# Appendix A – Existing

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 1** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 12 | 11 | 87.5% | 40.1 | 35.1 | D |
| | Through | 15 | 13 | 89.3% | 44.9 | 16.9 | D |
| | Right Turn | 28 | 30 | 107.1% | 6.7 | 1.0 | A |
| | Subtotal | 55 | 54 | 98.0% | 26.9 | 7.3 | C |
| SB | Left Turn | 24 | 22 | 93.3% | 51.2 | 11.1 | D |
| | Through | 20 | 21 | 102.5% | 42.3 | 19.3 | D |
| | Right Turn | 15 | 15 | 100.0% | 6.8 | 4.4 | A |
| | Subtotal | 59 | 58 | 98.1% | 38.0 | 9.2 | D |
| EB | Left Turn | 3 | 2 | 76.7% | 34.2 | 41.5 | C |
| | Through | 262 | 267 | 101.9% | 15.1 | 8.8 | B |
| | Right Turn | 31 | 31 | 98.7% | 24.8 | 23.6 | C |
| | Subtotal | 296 | 300 | 101.3% | 16.4 | 9.3 | B |
| WB | Left Turn | 31 | 32 | 104.5% | 69.7 | 9.1 | E |
| | Through | 437 | 436 | 99.7% | 6.5 | 3.2 | A |
| | Right Turn | 50 | 50 | 99.0% | 4.7 | 3.1 | A |
| | Subtotal | 518 | 518 | 100.0% | 11.2 | 3.1 | B |
| Total | | 928 | 930 | 100.2% | 15.5 | 4.8 | B |

**Intersection 2** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 491 | 489 | 99.6% | 28.7 | 9.6 | C |
| | Through | 86 | 90 | 104.1% | 27.8 | 6.5 | C |
| | Right Turn | 229 | 219 | 95.4% | 11.8 | 5.4 | B |
| | Subtotal | 806 | 797 | 98.9% | 24.2 | 8.4 | C |
| SB | Left Turn | 1 | 1 | 60.0% | 3.8 | 8.3 | A |
| | Through | 85 | 85 | 99.4% | 48.7 | 8.4 | D |
| | Right Turn | 10 | 10 | 98.0% | 9.4 | 9.0 | A |
| | Subtotal | 96 | 95 | 98.9% | 44.7 | 7.8 | D |
| EB | Left Turn | 9 | 9 | 95.6% | 77.2 | 44.7 | E |
| | Through | 23 | 23 | 100.0% | 80.3 | 30.3 | F |
| | Right Turn | 282 | 287 | 101.9% | 10.7 | 3.0 | B |
| | Subtotal | 314 | 319 | 101.6% | 18.2 | 5.9 | B |
| WB | Left Turn | 130 | 130 | 100.3% | 64.0 | 8.6 | E |
| | Through | 17 | 18 | 107.1% | 45.4 | 16.1 | D |
| | Right Turn | 3 | 2 | 76.7% | 3.4 | 6.1 | A |
| | Subtotal | 150 | 151 | 100.6% | 61.3 | 7.6 | E |
| Total | | 1,366 | 1,362 | 99.7% | 28.1 | 6.5 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 3** **I-80 WB Off-Ramp/Olive Dr** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 2 | 1 | 50.0% | 9.6 | 0.3 | A |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | 2 | 1 | 50.0% | 9.6 | 0.3 | A |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 154 | 155 | 100.8% | 0.5 | 0.1 | A |
| | Right Turn | | | | | | |
| | Subtotal | 154 | 155 | 100.8% | 0.5 | 0.1 | A |
| Total | | 156 | 156 | 100.1% | 0.7 | 0.1 | A |

**Intersection 4** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 80 | 80 | 99.5% | 100.4 | 14.1 | F |
| | Through | 612 | 615 | 100.5% | 29.4 | 9.7 | C |
| | Right Turn | 31 | 32 | 101.9% | 17.4 | 15.2 | B |
| | Subtotal | 723 | 726 | 100.5% | 37.7 | 8.5 | D |
| SB | Left Turn | 31 | 33 | 106.1% | 38.1 | 7.1 | D |
| | Through | 440 | 448 | 101.8% | 10.4 | 3.2 | B |
| | Right Turn | 26 | 23 | 89.2% | 10.2 | 9.2 | B |
| | Subtotal | 497 | 504 | 101.4% | 12.5 | 3.1 | B |
| EB | Left Turn | 37 | 36 | 97.3% | 53.9 | 9.6 | D |
| | Through | 7 | 7 | 100.0% | 43.1 | 35.0 | D |
| | Right Turn | 58 | 60 | 102.8% | 25.2 | 12.6 | C |
| | Subtotal | 102 | 103 | 100.6% | 36.8 | 11.3 | D |
| WB | Left Turn | 106 | 100 | 94.6% | 53.1 | 10.4 | D |
| | Through | 18 | 17 | 95.0% | 59.0 | 26.9 | E |
| | Right Turn | 157 | 146 | 92.7% | 52.7 | 21.8 | D |
| | Subtotal | 281 | 263 | 93.6% | 53.4 | 13.6 | D |
| Total | | 1,603 | 1,596 | 99.6% | 32.7 | 3.3 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 400 | 406 | 101.5% | 13.6 | 15.3 | B |
| | Right Turn | 359 | 354 | 98.5% | 1.6 | 0.4 | A |
| | Subtotal | 759 | 760 | 100.1% | 8.2 | 8.6 | A |
| SB | Left Turn | | | | | | |
| | Through | 422 | 419 | 99.4% | 0.6 | 0.1 | A |
| | Right Turn | 195 | 200 | 102.6% | 1.4 | 0.3 | A |
| | Subtotal | 617 | 619 | 100.4% | 0.9 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 179 | 180 | 100.5% | 0.8 | 0.1 | A |
| | Subtotal | 179 | 180 | 100.5% | 0.8 | 0.1 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 389 | 389 | 100.0% | 5.7 | 7.1 | A |
| | Subtotal | 389 | 389 | 100.0% | 5.7 | 7.1 | A |
| Total | | 1,944 | 1,948 | 100.2% | 4.7 | 4.6 | A |

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 575 | 579 | 100.6% | 25.0 | 2.2 | C |
| | Right Turn | 93 | 90 | 96.2% | 13.5 | 1.8 | B |
| | Subtotal | 668 | 668 | 100.0% | 23.4 | 1.8 | C |
| SB | Left Turn | 241 | 237 | 98.3% | 51.1 | 3.6 | D |
| | Through | 360 | 364 | 101.1% | 12.2 | 3.0 | B |
| | Right Turn | | | | | | |
| | Subtotal | 601 | 601 | 100.0% | 28.0 | 2.4 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 429 | 430 | 100.2% | 55.2 | 17.7 | E |
| | Through | | | | | | |
| | Right Turn | 184 | 180 | 97.9% | 23.2 | 14.7 | C |
| | Subtotal | 613 | 610 | 99.5% | 45.5 | 16.6 | D |
| Total | | 1,882 | 1,879 | 99.8% | 32.4 | 7.1 | C |

**Intersection 7** **Research Park Dr/Richards Blvd-Cowell Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 64 | 63 | 98.8% | 51.4 | 9.1 | D |
| | Through | 6 | 5 | 88.3% | 38.3 | 34.3 | D |
| | Right Turn | 30 | 30 | 101.0% | 8.1 | 4.6 | A |
| | Subtotal | 100 | 99 | 98.8% | 37.3 | 7.7 | D |
| SB | Left Turn | 22 | 24 | 110.5% | 53.8 | 13.6 | D |
| | Through | 19 | 20 | 102.6% | 40.6 | 14.0 | D |
| | Right Turn | 82 | 78 | 94.9% | 17.0 | 9.7 | B |
| | Subtotal | 123 | 122 | 98.9% | 28.4 | 9.6 | C |
| EB | Left Turn | 187 | 187 | 99.9% | 46.8 | 7.0 | D |
| | Through | 469 | 472 | 100.6% | 25.3 | 5.4 | C |
| | Right Turn | 133 | 136 | 102.4% | 22.6 | 5.9 | C |
| | Subtotal | 789 | 795 | 100.8% | 30.1 | 6.0 | C |
| WB | Left Turn | 30 | 31 | 101.7% | 59.7 | 16.7 | E |
| | Through | 487 | 487 | 99.9% | 23.1 | 4.3 | C |
| | Right Turn | 20 | 18 | 90.0% | 8.9 | 8.1 | A |
| | Subtotal | 537 | 535 | 99.6% | 24.9 | 4.8 | C |
| Total | | 1,549 | 1,551 | 100.1% | 28.6 | 4.8 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 1** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 27 | 26 | 95.6% | 26.5 | 7.0 | C |
| | Through | 41 | 41 | 100.0% | 30.8 | 5.4 | C |
| | Right Turn | 61 | 64 | 104.4% | 8.4 | 3.3 | A |
| | Subtotal | 129 | 131 | 101.2% | 19.4 | 3.7 | B |
| SB | Left Turn | 85 | 83 | 97.6% | 24.3 | 4.5 | C |
| | Through | 29 | 29 | 98.6% | 23.6 | 6.2 | C |
| | Right Turn | 21 | 22 | 106.2% | 8.0 | 6.1 | A |
| | Subtotal | 135 | 134 | 99.2% | 21.1 | 3.4 | C |
| EB | Left Turn | 14 | 13 | 90.7% | 75.0 | 27.9 | E |
| | Through | 374 | 383 | 102.3% | 47.7 | 11.9 | D |
| | Right Turn | 59 | 58 | 97.5% | 47.0 | 13.9 | D |
| | Subtotal | 447 | 453 | 101.3% | 48.5 | 12.0 | D |
| WB | Left Turn | 77 | 74 | 96.5% | 29.8 | 5.9 | C |
| | Through | 308 | 311 | 101.0% | 10.1 | 3.2 | B |
| | Right Turn | 48 | 49 | 102.9% | 7.8 | 2.7 | A |
| | Subtotal | 433 | 435 | 100.4% | 13.2 | 2.4 | B |
| Total | | 1,144 | 1,152 | 100.7% | 28.6 | 5.6 | C |

**Intersection 2** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 376 | 379 | 100.7% | 13.4 | 4.1 | B |
| | Through | 108 | 108 | 100.3% | 10.3 | 4.3 | B |
| | Right Turn | 250 | 243 | 97.0% | 4.2 | 1.1 | A |
| | Subtotal | 734 | 730 | 99.4% | 9.7 | 2.8 | A |
| SB | Left Turn | 6 | 6 | 101.7% | 55.1 | 34.4 | E |
| | Through | 166 | 168 | 101.1% | 61.5 | 5.2 | E |
| | Right Turn | 21 | 21 | 98.1% | 34.3 | 16.6 | C |
| | Subtotal | 193 | 195 | 100.8% | 58.6 | 5.3 | E |
| EB | Left Turn | 10 | 10 | 96.0% | 67.4 | 24.1 | E |
| | Through | 53 | 56 | 105.3% | 77.9 | 21.0 | E |
| | Right Turn | 457 | 465 | 101.7% | 13.4 | 3.0 | B |
| | Subtotal | 520 | 530 | 101.9% | 21.1 | 4.1 | C |
| WB | Left Turn | 201 | 200 | 99.3% | 72.3 | 15.2 | E |
| | Through | 36 | 36 | 99.2% | 44.6 | 14.0 | D |
| | Right Turn | 6 | 6 | 95.0% | 30.9 | 32.0 | C |
| | Subtotal | 243 | 241 | 99.1% | 67.4 | 13.0 | E |
| Total | | 1,690 | 1,695 | 100.3% | 27.9 | 2.1 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 3** **I-80 WB Off-Ramp/Olive Dr** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 7 | 8 | 112.9% | 9.6 | 0.7 | A |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | 7 | 8 | 112.9% | 9.6 | 0.7 | A |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 144 | 143 | 99.5% | 0.5 | 0.1 | A |
| | Right Turn | | | | | | |
| | Subtotal | 144 | 143 | 99.5% | 0.5 | 0.1 | A |
| Total | | 151 | 151 | 100.1% | 1.0 | 0.1 | A |

**Intersection 4** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 46 | 50 | 108.5% | 73.6 | 11.9 | E |
| | Through | 536 | 539 | 100.5% | 25.4 | 6.8 | C |
| | Right Turn | 52 | 50 | 96.3% | 5.2 | 2.4 | A |
| | Subtotal | 634 | 639 | 100.8% | 28.3 | 7.0 | C |
| SB | Left Turn | 92 | 92 | 100.3% | 58.2 | 6.5 | E |
| | Through | 698 | 704 | 100.9% | 15.6 | 3.3 | B |
| | Right Turn | 34 | 35 | 103.2% | 15.3 | 7.4 | B |
| | Subtotal | 824 | 831 | 100.9% | 19.8 | 3.9 | B |
| EB | Left Turn | 32 | 31 | 96.6% | 55.3 | 12.5 | E |
| | Through | 5 | 5 | 102.0% | 31.7 | 33.9 | C |
| | Right Turn | 74 | 74 | 99.7% | 23.7 | 10.8 | C |
| | Subtotal | 111 | 110 | 98.9% | 34.5 | 9.6 | C |
| WB | Left Turn | 142 | 135 | 94.8% | 121.9 | 55.0 | F |
| | Through | 17 | 17 | 97.1% | 79.4 | 56.1 | E |
| | Right Turn | 166 | 158 | 95.4% | 65.4 | 44.7 | E |
| | Subtotal | 325 | 309 | 95.2% | 91.3 | 46.8 | F |
| Total | | 1,894 | 1,889 | 99.8% | 35.7 | 8.4 | D |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 447 | 453 | 101.3% | 6.7 | 2.6 | A |
| | Right Turn | 437 | 431 | 98.6% | 2.3 | 0.4 | A |
| | Subtotal | 884 | 884 | 100.0% | 4.6 | 1.3 | A |
| SB | Left Turn | | | | | | |
| | Through | 635 | 636 | 100.2% | 0.7 | 0.2 | A |
| | Right Turn | 321 | 318 | 99.2% | 1.4 | 0.3 | A |
| | Subtotal | 956 | 954 | 99.8% | 0.9 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 90 | 90 | 100.1% | 0.7 | 0.1 | A |
| | Subtotal | 90 | 90 | 100.1% | 0.7 | 0.1 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 221 | 221 | 99.9% | 1.0 | 0.5 | A |
| | Subtotal | 221 | 221 | 99.9% | 1.0 | 0.5 | A |
| Total | | 2,151 | 2,149 | 99.9% | 2.5 | 0.6 | A |

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 706 | 711 | 100.7% | 15.7 | 4.0 | B |
| | Right Turn | 126 | 126 | 99.7% | 8.7 | 2.6 | A |
| | Subtotal | 832 | 837 | 100.6% | 14.5 | 3.6 | B |
| SB | Left Turn | 189 | 190 | 100.7% | 63.8 | 6.5 | E |
| | Through | 536 | 534 | 99.5% | 9.9 | 1.5 | A |
| | Right Turn | | | | | | |
| | Subtotal | 725 | 724 | 99.8% | 24.6 | 2.8 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 552 | 541 | 98.0% | 158.6 | 62.3 | F |
| | Through | | | | | | |
| | Right Turn | 178 | 172 | 96.5% | 131.2 | 62.4 | F |
| | Subtotal | 730 | 713 | 97.7% | 151.8 | 63.0 | F |
| Total | | 2,287 | 2,273 | 99.4% | 63.3 | 21.9 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd-Cowell Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 92 | 93 | 101.2% | 53.2 | 9.1 | D |
| | Through | 25 | 25 | 98.4% | 36.1 | 16.5 | D |
| | Right Turn | 40 | 40 | 101.0% | 13.4 | 5.8 | B |
| | Subtotal | 157 | 158 | 100.7% | 38.8 | 8.7 | D |
| SB | Left Turn | 37 | 38 | 101.4% | 45.9 | 15.2 | D |
| | Through | 10 | 10 | 100.0% | 47.8 | 29.0 | D |
| | Right Turn | 126 | 125 | 99.3% | 12.1 | 5.9 | B |
| | Subtotal | 173 | 173 | 99.8% | 21.2 | 5.0 | C |
| EB | Left Turn | 304 | 305 | 100.2% | 58.0 | 3.9 | E |
| | Through | 726 | 718 | 98.8% | 14.5 | 4.6 | B |
| | Right Turn | 58 | 57 | 98.3% | 9.3 | 2.7 | A |
| | Subtotal | 1,088 | 1,079 | 99.2% | 27.1 | 3.4 | C |
| WB | Left Turn | 25 | 23 | 93.6% | 64.6 | 23.7 | E |
| | Through | 530 | 534 | 100.7% | 31.8 | 6.7 | C |
| | Right Turn | 35 | 33 | 93.7% | 8.7 | 9.3 | A |
| | Subtotal | 590 | 590 | 99.9% | 32.3 | 7.5 | C |
| Total | | 2,008 | 2,000 | 99.6% | 29.1 | 3.5 | C |

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 1 | 0 | 0 | 1 | 58 | 2 | 56 | 61 | NO |
| | Right Turn | 1,120 | 1 | 0 | 0 | 1 | 58 | 2 | 56 | 61 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 0 | 110 | 17 | 83 | 141 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 32 | 26 | 0 | 94 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 28 | 16 | 0 | 49 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 50 | 4 | 44 | 59 | 336 | 31 | 292 | 390 | NO |
| | Right Turn | 500 | 36 | 4 | 30 | 45 | 307 | 31 | 263 | 361 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 45 | 3 | 41 | 50 | 173 | 25 | 145 | 224 | NO |
| | Through | 1,300 | 13 | 2 | 10 | 16 | 177 | 32 | 115 | 223 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 164 | 28 | 128 | 228 | 793 | 174 | 554 | 1,180 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 8 | 1 | 7 | 9 | 131 | 25 | 86 | 161 | NO |
| | Second Right | | | | | | | | | | |

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 2 | 0 | 1 | 2 | 64 | 10 | 57 | 91 | NO |
| | Right Turn | 1,120 | 2 | 0 | 1 | 2 | 64 | 10 | 57 | 91 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 1 | 117 | 10 | 109 | 139 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Conditions**
**Queue Length** **PM Peak Hour**

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 39 | 5 | 34 | 51 | 355 | 35 | 311 | 410 | NO |
| | Right Turn | 500 | 28 | 4 | 24 | 39 | 326 | 35 | 281 | 381 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 45 | 3 | 42 | 50 | 154 | 16 | 137 | 181 | NO |
| | Through | 1,300 | 18 | 2 | 16 | 21 | 195 | 41 | 155 | 268 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 807 | 295 | 525 | 1,439 | 1,649 | 43 | 1,534 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 159 | 312 | 8 | 994 | 604 | 735 | 116 | 1,695 | NO |
| | Second Right | | | | | | | | | | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Existing |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,323 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,175 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,906 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,635 | pcphpl |
| Average passenger-car speed, S | 64.2 | mph |
| Volume-to-capacity ratio, v/c | 0.70 | |
| Density, D | 25.5 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Existing |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,044 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,099 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,589 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,530 | pcphpl |
| Average passenger-car speed, S | 64.8 | mph |
| Volume-to-capacity ratio, v/c | 0.65 | |
| Density, D | 23.6 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Existing |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,883 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,272 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,310 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,770 | pcphpl |
| Average passenger-car speed, S | 63.1 | mph |
| Volume-to-capacity ratio, v/c | 0.75 | |
| Density, D | 28.1 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Existing |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,729 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,232 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,143 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,714 | pcphpl |
| Average passenger-car speed, S | 63.6 | mph |
| Volume-to-capacity ratio, v/c | 0.73 | |
| Density, D | 27.0 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Existing |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,715 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,228 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,128 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,282 | pcphpl |
| Average passenger-car speed, S | 65.0 | mph |
| Volume-to-capacity ratio, v/c | 0.55 | |
| Density, D | 19.7 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Existing |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,326 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,176 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,909 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,636 | pcphpl |
| Average passenger-car speed, S | 64.2 | mph |
| Volume-to-capacity ratio, v/c | 0.70 | |
| Density, D | 25.5 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Existing |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3,911 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,063 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,438 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,479 | pcphpl |
| Average passenger-car speed, S | 64.9 | mph |
| Volume-to-capacity ratio, v/c | 0.63 | |
| Density, D | 22.8 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Existing |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,352 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,145 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,783 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,594 | pcphpl |
| Average passenger-car speed, S | 64.5 | mph |
| Volume-to-capacity ratio, v/c | 0.68 | |
| Density, D | 24.7 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Existing |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,208 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,107 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,624 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,541 | pcphpl |
| Average passenger-car speed, S | 64.7 | mph |
| Volume-to-capacity ratio, v/c | 0.66 | |
| Density, D | 23.8 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Existing |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,655 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,225 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,116 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,279 | pcphpl |
| Average passenger-car speed, S | 65.0 | mph |
| Volume-to-capacity ratio, v/c | 0.54 | |
| Density, D | 19.7 | pcpmpl |
| Level of service, LOS | C | |

# Appendix B – Existing Plus Project

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 1** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 12 | 11 | 92.5% | 50.0 | 22.5 | D |
| | Through | 15 | 14 | 92.0% | 47.3 | 19.3 | D |
| | Right Turn | 28 | 29 | 104.6% | 6.8 | 3.4 | A |
| | Subtotal | 55 | 54 | 98.5% | 24.8 | 7.0 | C |
| SB | Left Turn | 24 | 28 | 117.9% | 51.8 | 14.5 | D |
| | Through | 20 | 22 | 109.5% | 50.6 | 12.1 | D |
| | Right Turn | 15 | 16 | 104.0% | 9.0 | 5.9 | A |
| | Subtotal | 59 | 66 | 111.5% | 40.7 | 10.7 | D |
| EB | Left Turn | 3 | 2 | 80.0% | 47.1 | 47.8 | D |
| | Through | 264 | 277 | 105.0% | 24.7 | 39.7 | C |
| | Right Turn | 31 | 29 | 93.2% | 30.8 | 45.3 | C |
| | Subtotal | 298 | 309 | 103.6% | 25.8 | 40.3 | C |
| WB | Left Turn | 31 | 32 | 103.2% | 67.1 | 10.2 | E |
| | Through | 438 | 442 | 100.8% | 6.2 | 2.8 | A |
| | Right Turn | 50 | 48 | 96.4% | 3.3 | 1.7 | A |
| | Subtotal | 519 | 522 | 100.5% | 10.6 | 4.3 | B |
| Total | | 931 | 950 | 102.1% | 18.6 | 12.1 | B |

**Intersection 2** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 492 | 494 | 100.3% | 28.9 | 5.6 | C |
| | Through | 87 | 89 | 102.0% | 24.9 | 6.3 | C |
| | Right Turn | 236 | 224 | 95.0% | 9.9 | 2.7 | A |
| | Subtotal | 815 | 807 | 99.0% | 23.2 | 4.8 | C |
| SB | Left Turn | 1 | 1 | 90.0% | 0.6 | 2.0 | A |
| | Through | 86 | 90 | 104.3% | 47.8 | 9.3 | D |
| | Right Turn | 10 | 9 | 93.0% | 13.9 | 11.5 | B |
| | Subtotal | 97 | 100 | 103.0% | 43.7 | 7.4 | D |
| EB | Left Turn | 9 | 8 | 86.7% | 67.2 | 47.4 | E |
| | Through | 23 | 22 | 94.8% | 88.6 | 22.2 | F |
| | Right Turn | 284 | 306 | 107.6% | 11.2 | 3.2 | B |
| | Subtotal | 316 | 335 | 106.0% | 18.2 | 3.0 | B |
| WB | Left Turn | 134 | 133 | 99.0% | 63.0 | 8.0 | E |
| | Through | 17 | 17 | 102.4% | 54.7 | 23.7 | D |
| | Right Turn | 3 | 3 | 103.3% | 8.2 | 23.0 | A |
| | Subtotal | 154 | 153 | 99.4% | 61.9 | 8.6 | E |
| Total | | 1,382 | 1,395 | 100.9% | 27.5 | 3.5 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 3** **I-80 WB Off-Ramp/Olive Dr** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 2 | 1 | 50.0% | 9.6 | 0.3 | A |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | 2 | 1 | 50.0% | 9.6 | 0.3 | A |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 156 | 157 | 100.8% | 0.5 | 0.1 | A |
| | Right Turn | | | | | | |
| | Subtotal | 156 | 157 | 100.8% | 0.5 | 0.1 | A |
| Total | | 158 | 158 | 100.2% | 0.7 | 0.1 | A |

**Intersection 4** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 80 | 80 | 100.4% | 104.2 | 9.8 | F |
| | Through | 612 | 617 | 100.7% | 36.8 | 6.1 | D |
| | Right Turn | 36 | 35 | 96.4% | 21.0 | 13.1 | C |
| | Subtotal | 728 | 732 | 100.5% | 44.4 | 5.9 | D |
| SB | Left Turn | 38 | 52 | 137.1% | 41.1 | 6.6 | D |
| | Through | 440 | 455 | 103.3% | 10.4 | 2.7 | B |
| | Right Turn | 26 | 24 | 90.4% | 8.3 | 6.9 | A |
| | Subtotal | 504 | 530 | 105.2% | 13.5 | 2.3 | B |
| EB | Left Turn | 37 | 35 | 94.9% | 53.4 | 17.9 | D |
| | Through | 8 | 8 | 100.0% | 39.7 | 35.0 | D |
| | Right Turn | 58 | 60 | 104.1% | 28.2 | 19.8 | C |
| | Subtotal | 103 | 104 | 100.5% | 38.6 | 18.8 | D |
| WB | Left Turn | 116 | 106 | 91.5% | 44.4 | 9.4 | D |
| | Through | 19 | 20 | 102.6% | 70.4 | 19.6 | E |
| | Right Turn | 166 | 152 | 91.6% | 59.8 | 12.6 | E |
| | Subtotal | 301 | 278 | 92.3% | 54.4 | 8.4 | D |
| Total | | 1,636 | 1,643 | 100.4% | 36.2 | 3.2 | D |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 405 | 409 | 100.9% | 13.5 | 10.1 | B |
| | Right Turn | 359 | 359 | 99.9% | 1.7 | 0.3 | A |
| | Subtotal | 764 | 767 | 100.4% | 8.1 | 5.6 | A |
| SB | Left Turn | | | | | | |
| | Through | 427 | 432 | 101.2% | 0.6 | 0.2 | A |
| | Right Turn | 198 | 201 | 101.5% | 1.5 | 0.4 | A |
| | Subtotal | 625 | 633 | 101.3% | 0.9 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 179 | 180 | 100.3% | 0.8 | 0.1 | A |
| | Subtotal | 179 | 180 | 100.3% | 0.8 | 0.1 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 389 | 389 | 100.1% | 5.8 | 5.2 | A |
| | Subtotal | 389 | 389 | 100.1% | 5.8 | 5.2 | A |
| Total | | 1,957 | 1,969 | 100.6% | 4.7 | 3.1 | A |

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 578 | 585 | 101.2% | 24.9 | 5.0 | C |
| | Right Turn | 93 | 90 | 96.3% | 14.1 | 3.2 | B |
| | Subtotal | 671 | 675 | 100.6% | 23.4 | 4.6 | C |
| SB | Left Turn | 242 | 243 | 100.4% | 53.7 | 5.4 | D |
| | Through | 364 | 369 | 101.4% | 10.9 | 1.0 | B |
| | Right Turn | | | | | | |
| | Subtotal | 606 | 612 | 101.0% | 27.9 | 2.3 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 429 | 433 | 101.0% | 53.4 | 9.4 | D |
| | Through | | | | | | |
| | Right Turn | 186 | 179 | 96.4% | 21.8 | 8.2 | C |
| | Subtotal | 615 | 612 | 99.6% | 44.2 | 9.3 | D |
| Total | | 1,892 | 1,899 | 100.4% | 31.7 | 3.3 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**

**Average Results from 10 Runs** **Existing Plus Project Conditions**

**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd-Cowell Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 64 | 64 | 99.4% | 52.8 | 6.8 | D |
| | Through | 6 | 6 | 96.7% | 39.5 | 37.8 | D |
| | Right Turn | 30 | 30 | 101.3% | 9.7 | 4.9 | A |
| | Subtotal | 100 | 100 | 99.8% | 38.9 | 5.4 | D |
| SB | Left Turn | 22 | 24 | 108.6% | 49.9 | 12.4 | D |
| | Through | 19 | 19 | 100.5% | 44.3 | 17.6 | D |
| | Right Turn | 84 | 81 | 96.2% | 16.6 | 9.4 | B |
| | Subtotal | 125 | 124 | 99.0% | 26.2 | 9.6 | C |
| EB | Left Turn | 189 | 189 | 99.8% | 47.4 | 4.8 | D |
| | Through | 471 | 477 | 101.2% | 25.4 | 5.5 | C |
| | Right Turn | 133 | 139 | 104.3% | 22.5 | 5.2 | C |
| | Subtotal | 793 | 804 | 101.4% | 29.9 | 4.9 | C |
| WB | Left Turn | 30 | 29 | 96.7% | 56.6 | 13.6 | E |
| | Through | 488 | 490 | 100.5% | 22.5 | 3.3 | C |
| | Right Turn | 20 | 18 | 88.0% | 8.7 | 5.4 | A |
| | Subtotal | 538 | 537 | 99.8% | 23.9 | 3.7 | C |
| Total | | 1,556 | 1,565 | 100.5% | 28.1 | 4.1 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 1** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 27 | 26 | 95.2% | 24.4 | 10.0 | C |
| | Through | 41 | 43 | 104.9% | 22.1 | 3.9 | C |
| | Right Turn | 61 | 62 | 100.8% | 8.9 | 1.9 | A |
| | Subtotal | 129 | 130 | 100.9% | 16.5 | 3.0 | B |
| SB | Left Turn | 85 | 81 | 95.8% | 38.9 | 23.0 | D |
| | Through | 29 | 30 | 102.1% | 35.2 | 13.6 | D |
| | Right Turn | 21 | 23 | 107.1% | 15.5 | 15.4 | B |
| | Subtotal | 135 | 134 | 98.9% | 33.6 | 18.6 | C |
| EB | Left Turn | 14 | 13 | 92.1% | 53.8 | 25.4 | D |
| | Through | 377 | 387 | 102.6% | 55.0 | 38.0 | D |
| | Right Turn | 59 | 57 | 96.4% | 48.6 | 33.6 | D |
| | Subtotal | 450 | 457 | 101.5% | 54.6 | 37.2 | D |
| WB | Left Turn | 78 | 79 | 101.0% | 31.8 | 2.8 | C |
| | Through | 310 | 308 | 99.2% | 12.7 | 3.8 | B |
| | Right Turn | 48 | 48 | 99.4% | 9.8 | 4.8 | A |
| | Subtotal | 436 | 434 | 99.6% | 16.2 | 3.8 | B |
| Total | | 1,150 | 1,155 | 100.4% | 33.9 | 15.3 | C |

**Intersection 2** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 379 | 380 | 100.2% | 18.7 | 10.1 | B |
| | Through | 110 | 109 | 98.7% | 19.6 | 10.6 | B |
| | Right Turn | 256 | 250 | 97.5% | 6.9 | 3.5 | A |
| | Subtotal | 745 | 738 | 99.1% | 14.6 | 7.9 | B |
| SB | Left Turn | 6 | 6 | 91.7% | 38.8 | 32.3 | D |
| | Through | 168 | 167 | 99.2% | 57.0 | 14.3 | E |
| | Right Turn | 21 | 22 | 102.9% | 29.5 | 19.8 | C |
| | Subtotal | 195 | 194 | 99.4% | 53.6 | 15.2 | D |
| EB | Left Turn | 10 | 10 | 101.0% | 86.3 | 30.9 | F |
| | Through | 53 | 54 | 102.3% | 91.1 | 20.7 | F |
| | Right Turn | 460 | 465 | 101.1% | 17.0 | 2.2 | B |
| | Subtotal | 523 | 529 | 101.2% | 26.5 | 4.5 | C |
| WB | Left Turn | 206 | 206 | 99.8% | 90.0 | 34.5 | F |
| | Through | 36 | 35 | 96.9% | 43.5 | 13.3 | D |
| | Right Turn | 6 | 7 | 113.3% | 25.3 | 31.4 | C |
| | Subtotal | 248 | 247 | 99.7% | 82.4 | 30.6 | F |
| Total | | 1,711 | 1,709 | 99.9% | 33.7 | 7.0 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 3** **I-80 WB Off-Ramp/Olive Dr** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 7 | 8 | 112.9% | 9.3 | 0.2 | A |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | 7 | 8 | 112.9% | 9.3 | 0.2 | A |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 147 | 145 | 98.9% | 0.5 | 0.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 147 | 145 | 98.9% | 0.5 | 0.0 | A |
| Total | | 154 | 153 | 99.5% | 1.0 | 0.1 | A |

**Intersection 4** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 46 | 44 | 95.9% | 68.4 | 10.1 | E |
| | Through | 536 | 535 | 99.8% | 21.7 | 3.2 | C |
| | Right Turn | 60 | 53 | 88.3% | 6.0 | 5.0 | A |
| | Subtotal | 642 | 632 | 98.4% | 23.9 | 3.0 | C |
| SB | Left Turn | 102 | 104 | 102.0% | 56.8 | 7.7 | E |
| | Through | 698 | 699 | 100.1% | 15.3 | 4.4 | B |
| | Right Turn | 34 | 34 | 99.7% | 15.6 | 3.5 | B |
| | Subtotal | 834 | 837 | 100.3% | 20.8 | 5.2 | C |
| EB | Left Turn | 32 | 33 | 101.6% | 61.5 | 13.5 | E |
| | Through | 7 | 5 | 77.1% | 46.7 | 38.0 | D |
| | Right Turn | 74 | 73 | 98.2% | 32.4 | 13.6 | C |
| | Subtotal | 113 | 111 | 97.9% | 40.7 | 15.7 | D |
| WB | Left Turn | 156 | 143 | 91.9% | 213.2 | 125.1 | F |
| | Through | 19 | 19 | 99.5% | 203.1 | 122.9 | F |
| | Right Turn | 177 | 168 | 94.8% | 187.1 | 129.4 | F |
| | Subtotal | 352 | 330 | 93.8% | 199.9 | 123.9 | F |
| Total | | 1,941 | 1,909 | 98.4% | 53.6 | 22.5 | D |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 455 | 446 | 98.0% | 5.6 | 1.6 | A |
| | Right Turn | 437 | 429 | 98.1% | 2.2 | 0.3 | A |
| | Subtotal | 892 | 875 | 98.1% | 4.0 | 0.8 | A |
| SB | Left Turn | | | | | | |
| | Through | 644 | 629 | 97.7% | 0.7 | 0.2 | A |
| | Right Turn | 326 | 327 | 100.2% | 1.8 | 0.2 | A |
| | Subtotal | 970 | 956 | 98.5% | 1.0 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 90 | 90 | 100.1% | 0.8 | 0.2 | A |
| | Subtotal | 90 | 90 | 100.1% | 0.8 | 0.2 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 221 | 221 | 99.9% | 0.9 | 0.2 | A |
| | Subtotal | 221 | 221 | 99.9% | 0.9 | 0.2 | A |
| Total | | 2,173 | 2,141 | 98.5% | 2.3 | 0.3 | A |

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 711 | 711 | 100.0% | 15.8 | 4.6 | B |
| | Right Turn | 126 | 128 | 101.2% | 7.9 | 2.4 | A |
| | Subtotal | 837 | 839 | 100.2% | 14.5 | 4.1 | B |
| SB | Left Turn | 191 | 191 | 99.8% | 63.2 | 4.9 | E |
| | Through | 543 | 526 | 96.9% | 10.2 | 1.7 | B |
| | Right Turn | | | | | | |
| | Subtotal | 734 | 717 | 97.7% | 24.5 | 2.3 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 552 | 536 | 97.0% | 163.0 | 21.3 | F |
| | Through | | | | | | |
| | Right Turn | 181 | 163 | 90.1% | 131.9 | 21.9 | F |
| | Subtotal | 733 | 699 | 95.3% | 155.7 | 22.0 | F |
| Total | | 2,304 | 2,254 | 97.8% | 62.7 | 7.2 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd-Cowell Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 92 | 94 | 101.6% | 53.1 | 7.5 | D |
| | Through | 25 | 24 | 94.8% | 33.2 | 17.1 | C |
| | Right Turn | 40 | 41 | 102.3% | 15.1 | 6.6 | B |
| | Subtotal | 157 | 158 | 100.7% | 40.9 | 6.3 | D |
| SB | Left Turn | 37 | 40 | 107.0% | 42.7 | 14.4 | D |
| | Through | 10 | 8 | 84.0% | 41.3 | 18.5 | D |
| | Right Turn | 129 | 126 | 97.8% | 10.4 | 5.5 | B |
| | Subtotal | 176 | 174 | 99.0% | 18.8 | 4.7 | B |
| EB | Left Turn | 307 | 303 | 98.7% | 60.3 | 8.5 | E |
| | Through | 729 | 705 | 96.7% | 16.1 | 3.3 | B |
| | Right Turn | 59 | 56 | 95.4% | 14.8 | 5.7 | B |
| | Subtotal | 1,095 | 1,064 | 97.2% | 29.3 | 4.1 | C |
| WB | Left Turn | 25 | 25 | 100.0% | 61.4 | 25.6 | E |
| | Through | 532 | 533 | 100.2% | 37.9 | 5.9 | D |
| | Right Turn | 35 | 35 | 100.3% | 13.3 | 9.3 | B |
| | Subtotal | 592 | 593 | 100.2% | 37.7 | 6.2 | D |
| Total | | 2,020 | 1,989 | 98.5% | 31.8 | 2.9 | C |

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 1 | 0 | 1 | 1 | 59 | 4 | 56 | 69 | NO |
| | Right Turn | 1,120 | 1 | 0 | 1 | 1 | 59 | 4 | 56 | 69 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 0 | 110 | 15 | 83 | 141 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 24 | 8 | 19 | 48 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 25 | 14 | 0 | 49 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 50 | 6 | 41 | 60 | 320 | 30 | 270 | 360 | NO |
| | Right Turn | 500 | 36 | 6 | 27 | 45 | 291 | 30 | 240 | 331 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 46 | 3 | 41 | 51 | 182 | 31 | 156 | 258 | NO |
| | Through | 1,300 | 14 | 2 | 10 | 16 | 153 | 29 | 91 | 185 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 159 | 21 | 124 | 185 | 725 | 107 | 555 | 882 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 8 | 1 | 6 | 10 | 124 | 29 | 89 | 186 | NO |
| | Second Right | | | | | | | | | | |

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 2 | 1 | 1 | 3 | 61 | 3 | 57 | 65 | NO |
| | Right Turn | 1,120 | 2 | 1 | 1 | 3 | 61 | 3 | 57 | 65 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 1 | 0 | 0 | 1 | 127 | 29 | 99 | 204 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 2 | 7 | 0 | 21 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Existing Plus Project Conditions**
**Queue Length** **PM Peak Hour**

**Intersection 6** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 37 | 6 | 30 | 49 | 360 | 41 | 314 | 450 | NO |
| | Right Turn | 500 | 26 | 5 | 20 | 37 | 330 | 41 | 285 | 420 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 44 | 3 | 39 | 48 | 149 | 17 | 122 | 181 | NO |
| | Through | 1,300 | 18 | 1 | 16 | 19 | 198 | 27 | 158 | 251 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 782 | 163 | 411 | 993 | 1,284 | 58 | 1,123 | 1,319 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 13 | 8 | 7 | 31 | 288 | 354 | 98 | 1,151 | NO |
| | Second Right | | | | | | | | | | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Existing Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,325 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,175 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,908 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,636 | pcphpl |
| Average passenger-car speed, S | 64.2 | mph |
| Volume-to-capacity ratio, v/c | 0.70 | |
| Density, D | 25.5 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Existing Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,045 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,099 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,590 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,530 | pcphpl |
| Average passenger-car speed, S | 64.8 | mph |
| Volume-to-capacity ratio, v/c | 0.65 | |
| Density, D | 23.6 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Existing Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,885 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,272 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,312 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,771 | pcphpl |
| Average passenger-car speed, S | 63.1 | mph |
| Volume-to-capacity ratio, v/c | 0.75 | |
| Density, D | 28.1 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Existing Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,729 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,232 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,143 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,714 | pcphpl |
| Average passenger-car speed, S | 63.6 | mph |
| Volume-to-capacity ratio, v/c | 0.73 | |
| Density, D | 27.0 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Existing Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,718 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,229 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,131 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,283 | pcphpl |
| Average passenger-car speed, S | 65.0 | mph |
| Volume-to-capacity ratio, v/c | 0.55 | |
| Density, D | 19.7 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Existing Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,329 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,176 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,912 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,637 | pcphpl |
| Average passenger-car speed, S | 64.2 | mph |
| Volume-to-capacity ratio, v/c | 0.70 | |
| Density, D | 25.5 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Existing Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 3,913 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,063 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,440 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,480 | pcphpl |
| Average passenger-car speed, S | 64.9 | mph |
| Volume-to-capacity ratio, v/c | 0.63 | |
| Density, D | 22.8 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Existing Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,355 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,146 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,786 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,595 | pcphpl |
| Average passenger-car speed, S | 64.5 | mph |
| Volume-to-capacity ratio, v/c | 0.68 | |
| Density, D | 24.7 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Existing Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,208 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,107 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 4,624 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,541 | pcphpl |
| Average passenger-car speed, S | 64.7 | mph |
| Volume-to-capacity ratio, v/c | 0.66 | |
| Density, D | 23.8 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Existing Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 4,660 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,226 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,121 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,280 | pcphpl |
| Average passenger-car speed, S | 65.0 | mph |
| Volume-to-capacity ratio, v/c | 0.54 | |
| Density, D | 19.7 | pcpmpl |
| Level of service, LOS | C | |

**Appendix C – Cumulative No Project**

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 12 | 10 | 86.7% | 45.1 | 19.1 | D |
| | Through | 17 | 14 | 80.6% | 46.0 | 25.6 | D |
| | Right Turn | 28 | 28 | 100.0% | 5.9 | 0.6 | A |
| | Subtotal | 57 | 52 | 91.4% | 22.4 | 5.9 | C |
| SB | Left Turn | 57 | 58 | 101.1% | 45.8 | 12.1 | D |
| | Through | 32 | 30 | 94.4% | 45.8 | 15.5 | D |
| | Right Turn | 56 | 54 | 95.9% | 11.9 | 3.3 | B |
| | Subtotal | 145 | 142 | 97.6% | 32.0 | 7.3 | C |
| EB | Left Turn | 2 | 1 | 60.0% | 10.9 | 24.9 | B |
| | Through | 338 | 335 | 99.1% | 18.5 | 8.0 | B |
| | Right Turn | 31 | 30 | 95.8% | 17.0 | 12.1 | B |
| | Subtotal | 371 | 366 | 98.6% | 18.5 | 8.2 | B |
| WB | Left Turn | 30 | 27 | 90.0% | 69.3 | 14.9 | E |
| | Through | 481 | 407 | 84.7% | 7.8 | 2.3 | A |
| | Right Turn | 51 | 46 | 90.0% | 6.1 | 3.0 | A |
| | Subtotal | 562 | 480 | 85.4% | 11.3 | 2.9 | B |
| Total | | 1,135 | 1,040 | 91.6% | 17.3 | 2.9 | B |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 493 | 419 | 85.0% | 44.3 | 10.7 | D |
| | Through | 157 | 139 | 88.6% | 42.9 | 10.4 | D |
| | Right Turn | 264 | 216 | 81.8% | 18.8 | 5.2 | B |
| | Subtotal | 914 | 774 | 84.7% | 37.3 | 8.9 | D |
| SB | Left Turn | 1 | 1 | 80.0% | 9.1 | 20.1 | A |
| | Through | 170 | 163 | 96.1% | 35.2 | 3.7 | D |
| | Right Turn | 10 | 12 | 116.0% | 8.3 | 7.0 | A |
| | Subtotal | 181 | 176 | 97.1% | 33.6 | 3.8 | C |
| EB | Left Turn | 9 | 8 | 87.8% | 56.7 | 41.2 | E |
| | Through | 34 | 34 | 100.6% | 53.9 | 10.1 | D |
| | Right Turn | 381 | 381 | 99.9% | 16.5 | 4.4 | B |
| | Subtotal | 424 | 423 | 99.7% | 20.1 | 4.4 | C |
| WB | Left Turn | 133 | 130 | 97.6% | 44.7 | 4.7 | D |
| | Through | 57 | 54 | 94.4% | 37.6 | 10.9 | D |
| | Right Turn | 3 | 3 | 83.3% | 2.1 | 3.7 | A |
| | Subtotal | 193 | 186 | 96.4% | 42.3 | 4.6 | D |
| Total | | 1,712 | 1,559 | 91.0% | 32.7 | 4.5 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 159 | 156 | 98.2% | 0.5 | 0.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 159 | 156 | 98.2% | 0.5 | 0.0 | A |
| Total | | 159 | 156 | 98.2% | 0.5 | 0.0 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 216 | 172 | 79.5% | 77.1 | 8.7 | E |
| | Through | 682 | 558 | 81.9% | 198.9 | 42.4 | F |
| | Right Turn | 42 | 34 | 80.5% | 88.4 | 20.9 | F |
| | Subtotal | 940 | 764 | 81.3% | 166.1 | 31.2 | F |
| SB | Left Turn | 57 | 51 | 90.2% | 28.4 | 6.0 | C |
| | Through | 514 | 513 | 99.7% | 22.5 | 3.6 | C |
| | Right Turn | 112 | 109 | 97.5% | 17.8 | 4.0 | B |
| | Subtotal | 683 | 673 | 98.6% | 22.2 | 3.6 | C |
| EB | Left Turn | 64 | 59 | 91.9% | 35.4 | 12.2 | D |
| | Through | 10 | 10 | 100.0% | 21.1 | 18.3 | C |
| | Right Turn | 84 | 82 | 97.6% | 18.6 | 8.5 | B |
| | Subtotal | 158 | 151 | 95.4% | 25.9 | 10.8 | C |
| WB | Left Turn | 114 | 108 | 94.3% | 28.5 | 4.5 | C |
| | Through | 24 | 24 | 100.4% | 38.3 | 13.8 | D |
| | Right Turn | 168 | 155 | 92.3% | 36.4 | 7.9 | D |
| | Subtotal | 306 | 287 | 93.7% | 34.0 | 5.1 | C |
| Total | | 2,087 | 1,874 | 89.8% | 83.7 | 11.7 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 465 | 380 | 81.7% | 205.8 | 26.0 | F |
| | Right Turn | 615 | 534 | 86.8% | 1.9 | 0.4 | A |
| | Subtotal | 1,080 | 914 | 84.6% | 88.4 | 12.8 | F |
| SB | Left Turn | | | | | | |
| | Through | 517 | 501 | 96.8% | 0.8 | 0.1 | A |
| | Right Turn | 198 | 197 | 99.6% | 1.3 | 0.4 | A |
| | Subtotal | 715 | 698 | 97.6% | 1.0 | 0.1 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 212 | 204 | 96.0% | 0.9 | 0.2 | A |
| | Subtotal | 212 | 204 | 96.0% | 0.9 | 0.2 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 479 | 397 | 82.8% | 506.9 | 102.9 | F |
| | Subtotal | 479 | 397 | 82.8% | 506.9 | 102.9 | F |
| Total | | 2,486 | 2,212 | 89.0% | 125.2 | 16.1 | F |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 848 | 753 | 88.8% | 159.2 | 24.4 | F |
| | Right Turn | 93 | 84 | 89.8% | 141.9 | 34.8 | F |
| | Subtotal | 941 | 836 | 88.9% | 157.4 | 23.8 | F |
| SB | Left Turn | 249 | 242 | 97.1% | 29.4 | 2.9 | C |
| | Through | 480 | 463 | 96.4% | 11.4 | 1.3 | B |
| | Right Turn | | | | | | |
| | Subtotal | 729 | 705 | 96.6% | 17.4 | 1.5 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 724 | 632 | 87.2% | 264.3 | 146.7 | F |
| | Through | | | | | | |
| | Right Turn | 232 | 198 | 85.1% | 366.4 | 164.9 | F |
| | Subtotal | 956 | 829 | 86.7% | 289.0 | 151.1 | F |
| Total | | 2,626 | 2,370 | 90.2% | 155.5 | 50.9 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 72 | 69 | 95.3% | 81.7 | 38.2 | F |
| | Through | 6 | 6 | 96.7% | 30.9 | 22.0 | C |
| | Right Turn | 38 | 36 | 95.5% | 5.7 | 1.4 | A |
| | Subtotal | 116 | 111 | 95.4% | 56.3 | 29.5 | E |
| SB | Left Turn | 33 | 33 | 100.0% | 142.3 | 103.3 | F |
| | Through | 27 | 24 | 89.3% | 156.9 | 153.5 | F |
| | Right Turn | 137 | 119 | 86.9% | 191.8 | 125.7 | F |
| | Subtotal | 197 | 176 | 89.4% | 175.9 | 118.8 | F |
| EB | Left Turn | 335 | 304 | 90.7% | 53.8 | 12.5 | D |
| | Through | 726 | 654 | 90.1% | 0.4 | 0.1 | A |
| | Right Turn | 143 | 134 | 93.4% | 5.6 | 1.5 | A |
| | Subtotal | 1,204 | 1,092 | 90.7% | 15.7 | 4.2 | B |
| WB | Left Turn | 36 | 33 | 92.8% | 126.9 | 44.2 | F |
| | Through | 698 | 643 | 92.1% | 136.9 | 56.8 | F |
| | Right Turn | 68 | 60 | 88.5% | 90.2 | 48.4 | F |
| | Subtotal | 802 | 737 | 91.9% | 132.4 | 55.6 | F |
| Total | | 2,319 | 2,115 | 91.2% | 69.2 | 25.2 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 28 | 89.0% | 20.1 | 5.7 | C |
| | Through | 40 | 40 | 100.5% | 18.7 | 6.4 | B |
| | Right Turn | 63 | 64 | 101.3% | 19.7 | 3.6 | B |
| | Subtotal | 134 | 132 | 98.2% | 19.9 | 1.5 | B |
| SB | Left Turn | 151 | 142 | 93.8% | 175.6 | 69.9 | F |
| | Through | 35 | 36 | 102.6% | 167.1 | 65.1 | F |
| | Right Turn | 39 | 40 | 103.3% | 126.5 | 78.3 | F |
| | Subtotal | 225 | 218 | 96.8% | 166.1 | 71.6 | F |
| EB | Left Turn | 15 | 8 | 56.0% | 312.8 | 136.6 | F |
| | Through | 455 | 288 | 63.3% | 330.4 | 56.8 | F |
| | Right Turn | 59 | 34 | 56.8% | 336.3 | 73.2 | F |
| | Subtotal | 529 | 330 | 62.4% | 331.1 | 58.2 | F |
| WB | Left Turn | 77 | 70 | 91.3% | 36.0 | 4.6 | D |
| | Through | 379 | 373 | 98.4% | 17.4 | 3.4 | B |
| | Right Turn | 49 | 45 | 92.4% | 13.2 | 4.5 | B |
| | Subtotal | 505 | 489 | 96.7% | 19.5 | 2.9 | B |
| Total | | 1,393 | 1,168 | 83.8% | 133.1 | 11.4 | F |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 381 | 370 | 97.1% | 39.0 | 8.8 | D |
| | Through | 184 | 172 | 93.4% | 39.6 | 10.7 | D |
| | Right Turn | 308 | 277 | 89.8% | 15.3 | 6.2 | B |
| | Subtotal | 873 | 818 | 93.7% | 31.5 | 8.0 | C |
| SB | Left Turn | 7 | 6 | 81.4% | 44.2 | 38.0 | D |
| | Through | 197 | 196 | 99.3% | 80.1 | 22.8 | F |
| | Right Turn | 23 | 23 | 100.9% | 39.2 | 20.7 | D |
| | Subtotal | 227 | 225 | 98.9% | 75.2 | 23.8 | E |
| EB | Left Turn | 10 | 9 | 91.0% | 96.1 | 43.5 | F |
| | Through | 63 | 54 | 85.9% | 87.9 | 13.6 | F |
| | Right Turn | 597 | 435 | 72.8% | 49.5 | 7.6 | D |
| | Subtotal | 670 | 498 | 74.3% | 54.1 | 8.3 | D |
| WB | Left Turn | 219 | 212 | 96.9% | 144.6 | 64.5 | F |
| | Through | 102 | 101 | 98.7% | 39.6 | 4.4 | D |
| | Right Turn | 6 | 8 | 126.7% | 21.4 | 22.0 | C |
| | Subtotal | 327 | 321 | 98.0% | 110.2 | 45.7 | F |
| Total | | 2,097 | 1,861 | 88.8% | 55.7 | 12.2 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 158 | 162 | 102.6% | 0.5 | 0.1 | A |
| | Right Turn | | | | | | |
| | Subtotal | 158 | 162 | 102.6% | 0.5 | 0.1 | A |
| Total | | 158 | 162 | 102.6% | 0.5 | 0.1 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 133 | 110 | 82.8% | 91.7 | 11.8 | F |
| | Through | 547 | 499 | 91.2% | 116.6 | 46.0 | F |
| | Right Turn | 64 | 51 | 79.8% | 70.1 | 36.4 | E |
| | Subtotal | 744 | 660 | 88.8% | 108.7 | 37.4 | F |
| SB | Left Turn | 102 | 95 | 93.1% | 67.0 | 3.8 | E |
| | Through | 825 | 673 | 81.5% | 59.1 | 3.1 | E |
| | Right Turn | 85 | 75 | 88.4% | 54.7 | 3.7 | D |
| | Subtotal | 1,012 | 843 | 83.3% | 59.7 | 2.6 | E |
| EB | Left Turn | 137 | 137 | 100.3% | 30.3 | 6.1 | C |
| | Through | 16 | 16 | 101.3% | 25.9 | 7.0 | C |
| | Right Turn | 138 | 134 | 97.0% | 23.1 | 5.1 | C |
| | Subtotal | 291 | 287 | 98.8% | 26.9 | 4.9 | C |
| WB | Left Turn | 149 | 152 | 102.2% | 35.6 | 7.2 | D |
| | Through | 22 | 24 | 109.5% | 40.1 | 12.2 | D |
| | Right Turn | 189 | 180 | 95.4% | 36.3 | 10.6 | D |
| | Subtotal | 360 | 357 | 99.1% | 36.6 | 8.5 | D |
| Total | | 2,407 | 2,147 | 89.2% | 66.3 | 11.4 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 521 | 454 | 87.1% | 142.9 | 29.4 | F |
| | Right Turn | 771 | 725 | 94.0% | 2.3 | 0.6 | A |
| | Subtotal | 1,292 | 1,179 | 91.3% | 58.3 | 13.8 | F |
| SB | Left Turn | | | | | | |
| | Through | 817 | 688 | 84.2% | 0.8 | 0.2 | A |
| | Right Turn | 349 | 325 | 93.2% | 2.0 | 0.3 | A |
| | Subtotal | 1,166 | 1,014 | 86.9% | 1.2 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 116 | 114 | 98.1% | 0.7 | 0.1 | A |
| | Subtotal | 116 | 114 | 98.1% | 0.7 | 0.1 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 229 | 227 | 99.3% | 32.9 | 27.9 | D |
| | Subtotal | 229 | 227 | 99.3% | 32.9 | 27.9 | D |
| Total | | 2,803 | 2,534 | 90.4% | 29.6 | 3.8 | D |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,096 | 1,041 | 95.0% | 77.0 | 23.6 | E |
| | Right Turn | 128 | 116 | 90.9% | 122.8 | 49.8 | F |
| | Subtotal | 1,224 | 1,157 | 94.6% | 81.8 | 24.5 | F |
| SB | Left Turn | 294 | 224 | 76.3% | 52.9 | 5.9 | D |
| | Through | 639 | 577 | 90.3% | 27.2 | 6.7 | C |
| | Right Turn | | | | | | |
| | Subtotal | 933 | 801 | 85.9% | 34.1 | 5.7 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 821 | 682 | 83.0% | 269.5 | 162.0 | F |
| | Through | | | | | | |
| | Right Turn | 196 | 164 | 83.5% | 229.0 | 107.4 | F |
| | Subtotal | 1,017 | 845 | 83.1% | 263.7 | 155.1 | F |
| Total | | 3,174 | 2,804 | 88.3% | 110.4 | 25.6 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 92 | 87 | 94.9% | 69.7 | 12.4 | E |
| | Through | 24 | 23 | 97.1% | 35.6 | 10.7 | D |
| | Right Turn | 66 | 68 | 103.0% | 10.1 | 5.1 | B |
| | Subtotal | 182 | 179 | 98.1% | 43.2 | 7.5 | D |
| SB | Left Turn | 40 | 39 | 96.3% | 147.4 | 70.8 | F |
| | Through | 15 | 14 | 90.0% | 131.8 | 79.5 | F |
| | Right Turn | 399 | 369 | 92.4% | 123.7 | 83.7 | F |
| | Subtotal | 454 | 421 | 92.7% | 127.3 | 81.2 | F |
| EB | Left Turn | 415 | 366 | 88.1% | 96.5 | 31.6 | F |
| | Through | 978 | 833 | 85.2% | 0.7 | 0.2 | A |
| | Right Turn | 66 | 59 | 88.9% | 2.8 | 0.5 | A |
| | Subtotal | 1,459 | 1,257 | 86.2% | 29.1 | 11.9 | C |
| WB | Left Turn | 30 | 28 | 93.7% | 104.7 | 40.2 | F |
| | Through | 649 | 634 | 97.6% | 96.4 | 37.8 | F |
| | Right Turn | 35 | 33 | 93.1% | 59.2 | 37.9 | E |
| | Subtotal | 714 | 694 | 97.3% | 95.0 | 37.6 | F |
| Total | | 2,809 | 2,551 | 90.8% | 65.6 | 26.2 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Queue Length** **AM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 37 | 4 | 31 | 44 | 89 | 9 | 73 | 96 | NO |
| | Right Turn | 1,120 | 37 | 4 | 31 | 44 | 89 | 9 | 73 | 96 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 0 | 108 | 17 | 83 | 141 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 27 | 15 | 0 | 51 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 26 | 8 | 22 | 49 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 303 | 157 | 39 | 500 | 1,284 | 434 | 447 | 1,625 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Queue Length** **AM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 309 | 60 | 238 | 402 | 807 | 9 | 795 | 820 | MAX |
| | Right Turn | 500 | 284 | 59 | 214 | 375 | 777 | 9 | 766 | 790 | MAX |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 29 | 3 | 24 | 34 | 127 | 14 | 107 | 154 | NO |
| | Through | 1,300 | 17 | 1 | 15 | 19 | 143 | 21 | 116 | 179 | NO |
| | Right Turn | 1,260 | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 531 | 234 | 213 | 984 | 1,671 | 15 | 1,657 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 515 | 245 | 147 | 882 | 1,668 | 15 | 1,658 | 1,695 | MAX |
| | Second Right | | | | | | | | | | |

