# HCM Signalized Intersection Capacity Analysis
## 4: 40th Street & US 101

2030 Scenario 1-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 70 | 20 | 30 | 255 | 20 | 545 | 35 | 1960 | 250 | 575 | 2415 | 75 |
| Ideal Flow (vphpl) | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 |
| Lane Width | 14 | 12 | 12 | 14 | 12 | 12 | 14 | 12 | 12 | 14 | 12 | 12 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1739 | 1716 | 1458 | 1713 | 1716 | 1421 | 1739 | 3228 | 1421 | 3340 | 3228 | 1458 |
| Flt Permitted | 0.74 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1357 | 1716 | 1458 | 1337 | 1716 | 1421 | 1739 | 3228 | 1421 | 3340 | 3228 | 1458 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 82 | 24 | 35 | 300 | 24 | 641 | 37 | 2063 | 263 | 605 | 2542 | 79 |
| RTOR Reduction (vph) | 0 | 0 | 26 | 0 | 0 | 176 | 0 | 0 | 61 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 82 | 24 | 9 | 300 | 24 | 465 | 37 | 2063 | 202 | 605 | 2542 | 67 |
| Confl. Peds. (#/hr) | | | | 2 | | 2 | | | 2 | 2 | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 3% | 2% | 3% | 2% | 3% | 3% | 3% | 3% | 2% |
| Turn Type | Perm | | Perm | Perm | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 35.0 | 35.0 | 35.0 | 34.5 | 34.5 | 34.5 | 3.2 | 72.7 | 72.7 | 19.8 | 89.3 | 89.3 |
| Effective Green, g (s) | 35.0 | 35.0 | 35.0 | 34.0 | 34.0 | 34.0 | 3.7 | 73.2 | 73.2 | 20.3 | 89.8 | 89.8 |
| Actuated g/C Ratio | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.03 | 0.52 | 0.52 | 0.15 | 0.64 | 0.64 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 |
| Lane Grp Cap (vph) | 339 | 429 | 365 | 325 | 417 | 345 | 46 | 1688 | 743 | 484 | 2071 | 935 |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | 0.02 | c0.64 | | 0.18 | c0.79 | |
| v/s Ratio Perm | 0.06 | | 0.01 | 0.22 | | c0.33 | | | 0.14 | | | 0.05 |
| v/c Ratio | 0.24 | 0.06 | 0.02 | 0.92 | 0.06 | 1.35 | 0.80 | 1.22 | 0.27 | 1.25 | 1.23 | 0.07 |
| Uniform Delay, d1 | 41.9 | 39.9 | 39.6 | 51.7 | 40.7 | 53.0 | 67.8 | 33.4 | 18.6 | 59.8 | 25.1 | 9.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.14 | 0.65 | 0.31 | 0.88 | 0.72 | 0.97 |
| Incremental Delay, d2 | 0.4 | 0.1 | 0.0 | 31.1 | 0.1 | 174.1 | 32.1 | 102.3 | 0.4 | 114.1 | 102.8 | 0.0 |
| Delay (s) | 42.3 | 40.0 | 39.6 | 82.8 | 40.8 | 227.1 | 109.0 | 124.1 | 6.1 | 167.0 | 120.7 | 9.1 |
| Level of Service | D | D | D | F | D | F | F | F | A | F | F | A |
| Approach Delay (s) | | 41.2 | | | 177.6 | | | 110.7 | | | 126.7 | |
| Approach LOS | | D | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 126.6 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.24 | | |
| Actuated Cycle Length (s) | 140.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 110.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 2: South Beach State Park & US 101

2030 Scenario 1-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 5 | 40 | 60 | 5 | 105 | 35 | 2060 | 50 | 100 | 2510 | 90 |
| Ideal Flow (vphpl) | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 |
| Total Lost time (s) | 3.5 | 4.0 | | 4.0 | 4.0 | | 3.5 | 3.5 | 4.0 | 4.0 | 3.5 | 3.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.87 | | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1608 | 1452 | | 1630 | 1470 | | 1614 | 3228 | 1458 | 1630 | 3228 | 1403 |
| Flt Permitted | 0.44 | 1.00 | | 0.72 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 750 | 1452 | | 1239 | 1470 | | 1614 | 3228 | 1458 | 1630 | 3228 | 1403 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.85 | 0.85 | 0.95 | 0.95 |
| Adj. Flow (vph) | 94 | 6 | 47 | 71 | 6 | 124 | 37 | 2168 | 59 | 118 | 2642 | 95 |
| RTOR Reduction (vph) | 0 | 42 | 0 | 0 | 110 | 0 | 0 | 0 | 16 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 94 | 11 | 0 | 71 | 20 | 0 | 37 | 2168 | 43 | 118 | 2642 | 83 |
| Confl. Peds. (#/hr) | 2 | | 2 | | | | 2 | | | | | 2 |
| Heavy Vehicles (%) | 3% | 2% | 3% | 2% | 2% | 2% | 3% | 3% | 2% | 2% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.0 | 16.0 | | 16.0 | 16.0 | | 3.2 | 101.0 | 101.0 | 11.0 | 108.8 | 108.8 |
| Effective Green, g (s) | 16.5 | 16.0 | | 16.0 | 16.0 | | 3.7 | 101.5 | 101.0 | 11.0 | 109.3 | 109.3 |
| Actuated g/C Ratio | 0.12 | 0.11 | | 0.11 | 0.11 | | 0.03 | 0.72 | 0.72 | 0.08 | 0.78 | 0.78 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 88 | 166 | | 142 | 168 | | 43 | 2340 | 1052 | 128 | 2520 | 1095 |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | 0.02 | c0.67 | | 0.07 | c0.82 | |
| v/s Ratio Perm | c0.13 | | | 0.06 | | | | | 0.03 | | | 0.06 |
| v/c Ratio | 1.07 | 0.07 | | 0.50 | 0.12 | | 0.86 | 0.93 | 0.04 | 0.92 | 1.05 | 0.08 |
| Uniform Delay, d1 | 61.8 | 55.3 | | 58.2 | 55.7 | | 67.9 | 16.1 | 5.6 | 64.1 | 15.4 | 3.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.27 | 0.33 | 0.06 |
| Incremental Delay, d2 | 115.7 | 0.2 | | 2.8 | 0.3 | | 85.1 | 7.8 | 0.1 | 10.1 | 23.1 | 0.0 |
| Delay (s) | 177.4 | 55.5 | | 61.0 | 56.0 | | 153.0 | 24.0 | 5.7 | 91.5 | 28.2 | 0.2 |
| Level of Service | F | E | | E | E | | F | C | A | F | C | A |
| Approach Delay (s) | | 133.5 | | | 57.8 | | | 25.6 | | | 29.9 | |
| Approach LOS | | F | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 140.0 | Sum of lost time (s) | 7.0 |
| Intersection Capacity Utilization | 100.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Unsignalized Intersection Capacity Analysis
## 8: Pacific Way & US 101

