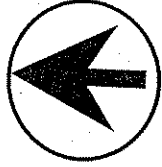


Date : 07/12/05

Count Number : TMC0520

Location : CSAH 78 (Hanson Blvd.)  
 @ CSAH 116 (Bunker LK. Blvd.)



North

CSAH 78

16412

#2

|      |   |    |
|------|---|----|
| 7858 |   |    |
| 1829 | D | TT |
| 5166 |   |    |
| 863  |   |    |

8554

CSAH 116

15666

#1

|      |   |  |
|------|---|--|
| 8044 |   |  |
| 7622 |   |  |
| 2236 | C |  |
| 4072 | B |  |
| 1314 | A |  |

CSAH 116

|      |   |  |
|------|---|--|
| 820  | G |  |
| 4643 | H |  |
| 2022 | J |  |
| 7485 |   |  |

#3

14059

6574

CSAH 78

8502

#4

|      |   |  |
|------|---|--|
| 1572 | M |  |
| 5498 | L |  |
| 1639 | K |  |
| 8709 |   |  |

17211

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

Anoka County Highway Department  
 Traffic Volume and Turning  
 Movement Study

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

File Name : TMC0520  
 Site Code : 05200102  
 Start Date : 07/12/2005  
 Page No : 1

Weather: Sunny and Clear  
 Counter: TDC-8  
 Counted by: Danielle/Samantha

Groups Printed- 1 - Unshifted

| Start Time | CSAH 78 Southbound |      |       |       |            | CSAH 116 Westbound |      |       |       |            | CSAH 78 Northbound |      |       |       |            | CSAH 116 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      | 3                  | 1    | 4     | 0     | 8          | 1                  | 2    | 1     | 0     | 4          | 2                  | 8    | 2     | 0     | 12         | 1                  | 3    | 1     | 0     | 5          | 0            | 29           | 29         |
| 06:15      | 2                  | 8    | 2     | 0     | 12         | 2                  | 8    | 2     | 0     | 12         | 2                  | 7    | 2     | 0     | 11         | 2                  | 5    | 2     | 0     | 9          | 0            | 44           | 44         |
| 06:30      | 2                  | 6    | 2     | 0     | 10         | 2                  | 10   | 2     | 0     | 14         | 2                  | 7    | 2     | 0     | 11         | 2                  | 8    | 3     | 0     | 13         | 0            | 48           | 48         |
| 06:45      | 10                 | 164  | 8     | 1     | 182        | 40                 | 43   | 9     | 3     | 92         | 14                 | 40   | 15    | 0     | 69         | 13                 | 39   | 22    | 9     | 74         | 13           | 417          | 430        |
| Total      | 17                 | 179  | 16    | 1     | 212        | 45                 | 63   | 14    | 3     | 122        | 20                 | 62   | 21    | 0     | 103        | 18                 | 55   | 28    | 9     | 101        | 13           | 538          | 551        |
| 07:00      | 14                 | 190  | 25    | 4     | 229        | 52                 | 57   | 10    | 7     | 119        | 15                 | 36   | 23    | 5     | 74         | 19                 | 54   | 34    | 3     | 107        | 19           | 529          | 548        |
| 07:15      | 25                 | 173  | 20    | 8     | 218        | 45                 | 85   | 17    | 10    | 147        | 14                 | 76   | 14    | 10    | 104        | 22                 | 72   | 34    | 5     | 128        | 33           | 597          | 630        |
| 07:30      | 21                 | 172  | 29    | 13    | 222        | 56                 | 88   | 3     | 8     | 147        | 9                  | 63   | 20    | 5     | 92         | 15                 | 59   | 25    | 10    | 99         | 36           | 560          | 596        |
| 07:45      | 11                 | 118  | 23    | 3     | 152        | 50                 | 58   | 8     | 3     | 116        | 12                 | 55   | 16    | 4     | 83         | 12                 | 54   | 27    | 8     | 93         | 18           | 444          | 462        |
| Total      | 71                 | 653  | 97    | 28    | 821        | 203                | 288  | 38    | 28    | 529        | 50                 | 230  | 73    | 24    | 353        | 68                 | 239  | 120   | 26    | 427        | 106          | 2130         | 2236       |
| 08:00      | 11                 | 115  | 17    | 2     | 143        | 47                 | 40   | 7     | 5     | 94         | 16                 | 68   | 16    | 4     | 100        | 23                 | 40   | 16    | 4     | 79         | 15           | 416          | 431        |
| 08:15      | 16                 | 127  | 24    | 7     | 167        | 55                 | 55   | 16    | 7     | 126        | 10                 | 67   | 18    | 6     | 95         | 34                 | 44   | 22    | 13    | 100        | 33           | 488          | 521        |