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 20 | 6 | 7 | 28 | 90 | 8 | 73 | 96 | NO |
| | Right Turn | 1,120 | 20 | 6 | 7 | 28 | 90 | 8 | 73 | 96 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 1 | 0 | 0 | 1 | 106 | 13 | 83 | 121 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 2 | 6 | 0 | 20 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative No Project**
**Queue Length** **PM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 327 | 94 | 156 | 516 | 776 | 94 | 509 | 810 | MAX |
| | Right Turn | 500 | 301 | 93 | 132 | 488 | 747 | 94 | 480 | 780 | MAX |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 44 | 4 | 36 | 51 | 160 | 18 | 136 | 184 | NO |
| | Through | 1,300 | 46 | 5 | 41 | 52 | 247 | 38 | 198 | 316 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 1,301 | 49 | 1,215 | 1,380 | 1,687 | 7 | 1,673 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 144 | 281 | 4 | 859 | 641 | 717 | 90 | 1,686 | NO |
| | Second Right | | | | | | | | | | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,741 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,560 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,515 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,172 | pcphpl |
| Average passenger-car speed, S | 56.6 | mph |
| Volume-to-capacity ratio, v/c | 0.92 | |
| Density, D | 38.4 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,127 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,393 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,818 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,939 | pcphpl |
| Average passenger-car speed, S | 60.9 | mph |
| Volume-to-capacity ratio, v/c | 0.83 | |
| Density, D | 31.9 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,028 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,570 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,555 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,185 | pcphpl |
| Average passenger-car speed, S | 56.3 | mph |
| Volume-to-capacity ratio, v/c | 0.93 | |
| Density, D | 38.8 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,869 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,528 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,383 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,128 | pcphpl |
| Average passenger-car speed, S | 57.5 | mph |
| Volume-to-capacity ratio, v/c | 0.91 | |
| Density, D | 37.0 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,991 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,560 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,515 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,629 | pcphpl |
| Average passenger-car speed, S | 64.3 | mph |
| Volume-to-capacity ratio, v/c | 0.69 | |
| Density, D | 25.3 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,790 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,573 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,570 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,190 | pcphpl |
| Average passenger-car speed, S | 56.1 | mph |
| Volume-to-capacity ratio, v/c | 0.93 | |
| Density, D | 39.0 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,195 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,412 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,895 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,965 | pcphpl |
| Average passenger-car speed, S | 60.5 | mph |
| Volume-to-capacity ratio, v/c | 0.84 | |
| Density, D | 32.5 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,499 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,447 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,043 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,014 | pcphpl |
| Average passenger-car speed, S | 59.6 | mph |
| Volume-to-capacity ratio, v/c | 0.86 | |
| Density, D | 33.8 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,341 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,406 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,869 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,956 | pcphpl |
| Average passenger-car speed, S | 60.6 | mph |
| Volume-to-capacity ratio, v/c | 0.83 | |
| Density, D | 32.3 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,116 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,609 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,721 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,680 | pcphpl |
| Average passenger-car speed, S | 63.9 | mph |
| Volume-to-capacity ratio, v/c | 0.72 | |
| Density, D | 26.3 | pcpmpl |
| Level of service, LOS | D | |

# Appendix D – Cumulative Plus Project

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 12 | 13 | 106.7% | 49.4 | 13.2 | D |
| | Through | 17 | 13 | 78.8% | 40.6 | 22.8 | D |
| | Right Turn | 28 | 26 | 92.9% | 6.4 | 1.6 | A |
| | Subtotal | 57 | 52 | 91.6% | 25.2 | 6.5 | C |
| SB | Left Turn | 57 | 53 | 93.3% | 46.6 | 15.8 | D |
| | Through | 32 | 32 | 99.1% | 52.0 | 21.7 | D |
| | Right Turn | 56 | 56 | 99.8% | 14.5 | 3.8 | B |
| | Subtotal | 145 | 141 | 97.1% | 34.3 | 10.5 | C |
| EB | Left Turn | 2 | 1 | 65.0% | 24.1 | 54.9 | C |
| | Through | 341 | 338 | 99.1% | 22.2 | 9.1 | C |
| | Right Turn | 31 | 28 | 91.6% | 26.4 | 18.5 | C |
| | Subtotal | 374 | 368 | 98.3% | 22.6 | 9.7 | C |
| WB | Left Turn | 30 | 25 | 83.3% | 65.7 | 13.3 | E |
| | Through | 481 | 415 | 86.3% | 7.6 | 1.8 | A |
| | Right Turn | 51 | 46 | 90.8% | 5.9 | 1.9 | A |
| | Subtotal | 562 | 487 | 86.6% | 10.1 | 1.9 | B |
| Total | | 1,138 | 1,047 | 92.0% | 18.7 | 4.2 | B |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 495 | 425 | 85.8% | 41.9 | 12.4 | D |
| | Through | 158 | 131 | 82.7% | 38.8 | 11.3 | D |
| | Right Turn | 269 | 215 | 80.1% | 15.3 | 6.8 | B |
| | Subtotal | 922 | 771 | 83.6% | 34.2 | 10.6 | C |
| SB | Left Turn | 1 | 1 | 110.0% | 9.4 | 20.6 | A |
| | Through | 171 | 165 | 96.4% | 33.8 | 2.7 | C |
| | Right Turn | 10 | 12 | 116.0% | 11.1 | 6.8 | B |
| | Subtotal | 182 | 178 | 97.5% | 32.6 | 3.2 | C |
| EB | Left Turn | 9 | 8 | 91.1% | 62.0 | 36.9 | E |
| | Through | 34 | 35 | 102.4% | 63.8 | 19.1 | E |
| | Right Turn | 383 | 378 | 98.6% | 16.6 | 4.0 | B |
| | Subtotal | 426 | 421 | 98.8% | 22.3 | 3.9 | C |
| WB | Left Turn | 136 | 131 | 96.0% | 45.2 | 4.3 | D |
| | Through | 57 | 56 | 97.4% | 38.4 | 10.6 | D |
| | Right Turn | 3 | 3 | 106.7% | 7.8 | 13.3 | A |
| | Subtotal | 196 | 189 | 96.5% | 43.2 | 4.7 | D |
| Total | | 1,726 | 1,558 | 90.3% | 31.7 | 5.1 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 161 | 158 | 98.0% | 0.5 | 0.1 | A |
| | Right Turn | | | | | | |
| | Subtotal | 161 | 158 | 98.0% | 0.5 | 0.1 | A |
| Total | | 161 | 158 | 98.0% | 0.5 | 0.1 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 216 | 166 | 76.6% | 85.5 | 10.6 | F |
| | Through | 682 | 544 | 79.7% | 261.1 | 53.0 | F |
| | Right Turn | 46 | 35 | 76.5% | 84.8 | 22.4 | F |
| | Subtotal | 944 | 744 | 78.9% | 211.1 | 40.7 | F |
| SB | Left Turn | 64 | 59 | 92.3% | 30.0 | 4.8 | C |
| | Through | 514 | 508 | 98.9% | 24.5 | 4.7 | C |
| | Right Turn | 112 | 106 | 94.7% | 19.4 | 4.3 | B |
| | Subtotal | 690 | 674 | 97.6% | 24.4 | 4.3 | C |
| EB | Left Turn | 64 | 59 | 92.7% | 31.1 | 11.3 | C |
| | Through | 12 | 11 | 90.0% | 24.0 | 12.2 | C |
| | Right Turn | 84 | 83 | 99.0% | 16.8 | 9.1 | B |
| | Subtotal | 160 | 153 | 95.8% | 22.7 | 10.2 | C |
| WB | Left Turn | 122 | 115 | 93.9% | 26.2 | 3.2 | C |
| | Through | 26 | 26 | 98.8% | 38.9 | 11.1 | D |
| | Right Turn | 176 | 167 | 95.0% | 35.7 | 8.0 | D |
| | Subtotal | 324 | 307 | 94.9% | 32.8 | 6.0 | C |
| Total | | 2,118 | 1,879 | 88.7% | 99.1 | 13.3 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 469 | 367 | 78.3% | 194.8 | 23.9 | F |
| | Right Turn | 615 | 504 | 81.9% | 1.9 | 0.5 | A |
| | Subtotal | 1,084 | 871 | 80.4% | 84.2 | 7.7 | F |
| SB | Left Turn | | | | | | |
| | Through | 522 | 509 | 97.5% | 0.7 | 0.1 | A |
| | Right Turn | 201 | 196 | 97.4% | 1.4 | 0.3 | A |
| | Subtotal | 723 | 704 | 97.4% | 0.9 | 0.1 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 212 | 204 | 96.4% | 0.9 | 0.2 | A |
| | Subtotal | 212 | 204 | 96.4% | 0.9 | 0.2 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 479 | 388 | 81.0% | 627.9 | 98.2 | F |
| | Subtotal | 479 | 388 | 81.0% | 627.9 | 98.2 | F |
| Total | | 2,498 | 2,168 | 86.8% | 147.7 | 15.4 | F |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 850 | 712 | 83.8% | 161.1 | 15.8 | F |
| | Right Turn | 93 | 79 | 85.3% | 152.1 | 48.7 | F |
| | Subtotal | 943 | 791 | 83.9% | 160.3 | 17.6 | F |
| SB | Left Turn | 251 | 248 | 98.7% | 34.7 | 8.0 | C |
| | Through | 483 | 468 | 96.9% | 12.0 | 1.3 | B |
| | Right Turn | | | | | | |
| | Subtotal | 734 | 716 | 97.5% | 20.1 | 3.3 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 724 | 571 | 78.9% | 418.0 | 106.8 | F |
| | Through | | | | | | |
| | Right Turn | 234 | 187 | 79.7% | 529.9 | 126.6 | F |
| | Subtotal | 958 | 758 | 79.1% | 448.7 | 114.8 | F |
| Total | | 2,635 | 2,265 | 86.0% | 199.8 | 21.8 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 72 | 70 | 97.1% | 78.3 | 30.3 | E |
| | Through | 6 | 6 | 96.7% | 32.1 | 20.7 | C |
| | Right Turn | 38 | 37 | 96.3% | 5.8 | 1.5 | A |
| | Subtotal | 116 | 112 | 96.8% | 56.5 | 22.7 | E |
| SB | Left Turn | 33 | 30 | 92.1% | 261.2 | 156.4 | F |
| | Through | 27 | 25 | 92.2% | 340.6 | 149.7 | F |
| | Right Turn | 138 | 114 | 82.8% | 345.2 | 178.7 | F |
| | Subtotal | 198 | 170 | 85.7% | 327.9 | 170.0 | F |
| EB | Left Turn | 336 | 295 | 87.7% | 53.9 | 7.1 | D |
| | Through | 728 | 614 | 84.3% | 0.3 | 0.1 | A |
| | Right Turn | 143 | 130 | 90.6% | 5.3 | 0.6 | A |
| | Subtotal | 1,207 | 1,038 | 86.0% | 16.1 | 2.6 | B |
| WB | Left Turn | 36 | 31 | 86.7% | 193.8 | 15.9 | F |
| | Through | 699 | 612 | 87.5% | 205.4 | 20.9 | F |
| | Right Turn | 68 | 57 | 83.7% | 146.1 | 15.5 | F |
| | Subtotal | 803 | 700 | 87.1% | 200.4 | 19.8 | F |
| Total | | 2,324 | 2,019 | 86.9% | 109.7 | 20.6 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 30 | 95.5% | 22.4 | 4.6 | C |
| | Through | 40 | 41 | 101.3% | 26.7 | 4.3 | C |
| | Right Turn | 63 | 62 | 98.3% | 22.7 | 6.9 | C |
| | Subtotal | 134 | 132 | 98.5% | 23.9 | 3.4 | C |
| SB | Left Turn | 152 | 140 | 92.3% | 226.8 | 77.2 | F |
| | Through | 35 | 35 | 99.7% | 222.3 | 91.6 | F |
| | Right Turn | 39 | 38 | 97.9% | 163.3 | 70.7 | F |
| | Subtotal | 226 | 213 | 94.4% | 216.3 | 77.5 | F |
| EB | Left Turn | 15 | 8 | 55.3% | 346.3 | 52.1 | F |
| | Through | 459 | 272 | 59.3% | 373.2 | 70.4 | F |
| | Right Turn | 59 | 32 | 54.2% | 370.7 | 76.1 | F |
| | Subtotal | 533 | 313 | 58.6% | 372.1 | 69.1 | F |
| WB | Left Turn | 77 | 71 | 92.1% | 34.2 | 4.7 | C |
| | Through | 383 | 364 | 94.9% | 15.0 | 3.0 | B |
| | Right Turn | 49 | 43 | 88.2% | 11.4 | 4.2 | B |
| | Subtotal | 509 | 478 | 93.8% | 17.3 | 2.6 | B |
| Total | | 1,402 | 1,136 | 81.0% | 149.2 | 19.0 | F |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 384 | 361 | 93.9% | 39.7 | 6.3 | D |
| | Through | 186 | 176 | 94.8% | 37.8 | 5.0 | D |
| | Right Turn | 316 | 282 | 89.1% | 14.6 | 5.0 | B |
| | Subtotal | 886 | 819 | 92.4% | 31.1 | 4.8 | C |
| SB | Left Turn | 7 | 6 | 90.0% | 28.4 | 22.9 | C |
| | Through | 199 | 197 | 99.0% | 81.1 | 25.0 | F |
| | Right Turn | 23 | 23 | 99.6% | 40.6 | 23.8 | D |
| | Subtotal | 229 | 226 | 98.8% | 76.7 | 23.8 | E |
| EB | Left Turn | 10 | 9 | 86.0% | 73.2 | 63.1 | E |
| | Through | 63 | 53 | 84.0% | 90.7 | 9.6 | F |
| | Right Turn | 601 | 419 | 69.8% | 55.1 | 11.4 | E |
| | Subtotal | 674 | 481 | 71.3% | 59.3 | 10.4 | E |
| WB | Left Turn | 223 | 219 | 98.0% | 159.8 | 66.9 | F |
| | Through | 102 | 97 | 95.1% | 42.8 | 5.7 | D |
| | Right Turn | 6 | 7 | 118.3% | 25.7 | 21.4 | C |
| | Subtotal | 331 | 323 | 97.5% | 123.1 | 48.4 | F |
| Total | | 2,120 | 1,848 | 87.2% | 59.5 | 11.5 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 161 | 165 | 102.2% | 0.5 | 0.1 | A |
| | Right Turn | | | | | | |
| | Subtotal | 161 | 165 | 102.2% | 0.5 | 0.1 | A |
| Total | | 161 | 165 | 102.2% | 0.5 | 0.1 | A |

**Intersection 4** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 133 | 104 | 78.3% | 96.6 | 10.3 | F |
| | Through | 547 | 487 | 89.0% | 156.5 | 67.1 | F |
| | Right Turn | 71 | 51 | 72.4% | 69.5 | 28.4 | E |
| | Subtotal | 751 | 642 | 85.5% | 139.6 | 53.0 | F |
| SB | Left Turn | 113 | 104 | 92.3% | 68.9 | 6.2 | E |
| | Through | 825 | 653 | 79.1% | 59.1 | 4.7 | E |
| | Right Turn | 85 | 75 | 88.5% | 53.4 | 5.9 | D |
| | Subtotal | 1,023 | 832 | 81.3% | 59.9 | 4.4 | E |
| EB | Left Turn | 137 | 138 | 101.0% | 32.6 | 9.8 | C |
| | Through | 18 | 18 | 97.8% | 26.0 | 11.3 | C |
| | Right Turn | 138 | 135 | 98.0% | 27.3 | 9.5 | C |
| | Subtotal | 293 | 291 | 99.4% | 29.8 | 9.2 | C |
| WB | Left Turn | 160 | 164 | 102.2% | 46.8 | 12.0 | D |
| | Through | 25 | 26 | 103.6% | 33.8 | 16.1 | C |
| | Right Turn | 202 | 195 | 96.3% | 32.4 | 15.6 | C |
| | Subtotal | 387 | 384 | 99.2% | 39.1 | 11.3 | D |
| Total | | 2,454 | 2,150 | 87.6% | 75.2 | 15.7 | E |

**Vissim Post-Processor** | **Lincoln 40 EIR**
**Average Results from 10 Runs** | **Cumulative Plus Project**
**Volume and Delay by Movement** | **PM Peak Hour**

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 528 | 437 | 82.8% | 165.6 | 36.4 | F |
| | Right Turn | 771 | 701 | 90.9% | 2.1 | 0.6 | A |
| | Subtotal | 1,299 | 1,138 | 87.6% | 64.2 | 12.2 | F |
| SB | Left Turn | | | | | | |
| | Through | 824 | 676 | 82.0% | 0.9 | 0.3 | A |
| | Right Turn | 353 | 330 | 93.5% | 2.3 | 0.5 | A |
| | Subtotal | 1,177 | 1,006 | 85.5% | 1.4 | 0.3 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 116 | 114 | 98.1% | 0.8 | 0.2 | A |
| | Subtotal | 116 | 114 | 98.1% | 0.8 | 0.2 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 229 | 227 | 99.3% | 43.5 | 31.6 | E |
| | Subtotal | 229 | 227 | 99.3% | 43.5 | 31.6 | E |
| Total | | 2,821 | 2,485 | 88.1% | 33.0 | 5.3 | D |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,100 | 1,012 | 92.0% | 90.4 | 20.4 | F |
| | Right Turn | 128 | 116 | 90.9% | 161.1 | 44.0 | F |
| | Subtotal | 1,228 | 1,128 | 91.8% | 97.6 | 21.3 | F |
| SB | Left Turn | 296 | 219 | 73.9% | 55.9 | 3.3 | E |
| | Through | 644 | 571 | 88.6% | 33.4 | 12.6 | C |
| | Right Turn | | | | | | |
| | Subtotal | 940 | 790 | 84.0% | 39.2 | 9.2 | D |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 821 | 651 | 79.3% | 316.0 | 152.7 | F |
| | Through | | | | | | |
| | Right Turn | 199 | 158 | 79.2% | 306.6 | 150.5 | F |
| | Subtotal | 1,020 | 809 | 79.3% | 313.9 | 152.1 | F |
| Total | | 3,188 | 2,726 | 85.5% | 128.0 | 25.4 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 92 | 89 | 96.6% | 66.3 | 7.6 | E |
| | Through | 24 | 23 | 95.8% | 34.7 | 9.8 | C |
| | Right Turn | 66 | 67 | 101.2% | 10.8 | 4.1 | B |
| | Subtotal | 182 | 179 | 98.2% | 41.9 | 4.8 | D |
| SB | Left Turn | 40 | 36 | 90.3% | 189.6 | 55.5 | F |
| | Through | 15 | 12 | 81.3% | 163.1 | 64.8 | F |
| | Right Turn | 401 | 358 | 89.3% | 192.2 | 66.6 | F |
| | Subtotal | 456 | 406 | 89.1% | 191.3 | 61.6 | F |
| EB | Left Turn | 417 | 356 | 85.3% | 121.6 | 56.2 | F |
| | Through | 981 | 808 | 82.4% | 0.8 | 0.4 | A |
| | Right Turn | 67 | 57 | 85.2% | 2.9 | 0.7 | A |
| | Subtotal | 1,465 | 1,221 | 83.4% | 35.3 | 13.2 | D |
| WB | Left Turn | 30 | 30 | 99.7% | 145.0 | 45.9 | F |
| | Through | 651 | 627 | 96.3% | 138.3 | 43.0 | F |
| | Right Turn | 35 | 33 | 94.0% | 85.8 | 42.1 | F |
| | Subtotal | 716 | 690 | 96.3% | 136.2 | 42.5 | F |
| Total | | 2,819 | 2,496 | 88.5% | 91.1 | 23.3 | F |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 12 | 12 | 95.8% | 42.0 | 14.5 | D |
| | Through | 17 | 13 | 78.2% | 45.4 | 15.8 | D |
| | Right Turn | 28 | 27 | 96.4% | 5.8 | 1.2 | A |
| | Subtotal | 57 | 52 | 90.9% | 24.3 | 6.7 | C |
| SB | Left Turn | 57 | 53 | 93.7% | 45.5 | 11.0 | D |
| | Through | 32 | 30 | 92.5% | 42.1 | 9.2 | D |
| | Right Turn | 56 | 57 | 100.9% | 12.1 | 4.2 | B |
| | Subtotal | 145 | 140 | 96.2% | 30.8 | 6.0 | C |
| EB | Left Turn | 2 | 2 | 75.0% | 33.5 | 65.3 | C |
| | Through | 341 | 341 | 99.9% | 18.5 | 8.1 | B |
| | Right Turn | 31 | 28 | 89.0% | 24.1 | 14.8 | C |
| | Subtotal | 374 | 370 | 98.9% | 19.3 | 8.9 | B |
| WB | Left Turn | 30 | 26 | 86.7% | 67.5 | 7.8 | E |
| | Through | 481 | 442 | 92.0% | 4.0 | 1.8 | A |
| | Right Turn | 51 | 48 | 94.3% | 2.5 | 1.0 | A |
| | Subtotal | 562 | 517 | 91.9% | 7.4 | 2.5 | A |
| Total | | 1,138 | 1,078 | 94.7% | 15.3 | 2.8 | B |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 495 | 454 | 91.8% | 15.6 | 2.0 | B |
| | Through | 158 | 143 | 90.8% | 16.1 | 2.3 | B |
| | Right Turn | 269 | 237 | 88.1% | 4.2 | 1.4 | A |
| | Subtotal | 922 | 835 | 90.5% | 12.4 | 1.8 | B |
| SB | Left Turn | 1 | 1 | 80.0% | 12.7 | 27.2 | B |
| | Through | 171 | 164 | 96.1% | 38.7 | 4.2 | D |
| | Right Turn | 10 | 12 | 122.0% | 9.9 | 7.9 | A |
| | Subtotal | 182 | 177 | 97.4% | 37.1 | 4.3 | D |
| EB | Left Turn | 9 | 9 | 96.7% | 55.0 | 32.2 | E |
| | Through | 34 | 34 | 100.9% | 70.5 | 15.8 | E |
| | Right Turn | 383 | 382 | 99.7% | 10.1 | 2.1 | B |
| | Subtotal | 426 | 425 | 99.7% | 16.2 | 4.5 | B |
| WB | Left Turn | 136 | 132 | 96.8% | 49.3 | 4.8 | D |
| | Through | 57 | 55 | 96.3% | 42.3 | 9.2 | D |
| | Right Turn | 3 | 3 | 110.0% | 9.4 | 15.6 | A |
| | Subtotal | 196 | 190 | 96.8% | 46.4 | 5.0 | D |
| Total | | 1,726 | 1,627 | 94.2% | 20.6 | 1.8 | C |

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 161 | 158 | 98.0% | 0.5 | 0.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 161 | 158 | 98.0% | 0.5 | 0.0 | A |
| Total | | 161 | 158 | 98.0% | 0.5 | 0.0 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 216 | 190 | 88.1% | 89.1 | 8.5 | F |
| | Through | 682 | 607 | 89.0% | 113.8 | 49.9 | F |
| | Right Turn | 46 | 40 | 87.2% | 61.0 | 18.5 | E |
| | Subtotal | 944 | 838 | 88.7% | 105.3 | 37.7 | F |
| SB | Left Turn | 64 | 60 | 93.4% | 46.0 | 11.7 | D |
| | Through | 514 | 508 | 98.8% | 17.8 | 5.1 | B |
| | Right Turn | 112 | 111 | 99.0% | 12.7 | 5.1 | B |
| | Subtotal | 690 | 678 | 98.3% | 19.6 | 5.1 | B |
| EB | Left Turn | 64 | 61 | 94.5% | 49.7 | 13.1 | D |
| | Through | 12 | 11 | 89.2% | 28.4 | 24.5 | C |
| | Right Turn | 84 | 80 | 95.7% | 27.2 | 7.8 | C |
| | Subtotal | 160 | 152 | 94.8% | 35.7 | 9.2 | D |
| WB | Left Turn | 122 | 112 | 91.8% | 44.9 | 5.4 | D |
| | Through | 26 | 28 | 108.5% | 49.9 | 15.1 | D |
| | Right Turn | 176 | 166 | 94.1% | 26.2 | 4.8 | C |
| | Subtotal | 324 | 306 | 94.4% | 35.4 | 3.3 | D |
| Total | | 2,118 | 1,973 | 93.2% | 59.4 | 14.6 | E |