2030 Scenario 1-30 HV

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 0 | 3390 | 125 | 0 | 3290 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 3568 | 132 | 0 | 3463 |
| Pedestrians | 2 | | 2 | | | 2 |
| Lane Width (ft) | 0.0 | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | 4.0 | | | 4.0 |
| Percent Blockage | 0 | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 7036 | 3572 | | | 3702 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 7036 | 3572 | | | 3702 | |
| tC, single (s) | 6.5 | 6.3 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 0 | 7 | | | 59 | |

| Direction, Lane # | NB 1 | NB 2 | SB 1 |
|---|---|---|---|
| Volume Total | 3568 | 132 | 3463 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 132 | 0 |
| cSH | 1700 | 1700 | 1700 |
| Volume to Capacity | 2.10 | 0.08 | 2.04 |
| Queue Length 95th (ft) | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | | | |
| Approach Delay (s) | 0.0 | | 0.0 |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 204.4% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

# HCM Unsignalized Intersection Capacity Analysis
## 7: Abalone St. & US 101

2030 Scenario 1-30 HV

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 190 | 0 | 3515 | 3030 | 260 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 224 | 0 | 3700 | 3189 | 274 |
| Pedestrians | 2 | | | 2 | 2 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 1246 | | |
| pX, platoon unblocked | 0.36 | | | | | |
| vC, conflicting volume | 5043 | 3193 | 3465 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 8646 | 3193 | 3465 | | | |
| tC, single (s) | 6.9 | 7.0 | 4.2 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 0 | 100 | | | |
| cM capacity (veh/h) | 0 | 7 | 71 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 224 | 1850 | 1850 | 3189 | 274 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 224 | 0 | 0 | 0 | 274 |
| cSH | 7 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 31.96 | 1.09 | 1.09 | 1.88 | 0.16 |
| Queue Length 95th (ft) | Err | 0 | 0 | 0 | 0 |
| Control Delay (s) | Err | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | | | | |
| Approach Delay (s) | Err | 0.0 | | 0.0 | |
| Approach LOS | F | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 302.6 | | |
| Intersection Capacity Utilization | 192.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

# HCM Unsignalized Intersection Capacity Analysis
## 6: 32nd St & US 101

2030 Scenario 1-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 55 | 0 | 0 | 870 | 0 | 2645 | 70 | 0 | 3170 | 50 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 65 | 0 | 0 | 1024 | 0 | 2784 | 74 | 0 | 3337 | 53 |
| Pedestrians | | 2 | | | 2 | | | 2 | | | 2 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | 700 | | | | |
| pX, platoon unblocked | 0.35 | 0.35 | | 0.35 | 0.35 | 0.35 | | | | 0.35 | | |
| vC, conflicting volume | 5783 | 6225 | 1699 | 4521 | 6178 | 1396 | 3391 | | | 2860 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 10959 | 12224 | 1699 | 7351 | 12089 | 0 | 3391 | | | 2599 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.2 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 21 | 100 | 100 | 0 | 100 | | | 100 | | |
| cM capacity (veh/h) | 0 | 0 | 82 | 0 | 0 | 378 | 77 | | | 56 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 65 | 1024 | 1392 | 1392 | 74 | 2225 | 1165 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 65 | 1024 | 0 | 0 | 74 | 0 | 53 |
| cSH | 82 | 378 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.79 | 2.71 | 0.82 | 0.82 | 0.04 | 1.31 | 0.69 |
| Queue Length 95th (ft) | 99 | 2130 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 135.7 | 798.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | | | | | |
| Approach Delay (s) | 135.7 | 798.3 | 0.0 | | | 0.0 | |
| Approach LOS | F | F | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 112.6 | | |
| Intersection Capacity Utilization | 144.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

# HCM Unsignalized Intersection Capacity Analysis
## 1: SW 62nd St & US 101

2030 Scenario 1-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 85 | 0 | 30 | 20 | 0 | 10 | 45 | 2050 | 15 | 10 | 2520 | 80 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 100 | 0 | 35 | 24 | 0 | 12 | 47 | 2158 | 16 | 11 | 2653 | 84 |
| Pedestrians | | 2 | | | 2 | | | 2 | | | 2 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | TWLTL | |
| Median storage veh) | | | | | | | | 2 | | | 2 | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 3863 | 4946 | 1330 | 3647 | 5022 | 1091 | 2739 | | | 2176 | | |
| vC1, stage 1 conf vol | 2676 | 2676 | | 2263 | 2263 | | | | | | | |
| vC2, stage 2 conf vol | 1187 | 2270 | | 1385 | 2760 | | | | | | | |
| vCu, unblocked vol | 3863 | 4946 | 1330 | 3647 | 5022 | 1091 | 2739 | | | 2176 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.2 | | | 4.2 | | |
| tC, 2 stage (s) | 6.5 | 5.5 | | 6.5 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 76 | 3 | 100 | 94 | 66 | | | 96 | | |
| cM capacity (veh/h) | 21 | 27 | 146 | 24 | 0 | 211 | 141 | | | 238 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 100 | 35 | 24 | 12 | 47 | 1439 | 735 | 11 | 1326 | 1326 | 84 |
| Volume Left | 100 | 0 | 24 | 0 | 47 | 0 | 0 | 11 | 0 | 0 | 0 |
| Volume Right | 0 | 35 | 0 | 12 | 0 | 0 | 16 | 0 | 0 | 0 | 84 |
| cSH | 21 | 146 | 24 | 211 | 141 | 1700 | 1700 | 238 | 1700 | 1700 | 1700 |
| Volume to Capacity | 4.86 | 0.24 | 0.97 | 0.06 | 0.34 | 0.85 | 0.43 | 0.04 | 0.78 | 0.78 | 0.05 |
| Queue Length 95th (ft) | Err | 23 | 73 | 4 | 34 | 0 | 0 | 3 | 0 | 0 | 0 |
| Control Delay (s) | Err | 37.4 | 401.2 | 23.1 | 42.8 | 0.0 | 0.0 | 20.9 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | E | F | C | E | | | C | | | |
| Approach Delay (s) | 7400.3 | | 275.2 | | 0.9 | | | 0.1 | | | |
| Approach LOS | F | | F | | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 197.2 | | |
| Intersection Capacity Utilization | 94.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

2030 US 101 Segment V/C Analysis

Volumes

| Scenario 1 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | SB |
| Pacific to 35th | 3515 | 3225 | 2960 | 2700 | 2640 | 2400 |
| 35th to 50th | 2245 | 3065 | 1870 | 2565 | 1665 | 2285 |
| 50th to 62nd | 2145 | 2610 | 1790 | 2185 | 1590 | 1950 |

V/C

| Scenario 1 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | |
| Pacific to 35th | 2.70 | 2.48 | 2.28 | 2.08 | 2.03 | 1.85 |
| 35th to 50th | 0.64 | 0.88 | 0.53 | 0.73 | 0.48 | 0.65 |
| 50th to 62nd | 0.61 | 0.75 | 0.51 | 0.62 | 0.45 | 0.56 |

Volumes

| Scenario 2 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | SB |
| Pacific to 35th | 3355 | 3125 | 2830 | 2615 | 2525 | 2330 |
| 35th to 50th | 2125 | 2965 | 1770 | 2480 | 1585 | 2215 |
| 50th to 62nd | 2035 | 2540 | 1700 | 2135 | 1515 | 1900 |

V/C

| Scenario 2 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | |
| Pacific to 35th | 2.58 | 2.40 | 2.18 | 2.01 | 1.94 | 1.79 |
| 35th to 50th | 0.61 | 0.85 | 0.51 | 0.71 | 0.45 | 0.63 |
| 50th to 62nd | 0.58 | 0.73 | 0.49 | 0.61 | 0.43 | 0.54 |