| 08:30      | 11                 | 139  | 31    | 27    | 181        | 25                 | 76   | 16    | 3     | 117        | 16                 | 78   | 18    | 7     | 112        | 25                 | 39   | 14    | 7     | 78         | 44           | 488          | 532        |
| 08:45      | 13                 | 106  | 25    | 21    | 144        | 40                 | 63   | 8     | 3     | 111        | 15                 | 56   | 17    | 5     | 88         | 20                 | 53   | 18    | 3     | 91         | 32           | 434          | 466        |
| Total      | 51                 | 487  | 97    | 57    | 635        | 167                | 234  | 47    | 18    | 448        | 57                 | 269  | 69    | 22    | 395        | 102                | 176  | 70    | 27    | 348        | 124          | 1826         | 1950       |
| 09:00      | 8                  | 83   | 11    | 2     | 102        | 39                 | 51   | 12    | 7     | 102        | 25                 | 48   | 15    | 12    | 88         | 13                 | 41   | 18    | 10    | 72         | 31           | 364          | 395        |
| 09:15      | 16                 | 107  | 27    | 7     | 150        | 34                 | 56   | 14    | 8     | 104        | 16                 | 44   | 18    | 3     | 78         | 24                 | 44   | 23    | 4     | 91         | 22           | 423          | 445        |
| 09:30      | 12                 | 101  | 13    | 6     | 126        | 33                 | 73   | 8     | 5     | 114        | 23                 | 48   | 8     | 6     | 79         | 13                 | 49   | 21    | 5     | 83         | 22           | 402          | 424        |
| 09:45      | 5                  | 87   | 22    | 5     | 114        | 28                 | 52   | 1     | 3     | 81         | 13                 | 63   | 23    | 4     | 99         | 19                 | 50   | 15    | 5     | 84         | 17           | 378          | 395        |
| Total      | 41                 | 378  | 73    | 20    | 492        | 134                | 232  | 35    | 23    | 401        | 77                 | 203  | 64    | 25    | 344        | 69                 | 184  | 77    | 24    | 330        | 92           | 1567         | 1659       |
| 10:00      | 22                 | 91   | 36    | 8     | 149        | 25                 | 62   | 4     | 3     | 91         | 13                 | 53   | 20    | 4     | 86         | 21                 | 45   | 21    | 4     | 87         | 19           | 413          | 432        |
| 10:15      | 16                 | 92   | 34    | 6     | 142        | 26                 | 57   | 16    | 7     | 99         | 23                 | 47   | 21    | 3     | 91         | 26                 | 51   | 40    | 15    | 117        | 31           | 449          | 480        |
| 10:30      | 12                 | 88   | 34    | 7     | 134        | 18                 | 70   | 14    | 7     | 102        | 12                 | 62   | 14    | 2     | 88         | 37                 | 44   | 19    | 12    | 100        | 28           | 424          | 452        |
| 10:45      | 23                 | 85   | 30    | 19    | 138        | 26                 | 51   | 14    | 5     | 91         | 25                 | 57   | 27    | 8     | 109        | 22                 | 61   | 17    | 5     | 100        | 37           | 438          | 475        |
| Total      | 73                 | 356  | 134   | 40    | 563        | 95                 | 240  | 48    | 22    | 383        | 73                 | 219  | 82    | 17    | 374        | 106                | 201  | 97    | 36    | 404        | 115          | 1724         | 1839       |
| 11:00      | 12                 | 87   | 25    | 4     | 124        | 16                 | 36   | 15    | 2     | 67         | 31                 | 68   | 26    | 9     | 125        | 31                 | 65   | 24    | 3     | 120        | 18           | 436          | 454        |
| 11:15      | 16                 | 75   | 46    | 11    | 137        | 52                 | 83   | 18    | 8     | 153        | 16                 | 74   | 24    | 8     | 114        | 28                 | 63   | 23    | 2     | 114        | 29           | 518          | 547        |
| 11:30      | 7                  | 103  | 32    | 4     | 142        | 35                 | 76   | 11    | 9     | 122        | 30                 | 87   | 23    | 9     | 140        | 41                 | 69   | 23    | 15    | 133        | 37           | 537          | 574        |
