


















# HCM Signalized Intersection Capacity Analysis

## 14: Woodruff Road & I-385 SB Ramps

6/1/2011

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |   |   |  |   |  |
| Volume (vph)                      | 0   | 830   | 149   | 64  | 1100  | 0   | 0  | 0   | 0   | 832   | 0   | 515   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 6.6   |   | 6.6   | 6.6   |   |  |   |   | 5.7   |   | 4.0   |
| Lane Util. Factor                 |   | 0.95  |   | 1.00  | 0.95  |   |  |   |   | 0.97  |   | 1.00  |
| Frt                               |   | 0.98  |   | 1.00  | 1.00  |   |  |   |   | 1.00  |   | 0.85  |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  |   |   | 0.95  |   | 1.00  |
| Satd. Flow (prot)                 |   | 3359  |   | 1719  | 3438  |   |  |   |   | 3335  |   | 1538  |
| Flt Permitted                     |   | 1.00  |   | 0.13  | 1.00  |   |  |   |   | 0.95  |   | 1.00  |
| Satd. Flow (perm)                 |   | 3359  |   | 241   | 3438  |   |  |   |   | 3335  |   | 1538  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 922   | 166   | 71  | 1222  | 0   | 0  | 0   | 0   | 924   | 0   | 572   |
| RTOR Reduction (vph)              | 0   | 11  | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   | 0   |
| Lane Group Flow (vph)             | 0   | 1077  | 0   | 71  | 1222  | 0   | 0  | 0   | 0   | 924   | 0   | 572   |
| Turn Type                         |   |   |   | pm+pt   |   |   |  |   |   | Prot  |   | Free  |
| Protected Phases                  |   | 2   |   | 1   | 6   |   |  |   |   | 4   |   |   |
| Permitted Phases                  |   |   |   | 6   |   |   |  |   |   |   |   | Free  |
| Actuated Green, G (s)             |   | 55.0  |   | 67.6  | 67.6  |   |  |   |   | 40.1  |   | 120.0   |
| Effective Green, g (s)            |   | 55.0  |   | 67.6  | 67.6  |   |  |   |   | 40.1  |   | 120.0   |
| Actuated g/C Ratio                |   | 0.46  |   | 0.56  | 0.56  |   |  |   |   | 0.33  |   | 1.00  |
| Clearance Time (s)                |   | 6.6   |   | 6.6   | 6.6   |   |  |   |   | 5.7   |   |   |
| Vehicle Extension (s)             |   | 4.3   |   | 4.3   | 4.3   |   |  |   |   | 4.3   |   |   |
| Lane Grp Cap (vph)                |   | 1540  |   | 210   | 1937  |   |  |   |   | 1114  |   | 1538  |
| v/s Ratio Prot                    |   | c0.32   |   | 0.02  | c0.36   |   |  |   |   | c0.28   |   |   |
| v/s Ratio Perm                    |   |   |   | 0.17  |   |   |  |   |   |   |   | 0.37  |
| v/c Ratio                         |   | 0.70  |   | 0.34  | 0.63  |   |  |   |   | 0.83  |   | 0.37  |
| Uniform Delay, d1                 |   | 25.9  |   | 16.4  | 17.7  |   |  |   |   | 36.8  |   | 0.0   |
| Progression Factor                |   | 0.75  |   | 0.25  | 0.43  |   |  |   |   | 1.00  |   | 1.00  |
| Incremental Delay, d2             |   | 2.3   |   | 0.5   | 0.5   |   |  |   |   | 5.6   |   | 0.7   |
| Delay (s)                         |   | 21.7  |   | 4.6   | 8.1   |   |  |   |   | 42.4  |   | 0.7   |
| Level of Service                  |   | C   |   | A   | A   |   |  |   |   | D   |   | A   |
| Approach Delay (s)                |   | 21.7  |   |   | 7.9   |   |  | 0.0   |   |   | 26.5  |   |
| Approach LOS                      |   | C   |   |   | A   |   |  | A   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM Average Control Delay         |   |   | 18.9  |   |   | HCM Level of Service  |  |   |   | B   |   |   |
| HCM Volume to Capacity ratio      |   |   | 0.77  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 120.0   |   |   | Sum of lost time (s)  |  |   |   | 18.9  |   |   |
| Intersection Capacity Utilization |   |   | 115.3%  |   |   | ICU Level of Service  |  |   |   | H   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |