

Appendix K

SIDRA Analysis

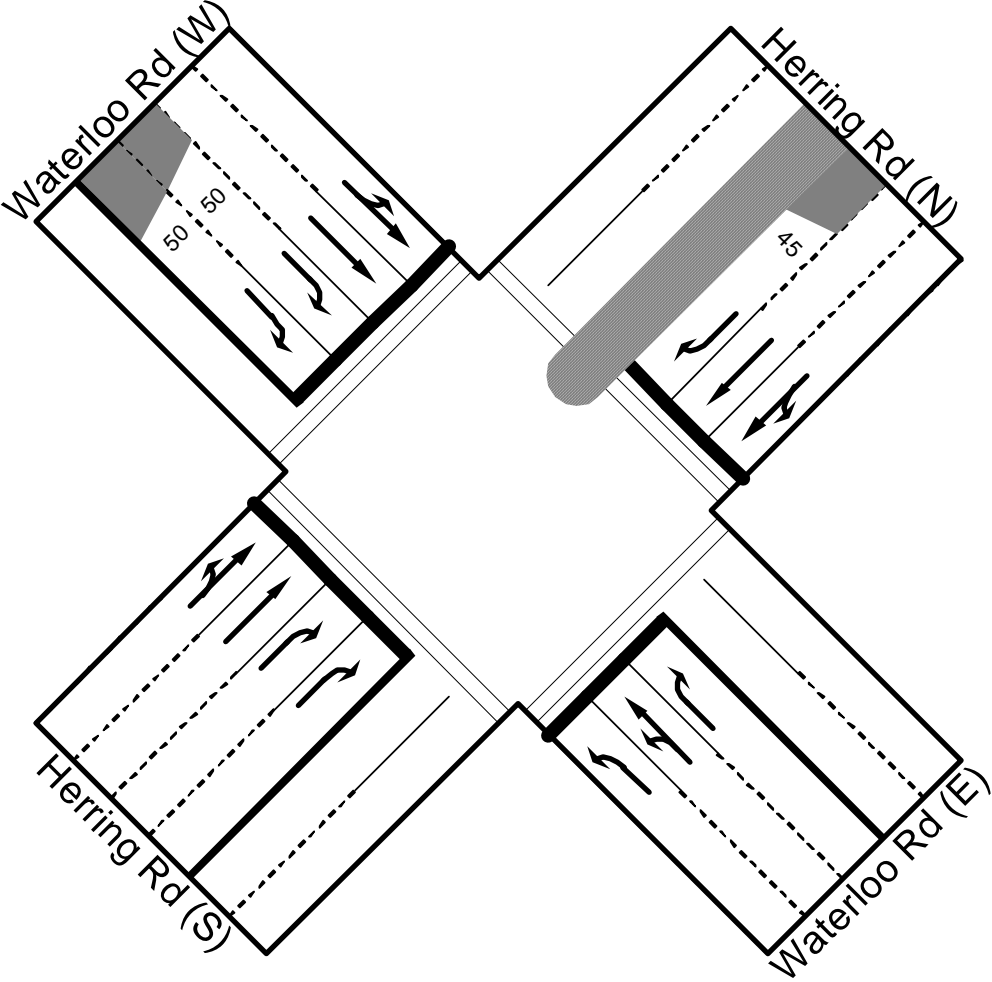
Existing Base plus Project with Improvements