| 11:45      | 20                 | 112  | 46    | 10    | 178        | 31                 | 62   | 10    | 8     | 103        | 18                 | 78   | 21    | 2     | 117        | 37                 | 59   | 29    | 10    | 125        | 30           | 523          | 553        |
| Total      | 55                 | 377  | 149   | 29    | 581        | 134                | 257  | 54    | 27    | 445        | 95                 | 307  | 94    | 28    | 496        | 137                | 256  | 99    | 30    | 492        | 114          | 2014         | 2128       |
| 12:00      | 10                 | 91   | 32    | 7     | 133        | 28                 | 64   | 20    | 11    | 112        | 18                 | 72   | 33    | 3     | 123        | 27                 | 59   | 27    | 5     | 113        | 26           | 481          | 507        |
| 12:15      | 13                 | 70   | 31    | 9     | 114        | 40                 | 67   | 11    | 13    | 118        | 17                 | 48   | 17    | 4     | 82         | 31                 | 69   | 18    | 4     | 118        | 30           | 432          | 462        |
| 12:30      | 14                 | 91   | 33    | 6     | 138        | 30                 | 75   | 8     | 4     | 113        | 28                 | 84   | 33    | 9     | 145        | 35                 | 71   | 22    | 6     | 128        | 25           | 524          | 549        |
| 12:45      | 11                 | 68   | 23    | 3     | 102        | 25                 | 73   | 9     | 4     | 107        | 20                 | 75   | 27    | 4     | 122        | 45                 | 60   | 29    | 2     | 134        | 13           | 465          | 478        |
| Total      | 48                 | 320  | 119   | 25    | 487        | 123                | 279  | 48    | 32    | 450        | 83                 | 279  | 110   | 20    | 472        | 138                | 259  | 96    | 17    | 493        | 94           | 1902         | 1996       |
| 13:00      | 16                 | 70   | 22    | 5     | 108        | 32                 | 60   | 5     | 4     | 97         | 32                 | 65   | 25    | 1     | 122        | 30                 | 64   | 20    | 9     | 114        | 19           | 441          | 460        |
| 13:15      | 16                 | 80   | 21    | 5     | 117        | 33                 | 74   | 11    | 6     | 118        | 32                 | 67   | 22    | 2     | 121        | 37                 | 65   | 26    | 4     | 128        | 17           | 484          | 501        |
| 13:30      | 25                 | 91   | 22    | 9     | 138        | 38                 | 76   | 16    | 4     | 130        | 26                 | 65   | 23    | 3     | 114        | 25                 | 80   | 31    | 4     | 136        | 20           | 518          | 538        |
| 13:45      | 22                 | 84   | 23    | 7     | 129        | 39                 | 85   | 18    | 6     | 142        | 41                 | 80   | 33    | 5     | 154        | 54                 | 74   | 28    | 3     | 156        | 21           | 581          | 602        |
| Total      | 79                 | 325  | 88    | 26    | 492        | 142                | 295  | 50    | 20    | 487        | 131                | 277  | 103   | 11    | 511        | 146                | 283  | 105   | 20    | 534        | 77           | 2024         | 2101       |
| 14:00      | 5                  | 62   | 41    | 4     | 108        | 25                 | 74   | 10    | 4     | 109        | 26                 | 65   | 10    | 6     | 101        | 34                 | 66   | 25    | 3     | 125        | 17           | 443          | 460        |
| 14:15      | 8                  | 64   | 33    | 4     | 105        | 25                 | 69   | 9     | 5     | 103        | 22                 | 73   | 20    | 6     | 115        | 52                 | 62   | 25    | 0     | 139        | 15           | 462          | 477        |
| 14:30      | 14                 | 58   | 26    | 4     | 98         | 19                 | 83   | 7     | 5     | 109        | 13                 | 83   | 26    | 4     | 122        | 39                 | 58   | 13    | 5     | 110        | 18           | 439          | 457        |
| 14:45      | 11                 | 77   | 30    | 6     | 118        | 21                 | 69   | 8     | 5     | 98         | 26                 | 108  | 31    | 10    | 165        | 38                 | 48   | 17    | 4     | 103        | 25           | 484          | 509        |