## Queues
## 5: 35th St & US 101

2030 Scenario 1-30 HV

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 118 | 24 | 47 | 159 | 29 | 200 | 74 | 2574 | 63 | 258 | 3042 | 95 |
| v/c Ratio | 0.61 | 0.10 | 0.19 | 0.83 | 0.12 | 0.59 | 1.14 | 1.25 | 0.07 | 1.30 | 1.32 | 0.09 |
| Control Delay | 61.6 | 44.8 | 14.4 | 82.2 | 45.2 | 19.4 | 119.1 | 125.3 | 0.8 | 180.7 | 162.4 | 4.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 61.6 | 44.8 | 14.4 | 82.2 | 45.2 | 19.4 | 119.1 | 125.3 | 0.8 | 180.7 | 162.4 | 4.3 |
| Queue Length 50th (ft) | 86 | 16 | 0 | 120 | 20 | 27 | ~68 | ~1307 | 2 | ~278 | ~1615 | 14 |
| Queue Length 95th (ft) | 141 | 40 | 32 | #208 | 46 | 89 | m48 | m#191 | m1 | m123 | m273 | m6 |
| Internal Link Dist (ft) | | 441 | | | 300 | | | 1419 | | | 620 | |
| Turn Bay Length (ft) | 120 | | 155 | 120 | | 155 | 130 | | 175 | 130 | | 175 |
| Base Capacity (vph) | 210 | 267 | 263 | 207 | 262 | 354 | 65 | 2058 | 908 | 198 | 2309 | 1025 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.09 | 0.18 | 0.77 | 0.11 | 0.56 | 1.14 | 1.25 | 0.07 | 1.30 | 1.32 | 0.09 |

**Intersection Summary**

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

# Queues
## 4: 40th Street & US 101

2030 Scenario 1-30 HV

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 82 | 24 | 35 | 300 | 24 | 641 | 37 | 2063 | 263 | 605 | 2542 | 79 |
| v/c Ratio | 0.23 | 0.05 | 0.08 | 0.87 | 0.05 | 1.17 | 0.57 | 1.28 | 0.34 | 1.32 | 1.28 | 0.09 |
| Control Delay | 36.4 | 33.2 | 11.1 | 67.7 | 34.0 | 122.1 | 77.9 | 149.2 | 3.1 | 183.1 | 150.2 | 7.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 36.4 | 33.2 | 11.1 | 67.7 | 34.0 | 122.1 | 77.9 | 149.2 | 3.1 | 183.1 | 150.2 | 7.7 |
| Queue Length 50th (ft) | 50 | 14 | 0 | 223 | 14 | ~447 | 28 | ~1060 | 11 | ~311 | ~1331 | 13 |
| Queue Length 95th (ft) | 88 | 34 | 23 | #347 | 35 | #608 | m32 | m#1153 | m13 | m#203 | m#731 | m9 |
| Internal Link Dist (ft) | | 558 | | | 358 | | | 3870 | | | 1419 | |
| Turn Bay Length (ft) | 120 | | 155 | 120 | | 155 | 215 | | 215 | 130 | | 175 |
| Base Capacity (vph) | 362 | 458 | 414 | 346 | 443 | 546 | 65 | 1614 | 780 | 459 | 1980 | 908 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.23 | 0.05 | 0.08 | 0.87 | 0.05 | 1.17 | 0.57 | 1.28 | 0.34 | 1.32 | 1.28 | 0.09 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 94 | 53 | 71 | 130 | 37 | 2168 | 59 | 118 | 2642 | 95 |
| v/c Ratio | 0.87 | 0.22 | 0.42 | 0.49 | 0.61 | 0.95 | 0.05 | 0.89 | 1.08 | 0.09 |
| Control Delay | 108.2 | 17.9 | 56.2 | 27.8 | 95.1 | 27.9 | 1.6 | 57.8 | 45.7 | 0.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 108.2 | 17.9 | 56.2 | 27.8 | 95.1 | 27.9 | 1.6 | 57.8 | 45.7 | 0.1 |
| Queue Length 50th (ft) | 72 | 4 | 51 | 37 | 29 | 737 | 0 | 95 | ~1254 | 0 |
| Queue Length 95th (ft) | #156 | 38 | 94 | 91 | #85 | #1023 | 11 | m79 | m88 | m0 |
| Internal Link Dist (ft) | | 573 | | 801 | | 2367 | | | 3870 | |
| Turn Bay Length (ft) | | | | | 150 | | 320 | 215 | | 150 |
| Base Capacity (vph) | 115 | 251 | 179 | 280 | 61 | 2272 | 1125 | 133 | 2450 | 1080 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.82 | 0.21 | 0.40 | 0.46 | 0.61 | 0.95 | 0.05 | 0.89 | 1.08 | 0.09 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## Arterial Level of Service: NE US 101

| Cross Street | Arterial Class | Flow Speed | Running Time | Signal Delay | Travel Time (s) | Dist (mi) | Arterial Speed | Arterial LOS |
|---|---|---|---|---|---|---|---|---|
| 50th Street | II | 55 | 44.9 | 27.9 | 72.8 | 0.69 | 33.9 | B |
| 40th Street | II | 45 | 59.8 | 149.2 | 209.0 | 0.75 | 12.9 | F |
| 35th St. | II | 35 | 31.2 | 125.3 | 156.5 | 0.28 | 6.5 | F |
| Hurbert St | II | 31 | 200.2 | 794.3 | 994.5 | 1.73 | 6.2 | F |
| Total | II | | 336.1 | 1096.7 | 1432.8 | 3.44 | 8.7 | F |

## Arterial Level of Service: SB US 101

| Cross Street | Arterial Class | Flow Speed | Running Time | Signal Delay | Travel Time (s) | Dist (mi) | Arterial Speed | Arterial LOS |
|---|---|---|---|---|---|---|---|---|
| Hurbert St | III | 30 | 21.9 | 769.8 | 791.7 | 0.16 | 0.7 | F |
| 35th St | III | 31 | 200.2 | 162.4 | 362.6 | 1.73 | 17.1 | D |
| 40th Street | III | 35 | 34.1 | 150.2 | 184.3 | 0.28 | 5.5 | F |
| South Beach State Pa | III | 55 | 49.0 | 45.7 | 94.7 | 0.75 | 28.4 | B |
| Total | III | | 305.2 | 1128.1 | 1433.3 | 2.92 | 7.3 | F |