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 469 | 424 | 90.4% | 156.1 | 28.3 | F |
| | Right Turn | 615 | 568 | 92.3% | 1.8 | 0.4 | A |
| | Subtotal | 1,084 | 992 | 91.5% | 71.3 | 15.0 | F |
| SB | Left Turn | | | | | | |
| | Through | 522 | 504 | 96.5% | 0.8 | 0.1 | A |
| | Right Turn | 201 | 196 | 97.5% | 1.5 | 0.4 | A |
| | Subtotal | 723 | 700 | 96.8% | 1.0 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 212 | 204 | 96.1% | 0.8 | 0.1 | A |
| | Subtotal | 212 | 204 | 96.1% | 0.8 | 0.1 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 479 | 431 | 90.0% | 256.7 | 143.3 | F |
| | Subtotal | 479 | 431 | 90.0% | 256.7 | 143.3 | F |
| Total | | 2,498 | 2,326 | 93.1% | 77.3 | 29.2 | F |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 850 | 803 | 94.4% | 63.1 | 39.8 | E |
| | Right Turn | 93 | 89 | 95.9% | 51.4 | 33.7 | D |
| | Subtotal | 943 | 892 | 94.6% | 62.0 | 39.2 | E |
| SB | Left Turn | 251 | 240 | 95.6% | 35.5 | 5.9 | D |
| | Through | 483 | 465 | 96.3% | 12.0 | 1.4 | B |
| | Right Turn | | | | | | |
| | Subtotal | 734 | 705 | 96.0% | 20.2 | 2.6 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 724 | 695 | 96.0% | 64.9 | 59.7 | E |
| | Through | | | | | | |
| | Right Turn | 234 | 222 | 95.0% | 91.0 | 86.3 | F |
| | Subtotal | 958 | 917 | 95.8% | 71.0 | 65.0 | E |
| Total | | 2,635 | 2,514 | 95.4% | 53.7 | 37.5 | D |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 72 | 70 | 96.7% | 63.2 | 19.0 | E |
| | Through | 6 | 6 | 98.3% | 33.5 | 24.9 | C |
| | Right Turn | 38 | 36 | 95.0% | 6.2 | 1.8 | A |
| | Subtotal | 116 | 112 | 96.2% | 45.5 | 14.8 | D |
| SB | Left Turn | 33 | 32 | 96.1% | 58.8 | 10.6 | E |
| | Through | 27 | 27 | 101.5% | 53.6 | 24.9 | D |
| | Right Turn | 138 | 130 | 94.5% | 25.8 | 21.4 | C |
| | Subtotal | 198 | 190 | 95.7% | 35.4 | 18.0 | D |
| EB | Left Turn | 336 | 319 | 95.1% | 52.7 | 7.6 | D |
| | Through | 728 | 700 | 96.2% | 0.3 | 0.1 | A |
| | Right Turn | 143 | 139 | 97.4% | 5.1 | 1.1 | A |
| | Subtotal | 1,207 | 1,159 | 96.0% | 15.4 | 2.5 | B |
| WB | Left Turn | 36 | 34 | 93.9% | 74.0 | 12.4 | E |
| | Through | 699 | 671 | 96.0% | 42.7 | 14.6 | D |
| | Right Turn | 68 | 64 | 94.4% | 21.5 | 8.1 | C |
| | Subtotal | 803 | 769 | 95.7% | 42.4 | 13.4 | D |
| Total | | 2,324 | 2,229 | 95.9% | 27.7 | 6.6 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 28 | 88.7% | 25.7 | 4.6 | C |
| | Through | 40 | 40 | 100.3% | 20.7 | 6.4 | C |
| | Right Turn | 63 | 64 | 101.1% | 17.8 | 5.6 | B |
| | Subtotal | 134 | 131 | 98.0% | 20.3 | 2.3 | C |
| SB | Left Turn | 152 | 145 | 95.3% | 125.7 | 65.3 | F |
| | Through | 35 | 38 | 108.6% | 123.4 | 66.0 | F |
| | Right Turn | 39 | 39 | 100.0% | 82.6 | 53.7 | F |
| | Subtotal | 226 | 222 | 98.2% | 117.3 | 62.2 | F |
| EB | Left Turn | 15 | 9 | 60.0% | 303.2 | 112.2 | F |
| | Through | 459 | 312 | 68.1% | 323.5 | 46.7 | F |
| | Right Turn | 59 | 37 | 62.4% | 305.2 | 52.5 | F |
| | Subtotal | 533 | 358 | 67.2% | 322.9 | 45.6 | F |
| WB | Left Turn | 77 | 76 | 98.6% | 33.0 | 4.9 | C |
| | Through | 383 | 388 | 101.3% | 14.2 | 2.4 | B |
| | Right Turn | 49 | 49 | 99.8% | 11.3 | 3.3 | B |
| | Subtotal | 509 | 513 | 100.7% | 16.8 | 2.5 | B |
| Total | | 1,402 | 1,224 | 87.3% | 121.6 | 14.3 | F |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 384 | 388 | 101.0% | 23.3 | 5.4 | C |
| | Through | 186 | 187 | 100.6% | 25.9 | 3.7 | C |
| | Right Turn | 316 | 300 | 95.0% | 7.7 | 2.6 | A |
| | Subtotal | 886 | 875 | 98.8% | 18.2 | 4.2 | B |
| SB | Left Turn | 7 | 5 | 70.0% | 104.1 | 95.0 | F |
| | Through | 199 | 198 | 99.2% | 147.5 | 58.5 | F |
| | Right Turn | 23 | 23 | 100.0% | 84.9 | 45.1 | F |
| | Subtotal | 229 | 225 | 98.4% | 141.2 | 58.1 | F |
| EB | Left Turn | 10 | 10 | 95.0% | 99.0 | 60.5 | F |
| | Through | 63 | 58 | 91.7% | 91.8 | 19.7 | F |
| | Right Turn | 601 | 457 | 76.0% | 43.0 | 10.5 | D |
| | Subtotal | 674 | 524 | 77.7% | 49.2 | 10.6 | D |
| WB | Left Turn | 223 | 215 | 96.5% | 87.8 | 31.3 | F |
| | Through | 102 | 103 | 100.9% | 45.9 | 5.9 | D |
| | Right Turn | 6 | 7 | 113.3% | 27.5 | 29.6 | C |
| | Subtotal | 331 | 325 | 98.2% | 73.5 | 19.3 | E |
| Total | | 2,120 | 1,949 | 91.9% | 50.3 | 12.4 | D |

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 161 | 166 | 102.9% | 0.5 | 0.1 | A |
| | Right Turn | | | | | | |
| | Subtotal | 161 | 166 | 102.9% | 0.5 | 0.1 | A |
| Total | | 161 | 166 | 102.9% | 0.5 | 0.1 | A |

**Intersection 4** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | Total Delay (sec/veh) LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 133 | 122 | 91.4% | 98.1 | 21.7 | F |
| | Through | 547 | 546 | 99.8% | 46.0 | 13.8 | D |
| | Right Turn | 71 | 60 | 84.2% | 29.2 | 19.8 | C |
| | Subtotal | 751 | 728 | 96.9% | 54.7 | 15.7 | D |
| SB | Left Turn | 113 | 112 | 98.8% | 71.5 | 14.2 | E |
| | Through | 825 | 686 | 83.2% | 52.8 | 7.4 | D |
| | Right Turn | 85 | 77 | 90.1% | 48.2 | 8.9 | D |
| | Subtotal | 1,023 | 874 | 85.5% | 54.7 | 8.2 | D |
| EB | Left Turn | 137 | 134 | 97.9% | 49.0 | 16.2 | D |
| | Through | 18 | 18 | 98.3% | 38.9 | 17.8 | D |
| | Right Turn | 138 | 135 | 97.5% | 35.9 | 12.7 | D |
| | Subtotal | 293 | 286 | 97.7% | 42.4 | 13.7 | D |
| WB | Left Turn | 160 | 160 | 100.1% | 73.2 | 43.2 | E |
| | Through | 25 | 25 | 101.6% | 44.2 | 24.2 | D |
| | Right Turn | 202 | 199 | 98.5% | 30.8 | 18.2 | C |
| | Subtotal | 387 | 385 | 99.4% | 49.9 | 29.7 | D |
| Total | | 2,454 | 2,273 | 92.6% | 52.1 | 10.0 | D |

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 528 | 508 | 96.2% | 29.4 | 29.3 | D |
| | Right Turn | 771 | 762 | 98.8% | 3.3 | 0.4 | A |
| | Subtotal | 1,299 | 1,270 | 97.8% | 14.3 | 12.5 | B |
| SB | Left Turn | | | | | | |
| | Through | 824 | 705 | 85.6% | 1.0 | 0.3 | A |
| | Right Turn | 353 | 333 | 94.3% | 1.9 | 0.4 | A |
| | Subtotal | 1,177 | 1,038 | 88.2% | 1.2 | 0.3 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 116 | 114 | 98.4% | 1.0 | 0.3 | A |
| | Subtotal | 116 | 114 | 98.4% | 1.0 | 0.3 | A |
| WB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 229 | 227 | 99.0% | 3.3 | 3.2 | A |
| | Subtotal | 229 | 227 | 99.0% | 3.3 | 3.2 | A |
| Total | | 2,821 | 2,649 | 93.9% | 7.7 | 6.2 | A |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,100 | 1,092 | 99.3% | 25.4 | 2.3 | C |
| | Right Turn | 128 | 125 | 98.0% | 42.4 | 6.4 | D |
| | Subtotal | 1,228 | 1,218 | 99.1% | 27.1 | 2.4 | C |
| SB | Left Turn | 296 | 237 | 80.1% | 60.2 | 5.5 | E |
| | Through | 644 | 584 | 90.7% | 22.0 | 3.2 | C |
| | Right Turn | | | | | | |
| | Subtotal | 940 | 821 | 87.3% | 32.6 | 2.2 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 821 | 738 | 89.9% | 170.8 | 28.3 | F |
| | Through | | | | | | |
| | Right Turn | 199 | 176 | 88.6% | 147.9 | 19.7 | F |
| | Subtotal | 1,020 | 914 | 89.6% | 166.8 | 27.0 | F |
| Total | | 3,188 | 2,952 | 92.6% | 71.4 | 5.2 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 92 | 87 | 95.0% | 61.5 | 7.4 | E |
| | Through | 24 | 25 | 102.5% | 33.1 | 11.6 | C |
| | Right Turn | 66 | 66 | 99.7% | 13.0 | 5.6 | B |
| | Subtotal | 182 | 178 | 97.7% | 39.6 | 6.0 | D |
| SB | Left Turn | 40 | 44 | 110.5% | 71.1 | 21.6 | E |
| | Through | 15 | 13 | 88.7% | 52.9 | 31.8 | D |
| | Right Turn | 401 | 391 | 97.6% | 32.3 | 15.1 | C |
| | Subtotal | 456 | 449 | 98.4% | 37.5 | 14.7 | D |
| EB | Left Turn | 417 | 391 | 93.7% | 60.8 | 7.6 | E |
| | Through | 981 | 871 | 88.8% | 0.5 | 0.2 | A |
| | Right Turn | 67 | 61 | 91.5% | 2.7 | 0.3 | A |
| | Subtotal | 1,465 | 1,323 | 90.3% | 17.4 | 1.7 | B |
| WB | Left Turn | 30 | 30 | 100.3% | 89.1 | 29.2 | F |
| | Through | 651 | 647 | 99.4% | 49.6 | 20.3 | D |
| | Right Turn | 35 | 32 | 92.0% | 28.5 | 20.4 | C |
| | Subtotal | 716 | 710 | 99.1% | 50.3 | 19.8 | D |
| Total | | 2,819 | 2,659 | 94.3% | 31.5 | 5.6 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Queue Length** **AM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 43 | 3 | 38 | 48 | 90 | 5 | 83 | 96 | NO |
| | Right Turn | 1,120 | 43 | 3 | 38 | 48 | 90 | 5 | 83 | 96 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 0 | 102 | 18 | 83 | 131 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 27 | 17 | 0 | 66 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 28 | 11 | 22 | 51 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 588 | 209 | 297 | 878 | 1,549 | 162 | 1,119 | 1,638 | MAX |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Queue Length** **AM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 497 | 80 | 402 | 610 | 808 | 5 | 803 | 815 | MAX |
| | Right Turn | 500 | 470 | 79 | 376 | 581 | 778 | 5 | 774 | 786 | MAX |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 31 | 4 | 26 | 38 | 133 | 18 | 112 | 163 | NO |
| | Through | 1,300 | 17 | 1 | 16 | 19 | 145 | 22 | 118 | 181 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 880 | 168 | 611 | 1,215 | 1,678 | 17 | 1,658 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 941 | 128 | 800 | 1,205 | 1,672 | 15 | 1,658 | 1,695 | MAX |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Queue Length** **PM Peak Hour**

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 28 | 5 | 19 | 33 | 90 | 9 | 70 | 96 | NO |
| | Right Turn | 1,120 | 28 | 5 | 19 | 33 | 90 | 9 | 70 | 96 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 1 | 0 | 1 | 2 | 130 | 22 | 99 | 167 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 4 | 9 | 0 | 23 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project**
**Queue Length** **PM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 428 | 88 | 245 | 525 | 797 | 37 | 695 | 833 | MAX |
| | Right Turn | 500 | 400 | 88 | 218 | 497 | 767 | 37 | 666 | 804 | MAX |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 44 | 4 | 37 | 53 | 149 | 15 | 129 | 178 | NO |
| | Through | 1,300 | 46 | 7 | 37 | 58 | 261 | 30 | 204 | 305 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 1,340 | 47 | 1,271 | 1,403 | 1,679 | 12 | 1,658 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 243 | 340 | 9 | 816 | 789 | 759 | 91 | 1,686 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Queue Length** **AM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 20 | 12 | 4 | 40 | 80 | 14 | 59 | 96 | NO |
| | Right Turn | 1,120 | 20 | 12 | 4 | 40 | 80 | 14 | 59 | 96 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 1 | 111 | 11 | 98 | 136 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 25 | 14 | 0 | 50 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 31 | 14 | 20 | 54 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 54 | 100 | 0 | 263 | 300 | 407 | 0 | 1,192 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Queue Length** **AM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 133 | 96 | 56 | 351 | 527 | 228 | 292 | 798 | MAX |
| | Right Turn | 500 | 112 | 93 | 38 | 324 | 497 | 228 | 262 | 769 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 30 | 2 | 25 | 34 | 128 | 18 | 113 | 159 | NO |
| | Through | 1,300 | 17 | 1 | 15 | 19 | 145 | 23 | 114 | 178 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 215 | 147 | 83 | 489 | 1,163 | 395 | 607 | 1,668 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 157 | 224 | 10 | 630 | 798 | 691 | 120 | 1,687 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Queue Length** **PM Peak Hour**

**Intersection 5** **Richards Blvd/I-80 WB Ramps** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 5 | 1 | 3 | 7 | 71 | 10 | 59 | 87 | NO |
| | Right Turn | 1,120 | 5 | 1 | 3 | 7 | 71 | 10 | 59 | 87 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 1 | 0 | 0 | 1 | 125 | 23 | 83 | 146 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 2 | 8 | 0 | 25 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **Cumulative Plus Project (Mitigated)**
**Queue Length** **PM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 136 | 20 | 105 | 176 | 531 | 40 | 467 | 615 | MAX |
| | Right Turn | 500 | 113 | 20 | 82 | 152 | 501 | 40 | 437 | 585 | MAX |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 50 | 4 | 42 | 55 | 177 | 31 | 129 | 239 | NO |
| | Through | 1,300 | 45 | 4 | 40 | 54 | 251 | 24 | 219 | 292 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 1,282 | 53 | 1,158 | 1,323 | 1,685 | 12 | 1,658 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 7 | 1 | 5 | 10 | 115 | 19 | 92 | 142 | NO |
| | Second Right | | | | | | | | | | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,743 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,561 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,517 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,172 | pcphpl |
| Average passenger-car speed, S | 56.5 | mph |
| Volume-to-capacity ratio, v/c | 0.92 | |
| Density, D | 38.4 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,129 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,394 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,820 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,940 | pcphpl |
| Average passenger-car speed, S | 60.9 | mph |
| Volume-to-capacity ratio, v/c | 0.83 | |
| Density, D | 31.9 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,030 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,570 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,558 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,186 | pcphpl |
| Average passenger-car speed, S | 56.2 | mph |
| Volume-to-capacity ratio, v/c | 0.93 | |
| Density, D | 38.9 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,869 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,528 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,383 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,128 | pcphpl |
| Average passenger-car speed, S | 57.5 | mph |
| Volume-to-capacity ratio, v/c | 0.91 | |
| Density, D | 37.0 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,994 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,561 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,518 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,630 | pcphpl |
| Average passenger-car speed, S | 64.3 | mph |
| Volume-to-capacity ratio, v/c | 0.69 | |
| Density, D | 25.4 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,793 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,574 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,574 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,191 | pcphpl |
| Average passenger-car speed, S | 56.1 | mph |
| Volume-to-capacity ratio, v/c | 0.93 | |
| Density, D | 39.0 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,197 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,412 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,897 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,966 | pcphpl |
| Average passenger-car speed, S | 60.5 | mph |
| Volume-to-capacity ratio, v/c | 0.84 | |
| Density, D | 32.5 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,502 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,448 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,046 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,015 | pcphpl |
| Average passenger-car speed, S | 59.6 | mph |
| Volume-to-capacity ratio, v/c | 0.86 | |
| Density, D | 33.8 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,341 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,406 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 5,869 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,956 | pcphpl |
| Average passenger-car speed, S | 60.6 | mph |
| Volume-to-capacity ratio, v/c | 0.83 | |
| Density, D | 32.3 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,120 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,611 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,726 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,681 | pcphpl |
| Average passenger-car speed, S | 63.9 | mph |
| Volume-to-capacity ratio, v/c | 0.72 | |
| Density, D | 26.3 | pcpmpl |
| Level of service, LOS | D | |

**Appendix E – CEQA Cumulative No Project**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 14 | 12 | 85.0% | 33.7 | 16.2 | C |
| | Through | 17 | 17 | 99.4% | 44.5 | 8.3 | D |
| | Right Turn | 31 | 31 | 101.3% | 13.0 | 13.7 | B |
| | Subtotal | 62 | 60 | 97.1% | 25.4 | 8.6 | C |
| SB | Left Turn | 85 | 83 | 98.0% | 101.7 | 93.4 | F |
| | Through | 29 | 29 | 99.0% | 77.9 | 63.9 | E |
| | Right Turn | 68 | 65 | 96.0% | 42.1 | 65.3 | D |
| | Subtotal | 182 | 177 | 97.4% | 77.1 | 77.6 | E |
| EB | Left Turn | 28 | 28 | 98.9% | 66.3 | 22.3 | E |
| | Through | 227 | 236 | 103.9% | 30.0 | 29.6 | C |
| | Right Turn | 32 | 30 | 95.0% | 25.9 | 20.9 | C |
| | Subtotal | 287 | 294 | 102.4% | 32.2 | 26.9 | C |
| WB | Left Turn | 33 | 32 | 97.6% | 51.1 | 12.1 | D |
| | Through | 481 | 456 | 94.7% | 4.9 | 1.4 | A |
| | Right Turn | 51 | 51 | 99.8% | 2.0 | 0.9 | A |
| | Subtotal | 565 | 539 | 95.3% | 7.2 | 1.5 | A |
| Total | | 1,096 | 1,070 | 97.6% | 25.9 | 16.9 | C |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 524 | 499 | 95.2% | 20.9 | 3.9 | C |
| | Through | 97 | 90 | 92.6% | 19.8 | 4.6 | B |
| | Right Turn | 286 | 272 | 95.2% | 9.7 | 2.0 | A |
| | Subtotal | 907 | 861 | 94.9% | 17.0 | 3.2 | B |
| SB | Left Turn | 1 | 1 | 60.0% | 14.1 | 27.4 | B |
| | Through | 187 | 185 | 99.1% | 43.3 | 10.7 | D |
| | Right Turn | 16 | 15 | 91.9% | 15.7 | 10.2 | B |
| | Subtotal | 204 | 201 | 98.4% | 41.9 | 9.8 | D |
| EB | Left Turn | 9 | 10 | 105.6% | 84.1 | 70.2 | F |
| | Through | 76 | 79 | 103.3% | 120.4 | 29.4 | F |
| | Right Turn | 258 | 265 | 102.6% | 18.2 | 5.4 | B |
| | Subtotal | 343 | 353 | 102.8% | 42.5 | 13.1 | D |
| WB | Left Turn | 209 | 209 | 100.2% | 70.3 | 20.5 | E |
| | Through | 25 | 24 | 94.4% | 56.4 | 18.1 | E |
| | Right Turn | 4 | 4 | 90.0% | 9.0 | 11.7 | A |
| | Subtotal | 238 | 237 | 99.4% | 68.3 | 20.3 | E |
| Total | | 1,692 | 1,651 | 97.6% | 33.3 | 5.5 | C |

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 163 | 161 | 98.5% | 0.5 | 0.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 163 | 161 | 98.5% | 0.5 | 0.0 | A |
| Total | | 163 | 161 | 98.5% | 0.5 | 0.0 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 619 | 593 | 95.7% | 43.4 | 3.3 | D |
| | Through | 704 | 668 | 94.9% | 20.8 | 4.3 | C |
| | Right Turn | 40 | 41 | 103.0% | 1.5 | 1.1 | A |
| | Subtotal | 1,363 | 1,302 | 95.5% | 30.3 | 3.3 | C |
| SB | Left Turn | 54 | 52 | 95.9% | 59.9 | 8.8 | E |
| | Through | 541 | 557 | 102.9% | 22.5 | 2.4 | C |
| | Right Turn | 59 | 57 | 96.8% | 15.2 | 4.6 | B |
| | Subtotal | 654 | 665 | 101.7% | 24.7 | 2.6 | C |
| EB | Left Turn | 49 | 47 | 96.5% | 57.5 | 16.4 | E |
| | Through | 21 | 19 | 91.0% | 35.7 | 19.3 | D |
| | Right Turn | 182 | 183 | 100.6% | 5.7 | 1.0 | A |
| | Subtotal | 252 | 250 | 99.0% | 18.7 | 3.9 | B |
| WB | Left Turn | 118 | 101 | 85.8% | 55.5 | 2.2 | E |
| | Through | 45 | 41 | 90.4% | 46.6 | 11.8 | D |
| | Right Turn | 154 | 150 | 97.7% | 29.9 | 6.7 | C |
| | Subtotal | 317 | 292 | 92.2% | 42.0 | 4.8 | D |
| Total | | 2,586 | 2,509 | 97.0% | 29.0 | 1.8 | C |

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 576 | 593 | 103.0% | 7.0 | 1.6 | A |
| | Right Turn | 617 | 618 | 100.1% | 6.5 | 0.9 | A |
| | Subtotal | 1,193 | 1,211 | 101.5% | 6.7 | 1.2 | A |
| SB | Left Turn | | | | | | |
| | Through | 666 | 661 | 99.2% | 0.6 | 0.1 | A |
| | Right Turn | 200 | 198 | 99.1% | 1.1 | 0.2 | A |
| | Subtotal | 866 | 859 | 99.2% | 0.7 | 0.1 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 206 | 198 | 95.9% | 25.0 | 16.3 | C |
| | Subtotal | 206 | 198 | 95.9% | 25.0 | 16.3 | C |
| WB | Left Turn | | | | | | |
| | Through | 335 | 311 | 92.7% | 247.8 | 65.2 | F |
| | Right Turn | 442 | 404 | 91.3% | 248.9 | 66.5 | F |
| | Subtotal | 777 | 714 | 91.9% | 248.5 | 66.0 | F |
| Total | | 3,042 | 2,982 | 98.0% | 63.1 | 16.5 | F |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 982 | 981 | 99.9% | 35.2 | 3.9 | D |
| | Right Turn | 95 | 93 | 98.3% | 37.7 | 6.9 | D |
| | Subtotal | 1,077 | 1,075 | 99.8% | 35.4 | 4.1 | D |
| SB | Left Turn | 311 | 308 | 99.1% | 42.7 | 8.8 | D |
| | Through | 561 | 546 | 97.3% | 13.8 | 1.6 | B |
| | Right Turn | | | | | | |
| | Subtotal | 872 | 854 | 98.0% | 24.6 | 3.6 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 722 | 713 | 98.7% | 43.8 | 18.3 | D |
| | Through | | | | | | |
| | Right Turn | 226 | 230 | 101.8% | 34.5 | 16.8 | C |
| | Subtotal | 948 | 943 | 99.4% | 41.6 | 18.1 | D |
| Total | | 2,897 | 2,871 | 99.1% | 34.4 | 6.2 | C |

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 85 | 83 | 97.1% | 66.9 | 9.7 | E |
| | Through | 5 | 4 | 88.0% | 46.7 | 33.1 | D |
| | Right Turn | 40 | 39 | 97.3% | 6.8 | 3.8 | A |
| | Subtotal | 130 | 126 | 96.8% | 46.8 | 9.1 | D |
| SB | Left Turn | 22 | 22 | 99.1% | 56.8 | 16.6 | E |
| | Through | 22 | 20 | 91.4% | 51.3 | 15.0 | D |
| | Right Turn | 136 | 133 | 98.1% | 19.4 | 5.8 | B |
| | Subtotal | 180 | 175 | 97.4% | 28.6 | 6.7 | C |
| EB | Left Turn | 418 | 411 | 98.3% | 46.4 | 5.7 | D |
| | Through | 718 | 714 | 99.5% | 16.2 | 3.3 | B |
| | Right Turn | 147 | 138 | 94.1% | 17.2 | 3.4 | B |
| | Subtotal | 1,283 | 1,263 | 98.5% | 26.0 | 3.0 | C |
| WB | Left Turn | 38 | 38 | 98.9% | 102.0 | 30.8 | F |
| | Through | 821 | 812 | 98.9% | 70.6 | 19.9 | E |
| | Right Turn | 23 | 23 | 99.6% | 42.6 | 17.5 | D |
| | Subtotal | 882 | 872 | 98.9% | 71.4 | 18.9 | E |
| Total | | 2,475 | 2,437 | 98.5% | 42.7 | 6.3 | D |

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 29 | 91.9% | 23.0 | 8.9 | C |
| | Through | 46 | 47 | 101.7% | 21.6 | 7.8 | C |
| | Right Turn | 64 | 67 | 104.1% | 25.6 | 7.6 | C |
| | Subtotal | 141 | 142 | 100.6% | 23.6 | 5.5 | C |
| SB | Left Turn | 187 | 176 | 93.9% | 189.5 | 46.3 | F |
| | Through | 41 | 37 | 90.7% | 176.8 | 37.6 | F |
| | Right Turn | 56 | 52 | 93.2% | 148.6 | 50.1 | F |
| | Subtotal | 284 | 265 | 93.3% | 180.6 | 45.9 | F |
| EB | Left Turn | 23 | 21 | 93.0% | 258.3 | 80.8 | F |
| | Through | 378 | 354 | 93.6% | 235.3 | 66.6 | F |
| | Right Turn | 62 | 55 | 87.9% | 229.9 | 72.9 | F |
| | Subtotal | 463 | 430 | 92.8% | 235.4 | 67.4 | F |
| WB | Left Turn | 77 | 74 | 96.5% | 31.8 | 7.5 | C |
| | Through | 372 | 379 | 102.0% | 13.8 | 2.7 | B |
| | Right Turn | 49 | 45 | 91.6% | 8.2 | 3.9 | A |
| | Subtotal | 498 | 499 | 100.1% | 15.8 | 2.6 | B |
| Total | | 1,386 | 1,335 | 96.3% | 119.3 | 16.9 | F |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 314 | 310 | 98.7% | 21.1 | 3.8 | C |
| | Through | 185 | 188 | 101.5% | 21.4 | 4.8 | C |
| | Right Turn | 356 | 354 | 99.6% | 10.6 | 2.1 | B |
| | Subtotal | 855 | 852 | 99.7% | 16.7 | 2.9 | B |
| SB | Left Turn | 6 | 7 | 113.3% | 53.4 | 46.4 | D |
| | Through | 190 | 189 | 99.5% | 85.9 | 32.4 | F |
| | Right Turn | 27 | 27 | 98.5% | 50.5 | 32.2 | D |
| | Subtotal | 223 | 222 | 99.7% | 81.2 | 32.4 | F |
| EB | Left Turn | 10 | 9 | 92.0% | 68.3 | 42.5 | E |
| | Through | 53 | 53 | 99.8% | 83.8 | 13.8 | F |
| | Right Turn | 566 | 535 | 94.5% | 30.6 | 4.8 | C |
| | Subtotal | 629 | 597 | 94.9% | 37.0 | 4.5 | D |
| WB | Left Turn | 205 | 199 | 97.2% | 53.3 | 5.6 | D |
| | Through | 157 | 161 | 102.4% | 48.1 | 10.3 | D |
| | Right Turn | 10 | 9 | 89.0% | 28.3 | 20.6 | C |
| | Subtotal | 372 | 369 | 99.1% | 50.5 | 5.2 | D |
| Total | | 2,079 | 2,040 | 98.1% | 36.5 | 5.0 | D |