| Total      | 38                 | 261  | 130   | 18    | 429        | 90                 | 295  | 34    | 19    | 419        | 87                 | 329  | 87    | 26    | 503        | 163                | 234  | 80    | 12    | 477        | 75           | 1828         | 1903       |
| 15:00      | 22                 | 70   | 34    | 8     | 126        | 26                 | 74   | 11    | 6     | 111        | 26                 | 125  | 19    | 5     | 170        | 50                 | 69   | 13    | 0     | 132        | 19           | 539          | 558        |
| 15:15      | 15                 | 56   | 25    | 6     | 96         | 43                 | 84   | 16    | 7     | 143        | 20                 | 128  | 26    | 5     | 174        | 34                 | 63   | 8     | 2     | 105        | 20           | 518          | 538        |
| 15:30      | 9                  | 73   | 31    | 4     | 113        | 29                 | 69   | 13    | 2     | 111        | 29                 | 112  | 46    | 4     | 187        | 42                 | 79   | 24    | 3     | 145        | 13           | 556          | 569        |
| 15:45      | 10                 | 82   | 36    | 4     | 128        | 16                 | 67   | 11    | 5     | 94         | 28                 | 108  | 36    | 4     | 172        | 38                 | 64   | 16    | 2     | 118        | 15           | 512          | 527        |
| Total      | 56                 | 281  | 126   | 22    | 463        | 114                | 294  | 51    | 20    | 459        | 103                | 473  | 127   | 18    | 703        | 164                | 275  | 61    | 7     | 500        | 67           | 2125         | 2192       |
| 16:00      | 15                 | 61   | 23    | 7     | 99         | 47                 | 110  | 17    | 6     | 174        | 34                 | 125  | 41    | 4     | 200        | 40                 | 58   | 22    | 2     | 120        | 19           | 593          | 612        |
| 16:15      | 16                 | 72   | 23    | 3     | 111        | 42                 | 87   | 30    | 6     | 159        | 42                 | 150  | 46    | 4     | 238        | 44                 | 96   | 10    | 3     | 150        | 16           | 658          | 674        |
| 16:30      | 16                 | 69   | 31    | 1     | 116        | 38                 | 102  | 15    | 7     | 155        | 36                 | 144  | 44    | 10    | 224        | 65                 | 105  | 14    | 1     | 184        | 19           | 679          | 698        |
| 16:45      | 14                 | 78   | 32    | 1     | 124        | 27                 | 92   | 27    | 0     | 146        | 45                 | 158  | 41    | 1     | 244        | 50                 | 84   | 15    | 4     | 149        | 6            | 663          | 669        |
| Total      | 61                 | 280  | 109   | 12    | 450        | 154                | 391  | 89    | 19    | 634        | 157                | 577  | 172   | 19    | 906        | 199                | 343  | 61    | 10    | 603        | 60           | 2593         | 2653       |
| 17:00      | 10                 | 71   | 55    | 1     | 136        | 47                 | 140  | 27    | 5     | 214        | 30                 | 155  | 44    | 1     | 229        | 60                 | 116  | 27    | 3     | 203        | 10           | 782          | 792        |
| 17:15      | 18                 | 73   | 42    | 1     | 133        | 55                 | 112  | 29    | 5     | 196        | 48                 | 171  | 50    | 1     | 269        | 61                 | 105  | 15    | 2     | 181        | 9            | 779          | 788        |
| 17:30      | 15                 | 91   | 48    | 1     | 154        | 32                 | 135  | 24    | 3     | 191        | 52                 | 149  | 31    | 3     | 232        | 65                 | 103  | 17    | 1     | 185        | 8            | 762          | 770        |
| 17:45      | 31                 | 109  | 59    | 3     | 199        | 33                 | 121  | 20    | 4     | 174        | 30                 | 177  | 47    | 0     | 254        | 46                 | 109  | 27    | 1     | 182        | 8            | 809          | 817        |
| Total      | 74                 | 344  | 204   | 6     | 622        | 167                | 508  | 100   | 17    | 775        | 160                | 652  | 172   | 5     | 984        | 232                | 433  | 86    | 7     | 751        | 35           | 3132         | 3167       |