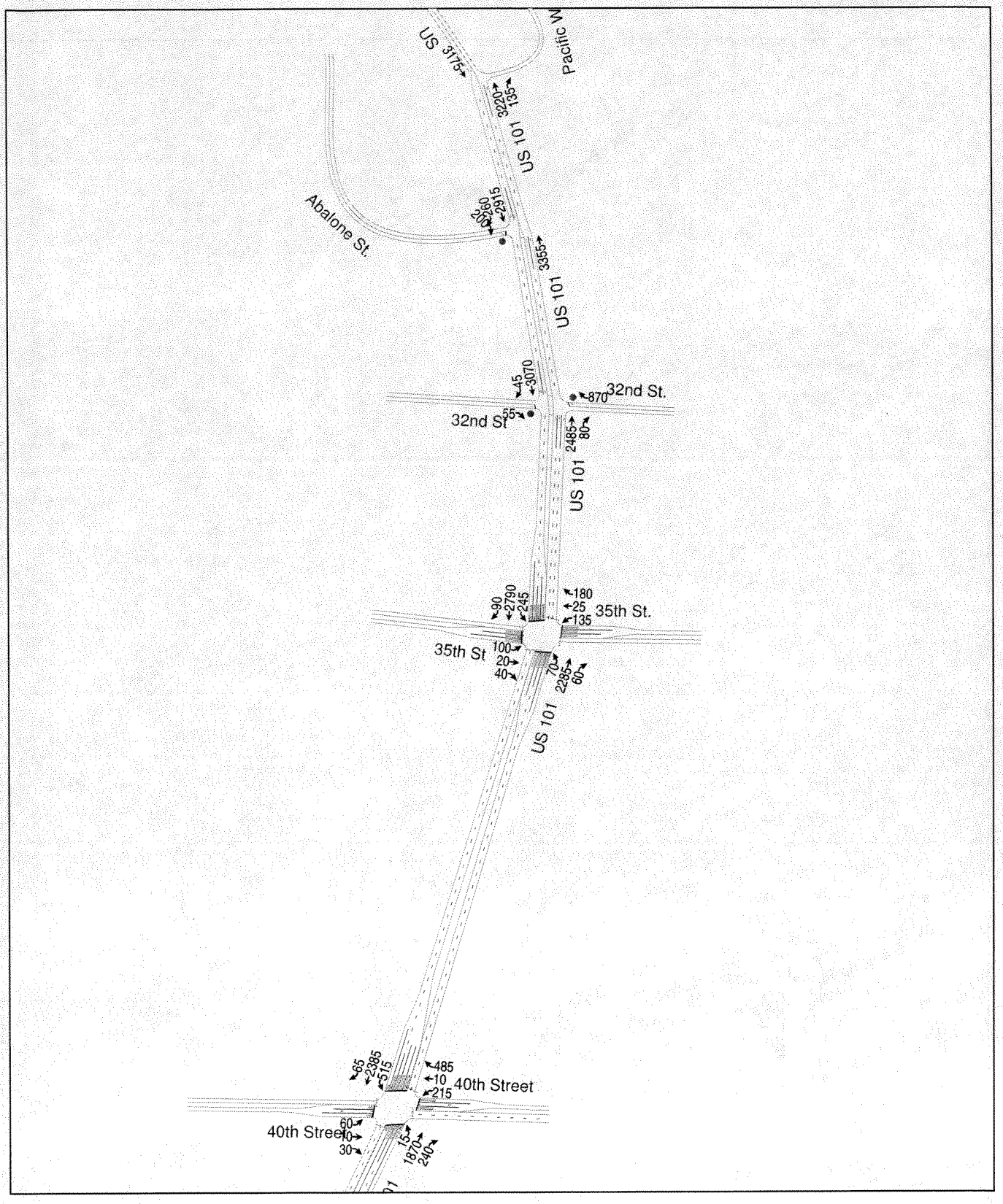
## US 101

| Direction | NB | SB | All |
|---|---|---|---|
| Average Speed (mph) | 8 | 8 | 8 |
| Total Travel Time (hr) | 1228 | 1311 | 2540 |
| Distance Traveled (mi) | 9663 | 10318 | 19981 |
| Unserved Vehicles (#) | 3069 | 3682 | 6751 |
| Performance Index | 1018.4 | 1068.0 | 2086.5 |