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Layout

Waterloo / Herring

2007_Base+Dev+Minimal Improv



Phasing Summary

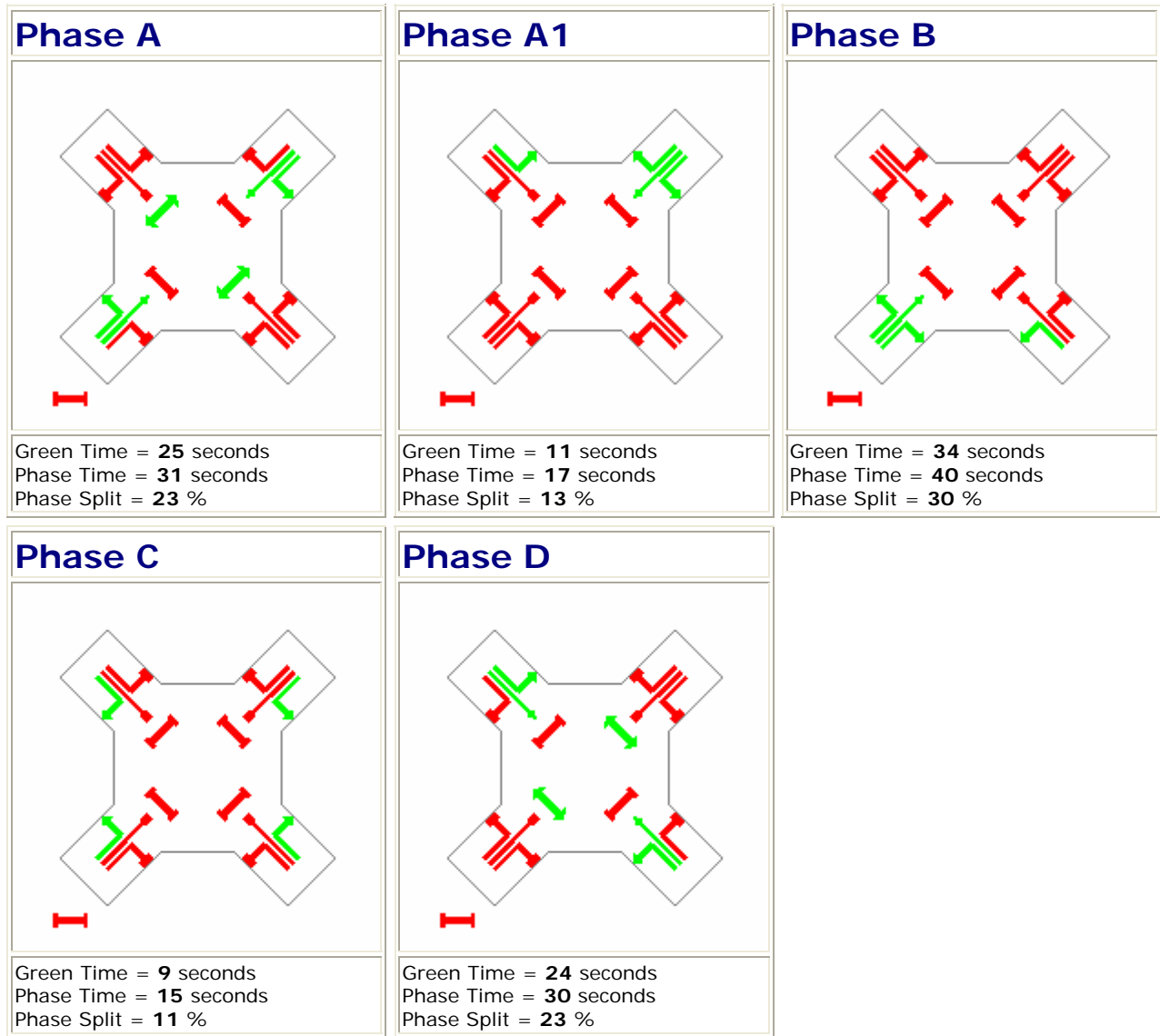
Waterloo / Herring

2007_Base+Dev+MinimalImprov_AM

C = 133 seconds

Cycle Time Option: User-specified cycle time

Phase times determined by the program.



- Normal Movement
- Slip-Lane
- Stopped Movement
- Turn On Red
- Permitted/Opposed
- Opposed Slip-Lane
- Continuous