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

Study Name : TMC0520  
Study Date : 07/18/05  
Page No. : 1

**Signal Warrants - Summary**

**Major Street Approaches**

**Northbound: CSAH 78**  
Number of Lanes: 2  
Approach Speed: 50  
Total Approach Volume: 8,709

**Southbound: CSAH 78**  
Number of Lanes: 2  
Approach Speed: 55  
Total Approach Volume: 7,858

**Minor Street Approaches**

**Eastbound: CSAH 116**  
Number of Lanes: 2  
  
Total Approach Volume: 7,622

**Westbound: CSAH 116**  
Number of Lanes: 2  
  
Total Approach Volume: 7,485

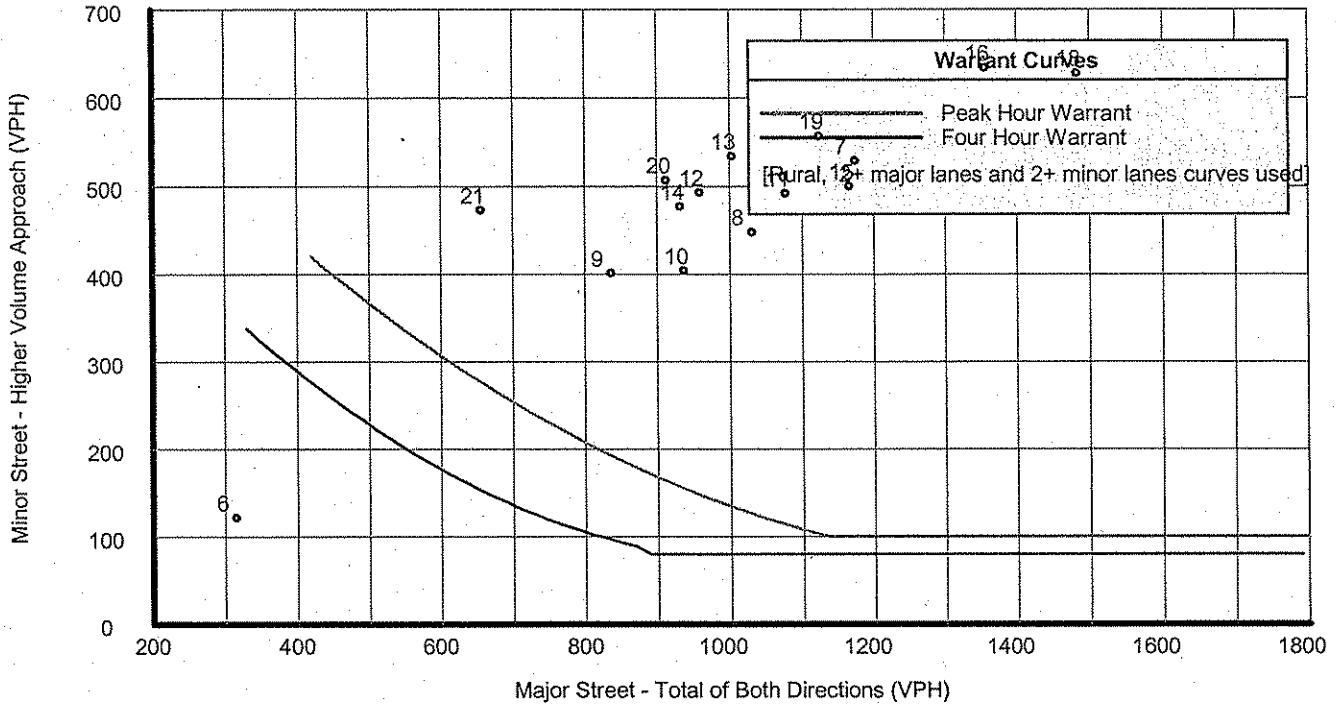
**Warrant Summary** (Rural values apply.)

|  |                      |
|--|----------------------|
| <b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....                                  | <b>Satisfied</b>     |
| <b>Warrant 1A - Minimum Vehicular Volume</b> .....                                     | <b>Satisfied</b>     |
| Required volumes reached for 15 hours, 8 are needed                                    |                      |
| <b>Warrant 1B - Interruption of Continuous Traffic</b> .....                           | <b>Satisfied</b>     |
| Required volumes reached for 15 hours, 8 are needed                                    |                      |
| <b>Warrant 1 A&amp;B - Combination of Warrants</b> .....                               | <b>Satisfied</b>     |
| Required volumes reached for 15 hours, 8 are needed                                    |                      |
| <b>Warrant 2 - Four Hour Volumes</b> .....   | <b>Satisfied</b>     |
| Number of hours (15) volumes exceed minimum >= minimum required (4).                   |                      |
| <b>Warrant 3 - Peak Hour</b> .....   | <b>Satisfied</b>     |
| <b>Warrant 3A - Peak Hour Delay</b> .....  | <b>Satisfied</b>     |
| Number of hours (61) volumes exceed minimum >= required (1). Delay data not evaluated. |                      |
| <b>Warrant 3B - Peak Hour Volumes</b> .....  | <b>Satisfied</b>     |
| Volumes exceed minimums for at least one hour.   |                      |
| <b>Warrant 4 - Pedestrian Volumes</b> .....  | <b>Not Evaluated</b> |
| <b>Warrant 5 - School Crossing</b> .....   | <b>Not Evaluated</b> |
| <b>Warrant 6 - Coordinated Signal System</b> .....                                     | <b>Not Evaluated</b> |
| <b>Warrant 7 - Crash Experience</b> .....  | <b>Not Evaluated</b> |
| <b>Warrant 8 - Roadway Network</b> .....   | <b>Not Evaluated</b> |