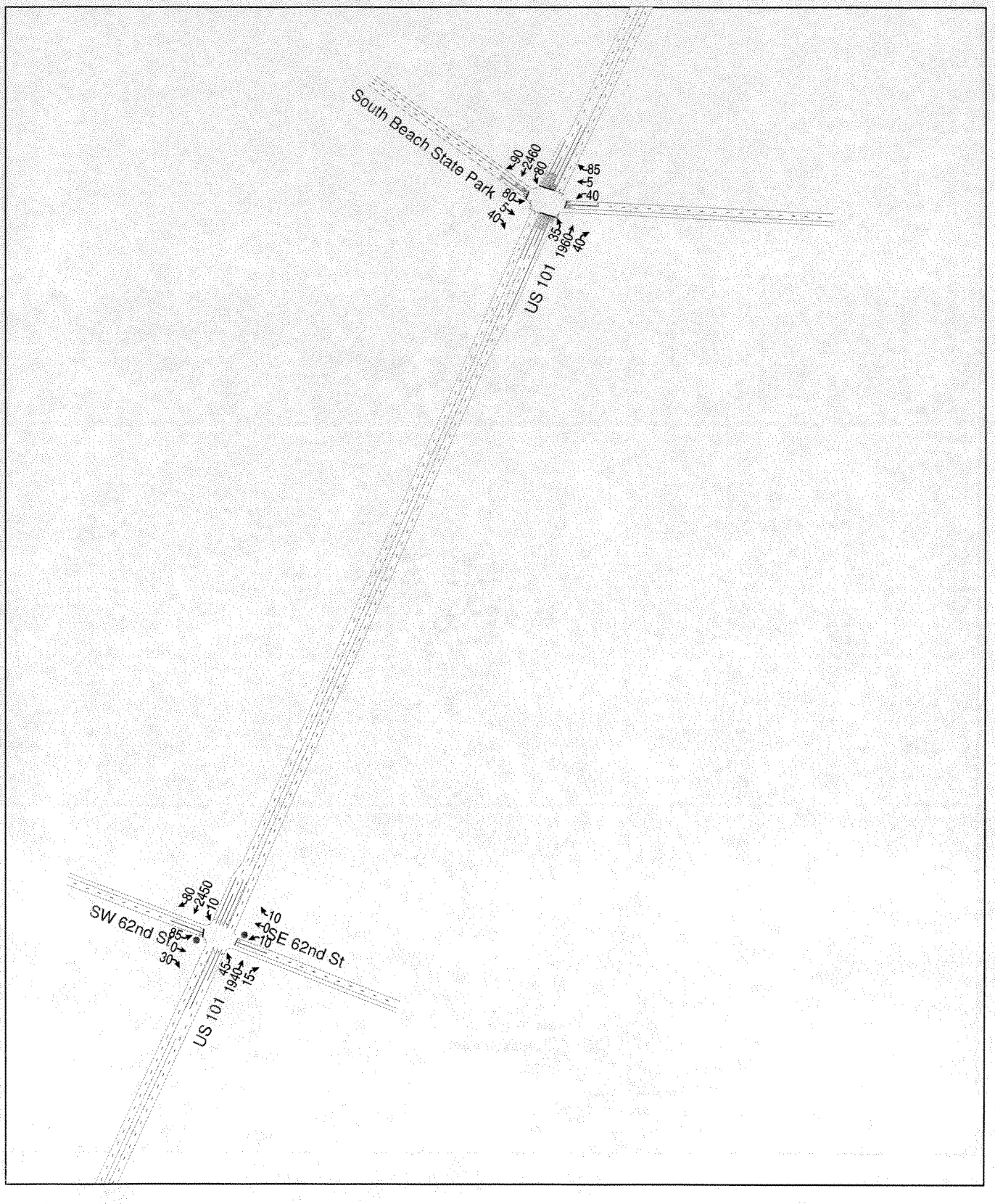
# APPENDIX D

## 2030 Volumes and Traffic Operations Analysis for 30 HV Conditions and Land Use Scenario #2

**2030 Scenario2-30 HV**



**2030 Scenario2-30 HV**



| Preliminary Signal Warrant Calculation | | | | | | |
|---|---|---|---|---|---|---|
| Project: | Newport Alternate Mobility Standard | | | | | |
| Year: | 2030 | | | | | |
| Alternative | Scenario 1 & Scenario 2 | | | | | |
| Percentage of Standard: | 70% | | | | | |
| | | | | | | |
| Intersection: | 62nd / US 101 - Scen 1 30 HV | | | | | |
| | Street | Number of Lanes | Warrant Volumes | Approach Volumes | Warrant Met | |
| Case A | Major | 2 | 7400 | 47500 | Yes | |
| | Minor | 1 | 1850 | 850 | NO | |
| Case B | Major | 2 | 11100 | 47500 | Yes | |
| | Minor | 1 | 950 | 850 | NO | |
| | | | | | | |
| Intersection: | 62nd / US 101 - Scen 1 AAvg | | | | | |
| | Street | Number of Lanes | Warrant Volumes | Approach Volumes | Warrant Met | |
| Case A | Major | 2 | 7400 | 39400 | Yes | |
| | Minor | 1 | 1850 | 700 | NO | |
| Case B | Major | 2 | 11,100 | 39400 | Yes | |
| | Minor | 1 | 950 | 700 | NO | |
| | | | | | | |
| Intersection: | 62nd / US 101 - Scen 1 Off-Season | | | | | |
| | Street | Number of Lanes | Warrant Volumes | Approach Volumes | Warrant Met | |
| Case A | Major | 2 | 7400 | 35200 | Yes | |
| | Minor | 1 | 1850 | 650 | NO | |
| Case B | Major | 2 | 11100 | 35,200 | Yes | |
| | Minor | 1 | 950 | 650 | NO | |
| | | | | | | |
| Intersection: | 62nd / US 101 - Scen 2 30 HV | | | | | |
| | Street | Number of Lanes | Warrant Volumes | Approach Volumes | Warrant Met | |
| Case A | Major | 2 | 7400 | 45750 | Yes | |
| | Minor | 1 | 1850 | 1850 | NO | |
| Case B | Major | 2 | 11100 | 45750 | Yes | |
| | Minor | 1 | 950 | 850 | NO | |
| | | | | | | |
| Intersection: | 62nd / US 101 - Scen 2 AAvg | | | | | |
| | Street | Number of Lanes | Warrant Volumes | Approach Volumes | Warrant Met | |
| Case A | Major | 2 | 7400 | 38000 | Yes | |
| | Minor | 1 | 1850 | 700 | NO | |
| Case B | Major | 2 | 11100 | 38000 | Yes | |
| | Minor | 1 | 950 | 700 | NO | |
| | | | | | | |
| Intersection: | 62nd / US 101 - Scen 2 Off-Season | | | | | |
| | Street | Number of Lanes | Warrant Volumes | Approach Volumes | Warrant Met | |
| Case A | Major | 2 | 7400 | 33900 | Yes | |
| | Minor | 1 | 1850 | 650 | NO | |
| Case B | Major | 2 | 11100 | 33900 | Yes | |
| | Minor | 1 | 950 | 650 | NO | |

# HCM Signalized Intersection Capacity Analysis
## 5: 35th St & US 101

2030 Scenario2-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 100 | 20 | 40 | 135 | 25 | 180 | 70 | 2285 | 60 | 245 | 2790 | 90 |
| Ideal Flow (vphpl) | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 |
| Lane Width | 14 | 12 | 12 | 14 | 12 | 12 | 14 | 12 | 12 | 14 | 12 | 12 |
| Total Lost time (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | 3.5 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1748 | 1733 | 1448 | 1714 | 1699 | 1420 | 1722 | 3228 | 1404 | 1722 | 3228 | 1404 |
| Flt Permitted | 0.74 | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1358 | 1733 | 1448 | 1338 | 1699 | 1420 | 1722 | 3228 | 1404 | 1722 | 3228 | 1404 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 118 | 24 | 47 | 159 | 29 | 212 | 74 | 2405 | 63 | 258 | 2937 | 95 |
| RTOR Reduction (vph) | 0 | 0 | 34 | 0 | 0 | 157 | 0 | 0 | 10 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 118 | 24 | 13 | 159 | 29 | 55 | 74 | 2405 | 53 | 258 | 2937 | 83 |
| Confl. Peds. (#/hr) | 2 | | 2 | 2 | | 2 | 2 | | 2 | 2 | | 2 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% | 3% |
| Turn Type | Perm | | Perm | Perm | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 | 19.0 | 4.0 | 100.0 | 100.0 | 18.0 | 114.0 | 114.0 |
| Effective Green, g (s) | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 4.5 | 100.5 | 100.5 | 18.5 | 114.5 | 115.0 |
| Actuated g/C Ratio | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.03 | 0.67 | 0.67 | 0.12 | 0.76 | 0.77 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 |
| Vehicle Extension (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 |
| Lane Grp Cap (vph) | 167 | 214 | 179 | 165 | 210 | 175 | 52 | 2163 | 941 | 212 | 2464 | 1076 |
| v/s Ratio Prot | | 0.01 | | | 0.02 | | 0.04 | c0.75 | | 0.15 | c0.91 | |
| v/s Ratio Perm | 0.09 | | 0.01 | c0.12 | | 0.04 | | | 0.04 | | | 0.06 |
| v/c Ratio | 0.71 | 0.11 | 0.07 | 0.96 | 0.14 | 0.31 | 1.42 | 1.11 | 0.06 | 1.22 | 1.19 | 0.08 |
| Uniform Delay, d1 | 63.1 | 58.4 | 58.2 | 65.4 | 58.6 | 60.0 | 72.8 | 24.8 | 8.5 | 65.8 | 17.8 | 4.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.73 | 0.23 | 0.15 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.6 | 0.3 | 0.2 | 59.1 | 0.4 | 1.4 | 200.3 | 51.1 | 0.0 | 132.7 | 90.7 | 0.1 |
| Delay (s) | 76.8 | 58.8 | 58.4 | 124.6 | 59.1 | 61.4 | 253.5 | 56.7 | 1.3 | 198.4 | 108.5 | 4.5 |
| Level of Service | E | E | E | F | E | E | F | E | A | F | F | A |
| Approach Delay (s) | | 69.9 | | | 86.3 | | | 61.1 | | | 112.5 | |
| Approach LOS | | E | | | F | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 89.3 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.15 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 113.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 4: 40th Street & US 101