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 160 | 160 | 99.9% | 0.5 | 0.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 160 | 160 | 99.9% | 0.5 | 0.0 | A |
| Total | | 160 | 160 | 99.9% | 0.5 | 0.0 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 217 | 214 | 98.6% | 52.2 | 5.2 | D |
| | Through | 631 | 635 | 100.6% | 34.4 | 4.9 | C |
| | Right Turn | 58 | 56 | 96.9% | 1.6 | 1.0 | A |
| | Subtotal | 906 | 905 | 99.9% | 36.4 | 3.5 | D |
| SB | Left Turn | 110 | 110 | 99.6% | 59.3 | 12.2 | E |
| | Through | 789 | 763 | 96.8% | 36.3 | 9.1 | D |
| | Right Turn | 62 | 56 | 90.3% | 30.8 | 9.7 | C |
| | Subtotal | 961 | 929 | 96.7% | 38.9 | 9.6 | D |
| EB | Left Turn | 38 | 38 | 100.0% | 58.7 | 12.6 | E |
| | Through | 35 | 34 | 96.3% | 34.8 | 11.5 | C |
| | Right Turn | 455 | 455 | 99.9% | 17.4 | 2.4 | B |
| | Subtotal | 528 | 526 | 99.7% | 21.9 | 2.9 | C |
| WB | Left Turn | 149 | 131 | 87.6% | 65.7 | 7.5 | E |
| | Through | 34 | 31 | 89.7% | 38.9 | 12.3 | D |
| | Right Turn | 186 | 179 | 96.1% | 28.6 | 3.9 | C |
| | Subtotal | 369 | 340 | 92.1% | 45.6 | 6.4 | D |
| Total | | 2,764 | 2,700 | 97.7% | 35.7 | 3.8 | D |

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 590 | 587 | 99.4% | 16.9 | 4.1 | C |
| | Right Turn | 776 | 766 | 98.8% | 11.1 | 1.5 | B |
| | Subtotal | 1,366 | 1,353 | 99.0% | 13.6 | 2.3 | B |
| SB | Left Turn | | | | | | |
| | Through | 1,186 | 1,147 | 96.7% | 1.5 | 0.1 | A |
| | Right Turn | 368 | 363 | 98.7% | 1.6 | 0.3 | A |
| | Subtotal | 1,554 | 1,510 | 97.2% | 1.5 | 0.1 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 85 | 85 | 99.4% | 3.4 | 0.8 | A |
| | Subtotal | 85 | 85 | 99.4% | 3.4 | 0.8 | A |
| WB | Left Turn | | | | | | |
| | Through | 68 | 70 | 103.4% | 36.4 | 31.4 | E |
| | Right Turn | 257 | 258 | 100.4% | 35.5 | 24.2 | E |
| | Subtotal | 325 | 328 | 101.0% | 35.8 | 26.0 | E |
| Total | | 3,330 | 3,276 | 98.4% | 10.1 | 3.1 | B |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,193 | 1,190 | 99.7% | 50.4 | 6.5 | D |
| | Right Turn | 125 | 125 | 100.3% | 100.4 | 30.9 | F |
| | Subtotal | 1,318 | 1,315 | 99.8% | 54.9 | 7.9 | D |
| SB | Left Turn | 465 | 450 | 96.7% | 67.2 | 11.3 | E |
| | Through | 806 | 782 | 97.0% | 24.6 | 3.9 | C |
| | Right Turn | | | | | | |
| | Subtotal | 1,271 | 1,231 | 96.9% | 40.6 | 7.1 | D |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 800 | 743 | 92.9% | 157.6 | 33.2 | F |
| | Through | | | | | | |
| | Right Turn | 170 | 162 | 95.5% | 135.7 | 27.2 | F |
| | Subtotal | 970 | 906 | 93.4% | 153.5 | 32.3 | F |
| Total | | 3,559 | 3,452 | 97.0% | 74.2 | 9.7 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 No Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 104 | 102 | 97.9% | 63.2 | 9.0 | E |
| | Through | 25 | 26 | 102.0% | 24.2 | 7.9 | C |
| | Right Turn | 54 | 55 | 100.9% | 7.1 | 2.6 | A |
| | Subtotal | 183 | 182 | 99.3% | 41.9 | 6.6 | D |
| SB | Left Turn | 40 | 41 | 103.3% | 116.8 | 38.4 | F |
| | Through | 16 | 15 | 91.9% | 100.0 | 49.9 | F |
| | Right Turn | 431 | 427 | 99.2% | 94.7 | 31.4 | F |
| | Subtotal | 487 | 483 | 99.3% | 96.9 | 31.5 | F |
| EB | Left Turn | 426 | 402 | 94.3% | 52.9 | 9.9 | D |
| | Through | 1,110 | 1,056 | 95.1% | 17.2 | 1.3 | B |
| | Right Turn | 70 | 67 | 95.6% | 16.5 | 4.5 | B |
| | Subtotal | 1,606 | 1,524 | 94.9% | 26.6 | 3.6 | C |
| WB | Left Turn | 29 | 26 | 89.3% | 86.8 | 17.1 | F |
| | Through | 699 | 696 | 99.5% | 57.4 | 9.9 | E |
| | Right Turn | 39 | 40 | 101.5% | 26.0 | 10.9 | C |
| | Subtotal | 767 | 761 | 99.2% | 57.1 | 9.5 | E |
| Total | | 3,043 | 2,951 | 97.0% | 46.7 | 6.0 | D |

**Vissim Post-Processor** | **CEQA Cumulative 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build - Cumulative Conditions**
**AM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 14 | 13 | 93.6% | 30.5 | 18.1 | C |
| | Through | 17 | 16 | 92.9% | 33.5 | 17.9 | C |
| | Right Turn | 31 | 33 | 107.1% | 15.7 | 21.4 | B |
| | Subtotal | 62 | 62 | 100.2% | 24.6 | 15.0 | C |
| SB | Left Turn | 85 | 85 | 100.2% | 83.5 | 66.5 | F |
| | Through | 29 | 29 | 99.7% | 69.5 | 68.3 | E |
| | Right Turn | 68 | 69 | 100.9% | 37.7 | 49.2 | D |
| | Subtotal | 182 | 183 | 100.4% | 64.9 | 61.0 | E |
| EB | Left Turn | 28 | 28 | 100.7% | 61.3 | 21.3 | E |
| | Through | 227 | 234 | 102.9% | 26.0 | 16.5 | C |
| | Right Turn | 32 | 30 | 94.1% | 21.8 | 18.7 | C |
| | Subtotal | 287 | 292 | 101.7% | 28.0 | 15.3 | C |
| WB | Left Turn | 33 | 32 | 98.2% | 63.0 | 4.4 | E |
| | Through | 481 | 490 | 101.9% | 5.8 | 1.1 | A |
| | Right Turn | 51 | 50 | 98.2% | 2.6 | 1.2 | A |
| | Subtotal | 565 | 573 | 101.3% | 8.6 | 1.3 | A |
| Total | | 1,096 | 1,109 | 101.2% | 23.4 | 13.0 | C |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 524 | 529 | 100.9% | 23.1 | 3.7 | C |
| | Through | 97 | 96 | 99.1% | 22.9 | 4.4 | C |
| | Right Turn | 286 | 273 | 95.3% | 9.9 | 2.3 | A |
| | Subtotal | 907 | 897 | 98.9% | 19.2 | 3.1 | B |
| SB | Left Turn | 1 | 1 | 70.0% | 2.2 | 5.9 | A |
| | Through | 187 | 186 | 99.3% | 45.5 | 14.0 | D |
| | Right Turn | 16 | 17 | 105.0% | 39.7 | 34.5 | D |
| | Subtotal | 204 | 203 | 99.6% | 43.9 | 12.1 | D |
| EB | Left Turn | 9 | 10 | 105.6% | 90.6 | 51.1 | F |
| | Through | 76 | 79 | 103.3% | 109.6 | 33.4 | F |
| | Right Turn | 258 | 268 | 103.8% | 18.4 | 6.2 | B |
| | Subtotal | 343 | 356 | 103.7% | 41.7 | 12.2 | D |
| WB | Left Turn | 209 | 205 | 98.2% | 69.7 | 17.7 | E |
| | Through | 25 | 25 | 101.2% | 43.2 | 14.3 | D |
| | Right Turn | 4 | 4 | 87.5% | 9.7 | 17.1 | A |
| | Subtotal | 238 | 234 | 98.3% | 66.1 | 16.2 | E |
| Total | | 1,692 | 1,690 | 99.9% | 33.2 | 4.9 | C |

**Vissim Post-Processor** | **CEQA Cumulative 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build - Cumulative Conditions**
**AM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 619 | 614 | 99.2% | 24.2 | 2.5 | C |
| | Through | 704 | 706 | 100.3% | 9.9 | 1.6 | A |
| | Right Turn | 40 | 40 | 100.0% | 0.8 | 0.5 | A |
| | Subtotal | 1,363 | 1,360 | 99.8% | 15.8 | 1.3 | B |
| SB | Left Turn | 54 | 51 | 95.2% | 65.7 | 13.9 | E |
| | Through | 541 | 553 | 102.1% | 34.9 | 10.1 | C |
| | Right Turn | 59 | 59 | 100.5% | 25.9 | 15.1 | C |
| | Subtotal | 654 | 663 | 101.4% | 36.0 | 10.6 | D |
| EB | Left Turn | 49 | 44 | 89.4% | 67.1 | 16.6 | E |
| | Through | 21 | 17 | 81.9% | 34.6 | 17.9 | C |
| | Right Turn | 182 | 181 | 99.6% | 5.7 | 0.9 | A |
| | Subtotal | 252 | 242 | 96.2% | 19.8 | 2.6 | B |
| WB | Left Turn | 118 | 111 | 94.4% | 55.0 | 5.7 | D |
| | Through | 45 | 43 | 94.7% | 67.9 | 22.3 | E |
| | Right Turn | 154 | 154 | 100.3% | 50.6 | 19.2 | D |
| | Subtotal | 317 | 308 | 97.3% | 55.5 | 14.0 | E |
| Total | | 2,586 | 2,574 | 99.5% | 26.7 | 3.6 | C |

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 617 | 621 | 100.7% | 36.7 | 3.2 | D |
| | Through | 591 | 593 | 100.4% | 9.6 | 1.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 1,208 | 1,214 | 100.5% | 23.5 | 1.8 | C |
| SB | Left Turn | | | | | | |
| | Through | 666 | 663 | 99.5% | 10.6 | 1.9 | B |
| | Right Turn | 200 | 193 | 96.4% | 3.9 | 0.9 | A |
| | Subtotal | 866 | 855 | 98.8% | 9.0 | 1.5 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 206 | 203 | 98.4% | 33.4 | 3.4 | C |
| | Through | | | | | | |
| | Right Turn | 776 | 774 | 99.8% | 23.2 | 3.3 | C |
| | Subtotal | 982 | 977 | 99.5% | 25.4 | 2.8 | C |
| Total | | 3,056 | 3,047 | 99.7% | 20.2 | 0.8 | C |

**Vissim Post-Processor** | **CEQA Cumulative 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build - Cumulative Conditions**
**AM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 982 | 971 | 98.8% | 25.2 | 3.5 | C |
| | Right Turn | 95 | 89 | 93.9% | 25.3 | 4.7 | C |
| | Subtotal | 1,077 | 1,060 | 98.4% | 25.2 | 3.4 | C |
| SB | Left Turn | 311 | 305 | 97.9% | 27.7 | 2.4 | C |
| | Through | 561 | 564 | 100.5% | 11.5 | 1.0 | B |
| | Right Turn | | | | | | |
| | Subtotal | 872 | 869 | 99.6% | 17.3 | 0.8 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 722 | 718 | 99.4% | 19.9 | 1.7 | B |
| | Through | | | | | | |
| | Right Turn | 226 | 230 | 101.7% | 11.4 | 2.8 | B |
| | Subtotal | 948 | 947 | 99.9% | 18.0 | 1.4 | B |
| Total | | 2,897 | 2,876 | 99.3% | 20.5 | 1.3 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 85 | 84 | 98.6% | 67.0 | 13.7 | E |
| | Through | 5 | 5 | 100.0% | 31.0 | 32.4 | C |
| | Right Turn | 40 | 39 | 98.0% | 7.0 | 3.8 | A |
| | Subtotal | 130 | 128 | 98.5% | 46.9 | 10.3 | D |
| SB | Left Turn | 22 | 22 | 98.6% | 47.4 | 19.3 | D |
| | Through | 22 | 20 | 92.3% | 34.1 | 14.7 | C |
| | Right Turn | 136 | 135 | 98.9% | 12.4 | 3.6 | B |
| | Subtotal | 180 | 177 | 98.1% | 19.0 | 3.8 | B |
| EB | Left Turn | 418 | 416 | 99.5% | 50.5 | 8.0 | D |
| | Through | 718 | 723 | 100.7% | 15.7 | 2.2 | B |
| | Right Turn | 147 | 144 | 97.8% | 17.7 | 2.5 | B |
| | Subtotal | 1,283 | 1,283 | 100.0% | 27.7 | 3.7 | C |
| WB | Left Turn | 38 | 38 | 98.7% | 125.5 | 37.8 | F |
| | Through | 821 | 804 | 97.9% | 103.3 | 36.3 | F |
| | Right Turn | 23 | 22 | 95.2% | 75.0 | 32.8 | E |
| | Subtotal | 882 | 863 | 97.9% | 103.6 | 35.7 | F |
| Total | | 2,475 | 2,451 | 99.0% | 55.7 | 13.4 | E |

**Vissim Post-Processor** | **CEQA Cumualtive 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build - Cumulative Conditions**
**PM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 30 | 97.1% | 22.0 | 6.2 | C |
| | Through | 46 | 45 | 98.3% | 28.1 | 6.5 | C |
| | Right Turn | 64 | 64 | 100.0% | 14.7 | 4.3 | B |
| | Subtotal | 141 | 139 | 98.8% | 20.9 | 3.5 | C |
| SB | Left Turn | 187 | 183 | 98.1% | 99.3 | 36.5 | F |
| | Through | 41 | 43 | 105.9% | 86.1 | 34.0 | F |
| | Right Turn | 56 | 56 | 99.1% | 59.8 | 38.0 | E |
| | Subtotal | 284 | 282 | 99.4% | 90.5 | 35.8 | F |
| EB | Left Turn | 23 | 22 | 94.8% | 133.0 | 63.3 | F |
| | Through | 378 | 379 | 100.2% | 113.5 | 65.3 | F |
| | Right Turn | 62 | 60 | 97.1% | 113.4 | 73.2 | F |
| | Subtotal | 463 | 461 | 99.5% | 114.5 | 65.9 | F |
| WB | Left Turn | 77 | 76 | 98.3% | 32.3 | 4.9 | C |
| | Through | 372 | 382 | 102.6% | 13.6 | 2.3 | B |
| | Right Turn | 49 | 48 | 97.1% | 9.8 | 3.6 | A |
| | Subtotal | 498 | 505 | 101.4% | 16.1 | 2.1 | B |
| Total | | 1,386 | 1,387 | 100.1% | 64.0 | 21.6 | E |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 314 | 317 | 100.8% | 29.2 | 3.4 | C |
| | Through | 185 | 181 | 97.6% | 29.1 | 3.5 | C |
| | Right Turn | 356 | 344 | 96.6% | 15.0 | 1.9 | B |
| | Subtotal | 855 | 841 | 98.4% | 23.3 | 2.6 | C |
| SB | Left Turn | 6 | 5 | 90.0% | 66.2 | 65.2 | E |
| | Through | 190 | 193 | 101.4% | 91.9 | 51.0 | F |
| | Right Turn | 27 | 25 | 94.1% | 61.0 | 53.4 | E |
| | Subtotal | 223 | 224 | 100.2% | 87.4 | 50.6 | F |
| EB | Left Turn | 10 | 9 | 90.0% | 68.4 | 32.3 | E |
| | Through | 53 | 54 | 101.7% | 84.2 | 14.1 | F |
| | Right Turn | 566 | 566 | 100.1% | 17.4 | 1.5 | B |
| | Subtotal | 629 | 629 | 100.0% | 24.3 | 2.7 | C |
| WB | Left Turn | 205 | 203 | 98.9% | 62.1 | 13.2 | E |
| | Through | 157 | 161 | 102.2% | 46.3 | 7.0 | D |
| | Right Turn | 10 | 10 | 101.0% | 22.9 | 19.7 | C |
| | Subtotal | 372 | 373 | 100.3% | 55.3 | 7.9 | E |
| Total | | 2,079 | 2,067 | 99.4% | 36.5 | 7.7 | D |

**Vissim Post-Processor** | **CEQA Cumualtive 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build - Cumulative Conditions**
**PM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 217 | 215 | 98.8% | 44.5 | 4.0 | D |
| | Through | 631 | 644 | 102.0% | 10.1 | 1.0 | B |
| | Right Turn | 58 | 55 | 94.8% | 1.0 | 0.8 | A |
| | Subtotal | 906 | 913 | 100.8% | 17.1 | 1.2 | B |
| SB | Left Turn | 110 | 109 | 99.2% | 52.4 | 10.9 | D |
| | Through | 789 | 799 | 101.3% | 25.6 | 5.3 | C |
| | Right Turn | 62 | 60 | 97.4% | 19.5 | 6.5 | B |
| | Subtotal | 961 | 968 | 100.8% | 28.2 | 5.4 | C |
| EB | Left Turn | 38 | 21 | 56.1% | 65.7 | 18.4 | E |
| | Through | 35 | 22 | 62.0% | 41.9 | 19.0 | D |
| | Right Turn | 455 | 454 | 99.7% | 15.8 | 3.1 | B |
| | Subtotal | 528 | 497 | 94.0% | 19.1 | 3.0 | B |
| WB | Left Turn | 149 | 149 | 99.9% | 80.9 | 23.5 | F |
| | Through | 34 | 34 | 99.4% | 53.9 | 22.1 | D |
| | Right Turn | 186 | 180 | 96.6% | 36.8 | 13.5 | D |
| | Subtotal | 369 | 362 | 98.2% | 56.7 | 16.2 | E |
| Total | | 2,764 | 2,741 | 99.2% | 26.8 | 3.8 | C |

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 776 | 757 | 97.5% | 35.9 | 2.9 | D |
| | Through | 587 | 592 | 100.8% | 2.6 | 0.8 | A |
| | Right Turn | | | | | | |
| | Subtotal | 1,363 | 1,348 | 98.9% | 21.3 | 1.8 | C |
| SB | Left Turn | | | | | | |
| | Through | 1,186 | 1,191 | 100.4% | 17.0 | 2.1 | B |
| | Right Turn | 368 | 377 | 102.4% | 9.3 | 2.2 | A |
| | Subtotal | 1,554 | 1,568 | 100.9% | 15.3 | 2.0 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 85 | 84 | 99.2% | 50.8 | 8.9 | D |
| | Through | | | | | | |
| | Right Turn | 324 | 323 | 99.6% | 11.2 | 0.9 | B |
| | Subtotal | 409 | 407 | 99.5% | 19.8 | 1.8 | B |
| Total | | 3,326 | 3,323 | 99.9% | 18.2 | 1.3 | B |

**Vissim Post-Processor** | **CEQA Cumualtive 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build - Cumulative Conditions**
**PM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,193 | 1,189 | 99.7% | 20.8 | 2.9 | C |
| | Right Turn | 125 | 119 | 95.1% | 27.1 | 5.0 | C |
| | Subtotal | 1,318 | 1,308 | 99.3% | 21.4 | 3.0 | C |
| SB | Left Turn | 465 | 455 | 97.9% | 35.3 | 3.6 | D |
| | Through | 806 | 806 | 100.0% | 13.4 | 2.9 | B |
| | Right Turn | | | | | | |
| | Subtotal | 1,271 | 1,261 | 99.2% | 21.5 | 3.0 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 800 | 797 | 99.6% | 25.6 | 5.8 | C |
| | Through | | | | | | |
| | Right Turn | 170 | 169 | 99.6% | 12.7 | 2.6 | B |
| | Subtotal | 970 | 966 | 99.6% | 23.3 | 5.0 | C |
| Total | | 3,559 | 3,536 | 99.3% | 22.0 | 2.2 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 104 | 101 | 97.0% | 61.6 | 10.1 | E |
| | Through | 25 | 23 | 91.6% | 32.4 | 12.5 | C |
| | Right Turn | 54 | 56 | 103.1% | 6.9 | 2.1 | A |
| | Subtotal | 183 | 180 | 98.1% | 39.9 | 7.1 | D |
| SB | Left Turn | 40 | 36 | 89.8% | 89.1 | 25.7 | F |
| | Through | 16 | 16 | 101.3% | 81.9 | 43.1 | F |
| | Right Turn | 431 | 429 | 99.5% | 67.6 | 30.2 | E |
| | Subtotal | 487 | 481 | 98.7% | 70.1 | 29.6 | E |
| EB | Left Turn | 426 | 424 | 99.6% | 61.7 | 6.8 | E |
| | Through | 1,110 | 1,105 | 99.6% | 19.2 | 2.5 | B |
| | Right Turn | 70 | 71 | 100.7% | 19.7 | 4.3 | B |
| | Subtotal | 1,606 | 1,600 | 99.6% | 31.0 | 2.7 | C |
| WB | Left Turn | 29 | 27 | 93.1% | 82.6 | 20.2 | F |
| | Through | 699 | 692 | 99.0% | 54.1 | 11.0 | D |
| | Right Turn | 39 | 40 | 102.6% | 23.0 | 10.8 | C |
| | Subtotal | 767 | 759 | 98.9% | 53.3 | 10.5 | D |
| Total | | 3,043 | 3,019 | 99.2% | 43.1 | 5.4 | D |

**Vissim Post-Processor** | **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**AM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 14 | 14 | 101.4% | 39.8 | 20.9 | D |
| | Through | 17 | 16 | 96.5% | 40.1 | 19.9 | D |
| | Right Turn | 31 | 32 | 101.6% | 7.9 | 4.1 | A |
| | Subtotal | 62 | 62 | 100.2% | 25.2 | 9.6 | C |
| SB | Left Turn | 85 | 86 | 100.9% | 76.5 | 63.4 | E |
| | Through | 29 | 28 | 95.9% | 70.5 | 56.1 | E |
| | Right Turn | 68 | 67 | 98.7% | 42.5 | 53.1 | D |
| | Subtotal | 182 | 181 | 99.3% | 64.1 | 56.6 | E |
| EB | Left Turn | 28 | 26 | 93.9% | 54.4 | 21.8 | D |
| | Through | 227 | 233 | 102.7% | 25.3 | 11.4 | C |
| | Right Turn | 32 | 30 | 93.4% | 32.8 | 28.0 | C |
| | Subtotal | 287 | 289 | 100.8% | 28.8 | 11.7 | C |
| WB | Left Turn | 33 | 22 | 65.2% | 51.8 | 8.4 | D |
| | Through | 481 | 520 | 108.0% | 8.7 | 2.0 | A |
| | Right Turn | 51 | 16 | 32.0% | 9.0 | 13.2 | A |
| | Subtotal | 565 | 558 | 98.7% | 10.5 | 2.1 | B |
| Total | | 1,096 | 1,090 | 99.4% | 26.4 | 13.8 | C |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 524 | 516 | 98.5% | 20.9 | 2.2 | C |
| | Through | 97 | 105 | 108.2% | 21.1 | 2.6 | C |
| | Right Turn | 286 | 282 | 98.5% | 9.0 | 1.3 | A |
| | Subtotal | 907 | 903 | 99.6% | 17.0 | 1.6 | B |
| SB | Left Turn | 1 | 1 | 110.0% | 18.3 | 25.2 | B |
| | Through | 187 | 186 | 99.3% | 45.8 | 24.1 | D |
| | Right Turn | 16 | 17 | 106.3% | 24.5 | 17.9 | C |
| | Subtotal | 204 | 204 | 99.9% | 44.3 | 22.8 | D |
| EB | Left Turn | 9 | 9 | 102.2% | 90.3 | 40.0 | F |
| | Through | 76 | 78 | 102.2% | 95.2 | 20.7 | F |
| | Right Turn | 258 | 267 | 103.6% | 17.6 | 5.2 | B |
| | Subtotal | 343 | 354 | 103.2% | 37.4 | 9.1 | D |
| WB | Left Turn | 209 | 206 | 98.3% | 81.3 | 21.9 | F |
| | Through | 25 | 24 | 96.4% | 46.3 | 14.9 | D |
| | Right Turn | 4 | 3 | 85.0% | 4.0 | 5.8 | A |
| | Subtotal | 238 | 233 | 97.9% | 76.7 | 19.4 | E |
| Total | | 1,692 | 1,694 | 100.1% | 33.6 | 5.4 | C |

**Vissim Post-Processor** | **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**AM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 631 | 671 | 106.4% | 21.0 | 1.9 | C |
| | Through | 780 | 783 | 100.4% | 7.8 | 0.6 | A |
| | Right Turn | 58 | 42 | 71.6% | 0.5 | 0.5 | A |
| | Subtotal | 1,469 | 1,496 | 101.8% | 13.3 | 0.7 | B |
| SB | Left Turn | 54 | 51 | 94.3% | 66.2 | 14.7 | E |
| | Through | 541 | 552 | 101.9% | 37.1 | 14.8 | D |
| | Right Turn | 59 | 59 | 99.2% | 44.8 | 17.3 | D |
| | Subtotal | 654 | 661 | 101.1% | 39.7 | 14.7 | D |
| EB | Left Turn | 49 | 48 | 97.3% | 70.5 | 15.3 | E |
| | Through | 21 | 19 | 92.4% | 35.7 | 12.3 | D |
| | Right Turn | 182 | 183 | 100.6% | 5.0 | 0.8 | A |
| | Subtotal | 252 | 250 | 99.3% | 21.7 | 6.9 | C |
| WB | Left Turn | 60 | 61 | 101.0% | 50.9 | 6.6 | D |
| | Through | 33 | 34 | 103.3% | 44.9 | 8.6 | D |
| | Right Turn | 78 | 76 | 96.8% | 25.0 | 7.4 | C |
| | Subtotal | 171 | 170 | 99.5% | 38.1 | 6.4 | D |
| Total | | 2,546 | 2,577 | 101.2% | 22.9 | 4.0 | C |

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 617 | 629 | 101.9% | 38.1 | 3.2 | D |
| | Through | 591 | 606 | 102.6% | 10.7 | 2.0 | B |
| | Right Turn | | | | | | |
| | Subtotal | 1,208 | 1,235 | 102.2% | 24.5 | 1.8 | C |
| SB | Left Turn | | | | | | |
| | Through | 617 | 621 | 100.7% | 10.2 | 2.3 | B |
| | Right Turn | 167 | 188 | 112.8% | 3.8 | 0.8 | A |
| | Subtotal | 784 | 810 | 103.3% | 8.8 | 1.8 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 255 | 236 | 92.4% | 33.8 | 4.5 | C |
| | Through | | | | | | |
| | Right Turn | 882 | 898 | 101.9% | 32.0 | 15.9 | C |
| | Subtotal | 1,137 | 1,134 | 99.7% | 32.4 | 13.3 | C |
| Total | | 3,129 | 3,179 | 101.6% | 23.1 | 4.6 | C |