# ANOKA COUNTY HIGHWAY PC-WARRANTS TRAFFIC SIGNAL WARRANT ANALYSIS

Study Name : TMC0520  
Study Date : 07/18/05  
Page No. : 2

## Signal Warrants - Summary



### Analysis of 8-Hour Volume Warrants:

| Hour Begin | Major Total | Higher Minor |     | War-1A     |            |        | War-1B     |            |        | War-1A&B   |            |        |
|------------|-------------|--------------|-----|------------|------------|--------|------------|------------|--------|------------|------------|--------|
|            |             | Vol          | Dir | Major Crit | Minor Crit | Meets? | Major Crit | Minor Crit | Meets? | Major Crit | Minor Crit | Meets? |
| 00:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |
| 01:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |
| 02:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |
| 03:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |
| 04:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |
| 05:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |
| 06:00      | 315         | 122          | WB  | 420-No     | 140-No     | ---    | 630-No     | 70-Yes     | Minor  | 504-No     | 112-Yes    | Minor  |
| 07:00      | 1,174       | 529          | WB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 08:00      | 1,030       | 448          | WB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 09:00      | 836         | 401          | WB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 10:00      | 937         | 404          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 11:00      | 1,077       | 492          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 12:00      | 959         | 493          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 13:00      | 1,003       | 534          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 14:00      | 932         | 477          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 15:00      | 1,166       | 500          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 16:00      | 1,356       | 634          | WB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 17:00      | 1,606       | 775          | WB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 18:00      | 1,483       | 628          | WB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 19:00      | 1,124       | 557          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 20:00      | 913         | 507          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 21:00      | 656         | 473          | EB  | 420-Yes    | 140-Yes    | Both   | 630-Yes    | 70-Yes     | Both   | 504-Yes    | 112-Yes    | Both   |
| 22:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |
| 23:00      | 0           | 0            | EB  | 420-No     | 140-No     | ---    | 630-No     | 70-No      | ---    | 504-No     | 112-No     | ---    |

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

Study Name : TMC0520  
Study Date : 07/18/05

**Multi-Way Stop Warrant Report**

**Major Street Approaches**

**Northbound: CSAH 78**  
Total Approach Volume: 8,709  
Approach Speed: 50

**Southbound: CSAH 78**  
Total Approach Volume: 7,858  
Approach Speed: 55

**Minor Street Approaches**

**Eastbound: CSAH 116**  
Total Approach Volume: 7,622

**Westbound: CSAH 116**  
Total Approach Volume: 7,485

**Warrant Summary**

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

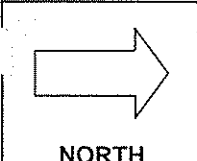
**Criteria B - Crash Experience** ..... Not Evaluated

**Criteria C - Minimum Volumes and Delays** ..... Satisfied  
Delay data not evaluated  
Required volumes reached for 16 hours, 8 are needed

**Criteria D - 80% of Volumes, Delays, and Crashes** ..... Not Evaluated  
Delay data not evaluated  
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? |
| 00:00 - 01:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |
| 01:00 - 02:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |
| 02:00 - 03:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |
| 03:00 - 04:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |
| 04:00 - 05:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |
| 05:00 - 06:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |
| 06:00 - 07:00 | 315         | 223         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 07:00 - 08:00 | 1,174       | 956         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 08:00 - 09:00 | 1,030       | 796         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 09:00 - 10:00 | 836         | 731         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 10:00 - 11:00 | 937         | 787         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 11:00 - 12:00 | 1,077       | 937         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 12:00 - 13:00 | 959         | 943         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 13:00 - 14:00 | 1,003       | 1,021       | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 14:00 - 15:00 | 932         | 896         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 15:00 - 16:00 | 1,166       | 959         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 16:00 - 17:00 | 1,356       | 1,237       | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 17:00 - 18:00 | 1,606       | 1,526       | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 18:00 - 19:00 | 1,483       | 1,253       | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 19:00 - 20:00 | 1,124       | 1,096       | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 20:00 - 21:00 | 913         | 929         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 21:00 - 22:00 | 656         | 817         | 210-Yes | 140-Yes    | Both   | 240-Yes    | 160-Yes    | Both   |
| 22:00 - 23:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |
| 23:00 - 00:00 | 0           | 0           | 210-No  | 140-No     | No     | 240-No     | 160-No     | No     |



COUNT LOCATION:

CSAH 78 (Hanson Blvd.) @

DATE:

07/13/2005

CSAH 116 (Bunker Lk. Blvd.)

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| <b>NORTH</b>     |
| APP.#1= CSAH 78  |
| APP.#2= CSAH 116 |
| APP.#3= CSAH 78  |
| APP.#4= CSAH 116 |

|         |         |         |         |
|---------|---------|---------|---------|
| APP. #1 | APP. #2 | APP. #3 | APP. #4 |
|---------|---------|---------|---------|

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

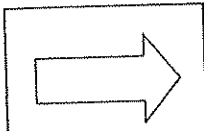
A. TRUCKS- A HEAVY VEHICLE INVOLVED PRIMARILY IN THE TRANSPORT OF GOODS OR IN THE DELIVERY OF A SERVICE.

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        |
| 6:00-6:15AM         |             |         |         |         |            | 1                   |    |            |
| 6:15-6:30           |             |         |         |         |            | 3                   |    |            |
| 6:30-6:45           |             |         |         |         |            | 6                   |    |            |
| 6:45-7:00           |             |         |         | 1       | 1          | 16                  |    | 1          |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>1</b>   | <b>HOURLY TOTAL</b> |    | <b>27</b>  |
| 7:00-7:15           |             |         |         |         |            | 18                  |    | 1          |
| 7:15-7:30           |             |         |         |         |            | 26                  |    | 7          |
| 7:30-7:45           |             |         |         |         |            | 22                  |    | 9          |
| 7:45-8:00           |             |         |         |         |            | 14                  |    |            |
| <b>HOURLY TOTAL</b> |             |         |         |         |            | <b>HOURLY TOTAL</b> |    | <b>97</b>  |
| 8:00-8:15           |             |         |         |         |            | 27                  |    | 4          |
| 8:15-8:30           |             |         |         | 2       | 2          | 24                  | 1  | 16         |
| 8:30-8:45           |             | 1       |         |         | 1          | 21                  |    | 8          |
| 8:45-9:00           |             |         |         |         |            | 33                  |    |            |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>3</b>   | <b>HOURLY TOTAL</b> |    | <b>134</b> |
| 9:00-9:15           | 1           | 1       |         |         | 2          | 16                  |    | 2          |
| 9:15-9:30           |             | 2       |         |         | 2          | 23                  |    |            |
| 9:30-9:45           |             |         |         |         |            | 20                  |    |            |
| 9:45-10:00          |             |         |         |         |            | 16                  |    |            |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>4</b>   | <b>HOURLY TOTAL</b> |    | <b>77</b>  |
| 10:00-10:15         |             |         |         |         |            | 21                  |    | 9          |
| 10:15-10:30         |             |         |         |         |            | 23                  |    | 4          |
| 10:30-10:45         | 1           |         |         |         | 1          | 25                  |    | 3          |
| 10:45-11:00         |             |         |         |         |            | 27                  |    | 8          |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>1</b>   | <b>HOURLY TOTAL</b> |    | <b>120</b> |
| 11:00-11:15         |             |         |         |         |            | 9                   | 1  | 6          |
| 11:15-11:30         |             |         |         |         |            | 24                  |    | 17         |
| 11:30-11:45         |             |         |         | 4       | 4          | 20                  |    | 5          |
| 11:45-12:00         |             |         |         |         |            | 12                  |    | 14         |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>4</b>   | <b>HOURLY TOTAL</b> |    | <b>108</b> |
| 12:00-12:15         |             |         |         |         |            | 15                  |    | 12         |
| 12:15-12:30         |             |         |         |         |            | 18                  | 1  | 19         |
| 12:30-12:45         |             |         |         |         |            | 15                  |    |            |
| 12:45-1:00          |             |         |         |         |            | 17                  |    |            |
| <b>HOURLY TOTAL</b> |             |         |         |         |            | <b>HOURLY TOTAL</b> |    | <b>97</b>  |
| 1:00-1:15           |             |         |         |         |            | 14                  |    | 1          |
| 1:15-1:30           |             |         |         | 3       | 3          | 16                  |    | 2          |
| 1:30-1:45           |             |         |         |         |            | 18                  |    | 5          |
| 1:45-2:00           |             |         |         |         |            | 8                   |    |            |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>3</b>   | <b>HOURLY TOTAL</b> |    | <b>64</b>  |
| <b>TOTAL</b>        |             |         |         |         | <b>16</b>  | <b>TOTAL</b>        |    | <b>724</b> |

