

| Clearance Calculations        |                                                   |                                                                                                                    |
|-------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| English Units                 |                                                   |                                                                                                                    |
| Project Number                | 0309-83670                                        |                                                                                                                    |
| Name                          | Coggeshall Street                                 |                                                                                                                    |
| Date                          | October 13, 2011                                  |                                                                                                                    |
| Intersection                  | Coggeshall Street and Riverside Drive/I-195 Ramps |                                                                                                                    |
| Approach/Phase                | westbound/phase 6                                 |                                                                                                                    |
|                               | Data                                              |                                                                                                                    |
| Speed (s)                     | 35 mph                                            | (formula converts speed from mph to feet/sec)                                                                      |
| Grade (g)                     | 2.86 %                                            | roadway approach grade in percent                                                                                  |
| Width (w)                     | 100 ft                                            | distance from near side Stop Line to back of far side crosswalk (or edge of far side curb if no crosswalk present) |
| Vehicle (v)                   | 20 ft                                             | length of vehicle (assume 20 feet)                                                                                 |
| Minimum yellow                | 3.0 sec                                           | may be established by local practice (ITE recommends 3.0 sec)                                                      |
| Maximum yellow                | 5.0 sec                                           | may be established by local practice (5.0 sec)                                                                     |
| Minimum red                   | 1.0 sec                                           | may be established by local practice (1.0 sec)                                                                     |
| Clearance Calculation         |                                                   |                                                                                                                    |
| Yellow                        | 3.4 sec                                           | $*Y=1+s/(2(10+32g))$                                                                                               |
| Red                           | 2.3 sec                                           | $*R=(w+v)/s$                                                                                                       |
| Total                         | 5.7 sec                                           |                                                                                                                    |
| Clearance based on Max Yellow |                                                   |                                                                                                                    |
| Yellow                        | 3.4 sec                                           |                                                                                                                    |
| Red                           | 2.3 sec                                           |                                                                                                                    |
| Total                         | 5.7 sec                                           |                                                                                                                    |

Source: ITE Journal *Traffic Signal Clearance Intervals* , April 2004