Movement Summary

Waterloo / Herring

2007_Base+Dev+MinimalImprov_AM

Signalised - Fixed time

Cycle Time = 133 seconds

Vehicle Movements

| Mov ID | Turn | Dem Flow (veh/h) | %HV | Deg of Satn (v/c) | Aver Delay (sec) | Level of Service | 95% Back of Queue (m) | Prop. Queued | Eff. Stop Rate | Aver Speed (km/h) |
|------------------------|------|------------------|-------------|-------------------|------------------|------------------|-----------------------|--------------|----------------|-------------------|
| Waterloo Rd (E) | | | | | | | | | | |
| 21 | L | 12 | 7.7 | 0.017 | 21.7 | LOS B | 4 | 0.59 | 0.69 | 37.5 |
| 22 | T | 217 | 3.2 | 0.630 | 54.9 | LOS D | 105 | 0.98 | 0.81 | 23.9 |
| 23 | R | 68 | 22.1 | 0.626 | 78.6 | LOS F | 51 | 1.00 | 0.80 | 19.1 |
| Approach | | 298 | 7.7 | 0.630 | 58.9 | LOS E | 105 | 0.97 | 0.80 | 23.0 |
| Herring Rd (N) | | | | | | | | | | |
| 24 | L | 152 | 34.9 | 0.548 | 46.6 | LOS D | 129 | 0.87 | 0.90 | 26.7 |
| 25 | T | 438 | 19.4 | 0.548 | 39.4 | LOS C | 140 | 0.88 | 0.78 | 28.8 |
| 26 | R | 86 | 7.0 | 0.588 | 74.6 | LOS F | 54 | 1.00 | 0.79 | 19.7 |
| Approach | | 676 | 21.3 | 0.588 | 45.5 | LOS D | 140 | 0.89 | 0.81 | 26.8 |
| Waterloo Rd (W) | | | | | | | | | | |
| 27 | L | 67 | 44.8 | 0.199 | 32.8 | LOS C | 32 | 0.82 | 0.76 | 32.3 |
| 28 | T | 73 | 2.7 | 0.199 | 48.5 | LOS D | 37 | 0.89 | 0.69 | 25.7 |
| 29 | R | 39 | 25.6 | 0.184 | 75.1 | LOS F | 16 | 0.98 | 0.71 | 19.8 |
| Approach | | 179 | 23.5 | 0.199 | 48.4 | LOS D | 37 | 0.88 | 0.72 | 26.0 |
| Herring Rd (S) | | | | | | | | | | |
| 30 | L | 279 | 0.0 | 0.632 | 24.6 | LOS B | 135 | 0.81 | 0.84 | 35.7 |
| 31 | T | 809 | 1.6 | 0.631 | 17.4 | LOS B | 140 | 0.82 | 0.72 | 40.6 |
| 32 | R | 578 | 2.1 | 0.618 | 55.4 | LOS D | 126 | 0.94 | 0.84 | 23.8 |
| Approach | | 1666 | 1.5 | 0.631 | 31.8 | LOS C | 140 | 0.86 | 0.78 | 32.0 |
| All Vehicles | | 2819 | 8.3 | 0.632 | 39.0 | LOS C | 140 | 0.88 | 0.79 | 29.0 |

