Berwick Health and Education Precinct

# APPENDIX A

## SIDRA INTERSECTION RESULTS – EXISTING CONDITIONS

Cardno
Shaping the Future

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Enterprise 2017 EX AM]

## Network: 1 [2017 EX AM]

Clyde / Enterprise
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 211 | 5.0 | 211 | 5.0 | 0.650 | 12.8 | LOS B | 14.9 | 108.6 | 0.42 | 0.50 | 48.9 |
| 2 | T1 | 1291 | 5.0 | 1291 | 5.0 | 0.650 | 6.5 | LOS B | 14.9 | 108.6 | 0.36 | 0.38 | 41.9 |
| 3 | R2 | 61 | 5.0 | 61 | 5.0 | 0.371 | 67.6 | LOS A | 3.7 | 26.9 | 1.00 | 0.76 | 22.9 |
| Approach | | 1562 | 5.0 | 1562 | 5.0 | 0.650 | 9.7 | LOS B | 14.9 | 108.6 | 0.39 | 0.41 | 40.8 |
| East: Station Access (east) | | | | | | | | | | | | | |
| 4 | L2 | 39 | 5.0 | 39 | 5.0 | 0.055 | 8.5 | LOS A | 0.5 | 3.3 | 0.29 | 0.62 | 47.3 |
| 5 | T1 | 5 | 5.0 | 5 | 5.0 | 0.086 | 47.0 | LOS A | 1.1 | 7.8 | 0.88 | 0.69 | 32.6 |
| 6 | R2 | 16 | 5.0 | 16 | 5.0 | 0.086 | 52.6 | LOS A | 1.1 | 7.8 | 0.88 | 0.69 | 23.5 |
| Approach | | 60 | 5.0 | 60 | 5.0 | 0.086 | 23.5 | LOS A | 1.1 | 7.8 | 0.50 | 0.64 | 35.5 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 12 | 5.0 | 12 | 5.0 | 0.468 | 18.5 | LOS A | 16.7 | 122.0 | 0.60 | 0.55 | 41.5 |
| 8 | T1 | 949 | 5.0 | 949 | 5.0 | 0.468 | 13.7 | LOS A | 16.7 | 122.0 | 0.58 | 0.52 | 14.6 |
| 9 | R2 | 141 | 5.0 | 141 | 5.0 | 0.858 | 71.8 | LOS C | 9.2 | 67.2 | 1.00 | 0.93 | 19.0 |
| Approach | | 1102 | 5.0 | 1102 | 5.0 | 0.858 | 21.2 | LOS C | 16.7 | 122.0 | 0.63 | 0.58 | 17.1 |
| West: Enterprise Avenue | | | | | | | | | | | | | |
| 10 | L2 | 138 | 5.0 | 138 | 5.0 | 0.786 | 50.2 | LOS C | 12.4 | 90.5 | 1.00 | 0.97 | 17.9 |
| 11 | T1 | 11 | 5.0 | 11 | 5.0 | 0.786 | 44.5 | LOS C | 12.4 | 90.5 | 1.00 | 0.97 | 33.1 |
| 12 | R2 | 99 | 5.0 | 99 | 5.0 | 0.786 | 50.1 | LOS C | 12.4 | 90.5 | 1.00 | 0.97 | 23.1 |
| Approach | | 247 | 5.0 | 247 | 5.0 | 0.786 | 49.9 | LOS C | 12.4 | 90.5 | 1.00 | 0.97 | 20.2 |
| All Vehicles | | 2972 | 5.0 | 2972 | 5.0 | 0.858 | 17.6 | LOS C | 16.7 | 122.0 | 0.53 | 0.52 | 28.8 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P2 | East Full Crossing | 53 | 12.2 | LOS B | 0.1 | 0.1 | 0.45 | 0.45 |
| P3 | North Full Crossing | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P4 | West Full Crossing | 53 | 12.2 | LOS B | 0.1 | 0.1 | 0.45 | 0.45 |
| All Pedestrians | | 211 | 33.2 | LOS D | | | 0.70 | 0.70 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Enterprise 2017 EX AM]

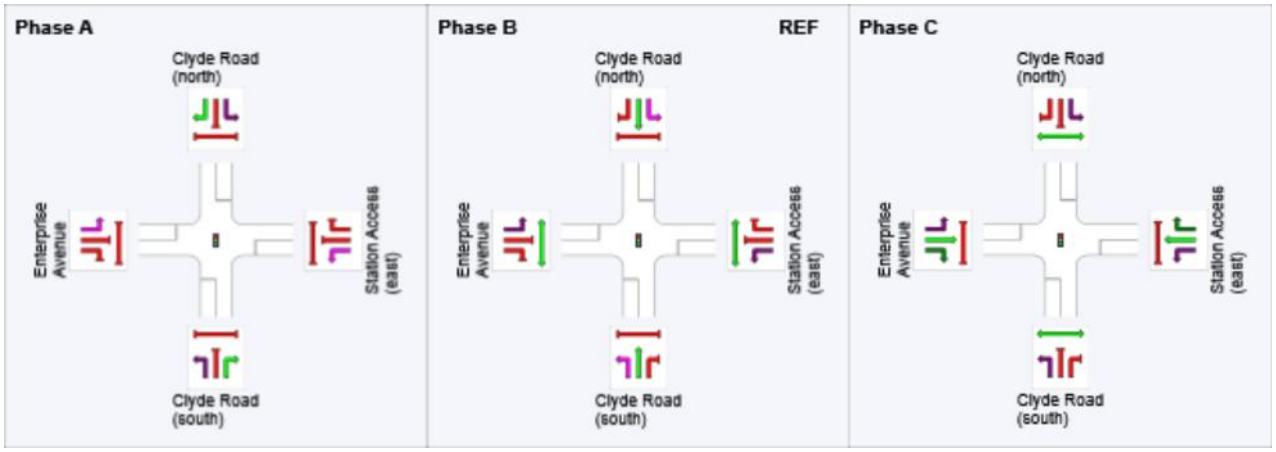
## Network: 1 [2017 EX AM]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Leading Right Turn**
**Reference Phase: Phase B**
**Input Sequence: A, B, C**
**Output Sequence: A, B, C**