2030 Scenario2-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 60 | 10 | 30 | 215 | 10 | 485 | 15 | 1870 | 240 | 515 | 2385 | 65 |
| Ideal Flow (vphpl) | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 |
| Lane Width | 14 | 12 | 12 | 14 | 12 | 12 | 14 | 12 | 12 | 14 | 12 | 12 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 3.5 | 4.0 | 4.0 | 3.5 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1739 | 1716 | 1458 | 1712 | 1716 | 1420 | 1739 | 3228 | 1420 | 3340 | 3228 | 1458 |
| Flt Permitted | 0.75 | 1.00 | 1.00 | 0.75 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1372 | 1716 | 1458 | 1351 | 1716 | 1420 | 1739 | 3228 | 1420 | 3340 | 3228 | 1458 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 71 | 12 | 35 | 253 | 12 | 571 | 16 | 1968 | 253 | 542 | 2511 | 68 |
| RTOR Reduction (vph) | 0 | 0 | 27 | 0 | 0 | 173 | 0 | 0 | 58 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 71 | 12 | 8 | 253 | 12 | 398 | 16 | 1968 | 195 | 542 | 2511 | 59 |
| Confl. Peds. (#/hr) | | | | 2 | | 2 | | | 2 | 2 | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 3% | 2% | 3% | 2% | 3% | 3% | 3% | 3% | 2% |
| Turn Type | Perm | | Perm | Perm | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 33.0 | 33.0 | 33.0 | 32.5 | 32.5 | 32.5 | 1.6 | 82.1 | 82.1 | 22.4 | 102.9 | 102.9 |
| Effective Green, g (s) | 33.0 | 33.0 | 33.0 | 32.0 | 32.0 | 32.0 | 2.1 | 82.6 | 82.6 | 22.9 | 103.4 | 103.4 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.01 | 0.55 | 0.55 | 0.15 | 0.69 | 0.69 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.5 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 | 4.0 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 |
| Lane Grp Cap (vph) | 302 | 378 | 321 | 288 | 366 | 303 | 24 | 1778 | 782 | 510 | 2225 | 1005 |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | 0.01 | c0.61 | | 0.16 | c0.78 | |
| v/s Ratio Perm | 0.05 | | 0.01 | 0.19 | | c0.28 | | | 0.14 | | | 0.04 |
| v/c Ratio | 0.24 | 0.03 | 0.02 | 0.88 | 0.03 | 1.31 | 0.67 | 1.11 | 0.25 | 1.06 | 1.13 | 0.06 |
| Uniform Delay, d1 | 48.1 | 46.0 | 45.9 | 57.1 | 46.7 | 59.0 | 73.6 | 33.7 | 17.5 | 63.6 | 23.3 | 7.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.10 | 0.68 | 0.36 | 0.88 | 0.65 | 0.97 |
| Incremental Delay, d2 | 0.4 | 0.0 | 0.0 | 25.3 | 0.1 | 162.6 | 29.8 | 52.9 | 0.4 | 32.9 | 58.5 | 0.0 |
| Delay (s) | 48.5 | 46.0 | 45.9 | 82.4 | 46.8 | 221.6 | 110.9 | 75.8 | 6.6 | 88.8 | 73.6 | 7.3 |
| Level of Service | D | D | D | F | D | F | F | E | A | F | E | A |
| Approach Delay (s) | | 47.5 | | | 177.0 | | | 68.3 | | | 74.8 | |
| Approach LOS | | D | | | F | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 85.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.18 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 13.0 |
| Intersection Capacity Utilization | 105.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis
## 2: South Beach State Park & US 101

2030 Scenario2-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (vph) | 80 | 5 | 40 | 40 | 5 | 85 | 35 | 1960 | 40 | 80 | 2460 | 90 |
| Ideal Flow (vphpl) | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 | 1750 |
| Total Lost time (s) | 3.5 | 4.0 | | 4.0 | 4.0 | | 3.5 | 3.5 | 4.0 | 4.0 | 3.5 | 3.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.87 | | 1.00 | 0.86 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1607 | 1452 | | 1630 | 1473 | | 1614 | 3228 | 1458 | 1630 | 3228 | 1402 |
| Flt Permitted | 0.52 | 1.00 | | 0.72 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 881 | 1452 | | 1237 | 1473 | | 1614 | 3228 | 1458 | 1630 | 3228 | 1402 |
| Peak-hour factor, PHF | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.85 | 0.85 | 0.95 | 0.95 |
| Adj. Flow (vph) | 94 | 6 | 47 | 47 | 6 | 100 | 37 | 2063 | 47 | 94 | 2589 | 95 |
| RTOR Reduction (vph) | 0 | 42 | 0 | 0 | 89 | 0 | 0 | 0 | 13 | 0 | 0 | 12 |
| Lane Group Flow (vph) | 94 | 11 | 0 | 47 | 17 | 0 | 37 | 2063 | 34 | 94 | 2589 | 83 |
| Confl. Peds. (#/hr) | 2 | | 2 | | | | 2 | | | | | 2 |
| Heavy Vehicles (%) | 3% | 2% | 3% | 2% | 2% | 2% | 3% | 3% | 2% | 2% | 3% | 3% |
| Turn Type | Perm | | | Perm | | | Prot | | Perm | Prot | | Perm |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | | | 2 | | | 6 |
| Actuated Green, G (s) | 17.2 | 17.2 | | 17.2 | 17.2 | | 3.2 | 109.4 | 109.4 | 11.4 | 117.6 | 117.6 |
| Effective Green, g (s) | 17.7 | 17.2 | | 17.2 | 17.2 | | 3.7 | 109.9 | 109.4 | 11.4 | 118.1 | 118.1 |
| Actuated g/C Ratio | 0.12 | 0.11 | | 0.11 | 0.11 | | 0.02 | 0.73 | 0.73 | 0.08 | 0.79 | 0.79 |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 104 | 166 | | 142 | 169 | | 40 | 2365 | 1063 | 124 | 2542 | 1104 |
| v/s Ratio Prot | | 0.01 | | | 0.01 | | 0.02 | c0.64 | | 0.06 | c0.80 | |
| v/s Ratio Perm | c0.11 | | | 0.04 | | | | | 0.02 | | | 0.06 |
| v/c Ratio | 0.90 | 0.07 | | 0.33 | 0.10 | | 0.92 | 0.87 | 0.03 | 0.76 | 1.02 | 0.08 |
| Uniform Delay, d1 | 65.3 | 59.3 | | 61.1 | 59.5 | | 73.0 | 14.9 | 5.6 | 67.9 | 16.0 | 3.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.21 | 0.41 | 0.05 |
| Incremental Delay, d2 | 58.2 | 0.2 | | 1.4 | 0.3 | | 112.0 | 4.8 | 0.1 | 2.4 | 11.0 | 0.0 |
| Delay (s) | 123.6 | 59.4 | | 62.5 | 59.8 | | 185.0 | 19.7 | 5.7 | 84.7 | 17.5 | 0.2 |
| Level of Service | F | E | | E | E | | F | B | A | F | B | A |
| Approach Delay (s) | | 100.4 | | | 60.6 | | | 22.2 | | | 19.2 | |
| Approach LOS | | F | | | E | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.9 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 7.0 |
| Intersection Capacity Utilization | 92.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# HCM Unsignalized Intersection Capacity Analysis
## 8: Pacific Way & US 101

2030 Scenario2-30 HV

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 0 | 3220 | 135 | 0 | 3175 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 3389 | 142 | 0 | 3342 |
| Pedestrians | 2 | | 2 | | | 2 |
| Lane Width (ft) | 0.0 | | 12.0 | | | 12.0 |
| Walking Speed (ft/s) | 4.0 | | 4.0 | | | 4.0 |
| Percent Blockage | 0 | | 0 | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 6736 | 3393 | | | 3534 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 6736 | 3393 | | | 3534 | |
| tC, single (s) | 6.5 | 6.3 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 0 | 10 | | | 69 | |

| Direction, Lane # | NB 1 | NB 2 | SB 1 |
|---|---|---|---|
| Volume Total | 3389 | 142 | 3342 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 142 | 0 |
| cSH | 1700 | 1700 | 1700 |
| Volume to Capacity | 1.99 | 0.08 | 1.97 |
| Queue Length 95th (ft) | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | | | |
| Approach Delay (s) | 0.0 | | 0.0 |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 194.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