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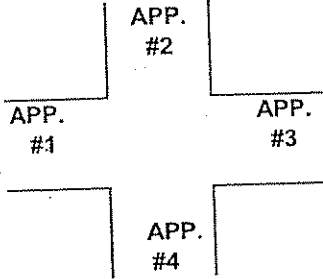
NORTH

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| APP.#1= CSAH 78  |
| APP.#2= CSAH 116 |
| APP.#3= CSAH 78  |
| APP.#4= CSAH 116 |

COUNT LOCATION:

CSAH 78 (Hanson Blvd.) @ DATE: 07/12/2005

CSAH 116 (Bunker Lk. Blvd.)



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         |             |         |         |         |              | 17                  | 1            |             |
| 2:15-2:30           |             | 3       | 3       | 2       | 8            | 14                  |              |             |
| 2:30-2:45           |             |         |         |         |              | 16                  | 1            | 2           |
| 2:45-3:00           |             | 2       |         |         | 2            | 23                  |              | 2           |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>10</b>    | <b>HOURLY TOTAL</b> |              | <b>76</b>   |
| 3:00-3:15           |             |         |         |         |              | 17                  |              | 2           |
| 3:15-3:30           | 1           |         |         |         | 1            | 20                  |              |             |
| 3:30-3:45           |             |         |         |         |              | 11                  |              | 1           |
| 3:45-4:00           |             |         | 1       | 2       | 3            | 13                  |              | 3           |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>4</b>     | <b>HOURLY TOTAL</b> |              | <b>67</b>   |
| 4:00-4:15           |             |         |         |         |              | 17                  | 1            | 1           |
| 4:15-4:30           |             |         |         |         |              | 12                  |              | 4           |
| 4:30-4:45           |             |         |         |         |              | 19                  |              |             |
| 4:45-5:00           |             | 3       |         | 2       | 5            | 4                   | 1            | 1           |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>5</b>     | <b>HOURLY TOTAL</b> |              | <b>60</b>   |
| 5:00-5:15           |             |         |         |         |              | 10                  |              |             |
| 5:15-5:30           |             |         |         |         |              | 9                   |              |             |
| 5:30-5:45           |             |         |         |         |              | 8                   |              |             |
| 5:45-6:00           |             |         |         |         |              | 6                   |              | 1           |
| <b>HOURLY TOTAL</b> |             |         |         |         |              | <b>HOURLY TOTAL</b> |              | <b>34</b>   |
| 6:00-6:15           |             |         |         |         |              | 7                   |              |             |
| 6:15-6:30           |             |         |         |         |              | 4                   |              |             |
| 6:30-6:45           |             |         |         |         |              | 3                   | 1            |             |
| 6:45-7:00           |             |         |         |         |              | 3                   |              |             |
| <b>HOURLY TOTAL</b> |             |         |         |         |              | <b>HOURLY TOTAL</b> |              | <b>18</b>   |
| 7:00-7:15           |             |         |         |         |              | 10                  | 1            |             |
| 7:15-7:30           |             |         |         |         |              | 1                   |              |             |
| 7:30-7:45           |             |         |         |         |              | 3                   |              | 2           |
| 7:45-8:00           |             |         |         | 2       | 2            | 2                   |              |             |
| <b>HOURLY TOTAL</b> |             |         |         |         | <b>2</b>     | <b>HOURLY TOTAL</b> |              | <b>19</b>   |
| 8:00-8:15           |             |         |         |         |              | 2                   |              |             |
| 8:15-8:30           |             |         |         |         |              | 2                   |              |             |
| 8:30-8:45           |             |         |         |         |              |                     |              |             |
| 8:45-9:00           |             |         |         |         |              | 1                   |              |             |
| <b>HOURLY TOTAL</b> |             |         |         |         |              | <b>HOURLY TOTAL</b> |              | <b>5</b>    |
| 9:00-9:15           |             |         |         |         |              |                     |              |             |
| 9:15-9:30           |             |         |         |         |              |                     |              |             |
| 9:30-9:45           |             |         |         |         |              |                     |              |             |
| 9:45-10:00          |             |         |         |         |              |                     |              |             |
| <b>HOURLY TOTAL</b> |             |         |         |         |              | <b>HOURLY TOTAL</b> |              |             |
|                     |             |         |         |         | <b>TOTAL</b> |                     | <b>TOTAL</b> | <b>1004</b> |
|                     |             |         |         |         | <b>37</b>    |                     |              |             |

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