Phasing Summary

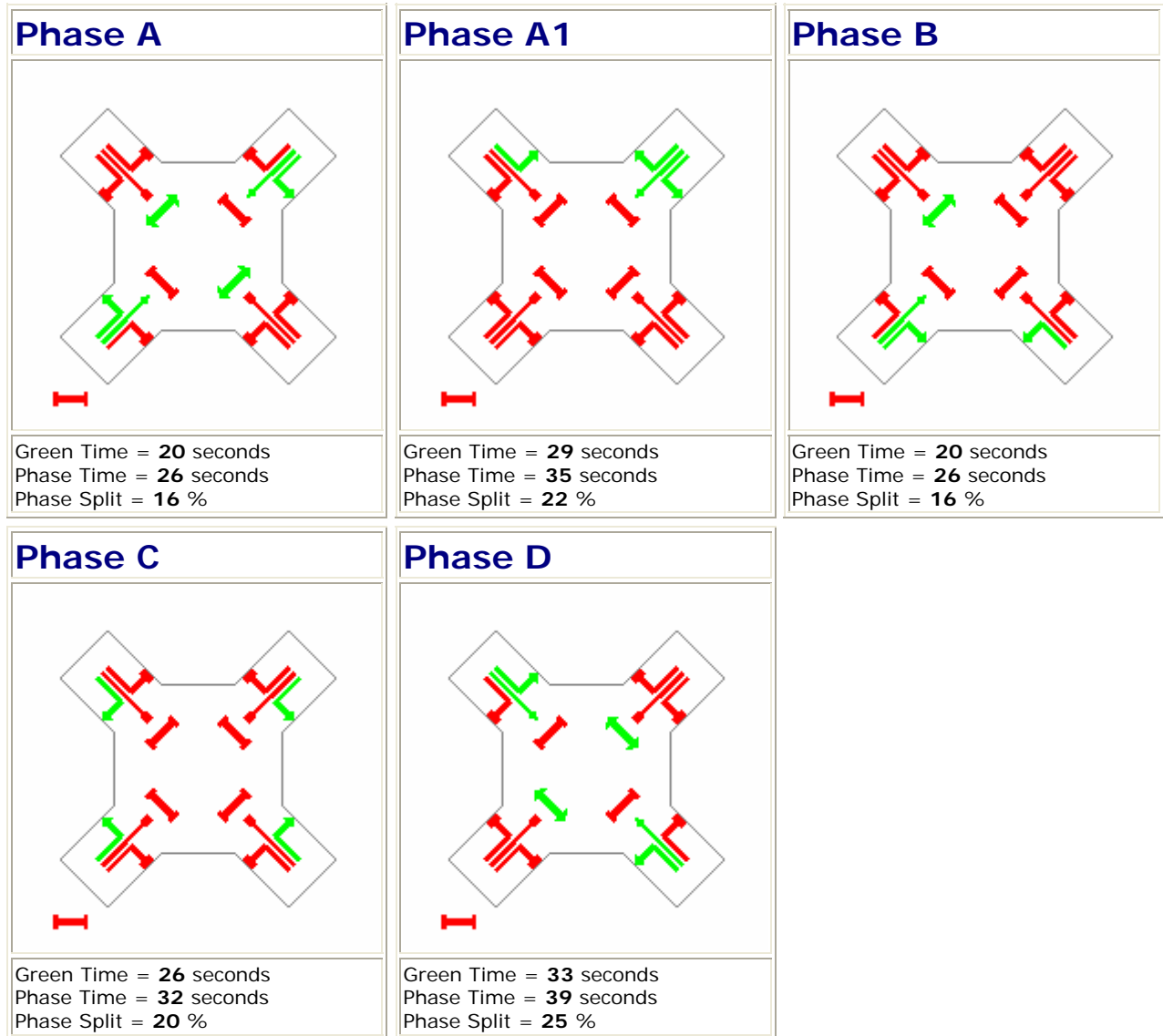
Waterloo / Herring

2007_Base+Dev+MinimalImprov_PM

C = 158 seconds

Cycle Time Option: User-specified cycle time

Phase times specified by the user.



- █ Normal Movement
- █ Slip-Lane
- █ Stopped Movement
- █ Turn On Red
- █ Permitted/Opposed
- █ Opposed Slip-Lane
- █ Continuous