# HCM Unsignalized Intersection Capacity Analysis
## 7: Abalone St. & US 101

2030 Scenario2-30 HV

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 0 | 200 | 0 | 3355 | 2915 | 260 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 235 | 0 | 3532 | 3068 | 274 |
| Pedestrians | 2 | | | 2 | 2 | |
| Lane Width (ft) | 12.0 | | | 12.0 | 12.0 | |
| Walking Speed (ft/s) | 4.0 | | | 4.0 | 4.0 | |
| Percent Blockage | 0 | | | 0 | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 1246 | | |
| pX, platoon unblocked | 0.36 | | | | | |
| vC, conflicting volume | 4838 | 3072 | 3344 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 8137 | 3072 | 3344 | | | |
| tC, single (s) | 6.9 | 7.0 | 4.2 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 0 | 100 | | | |
| cM capacity (veh/h) | 0 | 9 | 80 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 235 | 1766 | 1766 | 3068 | 274 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 235 | 0 | 0 | 0 | 274 |
| cSH | 9 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 27.49 | 1.04 | 1.04 | 1.80 | 0.16 |
| Queue Length 95th (ft) | Err | 0 | 0 | 0 | 0 |
| Control Delay (s) | Err | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | | | | |
| Approach Delay (s) | Err | 0.0 | | 0.0 | |
| Approach LOS | F | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 330.9 | | |
| Intersection Capacity Utilization | 186.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

# HCM Unsignalized Intersection Capacity Analysis
## 6: 32nd St & US 101

2030 Scenario2-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 0 | 0 | 55 | 0 | 0 | 870 | 0 | 2485 | 80 | 0 | 3070 | 45 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 65 | 0 | 0 | 1024 | 0 | 2616 | 84 | 0 | 3232 | 47 |
| Pedestrians | | 2 | | | 2 | | | 2 | | | 2 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | 700 | | | | |
| pX, platoon unblocked | 0.35 | 0.35 | | 0.35 | 0.35 | 0.35 | | | | 0.35 | | |
| vC, conflicting volume | 5591 | 5959 | 1643 | 4300 | 5899 | 1312 | 3281 | | | 2702 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 10481 | 11545 | 1643 | 6755 | 11370 | 0 | 3281 | | | 2140 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.2 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 27 | 100 | 100 | 0 | 100 | | | 100 | | |
| cM capacity (veh/h) | 0 | 0 | 89 | 0 | 0 | 374 | 85 | | | 85 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 65 | 1024 | 1308 | 1308 | 84 | 2154 | 1125 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 65 | 1024 | 0 | 0 | 84 | 0 | 47 |
| cSH | 89 | 374 | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.73 | 2.73 | 0.77 | 0.77 | 0.05 | 1.27 | 0.66 |
| Queue Length 95th (ft) | 91 | 2141 | 0 | 0 | 0 | 0 | 0 |
| Control Delay (s) | 113.8 | 810.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | F | | | | | |
| Approach Delay (s) | 113.8 | 810.1 | 0.0 | | | 0.0 | |
| Approach LOS | F | F | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 118.4 | | |
| Intersection Capacity Utilization | 140.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

# HCM Unsignalized Intersection Capacity Analysis
## 1: SW 62nd St & US 101

2030 Scenario2-30 HV

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 85 | 0 | 30 | 10 | 0 | 10 | 45 | 1940 | 15 | 10 | 2450 | 80 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 100 | 0 | 35 | 12 | 0 | 12 | 47 | 2042 | 16 | 11 | 2579 | 84 |
| Pedestrians | | 2 | | | 2 | | | 2 | | | 2 | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| Walking Speed (ft/s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Percent Blockage | | 0 | | | 0 | | | 0 | | | 0 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | TWLTL | | | TWLTL | |
| Median storage veh) | | | | | | | | 2 | | | 2 | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 3732 | 4757 | 1293 | 3495 | 4833 | 1033 | 2665 | | | 2060 | | |
| vC1, stage 1 conf vol | 2602 | 2602 | | 2147 | 2147 | | | | | | | |
| vC2, stage 2 conf vol | 1130 | 2155 | | 1348 | 2686 | | | | | | | |
| vCu, unblocked vol | 3732 | 4757 | 1293 | 3495 | 4833 | 1033 | 2665 | | | 2060 | | |
| tC, single (s) | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 | 4.2 | | | 4.2 | | |
| tC, 2 stage (s) | 6.5 | 5.5 | | 6.5 | 5.5 | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 100 | 77 | 60 | 100 | 95 | 69 | | | 96 | | |
| cM capacity (veh/h) | 23 | 32 | 154 | 29 | 1 | 231 | 151 | | | 264 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 100 | 35 | 12 | 12 | 47 | 1361 | 696 | 11 | 1289 | 1289 | 84 |
| Volume Left | 100 | 0 | 12 | 0 | 47 | 0 | 0 | 11 | 0 | 0 | 0 |
| Volume Right | 0 | 35 | 0 | 12 | 0 | 0 | 16 | 0 | 0 | 0 | 84 |
| cSH | 23 | 154 | 29 | 231 | 151 | 1700 | 1700 | 264 | 1700 | 1700 | 1700 |
| Volume to Capacity | 4.32 | 0.23 | 0.40 | 0.05 | 0.31 | 0.80 | 0.41 | 0.04 | 0.76 | 0.76 | 0.05 |
| Queue Length 95th (ft) | Err | 21 | 32 | 4 | 31 | 0 | 0 | 3 | 0 | 0 | 0 |
| Control Delay (s) | Err | 35.1 | 193.7 | 21.5 | 39.3 | 0.0 | 0.0 | 19.2 | 0.0 | 0.0 | 0.0 |
| Lane LOS | F | E | F | C | E | | | C | | | |
| Approach Delay (s) | 7399.7 | | 107.6 | | 0.9 | | | 0.1 | | | |
| Approach LOS | F | | F | | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 203.7 | | |
| Intersection Capacity Utilization | 92.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

2030 US 101 Segment V/C Analysis

Volumes

| Scenario 1 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | SB |
| Pacific to 35th | 3515 | 3225 | 2960 | 2700 | 2640 | 2400 |
| 35th to 50th | 2245 | 3065 | 1870 | 2565 | 1665 | 2285 |
| 50th to 62nd | 2145 | 2610 | 1790 | 2185 | 1590 | 1950 |

V/C

| Scenario 1 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | |
| Pacific to 35th | 2.70 | 2.48 | 2.28 | 2.08 | 2.03 | 1.85 |
| 35th to 50th | 0.64 | 0.88 | 0.53 | 0.73 | 0.48 | 0.65 |
| 50th to 62nd | 0.61 | 0.75 | 0.51 | 0.62 | 0.45 | 0.56 |

Volumes

| Scenario 2 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | SB |
| Pacific to 35th | 3355 | 3125 | 2830 | 2615 | 2525 | 2330 |
| 35th to 50th | 2125 | 2965 | 1770 | 2480 | 1585 | 2215 |
| 50th to 62nd | 2035 | 2540 | 1700 | 2135 | 1515 | 1900 |