**Vissim Post-Processor** | **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**AM Peak Hour**

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 982 | 984 | 100.2% | 26.4 | 5.2 | C |
| | Right Turn | 95 | 93 | 97.7% | 24.4 | 4.2 | C |
| | Subtotal | 1,077 | 1,077 | 100.0% | 26.2 | 5.0 | C |
| SB | Left Turn | 311 | 295 | 94.9% | 29.7 | 2.3 | C |
| | Through | 561 | 565 | 100.7% | 10.2 | 1.1 | B |
| | Right Turn | | | | | | |
| | Subtotal | 872 | 860 | 98.6% | 16.9 | 1.0 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 722 | 715 | 99.0% | 19.2 | 1.5 | B |
| | Through | | | | | | |
| | Right Turn | 226 | 232 | 102.7% | 12.4 | 1.1 | B |
| | Subtotal | 948 | 947 | 99.9% | 17.5 | 1.1 | B |
| Total | | 2,897 | 2,884 | 99.5% | 20.6 | 1.8 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 85 | 85 | 100.1% | 66.7 | 10.7 | E |
| | Through | 5 | 5 | 98.0% | 39.5 | 32.3 | D |
| | Right Turn | 40 | 38 | 95.8% | 8.5 | 6.0 | A |
| | Subtotal | 130 | 128 | 98.7% | 47.5 | 9.3 | D |
| SB | Left Turn | 22 | 23 | 102.7% | 48.8 | 11.1 | D |
| | Through | 22 | 21 | 93.6% | 46.5 | 16.8 | D |
| | Right Turn | 136 | 133 | 97.9% | 18.5 | 8.5 | B |
| | Subtotal | 180 | 176 | 98.0% | 25.2 | 7.8 | C |
| EB | Left Turn | 418 | 394 | 94.2% | 46.1 | 5.4 | D |
| | Through | 718 | 733 | 102.0% | 14.7 | 2.5 | B |
| | Right Turn | 147 | 155 | 105.4% | 17.2 | 4.2 | B |
| | Subtotal | 1,283 | 1,281 | 99.9% | 24.6 | 2.0 | C |
| WB | Left Turn | 38 | 37 | 98.4% | 83.7 | 17.4 | F |
| | Through | 821 | 817 | 99.5% | 55.9 | 12.4 | E |
| | Right Turn | 23 | 23 | 98.3% | 35.3 | 17.8 | D |
| | Subtotal | 882 | 877 | 99.4% | 56.8 | 12.4 | E |
| Total | | 2,475 | 2,463 | 99.5% | 36.8 | 4.3 | D |

**Vissim Post-Processor** | **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**PM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 30 | 97.1% | 23.3 | 6.4 | C |
| | Through | 46 | 46 | 99.8% | 26.7 | 5.8 | C |
| | Right Turn | 64 | 63 | 98.9% | 14.6 | 4.4 | B |
| | Subtotal | 141 | 139 | 98.8% | 20.4 | 2.4 | C |
| SB | Left Turn | 187 | 182 | 97.3% | 99.4 | 56.0 | F |
| | Through | 41 | 44 | 108.3% | 98.4 | 57.1 | F |
| | Right Turn | 56 | 54 | 95.7% | 70.0 | 51.4 | E |
| | Subtotal | 284 | 280 | 98.6% | 94.5 | 55.7 | F |
| EB | Left Turn | 23 | 23 | 99.1% | 97.9 | 34.7 | F |
| | Through | 378 | 376 | 99.6% | 105.8 | 39.2 | F |
| | Right Turn | 62 | 60 | 97.1% | 94.0 | 35.3 | F |
| | Subtotal | 463 | 459 | 99.2% | 104.3 | 38.0 | F |
| WB | Left Turn | 77 | 63 | 82.2% | 34.0 | 3.4 | C |
| | Through | 372 | 399 | 107.1% | 13.1 | 2.3 | B |
| | Right Turn | 49 | 30 | 60.2% | 9.5 | 3.5 | A |
| | Subtotal | 498 | 491 | 98.7% | 15.4 | 1.7 | B |
| Total | | 1,386 | 1,370 | 98.8% | 62.1 | 19.8 | E |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 314 | 304 | 96.7% | 29.3 | 2.0 | C |
| | Through | 185 | 209 | 113.0% | 28.5 | 3.7 | C |
| | Right Turn | 356 | 390 | 109.5% | 17.0 | 2.4 | B |
| | Subtotal | 855 | 903 | 105.6% | 23.6 | 2.0 | C |
| SB | Left Turn | 6 | 6 | 96.7% | 45.4 | 50.0 | D |
| | Through | 190 | 192 | 101.0% | 75.8 | 37.0 | E |
| | Right Turn | 27 | 25 | 94.1% | 45.8 | 47.3 | D |
| | Subtotal | 223 | 223 | 100.0% | 71.3 | 38.0 | E |
| EB | Left Turn | 10 | 9 | 94.0% | 60.1 | 41.9 | E |
| | Through | 53 | 55 | 103.2% | 92.0 | 16.5 | F |
| | Right Turn | 566 | 561 | 99.1% | 17.1 | 2.1 | B |
| | Subtotal | 629 | 625 | 99.3% | 24.8 | 4.5 | C |
| WB | Left Turn | 205 | 201 | 98.0% | 63.1 | 14.0 | E |
| | Through | 157 | 161 | 102.7% | 48.7 | 7.3 | D |
| | Right Turn | 10 | 10 | 102.0% | 34.1 | 40.8 | C |
| | Subtotal | 372 | 372 | 100.1% | 56.7 | 7.8 | E |
| Total | | 2,079 | 2,123 | 102.1% | 34.5 | 5.7 | C |

**Vissim Post-Processor** | **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**PM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 227 | 241 | 106.0% | 48.1 | 4.7 | D |
| | Through | 684 | 747 | 109.2% | 9.5 | 0.7 | A |
| | Right Turn | 86 | 54 | 63.3% | 1.1 | 0.8 | A |
| | Subtotal | 997 | 1,042 | 104.5% | 18.1 | 1.1 | B |
| SB | Left Turn | 110 | 108 | 97.9% | 45.2 | 7.4 | D |
| | Through | 789 | 791 | 100.3% | 25.1 | 3.0 | C |
| | Right Turn | 62 | 61 | 98.5% | 20.9 | 6.0 | C |
| | Subtotal | 961 | 960 | 99.9% | 27.1 | 3.4 | C |
| EB | Left Turn | 38 | 35 | 91.6% | 60.4 | 22.3 | E |
| | Through | 35 | 35 | 101.1% | 50.7 | 11.6 | D |
| | Right Turn | 455 | 453 | 99.5% | 16.6 | 4.2 | B |
| | Subtotal | 528 | 523 | 99.0% | 21.9 | 2.8 | C |
| WB | Left Turn | 78 | 79 | 101.4% | 50.0 | 7.1 | D |
| | Through | 24 | 23 | 96.7% | 40.3 | 16.8 | D |
| | Right Turn | 133 | 127 | 95.2% | 25.0 | 8.5 | C |
| | Subtotal | 235 | 229 | 97.4% | 35.3 | 6.2 | D |
| Total | | 2,721 | 2,754 | 101.2% | 23.4 | 1.4 | C |

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 776 | 763 | 98.3% | 33.8 | 2.1 | C |
| | Through | 587 | 589 | 100.4% | 4.3 | 0.9 | A |
| | Right Turn | | | | | | |
| | Subtotal | 1,363 | 1,352 | 99.2% | 21.2 | 1.3 | C |
| SB | Left Turn | | | | | | |
| | Through | 1,120 | 1,119 | 99.9% | 20.2 | 2.5 | C |
| | Right Turn | 329 | 370 | 112.4% | 10.2 | 1.5 | B |
| | Subtotal | 1,449 | 1,489 | 102.7% | 17.7 | 2.2 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 143 | 116 | 81.0% | 47.2 | 5.3 | D |
| | Through | | | | | | |
| | Right Turn | 415 | 452 | 109.0% | 14.6 | 3.2 | B |
| | Subtotal | 558 | 568 | 101.8% | 21.0 | 2.7 | C |
| Total | | 3,370 | 3,409 | 101.2% | 19.7 | 1.4 | B |

**Vissim Post-Processor** | **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**PM Peak Hour**

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,193 | 1,190 | 99.7% | 25.6 | 4.3 | C |
| | Right Turn | 125 | 119 | 95.0% | 29.6 | 7.3 | C |
| | Subtotal | 1,318 | 1,308 | 99.3% | 25.9 | 4.5 | C |
| SB | Left Turn | 465 | 450 | 96.9% | 43.6 | 10.7 | D |
| | Through | 798 | 773 | 96.9% | 12.8 | 1.6 | B |
| | Right Turn | | | | | | |
| | Subtotal | 1,263 | 1,224 | 96.9% | 24.5 | 4.4 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 800 | 799 | 99.9% | 27.2 | 5.2 | C |
| | Through | | | | | | |
| | Right Turn | 170 | 168 | 99.0% | 11.0 | 2.3 | B |
| | Subtotal | 970 | 967 | 99.7% | 24.3 | 4.4 | C |
| Total | | 3,551 | 3,499 | 98.5% | 25.0 | 2.2 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 104 | 99 | 95.3% | 64.4 | 8.3 | E |
| | Through | 25 | 24 | 96.0% | 28.3 | 7.3 | C |
| | Right Turn | 54 | 56 | 103.5% | 7.3 | 2.1 | A |
| | Subtotal | 183 | 179 | 97.8% | 42.2 | 5.8 | D |
| SB | Left Turn | 40 | 37 | 91.5% | 83.8 | 22.8 | F |
| | Through | 16 | 16 | 100.0% | 74.2 | 32.3 | E |
| | Right Turn | 431 | 428 | 99.3% | 59.9 | 24.2 | E |
| | Subtotal | 487 | 481 | 98.7% | 62.4 | 23.4 | E |
| EB | Left Turn | 426 | 389 | 91.4% | 50.7 | 8.2 | D |
| | Through | 1,102 | 1,116 | 101.3% | 27.3 | 2.1 | C |
| | Right Turn | 70 | 77 | 109.3% | 25.8 | 5.9 | C |
| | Subtotal | 1,598 | 1,582 | 99.0% | 32.8 | 3.1 | C |
| WB | Left Turn | 29 | 26 | 90.3% | 78.9 | 22.6 | E |
| | Through | 699 | 695 | 99.4% | 51.5 | 17.1 | D |
| | Right Turn | 39 | 40 | 101.3% | 23.7 | 12.9 | C |
| | Subtotal | 767 | 761 | 99.2% | 51.4 | 17.1 | D |
| Total | | 3,035 | 3,002 | 98.9% | 43.1 | 5.5 | D |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 No Project**
**Queue Length** **AM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 3 | 2 | 0 | 7 | 153 | 49 | 56 | 220 | NO |
| | Right Turn | 1,120 | 0 | 0 | 0 | 1 | 76 | 37 | 21 | 135 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 0 | 44 | 41 | 0 | 82 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 1 | 39 | 37 | 0 | 118 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 1,149 | 281 | 672 | 1,548 | 1,680 | 15 | 1,658 | 1,695 | MAX |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 No Project**
**Queue Length** **AM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 138 | 13 | 122 | 158 | 510 | 27 | 440 | 533 | MAX |
| | Right Turn | 500 | 115 | 12 | 100 | 133 | 481 | 27 | 410 | 503 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 46 | 7 | 39 | 61 | 184 | 44 | 137 | 259 | NO |
| | Through | 1,300 | 22 | 1 | 20 | 24 | 198 | 22 | 166 | 233 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 168 | 62 | 96 | 283 | 1,149 | 338 | 722 | 1,657 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 13 | 1 | 11 | 14 | 159 | 24 | 124 | 195 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 No Project**
**Queue Length** **PM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 14 | 3 | 8 | 17 | 278 | 55 | 205 | 371 | MAX |
| | Right Turn | 1,120 | 3 | 2 | 1 | 7 | 168 | 50 | 132 | 265 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 1 | 103 | 17 | 81 | 128 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 43 | 58 | 0 | 149 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 8 | 20 | 0 | 60 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 52 | 27 | 18 | 114 | 402 | 114 | 260 | 650 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 No Project**
**Queue Length** **PM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 266 | 56 | 197 | 357 | 567 | 7 | 554 | 576 | MAX |
| | Right Turn | 500 | 240 | 55 | 172 | 328 | 537 | 7 | 525 | 546 | MAX |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 106 | 13 | 84 | 126 | 337 | 72 | 255 | 481 | NO |
| | Through | 1,300 | 55 | 4 | 47 | 61 | 304 | 24 | 275 | 359 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 1,245 | 53 | 1,151 | 1,308 | 1,681 | 13 | 1,661 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 6 | 1 | 4 | 8 | 97 | 24 | 62 | 133 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 2 No Project**
**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**
**Queue Length** **No Build - Cumulative Conditions**
**AM Peak Hour**

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 72 | 4 | 68 | 80 | 298 | 11 | 279 | 311 | NO |
| | Through | 800 | 28 | 4 | 23 | 34 | 316 | 16 | 275 | 328 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 23 | 3 | 20 | 29 | 226 | 36 | 172 | 281 | NO |
| | Right Turn | 200 | 0 | 0 | 0 | 1 | 82 | 21 | 56 | 126 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 38 | 3 | 32 | 43 | 245 | 37 | 197 | 321 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 50 | 7 | 42 | 65 | 278 | 51 | 223 | 394 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** | **CEQA Cumulative 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Queue Length** | **No Build - Cumulative Conditions**
**AM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 83 | 9 | 68 | 97 | 464 | 40 | 391 | 515 | NO |
| | Right Turn | 500 | 65 | 8 | 52 | 77 | 435 | 40 | 362 | 485 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 28 | 2 | 24 | 32 | 170 | 19 | 140 | 202 | NO |
| | Through | 1,300 | 16 | 2 | 13 | 19 | 198 | 38 | 133 | 253 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 43 | 3 | 39 | 51 | 239 | 41 | 202 | 323 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 13 | 2 | 10 | 16 | 159 | 37 | 94 | 231 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 2 No Project**
**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**
**Queue Length** **No Build - Cumulative Conditions**
**PM Peak Hour**

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 89 | 4 | 83 | 94 | 309 | 2 | 304 | 312 | NO |
| | Through | 800 | 4 | 1 | 3 | 6 | 202 | 64 | 117 | 323 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 68 | 7 | 60 | 82 | 463 | 40 | 376 | 520 | NO |
| | Right Turn | 200 | 6 | 2 | 3 | 9 | 260 | 38 | 211 | 343 | MAX |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 25 | 3 | 21 | 30 | 144 | 21 | 115 | 181 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 12 | 1 | 10 | 14 | 105 | 15 | 83 | 128 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** | **CEQA Cumulative 2 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Queue Length** | **No Build - Cumulative Conditions**
**PM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) Average | Std. Dev. | Minimum | Maximum | Maximum Queue (ft) Average | Std. Dev. | Minimum | Maximum | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 93 | 7 | 81 | 102 | 425 | 49 | 359 | 494 | NO |
| | Right Turn | 500 | 73 | 6 | 61 | 80 | 395 | 49 | 330 | 465 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 48 | 4 | 42 | 53 | 211 | 24 | 173 | 242 | NO |
| | Through | 1,300 | 20 | 1 | 18 | 22 | 272 | 53 | 199 | 357 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 59 | 5 | 54 | 68 | 281 | 38 | 224 | 341 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 10 | 2 | 7 | 14 | 107 | 26 | 68 | 167 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 3 No Project**

**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**

**Queue Length** **Olive Dr Off-Ramp Closure - Cumulative Conditions**

**AM Peak Hour**

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 76 | 3 | 71 | 80 | 299 | 10 | 279 | 310 | NO |
| | Through | 800 | 33 | 4 | 29 | 39 | 326 | 11 | 322 | 357 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 23 | 3 | 19 | 28 | 259 | 47 | 186 | 347 | NO |
| | Right Turn | 200 | 1 | 0 | 0 | 2 | 109 | 25 | 60 | 139 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 45 | 4 | 39 | 53 | 267 | 37 | 220 | 335 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 76 | 20 | 58 | 124 | 404 | 259 | 278 | 1,134 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** | **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Queue Length** | **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**AM Peak Hour**

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 90 | 8 | 76 | 98 | 462 | 46 | 398 | 553 | NO |
| | Right Turn | 500 | 71 | 8 | 59 | 79 | 432 | 46 | 369 | 523 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 27 | 2 | 24 | 31 | 164 | 14 | 138 | 185 | NO |
| | Through | 1,300 | 14 | 1 | 12 | 16 | 187 | 48 | 131 | 299 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 42 | 2 | 39 | 44 | 222 | 39 | 182 | 301 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 12 | 2 | 10 | 17 | 140 | 30 | 95 | 185 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 3 No Project**
**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**
**Queue Length** **Olive Dr Off-Ramp Closure - Cumulative Conditions**
**PM Peak Hour**

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) Average | Std. Dev. | Minimum | Maximum | Maximum Queue (ft) Average | Std. Dev. | Minimum | Maximum | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 87 | 4 | 78 | 92 | 310 | 1 | 308 | 312 | NO |
| | Through | 800 | 10 | 2 | 7 | 13 | 276 | 28 | 221 | 324 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 76 | 6 | 68 | 87 | 508 | 36 | 470 | 566 | NO |
| | Right Turn | 200 | 8 | 3 | 4 | 13 | 272 | 36 | 235 | 331 | MAX |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 31 | 5 | 23 | 40 | 179 | 35 | 137 | 246 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 22 | 3 | 15 | 26 | 148 | 21 | 117 | 173 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 3 No Project**

**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**

**Queue Length** **Olive Dr Off-Ramp Closure - Cumulative Conditions**

**PM Peak Hour**

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 119 | 14 | 95 | 136 | 415 | 31 | 363 | 461 | NO |
| | Right Turn | 500 | 96 | 13 | 74 | 112 | 385 | 31 | 334 | 431 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 55 | 6 | 47 | 66 | 234 | 51 | 180 | 350 | NO |
| | Through | 1,300 | 20 | 1 | 18 | 22 | 262 | 36 | 209 | 326 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 57 | 5 | 51 | 70 | 275 | 52 | 210 | 375 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 8 | 2 | 5 | 11 | 99 | 26 | 62 | 150 | NO |
| | Second Right | | | | | | | | | | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | CEQA Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,927 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,611 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,726 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,242 | pcphpl |
| Average passenger-car speed, S | 54.9 | mph |
| Volume-to-capacity ratio, v/c | 0.95 | |
| Density, D | 40.8 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | CEQA Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,385 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,463 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,111 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,037 | pcphpl |
| Average passenger-car speed, S | 59.2 | mph |
| Volume-to-capacity ratio, v/c | 0.87 | |
| Density, D | 34.4 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | CEQA Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,312 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,644 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,864 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,288 | pcphpl |
| Average passenger-car speed, S | 53.8 | mph |
| Volume-to-capacity ratio, v/c | 0.97 | |
| Density, D | 42.5 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | CEQA Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,149 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,601 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,687 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,229 | pcphpl |
| Average passenger-car speed, S | 55.3 | mph |
| Volume-to-capacity ratio, v/c | 0.95 | |
| Density, D | 40.3 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | CEQA Cumulative No Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,984 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,558 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,508 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,627 | pcphpl |
| Average passenger-car speed, S | 64.3 | mph |
| Volume-to-capacity ratio, v/c | 0.69 | |
| Density, D | 25.3 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | CEQA Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,772 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,568 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,550 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,183 | pcphpl |
| Average passenger-car speed, S | 56.3 | mph |
| Volume-to-capacity ratio, v/c | 0.93 | |
| Density, D | 38.8 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | CEQA Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,392 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,465 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,119 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,040 | pcphpl |
| Average passenger-car speed, S | 59.2 | mph |
| Volume-to-capacity ratio, v/c | 0.87 | |
| Density, D | 34.5 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | CEQA Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,655 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,488 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,215 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,072 | pcphpl |
| Average passenger-car speed, S | 58.6 | mph |
| Volume-to-capacity ratio, v/c | 0.88 | |
| Density, D | 35.3 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | CEQA Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,495 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,446 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,039 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,013 | pcphpl |
| Average passenger-car speed, S | 59.7 | mph |
| Volume-to-capacity ratio, v/c | 0.86 | |
| Density, D | 33.7 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | CEQA Cumulative No Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,230 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,639 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,846 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,712 | pcphpl |
| Average passenger-car speed, S | 63.6 | mph |
| Volume-to-capacity ratio, v/c | 0.73 | |
| Density, D | 26.9 | pcpmpl |
| Level of service, LOS | D | |

**Appendix F – CEQA Cumulative Plus Project**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 14 | 13 | 91.4% | 48.1 | 26.7 | D |
| | Through | 17 | 17 | 100.0% | 35.6 | 11.7 | D |
| | Right Turn | 31 | 31 | 98.4% | 7.6 | 6.1 | A |
| | Subtotal | 62 | 60 | 97.3% | 23.7 | 8.7 | C |
| SB | Left Turn | 85 | 84 | 99.1% | 96.8 | 110.5 | F |
| | Through | 29 | 27 | 94.1% | 83.5 | 92.1 | F |
| | Right Turn | 68 | 67 | 99.0% | 48.4 | 85.0 | D |
| | Subtotal | 182 | 179 | 98.2% | 77.9 | 102.5 | E |
| EB | Left Turn | 28 | 28 | 99.3% | 70.6 | 20.6 | E |
| | Through | 229 | 235 | 102.8% | 24.7 | 14.8 | C |
| | Right Turn | 32 | 32 | 99.4% | 33.9 | 21.8 | C |
| | Subtotal | 289 | 295 | 102.1% | 30.3 | 15.2 | C |
| WB | Left Turn | 33 | 34 | 101.5% | 61.2 | 7.8 | E |
| | Through | 482 | 455 | 94.3% | 5.8 | 2.2 | A |
| | Right Turn | 51 | 48 | 94.5% | 2.5 | 1.0 | A |
| | Subtotal | 566 | 536 | 94.8% | 9.0 | 2.2 | A |
| Total | | 1,099 | 1,070 | 97.4% | 25.8 | 15.3 | C |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 525 | 496 | 94.6% | 21.0 | 2.6 | C |
| | Through | 98 | 90 | 91.9% | 19.9 | 3.3 | B |
| | Right Turn | 291 | 276 | 94.9% | 9.4 | 2.2 | A |
| | Subtotal | 914 | 863 | 94.4% | 17.0 | 2.6 | B |
| SB | Left Turn | 1 | 1 | 60.0% | 14.2 | 27.4 | B |
| | Through | 188 | 186 | 99.1% | 39.3 | 4.5 | D |
| | Right Turn | 16 | 15 | 95.0% | 15.6 | 8.9 | B |
| | Subtotal | 205 | 202 | 98.6% | 38.2 | 4.9 | D |
| EB | Left Turn | 9 | 9 | 96.7% | 75.2 | 61.5 | E |
| | Through | 76 | 76 | 100.5% | 117.3 | 35.5 | F |
| | Right Turn | 260 | 267 | 102.5% | 15.5 | 3.8 | B |
| | Subtotal | 345 | 352 | 101.9% | 39.7 | 13.1 | D |
| WB | Left Turn | 212 | 212 | 99.8% | 73.3 | 19.8 | E |
| | Through | 25 | 23 | 93.6% | 52.6 | 18.0 | D |
| | Right Turn | 4 | 4 | 87.5% | 9.4 | 11.5 | A |
| | Subtotal | 241 | 238 | 98.9% | 70.9 | 19.9 | E |
| Total | | 1,705 | 1,655 | 97.1% | 32.5 | 4.4 | C |

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 165 | 163 | 98.5% | 0.5 | 0.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 165 | 163 | 98.5% | 0.5 | 0.0 | A |
| Total | | 165 | 163 | 98.5% | 0.5 | 0.0 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 619 | 601 | 97.1% | 43.8 | 2.8 | D |
| | Through | 704 | 663 | 94.1% | 22.5 | 5.0 | C |
| | Right Turn | 45 | 47 | 103.6% | 1.4 | 0.7 | A |
| | Subtotal | 1,368 | 1,310 | 95.8% | 31.2 | 2.8 | C |
| SB | Left Turn | 60 | 57 | 95.3% | 60.4 | 8.9 | E |
| | Through | 541 | 554 | 102.4% | 22.4 | 5.0 | C |
| | Right Turn | 59 | 57 | 97.1% | 14.7 | 4.1 | B |
| | Subtotal | 660 | 669 | 101.3% | 24.9 | 4.5 | C |
| EB | Left Turn | 49 | 48 | 98.4% | 59.9 | 19.3 | E |
| | Through | 23 | 22 | 97.0% | 35.7 | 16.4 | D |
| | Right Turn | 182 | 181 | 99.5% | 5.5 | 1.1 | A |
| | Subtotal | 254 | 252 | 99.1% | 19.2 | 4.6 | B |
| WB | Left Turn | 126 | 110 | 87.5% | 55.2 | 4.8 | E |
| | Through | 48 | 44 | 92.5% | 50.2 | 12.2 | D |
| | Right Turn | 161 | 155 | 96.3% | 31.7 | 7.1 | C |
| | Subtotal | 335 | 310 | 92.4% | 43.4 | 4.9 | D |
| Total | | 2,617 | 2,540 | 97.1% | 29.8 | 2.2 | C |

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 601 | 602 | 100.1% | 7.2 | 1.4 | A |
| | Right Turn | 617 | 613 | 99.3% | 6.3 | 0.7 | A |
| | Subtotal | 1,218 | 1,215 | 99.7% | 6.7 | 1.0 | A |
| SB | Left Turn | | | | | | |
| | Through | 671 | 661 | 98.6% | 0.8 | 0.2 | A |
| | Right Turn | 203 | 202 | 99.4% | 1.2 | 0.4 | A |
| | Subtotal | 874 | 863 | 98.8% | 0.9 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 206 | 192 | 93.4% | 33.5 | 8.3 | D |
| | Subtotal | 206 | 192 | 93.4% | 33.5 | 8.3 | D |
| WB | Left Turn | | | | | | |
| | Through | 335 | 309 | 92.1% | 272.0 | 43.7 | F |
| | Right Turn | 442 | 405 | 91.6% | 269.4 | 46.5 | F |
| | Subtotal | 777 | 714 | 91.8% | 270.5 | 45.4 | F |
| Total | | 3,075 | 2,984 | 97.0% | 72.4 | 8.2 | F |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 985 | 983 | 99.8% | 35.3 | 4.1 | D |
| | Right Turn | 95 | 92 | 96.3% | 37.1 | 4.7 | D |
| | Subtotal | 1,080 | 1,075 | 99.5% | 35.4 | 4.0 | D |
| SB | Left Turn | 313 | 309 | 98.6% | 42.0 | 9.6 | D |
| | Through | 564 | 542 | 96.2% | 13.7 | 1.6 | B |
| | Right Turn | | | | | | |
| | Subtotal | 877 | 851 | 97.0% | 24.3 | 4.5 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 722 | 711 | 98.5% | 37.4 | 12.8 | D |
| | Through | | | | | | |
| | Right Turn | 228 | 233 | 102.3% | 28.1 | 13.9 | C |
| | Subtotal | 950 | 945 | 99.4% | 35.1 | 13.1 | D |
| Total | | 2,907 | 2,870 | 98.7% | 32.2 | 5.0 | C |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 Plus Project**
**Volume and Delay by Movement** **AM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 85 | 82 | 95.9% | 64.7 | 10.2 | E |
| | Through | 5 | 5 | 102.0% | 38.6 | 32.8 | D |
| | Right Turn | 40 | 40 | 99.5% | 6.7 | 3.9 | A |
| | Subtotal | 130 | 126 | 97.2% | 46.8 | 9.6 | D |
| SB | Left Turn | 22 | 21 | 95.0% | 59.0 | 13.9 | E |
| | Through | 22 | 20 | 89.1% | 49.4 | 18.6 | D |
| | Right Turn | 137 | 136 | 99.5% | 21.3 | 6.4 | C |
| | Subtotal | 181 | 177 | 97.7% | 28.8 | 6.8 | C |
| EB | Left Turn | 419 | 408 | 97.4% | 44.8 | 4.5 | D |
| | Through | 720 | 714 | 99.1% | 17.0 | 3.0 | B |
| | Right Turn | 147 | 136 | 92.6% | 17.9 | 4.9 | B |
| | Subtotal | 1,286 | 1,258 | 97.8% | 26.0 | 3.0 | C |
| WB | Left Turn | 38 | 39 | 102.9% | 100.5 | 13.7 | F |
| | Through | 823 | 810 | 98.4% | 71.4 | 20.7 | E |
| | Right Turn | 23 | 22 | 96.5% | 46.4 | 24.7 | D |
| | Subtotal | 884 | 871 | 98.6% | 72.3 | 19.7 | E |
| Total | | 2,481 | 2,432 | 98.0% | 43.1 | 6.5 | D |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 Plus Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 1** **D St/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 30 | 97.4% | 23.8 | 10.4 | C |
| | Through | 46 | 44 | 95.7% | 22.8 | 6.7 | C |
| | Right Turn | 64 | 67 | 104.2% | 30.4 | 7.6 | C |
| | Subtotal | 141 | 141 | 99.9% | 27.0 | 5.5 | C |
| SB | Left Turn | 187 | 176 | 94.0% | 213.0 | 52.1 | F |
| | Through | 41 | 35 | 85.4% | 202.5 | 55.7 | F |
| | Right Turn | 56 | 54 | 95.9% | 159.4 | 38.7 | F |
| | Subtotal | 284 | 264 | 93.1% | 201.1 | 48.5 | F |
| EB | Left Turn | 23 | 19 | 81.7% | 260.6 | 48.5 | F |
| | Through | 378 | 332 | 87.8% | 244.8 | 23.5 | F |
| | Right Turn | 62 | 54 | 86.5% | 232.8 | 25.9 | F |
| | Subtotal | 463 | 404 | 87.3% | 243.8 | 24.4 | F |
| WB | Left Turn | 77 | 76 | 98.3% | 34.3 | 5.0 | C |
| | Through | 372 | 377 | 101.3% | 14.9 | 2.6 | B |
| | Right Turn | 49 | 45 | 91.8% | 11.7 | 3.6 | B |
| | Subtotal | 498 | 498 | 99.9% | 17.9 | 2.3 | B |
| Total | | 1,386 | 1,307 | 94.3% | 124.1 | 8.4 | F |