Movement Summary

Waterloo / Herring

2007_Base+Dev+MinimalImprov_PM

Signalised - Fixed time

Cycle Time = 158 seconds

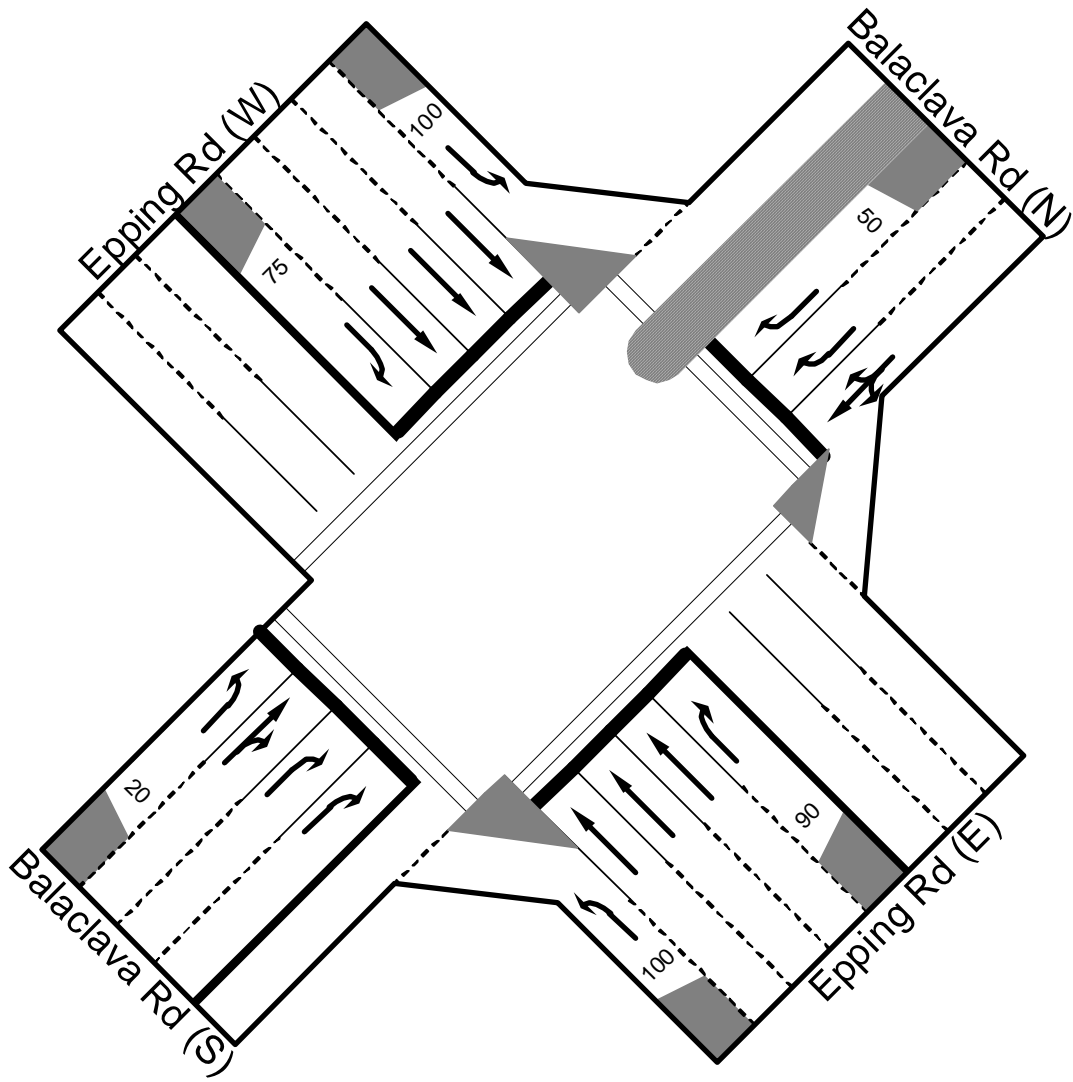
Vehicle Movements

| Mov ID | Turn | Dem Flow (veh/h) | %HV | Deg of Satn (v/c) | Aver Delay (sec) | Level of Service | 95% Back of Queue (m) | Prop. Queued | Eff. Stop Rate | Aver Speed (km/h) |
|------------------------|------|------------------|-------------|-------------------|------------------|------------------|-----------------------|--------------|----------------|-------------------|
| Waterloo Rd (E) | | | | | | | | | | |
| 21 | L | 856 | 0.9 | 0.904 | 67.4 | LOS E | 217 | 1.00 | 1.10 | 21.0 |
| 22 | T | 109 | 2.8 | 0.904 | 72.5 | LOS F | 216 | 1.00 | 1.14 | 20.0 |
| 23 | R | 285 | 6.3 | 0.975 | 125.1 | LOS F | 220 | 1.00 | 1.27 | 13.5 |
| Approach | | 1250 | 2.3 | 0.975 | 81.0 | LOS F | 220 | 1.00 | 1.14 | 18.6 |
| Herring Rd (N) | | | | | | | | | | |
| 24 | L | 108 | 21.3 | 0.583 | 53.1 | LOS D | 172 | 0.87 | 0.88 | 24.6 |
| 25 | T | 575 | 2.7 | 0.583 | 44.5 | LOS D | 176 | 0.87 | 0.78 | 27.0 |
| 26 | R | 184 | 45.5 | 1.001# | 73.4 | LOS F | 88 | 0.97 | 0.79 | 20.1 |
| Approach | | 867 | 11.0 | 1.000 | 49.6 | LOS D | 176 | 0.89 | 0.79 | 25.4 |
| Waterloo Rd (W) | | | | | | | | | | |
| 27 | L | 5 | 20.0 | 0.062 | 43.0 | LOS D | 12 | 0.83 | 0.72 | 27.7 |
| 28 | T | 44 | 2.3 | 0.062 | 44.8 | LOS D | 16 | 0.83 | 0.61 | 26.9 |
| 29 | R | 213 | 0.5 | 0.651 | 72.3 | LOS F | 64 | 0.93 | 0.80 | 20.1 |
| Approach | | 262 | 1.1 | 0.652 | 67.1 | LOS E | 64 | 0.91 | 0.77 | 21.1 |
| Herring Rd (S) | | | | | | | | | | |
| 30 | L | 92 | 2.2 | 0.782 | 67.5 | LOS E | 107 | 1.00 | 0.95 | 21.0 |
| 31 | T | 511 | 2.5 | 0.781 | 41.0 | LOS C | 140 | 0.99 | 0.89 | 28.2 |
| 32 | R | 430 | 0.5 | 0.918 | 100.3 | LOS F | 140 | 1.00 | 1.08 | 16.0 |
| Approach | | 1033 | 1.6 | 0.918 | 68.1 | LOS E | 140 | 1.00 | 0.97 | 20.9 |
| All Vehicles | | 3412 | 4.2 | 1.001 | 68.0 | LOS E | 220 | 0.96 | 0.97 | 20.9 |