V/C

| Scenario 2 | 30 HV | | AA | | Offseason | |
|---|---|---|---|---|---|---|
| | NB | SB | NB | SB | NB | |
| Pacific to 35th | 2.58 | 2.40 | 2.18 | 2.01 | 1.94 | 1.79 |
| 35th to 50th | 0.61 | 0.85 | 0.51 | 0.71 | 0.45 | 0.63 |
| 50th to 62nd | 0.58 | 0.73 | 0.49 | 0.61 | 0.43 | 0.54 |

# Queues
## 2: South Beach State Park & US 101

2030 Scenario2-30 HV

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 94 | 53 | 47 | 106 | 37 | 2063 | 47 | 94 | 2589 | 95 |
| v/c Ratio | 0.80 | 0.23 | 0.29 | 0.41 | 0.61 | 0.91 | 0.04 | 0.63 | 1.05 | 0.09 |
| Control Delay | 92.3 | 18.1 | 52.4 | 20.8 | 95.1 | 22.8 | 1.8 | 49.1 | 30.9 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 92.3 | 18.1 | 52.4 | 20.8 | 95.1 | 22.8 | 1.8 | 49.1 | 30.9 | 0.2 |
| Queue Length 50th (ft) | 71 | 4 | 33 | 18 | 29 | 638 | 0 | 76 | ~1178 | 0 |
| Queue Length 95th (ft) | #142 | 38 | 68 | 64 | #85 | 800 | 10 | m69 | m106 | m0 |
| Internal Link Dist (ft) | | 573 | | 801 | | 2367 | | | 3870 | |
| Turn Bay Length (ft) | | | | | 150 | | 320 | 215 | | 150 |
| Base Capacity (vph) | 132 | 251 | 179 | 282 | 61 | 2262 | 1117 | 149 | 2470 | 1088 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.71 | 0.21 | 0.26 | 0.38 | 0.61 | 0.91 | 0.04 | 0.63 | 1.05 | 0.09 |

### Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 71 | 12 | 35 | 253 | 12 | 571 | 16 | 1968 | 253 | 542 | 2511 | 68 |
| v/c Ratio | 0.24 | 0.03 | 0.10 | 0.90 | 0.03 | 1.20 | 0.25 | 1.11 | 0.30 | 1.18 | 1.13 | 0.07 |
| Control Delay | 41.4 | 37.6 | 12.8 | 79.8 | 38.4 | 135.4 | 68.5 | 72.6 | 1.6 | 125.3 | 75.4 | 5.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 41.4 | 37.6 | 12.8 | 79.8 | 38.4 | 135.4 | 68.5 | 72.6 | 1.6 | 125.3 | 75.4 | 5.4 |
| Queue Length 50th (ft) | 46 | 7 | 0 | 192 | 7 | ~391 | 12 | ~920 | 13 | ~257 | ~1139 | 9 |
| Queue Length 95th (ft) | 84 | 23 | 25 | #316 | 23 | #550 | m14 | #1050 | m14 | m172 | m357 | m7 |
| Internal Link Dist (ft) | | 558 | | | 386 | | | 3870 | | | 1419 | |
| Turn Bay Length (ft) | 120 | | 155 | 120 | | 155 | 215 | | 215 | 130 | | 175 |
| Base Capacity (vph) | 297 | 372 | 343 | 282 | 358 | 475 | 65 | 1775 | 852 | 459 | 2227 | 1017 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.24 | 0.03 | 0.10 | 0.90 | 0.03 | 1.20 | 0.25 | 1.11 | 0.30 | 1.18 | 1.13 | 0.07 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 118 | 24 | 47 | 159 | 29 | 212 | 74 | 2405 | 63 | 258 | 2937 | 95 |
| v/c Ratio | 0.61 | 0.10 | 0.19 | 0.83 | 0.12 | 0.62 | 1.14 | 1.17 | 0.07 | 1.30 | 1.27 | 0.09 |
| Control Delay | 61.6 | 44.8 | 14.4 | 82.2 | 45.2 | 21.6 | 119.7 | 87.8 | 0.7 | 180.0 | 142.1 | 4.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 61.6 | 44.8 | 14.4 | 82.2 | 45.2 | 21.6 | 119.7 | 87.8 | 0.7 | 180.0 | 142.1 | 4.3 |
| Queue Length 50th (ft) | 86 | 16 | 0 | 120 | 20 | 34 | ~66 | ~1155 | 2 | ~278 | ~1525 | 15 |
| Queue Length 95th (ft) | 141 | 40 | 32 | #208 | 46 | 100 | m#55 | m#932 | m2 | m125 | m279 | m6 |
| Internal Link Dist (ft) | | 441 | | | 300 | | | 1419 | | | 620 | |
| Turn Bay Length (ft) | 120 | | 155 | 120 | | 155 | 130 | | 175 | 130 | | 175 |
| Base Capacity (vph) | 210 | 267 | 263 | 207 | 262 | 356 | 65 | 2058 | 908 | 198 | 2309 | 1026 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.56 | 0.09 | 0.18 | 0.77 | 0.11 | 0.60 | 1.14 | 1.17 | 0.07 | 1.30 | 1.27 | 0.09 |

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## Arterial Level of Service: NE US 101

| Cross Street | Arterial Class | Flow Speed | Running Time | Signal Delay | Travel Time (s) | Dist (mi) | Arterial Speed | Arterial LOS |
|---|---|---|---|---|---|---|---|---|
| | II | 55 | 44.9 | 22.8 | 67.7 | 0.69 | 36.5 | A |
| 40th Street | II | 45 | 59.8 | 72.6 | 132.4 | 0.75 | 20.3 | D |
| 35th St. | II | 35 | 31.2 | 87.8 | 119.0 | 0.28 | 8.6 | F |
| Hurbert St | II | 31 | 200.2 | 794.6 | 994.8 | 1.73 | 6.2 | F |
| Total | II | | 336.1 | 977.8 | 1313.9 | 3.44 | 9.4 | F |

## Arterial Level of Service: SB US 101

| Cross Street | Arterial Class | Flow Speed | Running Time | Signal Delay | Travel Time (s) | Dist (mi) | Arterial Speed | Arterial LOS |
|---|---|---|---|---|---|---|---|---|
| Hurbert St | III | 30 | 21.9 | 769.8 | 791.7 | 0.16 | 0.7 | F |
| 35th St | III | 31 | 200.2 | 142.1 | 342.3 | 1.73 | 18.1 | C |
| 40th Street | III | 35 | 34.1 | 75.4 | 109.5 | 0.28 | 9.3 | F |
| South Beach State Pa | III | 55 | 49.0 | 30.9 | 79.9 | 0.75 | 33.7 | A |
| Total | III | | 305.2 | 1018.2 | 1323.4 | 2.92 | 7.9 | F |

## US 101

| Direction | NB | SB | All |
|---|---|---|---|
| Average Speed (mph) | 8 | 8 | 8 |
| Total Travel Time (hr) | 1141 | 1210 | 2351 |
| Distance Traveled (mi) | 9276 | 10034 | 19310 |
| Unserved Vehicles (#) | 2666 | 3188 | 5854 |
| Performance Index | 942.8 | 973.8 | 1916.7 |