**Intersection 2** **E St-Richards Blvd/1st St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 314 | 308 | 98.2% | 20.3 | 4.4 | C |
| | Through | 185 | 188 | 101.6% | 21.6 | 4.1 | C |
| | Right Turn | 356 | 364 | 102.4% | 10.4 | 2.6 | B |
| | Subtotal | 855 | 861 | 100.7% | 16.3 | 3.4 | B |
| SB | Left Turn | 6 | 7 | 113.3% | 78.5 | 55.4 | E |
| | Through | 190 | 190 | 99.8% | 93.8 | 45.2 | F |
| | Right Turn | 27 | 28 | 102.6% | 44.8 | 19.6 | D |
| | Subtotal | 223 | 224 | 100.5% | 86.4 | 40.1 | F |
| EB | Left Turn | 10 | 9 | 88.0% | 69.0 | 47.0 | E |
| | Through | 53 | 50 | 95.1% | 84.4 | 18.3 | F |
| | Right Turn | 566 | 517 | 91.3% | 32.6 | 3.7 | C |
| | Subtotal | 629 | 576 | 91.6% | 38.5 | 2.7 | D |
| WB | Left Turn | 205 | 207 | 101.0% | 66.0 | 19.6 | E |
| | Through | 157 | 159 | 101.4% | 48.0 | 8.5 | D |
| | Right Turn | 10 | 9 | 93.0% | 34.8 | 23.9 | C |
| | Subtotal | 372 | 376 | 100.9% | 58.6 | 14.4 | E |
| Total | | 2,079 | 2,037 | 98.0% | 38.8 | 6.5 | D |

**Intersection 3** **Olive Dr/Olive Dr Off-Ramp** **Side-street Stop**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| SB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | | | | | | |
| | Through | 160 | 162 | 101.4% | 0.5 | 0.0 | A |
| | Right Turn | | | | | | |
| | Subtotal | 160 | 162 | 101.4% | 0.5 | 0.0 | A |
| Total | | 160 | 162 | 101.4% | 0.5 | 0.0 | A |

**Intersection 4** **Olive Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 217 | 210 | 96.7% | 55.2 | 7.4 | E |
| | Through | 631 | 638 | 101.1% | 38.2 | 8.0 | D |
| | Right Turn | 58 | 61 | 105.2% | 2.1 | 0.8 | A |
| | Subtotal | 906 | 909 | 100.3% | 39.6 | 6.6 | D |
| SB | Left Turn | 110 | 113 | 103.1% | 67.0 | 18.3 | E |
| | Through | 789 | 751 | 95.2% | 42.6 | 10.6 | D |
| | Right Turn | 62 | 58 | 93.7% | 37.5 | 10.3 | D |
| | Subtotal | 961 | 923 | 96.0% | 45.5 | 11.9 | D |
| EB | Left Turn | 38 | 38 | 100.5% | 58.8 | 12.2 | E |
| | Through | 35 | 36 | 102.9% | 39.5 | 8.9 | D |
| | Right Turn | 455 | 454 | 99.8% | 17.7 | 3.7 | B |
| | Subtotal | 528 | 528 | 100.0% | 22.5 | 3.5 | C |
| WB | Left Turn | 149 | 143 | 96.2% | 67.5 | 10.7 | E |
| | Through | 34 | 35 | 104.1% | 40.4 | 6.5 | D |
| | Right Turn | 186 | 189 | 101.4% | 29.1 | 4.1 | C |
| | Subtotal | 369 | 367 | 99.6% | 46.3 | 6.5 | D |
| Total | | 2,764 | 2,727 | 98.7% | 39.3 | 5.6 | D |

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 597 | 591 | 99.1% | 16.6 | 3.6 | C |
| | Right Turn | 776 | 767 | 98.8% | 10.5 | 1.4 | B |
| | Subtotal | 1,373 | 1,358 | 98.9% | 13.2 | 2.2 | B |
| SB | Left Turn | | | | | | |
| | Through | 1,186 | 1,136 | 95.7% | 1.5 | 0.2 | A |
| | Right Turn | 368 | 372 | 101.1% | 1.6 | 0.3 | A |
| | Subtotal | 1,554 | 1,508 | 97.0% | 1.5 | 0.2 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | 85 | 84 | 99.2% | 3.0 | 0.8 | A |
| | Subtotal | 85 | 84 | 99.2% | 3.0 | 0.8 | A |
| WB | Left Turn | | | | | | |
| | Through | 68 | 70 | 102.5% | 48.7 | 34.5 | E |
| | Right Turn | 257 | 258 | 100.4% | 45.0 | 26.4 | E |
| | Subtotal | 325 | 328 | 100.8% | 45.6 | 27.4 | E |
| Total | | 3,337 | 3,278 | 98.2% | 11.0 | 3.1 | B |

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,193 | 1,193 | 100.0% | 53.6 | 8.2 | D |
| | Right Turn | 125 | 123 | 98.0% | 105.8 | 34.0 | F |
| | Subtotal | 1,318 | 1,315 | 99.8% | 58.5 | 10.3 | E |
| SB | Left Turn | 465 | 439 | 94.4% | 70.1 | 14.9 | E |
| | Through | 806 | 780 | 96.7% | 23.3 | 1.9 | C |
| | Right Turn | | | | | | |
| | Subtotal | 1,271 | 1,219 | 95.9% | 41.0 | 7.4 | D |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 800 | 730 | 91.2% | 149.5 | 26.1 | F |
| | Through | | | | | | |
| | Right Turn | 170 | 164 | 96.3% | 130.8 | 27.2 | F |
| | Subtotal | 970 | 893 | 92.1% | 145.9 | 26.4 | F |
| Total | | 3,559 | 3,427 | 96.3% | 74.8 | 8.8 | E |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 Plus Project**
**Volume and Delay by Movement** **PM Peak Hour**

**Intersection 7** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 104 | 101 | 97.0% | 61.3 | 5.6 | E |
| | Through | 25 | 27 | 106.4% | 26.5 | 8.3 | C |
| | Right Turn | 54 | 55 | 100.9% | 9.6 | 3.9 | A |
| | Subtotal | 183 | 182 | 99.5% | 42.2 | 2.7 | D |
| SB | Left Turn | 40 | 40 | 100.0% | 105.0 | 32.8 | F |
| | Through | 16 | 16 | 96.9% | 109.7 | 53.6 | F |
| | Right Turn | 431 | 430 | 99.8% | 92.5 | 31.8 | F |
| | Subtotal | 487 | 486 | 99.7% | 94.1 | 31.9 | F |
| EB | Left Turn | 426 | 403 | 94.6% | 53.8 | 9.5 | D |
| | Through | 1,110 | 1,043 | 93.9% | 17.6 | 1.2 | B |
| | Right Turn | 70 | 67 | 95.6% | 17.6 | 4.2 | B |
| | Subtotal | 1,606 | 1,513 | 94.2% | 27.1 | 3.3 | C |
| WB | Left Turn | 29 | 25 | 86.9% | 86.7 | 17.9 | F |
| | Through | 699 | 695 | 99.5% | 58.2 | 12.2 | E |
| | Right Turn | 39 | 41 | 104.1% | 27.4 | 10.5 | C |
| | Subtotal | 767 | 761 | 99.2% | 57.7 | 12.0 | E |
| Total | | 3,043 | 2,941 | 96.7% | 46.2 | 6.4 | D |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build with Lincoln 40 - Cumulative Conditions**
**AM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 14 | 14 | 96.4% | 31.7 | 15.6 | C |
| | Through | 17 | 16 | 95.3% | 32.5 | 17.1 | C |
| | Right Turn | 31 | 32 | 104.5% | 14.4 | 13.6 | B |
| | Subtotal | 62 | 62 | 100.2% | 23.1 | 11.4 | C |
| SB | Left Turn | 85 | 84 | 99.1% | 99.1 | 91.3 | F |
| | Through | 29 | 28 | 96.9% | 89.9 | 94.8 | F |
| | Right Turn | 68 | 70 | 102.2% | 50.0 | 62.9 | D |
| | Subtotal | 182 | 182 | 99.9% | 79.9 | 82.6 | E |
| EB | Left Turn | 28 | 29 | 103.9% | 61.2 | 17.2 | E |
| | Through | 229 | 235 | 102.6% | 24.4 | 16.2 | C |
| | Right Turn | 32 | 30 | 92.8% | 20.4 | 16.2 | C |
| | Subtotal | 289 | 294 | 101.6% | 26.9 | 14.8 | C |
| WB | Left Turn | 33 | 32 | 98.2% | 60.2 | 7.3 | E |
| | Through | 483 | 499 | 103.4% | 5.2 | 1.2 | A |
| | Right Turn | 51 | 49 | 95.7% | 2.3 | 0.9 | A |
| | Subtotal | 567 | 581 | 102.4% | 7.7 | 1.8 | A |
| Total | | 1,100 | 1,118 | 101.6% | 24.7 | 16.0 | C |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 526 | 536 | 101.9% | 21.8 | 3.3 | C |
| | Through | 100 | 99 | 99.2% | 21.3 | 3.2 | C |
| | Right Turn | 299 | 285 | 95.3% | 9.0 | 1.6 | A |
| | Subtotal | 925 | 920 | 99.5% | 17.7 | 2.8 | B |
| SB | Left Turn | 1 | 1 | 90.0% | 10.4 | 21.4 | B |
| | Through | 188 | 187 | 99.3% | 38.6 | 6.6 | D |
| | Right Turn | 16 | 17 | 106.9% | 26.3 | 14.8 | C |
| | Subtotal | 205 | 205 | 99.9% | 37.8 | 5.8 | D |
| EB | Left Turn | 9 | 9 | 97.8% | 109.4 | 57.7 | F |
| | Through | 76 | 80 | 104.7% | 107.4 | 22.1 | F |
| | Right Turn | 260 | 266 | 102.1% | 16.4 | 3.8 | B |
| | Subtotal | 345 | 354 | 102.6% | 38.8 | 9.6 | D |
| WB | Left Turn | 212 | 207 | 97.8% | 79.1 | 24.1 | E |
| | Through | 25 | 26 | 103.2% | 46.6 | 17.9 | D |
| | Right Turn | 4 | 3 | 82.5% | 9.5 | 16.0 | A |
| | Subtotal | 241 | 237 | 98.1% | 74.7 | 22.8 | E |
| Total | | 1,716 | 1,715 | 99.9% | 33.2 | 5.4 | C |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build with Lincoln 40 - Cumulative Conditions**
**AM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 619 | 613 | 99.0% | 24.1 | 1.5 | C |
| | Through | 704 | 711 | 101.1% | 10.2 | 1.2 | B |
| | Right Turn | 44 | 40 | 90.2% | 0.9 | 0.4 | A |
| | Subtotal | 1,367 | 1,364 | 99.8% | 15.9 | 0.6 | B |
| SB | Left Turn | 60 | 52 | 86.8% | 63.0 | 7.1 | E |
| | Through | 541 | 556 | 102.8% | 33.2 | 7.3 | C |
| | Right Turn | 59 | 59 | 99.3% | 26.6 | 12.6 | C |
| | Subtotal | 660 | 667 | 101.0% | 34.8 | 7.5 | C |
| EB | Left Turn | 49 | 44 | 89.4% | 59.3 | 6.7 | E |
| | Through | 23 | 19 | 83.9% | 35.5 | 10.4 | D |
| | Right Turn | 182 | 181 | 99.7% | 5.4 | 0.8 | A |
| | Subtotal | 254 | 245 | 96.3% | 18.0 | 1.3 | B |
| WB | Left Turn | 139 | 131 | 94.0% | 70.6 | 15.6 | E |
| | Through | 52 | 50 | 96.2% | 90.3 | 45.5 | F |
| | Right Turn | 172 | 172 | 100.2% | 71.6 | 40.2 | E |
| | Subtotal | 363 | 353 | 97.3% | 74.7 | 30.3 | E |
| Total | | 2,644 | 2,628 | 99.4% | 29.6 | 5.3 | C |

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 617 | 621 | 100.6% | 36.1 | 3.5 | D |
| | Through | 595 | 599 | 100.7% | 9.9 | 1.5 | A |
| | Right Turn | | | | | | |
| | Subtotal | 1,212 | 1,220 | 100.7% | 23.4 | 1.8 | C |
| SB | Left Turn | | | | | | |
| | Through | 680 | 681 | 100.1% | 11.6 | 2.9 | B |
| | Right Turn | 207 | 199 | 95.9% | 4.1 | 1.0 | A |
| | Subtotal | 887 | 879 | 99.1% | 9.8 | 2.3 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 206 | 201 | 97.6% | 32.8 | 4.1 | C |
| | Through | | | | | | |
| | Right Turn | 776 | 775 | 99.8% | 23.9 | 4.0 | C |
| | Subtotal | 982 | 976 | 99.3% | 25.8 | 3.4 | C |
| Total | | 3,081 | 3,075 | 99.8% | 20.5 | 1.2 | C |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build with Lincoln 40 - Cumulative Conditions**
**AM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 984 | 974 | 98.9% | 24.0 | 3.6 | C |
| | Right Turn | 95 | 92 | 96.5% | 22.6 | 3.0 | C |
| | Subtotal | 1,079 | 1,065 | 98.7% | 23.9 | 3.4 | C |
| SB | Left Turn | 315 | 313 | 99.4% | 30.3 | 2.6 | C |
| | Through | 571 | 569 | 99.6% | 12.0 | 1.7 | B |
| | Right Turn | | | | | | |
| | Subtotal | 886 | 882 | 99.5% | 18.5 | 0.9 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 722 | 717 | 99.3% | 19.7 | 2.4 | B |
| | Through | | | | | | |
| | Right Turn | 228 | 230 | 101.0% | 12.3 | 2.3 | B |
| | Subtotal | 950 | 948 | 99.7% | 17.9 | 2.1 | B |
| Total | | 2,915 | 2,895 | 99.3% | 20.3 | 1.5 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 85 | 84 | 98.9% | 70.4 | 16.1 | E |
| | Through | 5 | 5 | 94.0% | 22.7 | 28.7 | C |
| | Right Turn | 40 | 40 | 99.0% | 6.2 | 3.4 | A |
| | Subtotal | 130 | 128 | 98.8% | 49.2 | 11.6 | D |
| SB | Left Turn | 22 | 22 | 100.5% | 42.5 | 20.1 | D |
| | Through | 22 | 20 | 92.7% | 36.6 | 17.1 | D |
| | Right Turn | 137 | 135 | 98.3% | 14.8 | 4.7 | B |
| | Subtotal | 181 | 177 | 97.9% | 20.4 | 5.7 | C |
| EB | Left Turn | 422 | 418 | 99.1% | 48.3 | 4.4 | D |
| | Through | 723 | 724 | 100.1% | 16.4 | 2.5 | B |
| | Right Turn | 148 | 145 | 98.2% | 18.0 | 1.3 | B |
| | Subtotal | 1,293 | 1,288 | 99.6% | 27.3 | 2.7 | C |
| WB | Left Turn | 38 | 36 | 95.8% | 130.7 | 39.1 | F |
| | Through | 822 | 806 | 98.1% | 97.3 | 32.5 | F |
| | Right Turn | 23 | 22 | 95.2% | 73.5 | 31.5 | E |
| | Subtotal | 883 | 864 | 97.9% | 97.9 | 32.3 | F |
| Total | | 2,487 | 2,458 | 98.8% | 53.7 | 12.7 | D |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 32 | 102.9% | 25.4 | 6.6 | C |
| | Through | 46 | 45 | 98.0% | 28.9 | 8.9 | C |
| | Right Turn | 64 | 63 | 97.8% | 14.1 | 3.4 | B |
| | Subtotal | 141 | 140 | 99.0% | 20.7 | 2.1 | C |
| SB | Left Turn | 188 | 181 | 96.5% | 98.8 | 58.9 | F |
| | Through | 41 | 43 | 105.6% | 98.3 | 57.4 | F |
| | Right Turn | 56 | 54 | 95.9% | 68.1 | 56.5 | E |
| | Subtotal | 285 | 278 | 97.7% | 93.2 | 58.3 | F |
| EB | Left Turn | 23 | 23 | 99.1% | 128.0 | 68.5 | F |
| | Through | 383 | 380 | 99.3% | 113.4 | 53.9 | F |
| | Right Turn | 62 | 60 | 96.1% | 102.5 | 47.7 | F |
| | Subtotal | 468 | 463 | 98.9% | 112.9 | 53.6 | F |
| WB | Left Turn | 77 | 77 | 99.6% | 37.0 | 3.0 | D |
| | Through | 373 | 384 | 102.9% | 12.9 | 2.4 | B |
| | Right Turn | 49 | 47 | 96.5% | 10.2 | 3.9 | B |
| | Subtotal | 499 | 508 | 101.7% | 15.9 | 2.3 | B |
| Total | | 1,393 | 1,389 | 99.7% | 64.5 | 18.5 | E |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 315 | 320 | 101.7% | 29.9 | 2.5 | C |
| | Through | 187 | 184 | 98.3% | 29.3 | 4.2 | C |
| | Right Turn | 367 | 358 | 97.5% | 15.4 | 2.6 | B |
| | Subtotal | 869 | 862 | 99.2% | 23.6 | 2.6 | C |
| SB | Left Turn | 6 | 6 | 96.7% | 60.5 | 38.4 | E |
| | Through | 194 | 194 | 100.1% | 71.3 | 28.3 | E |
| | Right Turn | 27 | 27 | 98.5% | 48.8 | 34.8 | D |
| | Subtotal | 227 | 227 | 99.8% | 68.0 | 27.3 | E |
| EB | Left Turn | 10 | 9 | 86.0% | 76.7 | 48.6 | E |
| | Through | 53 | 53 | 100.6% | 87.1 | 21.3 | F |
| | Right Turn | 572 | 565 | 98.7% | 17.7 | 2.1 | B |
| | Subtotal | 635 | 627 | 98.7% | 24.6 | 2.2 | C |
| WB | Left Turn | 213 | 210 | 98.5% | 82.8 | 27.2 | F |
| | Through | 157 | 160 | 101.9% | 57.3 | 12.0 | E |
| | Right Turn | 10 | 11 | 109.0% | 48.2 | 18.4 | D |
| | Subtotal | 380 | 381 | 100.2% | 72.0 | 19.9 | E |
| Total | | 2,111 | 2,096 | 99.3% | 38.0 | 7.2 | D |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 217 | 218 | 100.3% | 49.1 | 2.4 | D |
| | Through | 631 | 648 | 102.7% | 10.4 | 0.7 | B |
| | Right Turn | 73 | 56 | 76.0% | 1.3 | 0.8 | A |
| | Subtotal | 921 | 921 | 100.0% | 18.7 | 1.1 | B |
| SB | Left Turn | 128 | 110 | 85.6% | 46.7 | 8.0 | D |
| | Through | 789 | 804 | 101.9% | 27.0 | 4.8 | C |
| | Right Turn | 62 | 62 | 100.0% | 21.0 | 7.8 | C |
| | Subtotal | 979 | 976 | 99.7% | 28.7 | 5.3 | C |
| EB | Left Turn | 38 | 22 | 57.4% | 55.7 | 21.3 | E |
| | Through | 42 | 29 | 68.1% | 54.7 | 10.8 | D |
| | Right Turn | 455 | 451 | 99.1% | 16.7 | 4.2 | B |
| | Subtotal | 535 | 501 | 93.7% | 20.8 | 3.3 | C |
| WB | Left Turn | 166 | 163 | 98.2% | 89.1 | 27.6 | F |
| | Through | 40 | 39 | 96.3% | 75.8 | 33.7 | E |
| | Right Turn | 200 | 197 | 98.3% | 56.1 | 22.3 | E |
| | Subtotal | 406 | 398 | 98.0% | 71.6 | 21.0 | E |
| Total | | 2,841 | 2,796 | 98.4% | 30.3 | 3.0 | C |

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 776 | 765 | 98.5% | 31.3 | 2.4 | C |
| | Through | 602 | 595 | 98.8% | 2.6 | 0.5 | A |
| | Right Turn | | | | | | |
| | Subtotal | 1,378 | 1,359 | 98.7% | 19.0 | 1.4 | B |
| SB | Left Turn | | | | | | |
| | Through | 1,197 | 1,202 | 100.4% | 19.0 | 1.3 | B |
| | Right Turn | 374 | 382 | 102.0% | 10.4 | 1.5 | B |
| | Subtotal | 1,571 | 1,584 | 100.8% | 16.9 | 1.0 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 85 | 81 | 95.6% | 52.3 | 4.5 | D |
| | Through | | | | | | |
| | Right Turn | 324 | 327 | 100.9% | 11.1 | 1.9 | B |
| | Subtotal | 409 | 408 | 99.8% | 19.8 | 2.5 | B |
| Total | | 3,358 | 3,351 | 99.8% | 18.1 | 0.6 | B |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **No Build with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,202 | 1,201 | 99.9% | 20.9 | 2.5 | C |
| | Right Turn | 125 | 118 | 94.2% | 25.2 | 4.9 | C |
| | Subtotal | 1,327 | 1,319 | 99.4% | 21.2 | 2.7 | C |
| SB | Left Turn | 468 | 462 | 98.8% | 37.9 | 4.4 | D |
| | Through | 814 | 808 | 99.2% | 13.5 | 3.6 | B |
| | Right Turn | | | | | | |
| | Subtotal | 1,282 | 1,270 | 99.1% | 22.7 | 3.2 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 800 | 804 | 100.5% | 25.9 | 7.3 | C |
| | Through | | | | | | |
| | Right Turn | 176 | 170 | 96.7% | 12.2 | 1.9 | B |
| | Subtotal | 976 | 974 | 99.8% | 23.5 | 6.3 | C |
| Total | | 3,585 | 3,563 | 99.4% | 22.5 | 2.2 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 105 | 101 | 96.4% | 63.9 | 8.2 | E |
| | Through | 25 | 25 | 100.4% | 30.6 | 12.2 | C |
| | Right Turn | 54 | 54 | 100.4% | 8.8 | 4.6 | A |
| | Subtotal | 184 | 181 | 98.1% | 41.5 | 6.8 | D |
| SB | Left Turn | 40 | 38 | 95.5% | 95.1 | 24.2 | F |
| | Through | 16 | 18 | 112.5% | 93.5 | 34.9 | F |
| | Right Turn | 435 | 430 | 98.8% | 68.4 | 28.6 | E |
| | Subtotal | 491 | 486 | 98.9% | 71.6 | 28.2 | E |
| EB | Left Turn | 429 | 420 | 97.8% | 59.9 | 8.6 | E |
| | Through | 1,114 | 1,116 | 100.2% | 18.8 | 3.4 | B |
| | Right Turn | 71 | 71 | 99.6% | 21.3 | 6.5 | C |
| | Subtotal | 1,614 | 1,607 | 99.5% | 30.1 | 4.1 | C |
| WB | Left Turn | 29 | 27 | 94.5% | 104.6 | 26.0 | F |
| | Through | 703 | 698 | 99.3% | 66.0 | 13.0 | E |
| | Right Turn | 39 | 39 | 100.0% | 35.0 | 17.8 | C |
| | Subtotal | 771 | 765 | 99.2% | 65.6 | 13.5 | E |
| Total | | 3,060 | 3,037 | 99.3% | 46.1 | 7.3 | D |

**Vissim Post-Processor** **CEQA Cumulative 3 Plus Project**
**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**
**AM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 14 | 14 | 99.3% | 38.9 | 21.2 | D |
| | Through | 17 | 17 | 98.8% | 34.2 | 16.7 | C |
| | Right Turn | 31 | 31 | 100.6% | 9.9 | 7.4 | A |
| | Subtotal | 62 | 62 | 99.8% | 23.4 | 6.8 | C |
| SB | Left Turn | 85 | 84 | 98.9% | 84.9 | 62.8 | F |
| | Through | 29 | 28 | 94.8% | 71.2 | 50.5 | E |
| | Right Turn | 68 | 69 | 100.7% | 35.0 | 34.1 | D |
| | Subtotal | 182 | 180 | 99.0% | 65.5 | 50.7 | E |
| EB | Left Turn | 28 | 27 | 96.4% | 64.7 | 19.0 | E |
| | Through | 229 | 237 | 103.4% | 27.6 | 16.4 | C |
| | Right Turn | 32 | 29 | 90.6% | 24.1 | 21.2 | C |
| | Subtotal | 289 | 293 | 101.3% | 30.4 | 16.1 | C |
| WB | Left Turn | 33 | 22 | 67.0% | 58.2 | 6.9 | E |
| | Through | 484 | 531 | 109.7% | 9.5 | 2.2 | A |
| | Right Turn | 51 | 16 | 31.2% | 5.5 | 7.1 | A |
| | Subtotal | 568 | 569 | 100.2% | 11.4 | 2.1 | B |
| Total | | 1,101 | 1,104 | 100.2% | 26.3 | 11.5 | C |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 527 | 526 | 99.8% | 20.8 | 3.7 | C |
| | Through | 100 | 107 | 107.1% | 22.7 | 4.4 | C |
| | Right Turn | 300 | 288 | 96.0% | 10.1 | 1.8 | B |
| | Subtotal | 927 | 921 | 99.3% | 17.9 | 3.1 | B |
| SB | Left Turn | 1 | 1 | 110.0% | 10.8 | 23.3 | B |
| | Through | 189 | 187 | 99.0% | 44.8 | 8.7 | D |
| | Right Turn | 16 | 16 | 102.5% | 29.4 | 18.7 | C |
| | Subtotal | 206 | 205 | 99.3% | 43.4 | 8.5 | D |
| EB | Left Turn | 9 | 8 | 93.3% | 80.6 | 57.6 | F |
| | Through | 76 | 81 | 106.1% | 113.1 | 37.2 | F |
| | Right Turn | 260 | 265 | 102.0% | 18.8 | 4.1 | B |
| | Subtotal | 345 | 354 | 102.6% | 43.9 | 14.0 | D |
| WB | Left Turn | 212 | 208 | 98.1% | 73.6 | 18.2 | E |
| | Through | 25 | 25 | 99.2% | 44.0 | 9.6 | D |
| | Right Turn | 4 | 4 | 92.5% | 8.2 | 12.8 | A |
| | Subtotal | 241 | 236 | 98.1% | 70.2 | 16.2 | E |
| Total | | 1,719 | 1,716 | 99.8% | 33.0 | 3.5 | C |