Layout

Epping / Balaclava

2007_Base+Dev+Minimal Improv



Phasing Summary

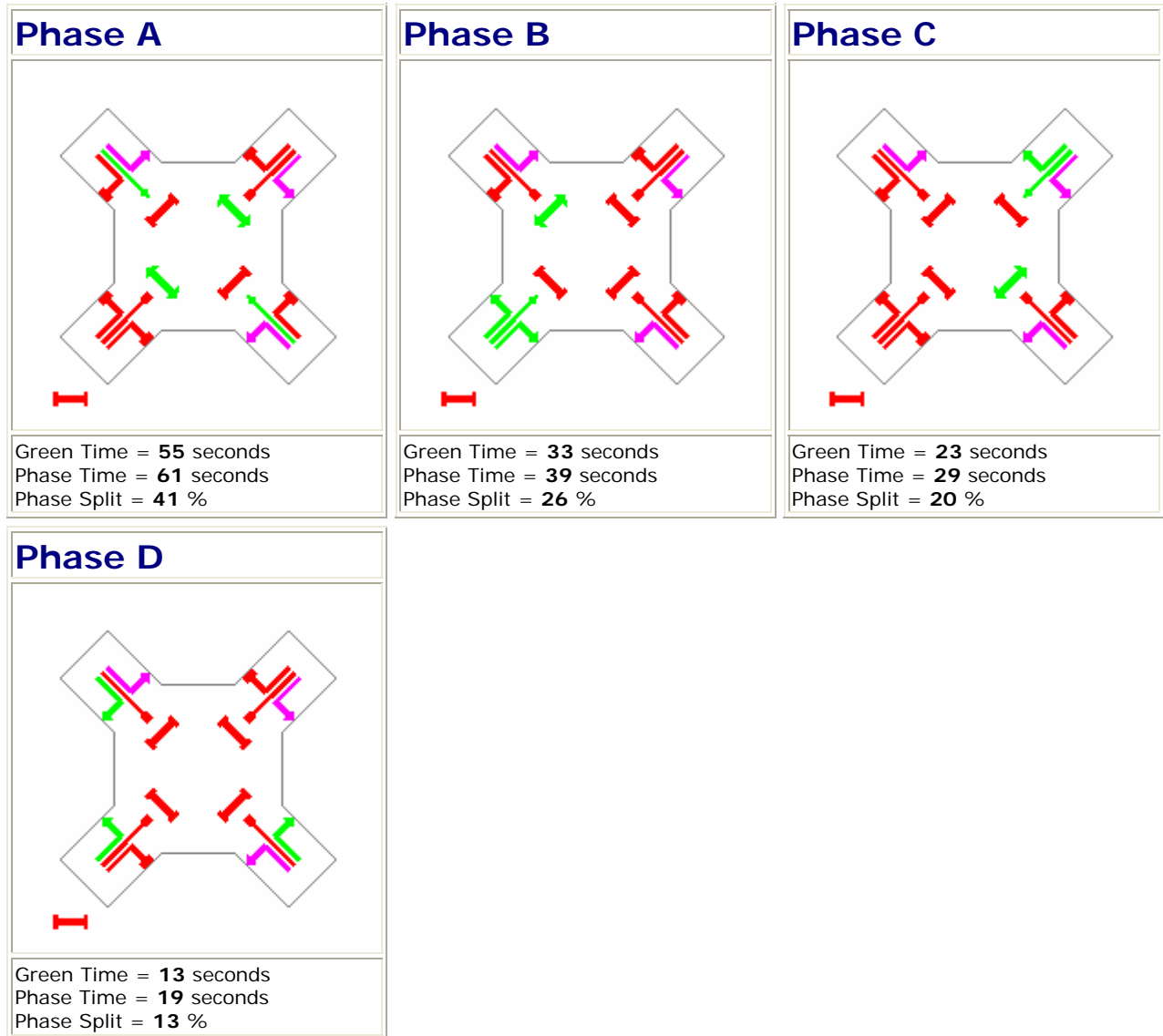
Epping / Balaclava

2007_Base+Dev+MinimalImprov_AM

C = 148 seconds

Cycle Time Option: User-specified cycle time

Phase times specified by the user.



- | | |
|--|---|
|  Normal Movement |  Permitted/Opposed |
|  Slip-Lane |  Opposed Slip-Lane |
|  Stopped Movement |  Continuous |
|  Turn On Red | |



