | | | TOTAL | 10 | | |
| | | | | | | | TOTAL | 364 |

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