**Vissim Post-Processor** | **CEQA Cumulative 3 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** | **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**
**AM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 631 | 672 | 106.5% | 34.5 | 2.9 | C |
| | Through | 780 | 788 | 101.0% | 18.7 | 3.8 | B |
| | Right Turn | 64 | 40 | 62.2% | 4.2 | 1.2 | A |
| | Subtotal | 1,475 | 1,499 | 101.7% | 25.1 | 2.8 | C |
| SB | Left Turn | 61 | 52 | 84.8% | 59.3 | 8.7 | E |
| | Through | 541 | 553 | 102.3% | 26.2 | 4.9 | C |
| | Right Turn | 59 | 57 | 97.1% | 18.6 | 4.7 | B |
| | Subtotal | 661 | 662 | 100.2% | 28.0 | 4.5 | C |
| EB | Left Turn | 49 | 43 | 88.2% | 54.7 | 15.9 | D |
| | Through | 23 | 20 | 85.7% | 46.5 | 12.8 | D |
| | Right Turn | 182 | 182 | 99.9% | 5.5 | 1.1 | A |
| | Subtotal | 254 | 245 | 96.3% | 19.1 | 6.2 | B |
| WB | Left Turn | 79 | 81 | 102.7% | 53.4 | 8.8 | D |
| | Through | 40 | 40 | 99.3% | 45.5 | 17.3 | D |
| | Right Turn | 98 | 95 | 96.6% | 30.3 | 17.9 | C |
| | Subtotal | 217 | 216 | 99.3% | 42.0 | 12.9 | D |
| Total | | 2,607 | 2,622 | 100.6% | 26.7 | 2.7 | C |

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 617 | 627 | 101.6% | 36.1 | 2.5 | D |
| | Through | 595 | 607 | 102.1% | 10.6 | 2.5 | B |
| | Right Turn | | | | | | |
| | Subtotal | 1,212 | 1,234 | 101.8% | 23.5 | 1.6 | C |
| SB | Left Turn | | | | | | |
| | Through | 629 | 639 | 101.5% | 9.7 | 2.0 | A |
| | Right Turn | 174 | 192 | 110.5% | 4.1 | 0.9 | A |
| | Subtotal | 803 | 831 | 103.5% | 8.5 | 1.7 | A |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 255 | 234 | 91.8% | 35.8 | 7.2 | D |
| | Through | | | | | | |
| | Right Turn | 884 | 900 | 101.8% | 36.7 | 23.6 | D |
| | Subtotal | 1,139 | 1,134 | 99.6% | 36.6 | 20.2 | D |
| Total | | 3,154 | 3,199 | 101.4% | 24.1 | 7.3 | C |

**Vissim Post-Processor** **CEQA Cumulative 3 Plus Project**
**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**
**AM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 984 | 983 | 99.9% | 26.1 | 3.9 | C |
| | Right Turn | 95 | 93 | 97.6% | 22.5 | 3.9 | C |
| | Subtotal | 1,079 | 1,075 | 99.7% | 25.8 | 3.8 | C |
| SB | Left Turn | 315 | 304 | 96.5% | 30.9 | 1.9 | C |
| | Through | 569 | 571 | 100.3% | 10.4 | 0.8 | B |
| | Right Turn | | | | | | |
| | Subtotal | 884 | 875 | 98.9% | 17.5 | 1.3 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 722 | 714 | 98.9% | 19.4 | 1.5 | B |
| | Through | | | | | | |
| | Right Turn | 228 | 233 | 102.2% | 12.7 | 2.2 | B |
| | Subtotal | 950 | 947 | 99.7% | 17.8 | 1.3 | B |
| Total | | 2,913 | 2,897 | 99.5% | 20.7 | 1.6 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 85 | 85 | 100.0% | 66.0 | 10.6 | E |
| | Through | 5 | 5 | 98.0% | 32.4 | 25.3 | C |
| | Right Turn | 40 | 39 | 96.8% | 8.1 | 6.2 | A |
| | Subtotal | 130 | 129 | 98.9% | 46.4 | 8.9 | D |
| SB | Left Turn | 22 | 22 | 100.0% | 56.7 | 16.2 | E |
| | Through | 22 | 21 | 96.8% | 41.2 | 18.5 | D |
| | Right Turn | 137 | 134 | 98.0% | 19.6 | 9.5 | B |
| | Subtotal | 181 | 178 | 98.1% | 26.6 | 9.2 | C |
| EB | Left Turn | 421 | 397 | 94.4% | 46.4 | 4.3 | D |
| | Through | 722 | 731 | 101.2% | 14.5 | 2.4 | B |
| | Right Turn | 148 | 157 | 106.1% | 15.1 | 3.7 | B |
| | Subtotal | 1,291 | 1,285 | 99.6% | 24.5 | 2.2 | C |
| WB | Left Turn | 38 | 36 | 95.3% | 96.1 | 17.9 | F |
| | Through | 822 | 816 | 99.3% | 65.9 | 21.0 | E |
| | Right Turn | 23 | 22 | 95.7% | 41.9 | 21.0 | D |
| | Subtotal | 883 | 875 | 99.0% | 66.7 | 20.5 | E |
| Total | | 2,485 | 2,466 | 99.2% | 40.4 | 6.7 | D |

**Vissim Post-Processor** **CEQA Cumulative 3 Plus Project**
**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 4** **D St/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 31 | 31 | 99.4% | 26.3 | 8.2 | C |
| | Through | 46 | 44 | 96.5% | 27.9 | 4.2 | C |
| | Right Turn | 64 | 64 | 100.0% | 15.4 | 4.7 | B |
| | Subtotal | 141 | 139 | 98.7% | 22.3 | 2.7 | C |
| SB | Left Turn | 188 | 185 | 98.6% | 99.6 | 43.6 | F |
| | Through | 41 | 43 | 104.9% | 92.1 | 46.2 | F |
| | Right Turn | 56 | 54 | 96.8% | 68.2 | 46.0 | E |
| | Subtotal | 285 | 283 | 99.2% | 93.2 | 43.3 | F |
| EB | Left Turn | 23 | 22 | 96.5% | 131.4 | 76.4 | F |
| | Through | 383 | 378 | 98.6% | 126.1 | 75.2 | F |
| | Right Turn | 62 | 60 | 96.8% | 127.2 | 75.1 | F |
| | Subtotal | 468 | 460 | 98.3% | 126.5 | 74.9 | F |
| WB | Left Turn | 77 | 64 | 82.6% | 34.4 | 4.6 | C |
| | Through | 373 | 403 | 108.0% | 14.7 | 2.8 | B |
| | Right Turn | 49 | 29 | 59.6% | 13.5 | 8.8 | B |
| | Subtotal | 499 | 496 | 99.3% | 17.2 | 2.5 | B |
| Total | | 1,393 | 1,377 | 98.9% | 67.1 | 24.4 | E |

**Intersection 5** **E St-Richards Blvd/First St** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 315 | 307 | 97.5% | 28.3 | 1.7 | C |
| | Through | 187 | 205 | 109.4% | 28.8 | 2.5 | C |
| | Right Turn | 367 | 391 | 106.6% | 15.1 | 2.3 | B |
| | Subtotal | 869 | 903 | 103.9% | 22.6 | 2.0 | C |
| SB | Left Turn | 6 | 6 | 98.3% | 66.7 | 43.5 | E |
| | Through | 194 | 197 | 101.4% | 78.6 | 40.7 | E |
| | Right Turn | 27 | 26 | 95.6% | 53.8 | 43.3 | D |
| | Subtotal | 227 | 228 | 100.6% | 76.1 | 40.4 | E |
| EB | Left Turn | 10 | 9 | 90.0% | 50.0 | 34.0 | D |
| | Through | 53 | 53 | 100.2% | 83.4 | 17.4 | F |
| | Right Turn | 572 | 568 | 99.4% | 16.2 | 1.5 | B |
| | Subtotal | 635 | 630 | 99.3% | 22.6 | 2.3 | C |
| WB | Left Turn | 213 | 209 | 97.9% | 80.1 | 33.7 | F |
| | Through | 157 | 161 | 102.7% | 58.6 | 11.3 | E |
| | Right Turn | 10 | 11 | 106.0% | 42.4 | 24.7 | D |
| | Subtotal | 380 | 381 | 100.1% | 71.2 | 23.3 | E |
| Total | | 2,111 | 2,142 | 101.5% | 37.5 | 8.2 | D |

**Vissim Post-Processor** **CEQA Cumulative 3 Plus Project**
**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**
**Volume and Delay by Movement** **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 6** **Richards Blvd/Olive Dr** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 217 | 244 | 112.3% | 50.1 | 3.6 | D |
| | Through | 631 | 747 | 118.4% | 9.5 | 0.8 | A |
| | Right Turn | 73 | 57 | 78.2% | 1.3 | 0.7 | A |
| | Subtotal | 921 | 1,048 | 113.8% | 18.6 | 1.1 | B |
| SB | Left Turn | 128 | 110 | 85.9% | 44.5 | 9.5 | D |
| | Through | 789 | 811 | 102.8% | 25.7 | 4.0 | C |
| | Right Turn | 62 | 62 | 100.6% | 20.3 | 4.8 | C |
| | Subtotal | 979 | 983 | 100.4% | 27.5 | 4.3 | C |
| EB | Left Turn | 38 | 21 | 55.0% | 64.1 | 25.1 | E |
| | Through | 42 | 29 | 67.9% | 45.4 | 12.6 | D |
| | Right Turn | 455 | 452 | 99.4% | 15.4 | 2.6 | B |
| | Subtotal | 535 | 502 | 93.8% | 19.0 | 2.8 | B |
| WB | Left Turn | 166 | 94 | 56.9% | 55.5 | 6.6 | E |
| | Through | 40 | 28 | 71.0% | 47.5 | 19.9 | D |
| | Right Turn | 200 | 141 | 70.3% | 31.5 | 8.9 | C |
| | Subtotal | 406 | 263 | 64.9% | 41.7 | 6.8 | D |
| Total | | 2,841 | 2,796 | 98.4% | 24.2 | 1.7 | C |

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 776 | 763 | 98.4% | 32.2 | 2.5 | C |
| | Through | 602 | 599 | 99.4% | 5.0 | 0.7 | A |
| | Right Turn | | | | | | |
| | Subtotal | 1,378 | 1,362 | 98.8% | 20.5 | 1.4 | C |
| SB | Left Turn | | | | | | |
| | Through | 1,197 | 1,143 | 95.5% | 20.6 | 2.0 | C |
| | Right Turn | 374 | 379 | 101.3% | 10.2 | 1.5 | B |
| | Subtotal | 1,571 | 1,522 | 96.9% | 18.1 | 1.9 | B |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 85 | 115 | 135.1% | 45.5 | 4.1 | D |
| | Through | | | | | | |
| | Right Turn | 324 | 453 | 139.9% | 15.0 | 2.3 | B |
| | Subtotal | 409 | 568 | 138.9% | 21.3 | 2.3 | C |
| Total | | 3,358 | 3,452 | 102.8% | 19.6 | 1.1 | B |

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | | | | | | |
| | Through | 1,202 | 1,199 | 99.7% | 26.1 | 4.5 | C |
| | Right Turn | 125 | 120 | 96.2% | 30.5 | 7.0 | C |
| | Subtotal | 1,327 | 1,319 | 99.4% | 26.5 | 4.7 | C |
| SB | Left Turn | 468 | 461 | 98.5% | 47.6 | 9.6 | D |
| | Through | 814 | 783 | 96.1% | 12.9 | 1.5 | B |
| | Right Turn | | | | | | |
| | Subtotal | 1,282 | 1,243 | 97.0% | 26.3 | 4.6 | C |
| EB | Left Turn | | | | | | |
| | Through | | | | | | |
| | Right Turn | | | | | | |
| | Subtotal | | | | | | |
| WB | Left Turn | 800 | 802 | 100.2% | 22.8 | 1.4 | C |
| | Through | | | | | | |
| | Right Turn | 176 | 172 | 97.8% | 12.5 | 2.0 | B |
| | Subtotal | 976 | 974 | 99.8% | 21.0 | 1.2 | C |
| Total | | 3,585 | 3,536 | 98.6% | 24.9 | 2.0 | C |

**Intersection 9** **Research Park Dr/Richards Blvd** **Signal**

| Direction | Movement | Demand Volume (vph) | Served Volume (vph) Average | Served Volume (vph) Percent | Total Delay (sec/veh) Average | Total Delay (sec/veh) Std. Dev. | LOS |
|---|---|---|---|---|---|---|---|
| NB | Left Turn | 105 | 102 | 97.0% | 66.4 | 8.4 | E |
| | Through | 25 | 23 | 93.2% | 34.0 | 11.2 | C |
| | Right Turn | 54 | 55 | 102.0% | 8.5 | 4.2 | A |
| | Subtotal | 184 | 180 | 98.0% | 43.5 | 6.1 | D |
| SB | Left Turn | 40 | 37 | 92.5% | 84.8 | 26.6 | F |
| | Through | 16 | 17 | 103.8% | 82.0 | 43.3 | F |
| | Right Turn | 435 | 432 | 99.2% | 66.0 | 26.7 | E |
| | Subtotal | 491 | 485 | 98.8% | 68.5 | 26.5 | E |
| EB | Left Turn | 429 | 382 | 89.1% | 54.2 | 6.9 | D |
| | Through | 1,114 | 1,119 | 100.5% | 19.9 | 2.5 | B |
| | Right Turn | 71 | 76 | 107.6% | 22.0 | 5.0 | C |
| | Subtotal | 1,614 | 1,578 | 97.8% | 28.6 | 3.2 | C |
| WB | Left Turn | 29 | 28 | 95.9% | 84.3 | 26.4 | F |
| | Through | 703 | 696 | 99.0% | 54.4 | 13.4 | D |
| | Right Turn | 39 | 39 | 100.0% | 23.3 | 12.2 | C |
| | Subtotal | 771 | 763 | 98.9% | 53.9 | 13.9 | D |
| Total | | 3,060 | 3,006 | 98.2% | 42.0 | 6.8 | D |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 Plus Project**
**Queue Length** **AM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 2 | 1 | 2 | 5 | 160 | 44 | 80 | 217 | NO |
| | Right Turn | 1,120 | 0 | 0 | 0 | 1 | 49 | 38 | 0 | 106 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 0 | 38 | 41 | 0 | 82 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 7 | 24 | 0 | 75 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 50 | 24 | 22 | 95 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 1,254 | 158 | 1,072 | 1,541 | 1,687 | 12 | 1,658 | 1,695 | MAX |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 Plus Project**
**Queue Length** **AM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 140 | 15 | 124 | 177 | 519 | 34 | 438 | 561 | MAX |
| | Right Turn | 500 | 117 | 15 | 102 | 153 | 489 | 34 | 408 | 532 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 45 | 6 | 35 | 54 | 180 | 25 | 137 | 222 | NO |
| | Through | 1,300 | 22 | 1 | 20 | 24 | 206 | 34 | 165 | 258 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 150 | 55 | 97 | 293 | 1,080 | 326 | 778 | 1,656 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 13 | 1 | 11 | 14 | 169 | 22 | 124 | 194 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 Plus Project**
**Queue Length** **PM Peak Hour**

**Intersection 5** **I-80 WB Ramps/Richards Blvd** **Uncontrolled**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 200 | 15 | 3 | 10 | 21 | 266 | 34 | 223 | 328 | MAX |
| | Right Turn | 1,120 | 4 | 2 | 1 | 6 | 208 | 77 | 82 | 364 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 1,280 | 0 | 0 | 0 | 1 | 102 | 23 | 81 | 154 | NO |
| | Right Turn | 1,800 | 0 | 0 | 0 | 0 | 15 | 32 | 0 | 77 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 560 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NO |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | 1,500 | 66 | 19 | 33 | 93 | 465 | 92 | 313 | 620 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **Lincoln 40 EIR**
**Average Results from 10 Runs** **CEQA Cumulative 1 Plus Project**
**Queue Length** **PM Peak Hour**

**Intersection 6** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) Average | Std. Dev. | Minimum | Maximum | Maximum Queue (ft) Average | Std. Dev. | Minimum | Maximum | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 274 | 55 | 204 | 340 | 567 | 7 | 555 | 581 | MAX |
| | Right Turn | 500 | 247 | 53 | 179 | 312 | 537 | 7 | 526 | 551 | MAX |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 104 | 13 | 86 | 128 | 351 | 101 | 255 | 548 | NO |
| | Through | 1,300 | 57 | 5 | 50 | 66 | 314 | 25 | 260 | 350 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 1,269 | 56 | 1,169 | 1,356 | 1,684 | 11 | 1,668 | 1,695 | AVG |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 6 | 1 | 3 | 8 | 114 | 31 | 63 | 172 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 2 Plus Project**

**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**

**Queue Length** **No Build with Lincoln 40 - Cumulative Conditions**

**AM Peak Hour**

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 73 | 3 | 70 | 79 | 304 | 6 | 297 | 312 | NO |
| | Through | 800 | 31 | 5 | 25 | 39 | 322 | 13 | 303 | 352 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 25 | 3 | 22 | 30 | 240 | 28 | 203 | 295 | NO |
| | Right Turn | 200 | 1 | 0 | 0 | 2 | 105 | 28 | 58 | 145 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 37 | 3 | 33 | 42 | 233 | 40 | 183 | 321 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 54 | 9 | 41 | 68 | 268 | 40 | 218 | 321 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor**
**Average Results from 10 Runs**
**Queue Length**

**CEQA Cumulative 2 Plus Project**
**Richards Blvd - Olive Dr Circulation**
**No Build with Lincoln 40 - Cumulative Conditions**
**AM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 82 | 9 | 67 | 100 | 472 | 43 | 395 | 526 | NO |
| | Right Turn | 500 | 64 | 8 | 50 | 80 | 442 | 43 | 366 | 496 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 30 | 3 | 25 | 34 | 171 | 14 | 159 | 197 | NO |
| | Through | 1,300 | 15 | 2 | 13 | 18 | 186 | 31 | 155 | 248 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 42 | 2 | 40 | 47 | 224 | 40 | 180 | 301 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 14 | 2 | 9 | 17 | 158 | 34 | 94 | 231 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Queue Length** | **No Build with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) Average | Std. Dev. | Minimum | Maximum | Maximum Queue (ft) Average | Std. Dev. | Minimum | Maximum | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 89 | 3 | 86 | 96 | 311 | 1 | 310 | 312 | NO |
| | Through | 800 | 4 | 1 | 3 | 6 | 219 | 65 | 111 | 321 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 70 | 4 | 63 | 75 | 490 | 54 | 385 | 580 | NO |
| | Right Turn | 200 | 6 | 2 | 4 | 9 | 261 | 42 | 207 | 345 | MAX |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 24 | 3 | 20 | 29 | 145 | 21 | 115 | 179 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 12 | 2 | 9 | 15 | 107 | 19 | 83 | 129 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** | **CEQA Cumulative 2 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Queue Length** | **No Build with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 98 | 9 | 90 | 121 | 425 | 34 | 378 | 481 | NO |
| | Right Turn | 500 | 77 | 8 | 70 | 98 | 395 | 34 | 348 | 452 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 48 | 4 | 44 | 54 | 240 | 35 | 203 | 302 | NO |
| | Through | 1,300 | 19 | 2 | 17 | 23 | 230 | 30 | 186 | 274 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 59 | 7 | 54 | 75 | 279 | 46 | 230 | 377 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 10 | 2 | 7 | 13 | 126 | 30 | 71 | 162 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 3 Plus Project**

**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**

**Queue Length** **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**

**AM Peak Hour**

**Intersection 7** **Richards Blvd/I-80 WB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 74 | 4 | 68 | 81 | 298 | 24 | 230 | 310 | NO |
| | Through | 800 | 34 | 4 | 25 | 39 | 318 | 10 | 293 | 330 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 23 | 2 | 21 | 26 | 256 | 56 | 185 | 343 | NO |
| | Right Turn | 200 | 1 | 1 | 0 | 2 | 95 | 18 | 59 | 115 | NO |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 44 | 4 | 39 | 52 | 258 | 43 | 199 | 335 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 81 | 31 | 56 | 165 | 399 | 299 | 256 | 1,241 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** | **CEQA Cumulative 3 Plus Project**

**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**

**Queue Length** | **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**

**AM Peak Hour**

**Intersection 8** **Richards Blvd/I-80 EB Ramps** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 90 | 9 | 77 | 105 | 476 | 51 | 392 | 537 | NO |
| | Right Turn | 500 | 72 | 9 | 58 | 86 | 446 | 51 | 362 | 508 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 29 | 2 | 26 | 32 | 170 | 15 | 158 | 205 | NO |
| | Through | 1,300 | 14 | 1 | 13 | 15 | 189 | 27 | 142 | 224 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 42 | 1 | 40 | 45 | 229 | 41 | 179 | 300 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 13 | 3 | 10 | 18 | 148 | 25 | 109 | 172 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** **CEQA Cumulative 3 Plus Project**

**Average Results from 10 Runs** **Richards Blvd - Olive Dr Circulation**

**Queue Length** **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**

**PM Peak Hour**

**Intersection 7** **I-80 WB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) | | | | Maximum Queue (ft) | | | | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Std. Dev. | Minimum | Maximum | Average | Std. Dev. | Minimum | Maximum | |
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 800 | 91 | 4 | 85 | 97 | 313 | 5 | 310 | 327 | NO |
| | Through | 800 | 10 | 2 | 6 | 14 | 260 | 39 | 191 | 320 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 590 | 75 | 5 | 69 | 84 | 458 | 68 | 353 | 544 | NO |
| | Right Turn | 200 | 6 | 2 | 3 | 10 | 244 | 45 | 172 | 308 | MAX |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 400 | 31 | 5 | 23 | 40 | 184 | 47 | 137 | 284 | NO |
| | Through | | | | | | | | | | |
| | Right Turn | 1,200 | 23 | 3 | 17 | 27 | 156 | 22 | 117 | 194 | NO |
| | Second Right | | | | | | | | | | |

**Vissim Post-Processor** | **CEQA Cumulative 3 Plus Project**
**Average Results from 10 Runs** | **Richards Blvd - Olive Dr Circulation**
**Queue Length** | **Olive Dr Off-Ramp Closure with Lincoln 40 - Cumulative Conditions**
**PM Peak Hour**

**Intersection 8** **I-80 EB Ramps/Richards Blvd** **Signal**

| Direction | Movement | Storage (ft) | Average Queue (ft) Average | Std. Dev. | Minimum | Maximum | Maximum Queue (ft) Average | Std. Dev. | Minimum | Maximum | Exceeds Storage? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | 500 | 128 | 14 | 105 | 145 | 472 | 39 | 415 | 540 | NO |
| | Right Turn | 500 | 105 | 13 | 83 | 122 | 443 | 39 | 385 | 510 | NO |
| | Second Right | | | | | | | | | | |
| SB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 360 | 59 | 8 | 47 | 72 | 247 | 49 | 198 | 365 | NO |
| | Through | 1,300 | 21 | 2 | 19 | 25 | 244 | 33 | 204 | 302 | NO |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| EB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | | | | | | | | | | |
| | Through | | | | | | | | | | |
| | Right Turn | | | | | | | | | | |
| | Second Right | | | | | | | | | | |
| WB | U Turn | | | | | | | | | | |
| | Second Left | | | | | | | | | | |
| | Left Turn | 160 | 54 | 3 | 50 | 59 | 270 | 38 | 222 | 326 | MAX |
| | Through | | | | | | | | | | |
| | Right Turn | 1,260 | 10 | 2 | 7 | 13 | 124 | 22 | 90 | 161 | NO |
| | Second Right | | | | | | | | | | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,929 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,611 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,728 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,243 | pcphpl |
| Average passenger-car speed, S | 54.9 | mph |
| Volume-to-capacity ratio, v/c | 0.95 | |
| Density, D | 40.8 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,387 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,464 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,113 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,038 | pcphpl |
| Average passenger-car speed, S | 59.2 | mph |
| Volume-to-capacity ratio, v/c | 0.87 | |
| Density, D | 34.4 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | CEQA Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,314 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,644 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,866 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,289 | pcphpl |
| Average passenger-car speed, S | 53.8 | mph |
| Volume-to-capacity ratio, v/c | 0.97 | |
| Density, D | 42.5 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,149 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,601 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,687 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,229 | pcphpl |
| Average passenger-car speed, S | 55.3 | mph |
| Volume-to-capacity ratio, v/c | 0.95 | |
| Density, D | 40.3 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | AM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,987 | vph |
| Peak-hour factor, PHF | 0.96 | |
| Peak 15-min volume, $v_{15}$ | 1,559 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,511 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,628 | pcphpl |
| Average passenger-car speed, S | 64.3 | mph |
| Volume-to-capacity ratio, v/c | 0.69 | |
| Density, D | 25.3 | pcpmpl |
| Level of service, LOS | C | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Old Davis Rd to Richards Blvd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,775 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,569 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,553 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,184 | pcphpl |
| Average passenger-car speed, S | 56.3 | mph |
| Volume-to-capacity ratio, v/c | 0.93 | |
| Density, D | 38.8 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Eastbound I-80 |
| Segment | Richards Blvd to Mace Blvd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,394 | vph |
| Peak-hour factor, PHF | 0.92 | |
| Peak 15-min volume, $v_{15}$ | 1,466 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,121 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 7.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 16.5 | mph |
| Calculated free-flow speed, FFS | 58.9 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,040 | pcphpl |
| Average passenger-car speed, S | 59.2 | mph |
| Volume-to-capacity ratio, v/c | 0.87 | |
| Density, D | 34.5 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Mace Blvd to Olive Drive |
| Alternative | CEQA Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,658 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,489 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,218 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,073 | pcphpl |
| Average passenger-car speed, S | 58.6 | mph |
| Volume-to-capacity ratio, v/c | 0.88 | |
| Density, D | 35.4 | pcpmpl |
| Level of service, LOS | E | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Olive Dr to Richards Blvd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 5,495 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,446 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,039 | pcph |
| Number of lanes, N | 3 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 2,013 | pcphpl |
| Average passenger-car speed, S | 59.7 | mph |
| Volume-to-capacity ratio, v/c | 0.86 | |
| Density, D | 33.7 | pcpmpl |
| Level of service, LOS | D | |

HCM 2010: Freeway Basic Segment

## Basic Operational Analysis

| | |
|---|---|
| Project | Lincoln 40 EIR |
| Freeway | Westbound I-80 |
| Segment | Richards Blvd to Old Davis Rd |
| Alternative | CEQA Cumulative Plus Project |
| Time period | PM Peak Hour |

## Flow Inputs and Adjustments

| | | |
|---|---|---|
| Volume, V | 6,234 | vph |
| Peak-hour factor, PHF | 0.95 | |
| Peak 15-min volume, $v_{15}$ | 1,641 | veh |
| Trucks and buses | 8.8% | |
| Recreational vehicles | 0.0% | |
| Terrain type | Level | |
| Grade | | |
| Length | | mi |
| Trucks and buses PCE, $E_T$ | 1.5 | |
| Recreational vehicle PCE, $E_R$ | 1.2 | |
| Heavy vehicle adjustment, $f_{HV}$ | 0.958 | |
| Driver popoulation factor, $f_P$ | 1.00 | |
| Flow rate, $v_p$ | 6,851 | pcph |
| Number of lanes, N | 4 | |

## Speed Inputs and Adjustments

| | | |
|---|---|---|
| Lane width | 12.0 | ft |
| Right-side lateral clearance | >6 | ft |
| Total ramp density, TRD | 10.00 | ramps/mi |
| Lane width adjustment, $f_{LW}$ | 0.0 | mph |
| Lateral clearance adjustment, $f_{LC}$ | 0.0 | mph |
| TRD adjustment | 22.3 | mph |
| Calculated free-flow speed, FFS | 53.1 | mph |
| Measured free-flow speed, FFS | | mph |
| Free-flow speed curve | 65 | mph |

## Capacity Checks for Segments with Ramps

| | Actual | | Maximum | | Violation? |
|---|---|---|---|---|---|
| Entering freeway volume | | pcph | | pcph | |
| Exiting freeway volume | | pcph | | pcph | |
| On-ramp volume | | pcph | | pcph | |
| Off-ramp volume | | pcph | | pcph | |

## LOS and Performance Measures

| | | |
|---|---|---|
| Flow rate, $v_p$ | 1,713 | pcphpl |
| Average passenger-car speed, S | 63.6 | mph |
| Volume-to-capacity ratio, v/c | 0.73 | |
| Density, D | 26.9 | pcpmpl |
| Level of service, LOS | D | |