Movement Summary

Epping / Balaclava

2007_Base+Dev+MinimalImprov_AM

Signalised - Fixed time

Cycle Time = 148 seconds

Vehicle Movements

| Mov ID | Turn | Dem Flow (veh/h) | %HV | Deg of Satn (v/c) | Aver Delay (sec) | Level of Service | 95% Back of Queue (m) | Prop. Queued | Eff. Stop Rate | Aver Speed (km/h) |
|-------------------------|------|------------------|-------------|-------------------|------------------|------------------|-----------------------|--------------|----------------|-------------------|
| Epping Rd (E) | | | | | | | | | | |
| 21 | L | 50 | 4.0 | 0.034 | 7.9 | LOS A | 2 | 0.09 | 0.62 | 49.3 |
| 22 | T | 702 | 9.3 | 0.342 | 35.5 | LOS C | 102 | 0.77 | 0.65 | 30.4 |
| 23 | R | 147 | 3.4 | 0.923 | 99.6 | LOS F | 100 | 1.00 | 1.08 | 16.1 |
| Approach | | 899 | 8.0 | 0.923 | 44.5 | LOS D | 102 | 0.77 | 0.72 | 27.0 |
| Balaclava Rd (N) | | | | | | | | | | |
| 24 | L | 5 | 0.0 | 0.070 | 57.8 | LOS E | 16 | 0.87 | 0.71 | 23.3 |
| 25 | T | 10 | 20.0 | 0.070 | 49.9 | LOS D | 16 | 0.87 | 0.62 | 25.2 |
| 26 | R | 36 | 50.0 | 0.070 | 66.0 | LOS E | 16 | 0.88 | 0.71 | 21.7 |
| Approach | | 51 | 39.2 | 0.070 | 62.1 | LOS E | 16 | 0.88 | 0.69 | 22.5 |
| Epping Rd (W) | | | | | | | | | | |
| 27 | L | 301 | 6.3 | 0.209 | 8.1 | LOS A | 12 | 0.10 | 0.63 | 49.2 |
| 28 | T | 1965 | 1.9 | 0.915 | 63.4 | LOS E | 369 | 1.00 | 1.07 | 21.9 |
| 29 | R | 7 | 12.5 | 0.053 | 75.6 | LOS F | 6 | 0.94 | 0.67 | 19.6 |
| Approach | | 2274 | 2.5 | 0.915 | 56.1 | LOS D | 369 | 0.88 | 1.01 | 23.6 |
| Balaclava Rd (S) | | | | | | | | | | |
| 30 | L | 12 | 8.3 | 0.096 | 29.3 | LOS C | 5 | 0.72 | 0.68 | 33.4 |
| 31 | T | 154 | 3.9 | 0.900 | 75.2 | LOS F | 217 | 1.00 | 1.06 | 19.6 |
| 32 | R | 956 | 1.9 | 0.901 | 83.3 | LOS F | 217 | 1.00 | 1.06 | 18.3 |
| Approach | | 1122 | 2.2 | 0.901 | 81.6 | LOS F | 217 | 1.00 | 1.06 | 18.6 |
| All Vehicles | | 4346 | 4.0 | 0.923 | 60.4 | LOS E | 369 | 0.89 | 0.96 | 22.6 |

Phasing Summary

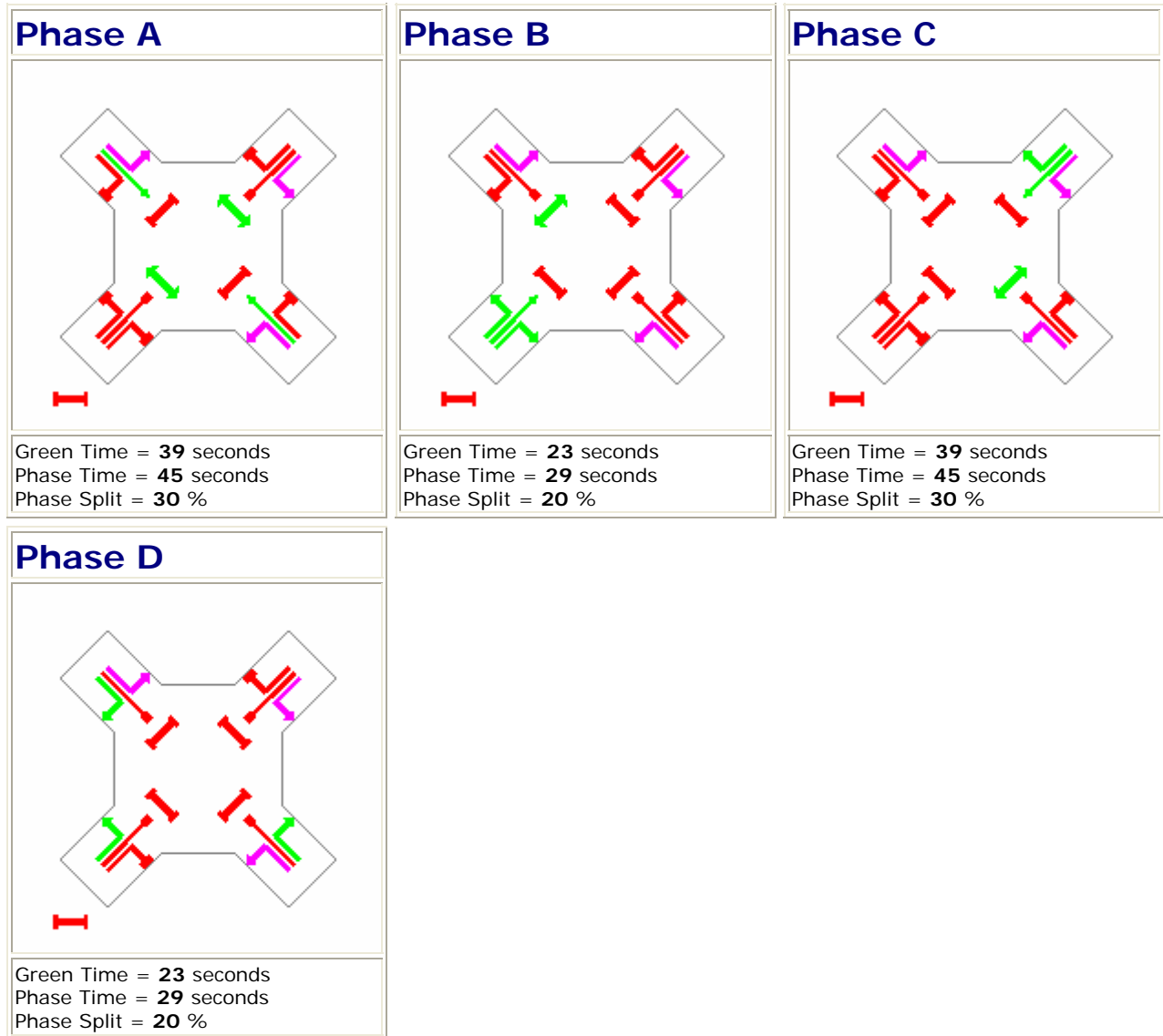
Epping / Balaclava

2007_Base+Dev+MinimalImprov_PM

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Cycle Time Option: User-specified cycle time

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- | | |
|--|---|
|  Normal Movement |  Permitted/Opposed |
|  Slip-Lane |  Opposed Slip-Lane |
|  Stopped Movement |  Continuous |
|  Turn On Red | |



Movement Summary

Epping / Balaclava

2007_Base+Dev+MinimalImprov_PM

Signalised - Fixed time

Cycle Time = 148 seconds

Vehicle Movements

| Mov ID | Turn | Dem Flow (veh/h) | %HV | Deg of Satn (v/c) | Aver Delay (sec) | Level of Service | 95% Back of Queue (m) | Prop. Queued | Eff. Stop Rate | Aver Speed (km/h) |
|-------------------------|------|------------------|------------|-------------------|------------------|------------------|-----------------------|--------------|----------------|-------------------|
| Epping Rd (E) | | | | | | | | | | |
| 21 | L | 774 | 1.7 | 0.520 | 8.1 | LOS A | 38 | 0.17 | 0.64 | 48.8 |
| 22 | T | 1433 | 1.5 | 0.938 | 82.7 | LOS F | 295 | 1.00 | 1.16 | 18.3 |
| 23 | R | 62 | 6.5 | 0.225 | 67.5 | LOS E | 40 | 0.92 | 0.76 | 21.1 |
| Approach | | 2269 | 1.7 | 0.938 | 56.9 | LOS E | 295 | 0.72 | 0.97 | 23.5 |
| Balaclava Rd (N) | | | | | | | | | | |
| 24 | L | 5 | 16.7 | 0.285 | 45.2 | LOS D | 71 | 0.80 | 0.78 | 26.8 |
| 25 | T | 44 | 2.3 | 0.284 | 37.4 | LOS C | 71 | 0.80 | 0.64 | 29.5 |
| 26 | R | 366 | 8.2 | 0.284 | 52.0 | LOS D | 71 | 0.83 | 0.79 | 24.8 |
| Approach | | 416 | 7.7 | 0.284 | 50.4 | LOS D | 71 | 0.83 | 0.77 | 25.3 |
| Epping Rd (W) | | | | | | | | | | |
| 27 | L | 100 | 23.0 | 0.078 | 8.5 | LOS A | 4 | 0.09 | 0.62 | 49.3 |
| 28 | T | 908 | 1.4 | 0.595 | 51.1 | LOS D | 140 | 0.93 | 0.80 | 25.0 |
| 29 | R | 158 | 0.6 | 0.647 | 71.0 | LOS F | 86 | 0.97 | 0.81 | 20.4 |
| Approach | | 1166 | 3.2 | 0.647 | 50.1 | LOS D | 140 | 0.86 | 0.78 | 25.3 |
| Balaclava Rd (S) | | | | | | | | | | |
| 30 | L | 183 | 2.4 | 1.001# | 33.9 | LOS C | 44 | 0.97 | 0.79 | 31.0 |
| 31 | T | 55 | 6.9 | 0.561 | 48.1 | LOS D | 90 | 0.74 | 0.61 | 21.9 |
| 32 | R | 402 | 3.7 | 0.561 | 71.2 | LOS F | 90 | 0.98 | 0.81 | 20.4 |
| Approach | | 640 | 3.8 | 1.000 | 58.9 | LOS E | 90 | 0.95 | 0.78 | 22.6 |
| All Vehicles | | 4491 | 2.9 | 1.001 | 54.8 | LOS D | 295 | 0.80 | 0.88 | 23.9 |