**Phase Timing Results**

| Phase | A | B | C |
|---|---|---|---|
| Phase Change Time (sec) | 103 | 0 | 78 |
| Green Time (sec) | 11 | 72 | 19 |
| Yellow Time (sec) | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 |
| Phase Time (sec) | 17 | 78 | 25 |
| Phase Split | 14 % | 65 % | 21 % |




REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |
| Stopped Movement | Turn On Red |
| Other Movement Class Running | Other Movement Class Stopped |
| Mixed Running & Stopped Movement Classes | |
| Undetected Movement | Phase Transition Applied |

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# MOVEMENT SUMMARY

## Site: 1 [Clyde / Enterprise 2017 EX PM]

## Network: 1 [2017 EX PM]

Clyde / Enterprise
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 162 | 5.0 | 162 | 5.0 | 0.519 | 9.1 | LOS A | 5.2 | 37.8 | 0.24 | 0.36 | 52.3 |
| 2 | T1 | 831 | 5.0 | 831 | 5.0 | 0.519 | 11.7 | LOS A | 14.8 | 107.9 | 0.43 | 0.44 | 34.2 |
| 3 | R2 | 74 | 5.0 | 74 | 5.0 | 0.616 | 71.4 | LOS B | 4.6 | 33.4 | 1.00 | 0.78 | 22.2 |
| Approach | | 1066 | 5.0 | 1066 | 5.0 | 0.616 | 15.4 | LOS B | 14.8 | 107.9 | 0.44 | 0.45 | 35.2 |
| East: Station Access (east) | | | | | | | | | | | | | |
| 4 | L2 | 145 | 5.0 | 145 | 5.0 | 0.245 | 12.5 | LOS A | 2.7 | 20.0 | 0.52 | 0.70 | 42.9 |
| 5 | T1 | 4 | 5.0 | 4 | 5.0 | 0.045 | 32.6 | LOS A | 0.8 | 5.8 | 0.75 | 0.66 | 37.4 |
| 6 | R2 | 15 | 5.0 | 15 | 5.0 | 0.045 | 38.2 | LOS A | 0.8 | 5.8 | 0.75 | 0.66 | 28.0 |
| Approach | | 164 | 5.0 | 164 | 5.0 | 0.245 | 15.4 | LOS A | 2.7 | 20.0 | 0.55 | 0.70 | 40.6 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 13 | 5.0 | 13 | 5.0 | 0.632 | 28.5 | LOS B | 24.9 | 181.5 | 0.79 | 0.72 | 34.6 |
| 8 | T1 | 1084 | 5.0 | 1084 | 5.0 | 0.632 | 23.4 | LOS B | 24.9 | 181.5 | 0.77 | 0.70 | 9.5 |
| 9 | R2 | 103 | 5.0 | 103 | 5.0 | 0.863 | 74.3 | LOS C | 6.8 | 49.7 | 1.00 | 0.94 | 18.6 |
| Approach | | 1200 | 5.0 | 1200 | 5.0 | 0.863 | 27.8 | LOS C | 24.9 | 181.5 | 0.79 | 0.72 | 12.4 |
| West: Enterprise Avenue | | | | | | | | | | | | | |
| 10 | L2 | 148 | 5.0 | 148 | 5.0 | 0.864 | 57.8 | LOS C | 25.1 | 183.0 | 1.00 | 1.02 | 16.8 |
| 11 | T1 | 26 | 5.0 | 26 | 5.0 | 0.864 | 52.2 | LOS C | 25.1 | 183.0 | 1.00 | 1.02 | 31.0 |
| 12 | R2 | 236 | 5.0 | 236 | 5.0 | 0.864 | 57.8 | LOS C | 25.1 | 183.0 | 1.00 | 1.02 | 21.1 |
| Approach | | 411 | 5.0 | 411 | 5.0 | 0.864 | 57.4 | LOS C | 25.1 | 183.0 | 1.00 | 1.02 | 19.9 |
| All Vehicles | | 2841 | 5.0 | 2841 | 5.0 | 0.864 | 26.7 | LOS C | 25.1 | 183.0 | 0.68 | 0.66 | 23.4 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 41.8 | LOS E | 0.1 | 0.1 | 0.84 | 0.84 |
| P2 | East Full Crossing | 53 | 18.7 | LOS B | 0.1 | 0.1 | 0.56 | 0.56 |
| P3 | North Full Crossing | 53 | 41.8 | LOS E | 0.1 | 0.1 | 0.84 | 0.84 |
| P4 | West Full Crossing | 53 | 18.7 | LOS B | 0.1 | 0.1 | 0.56 | 0.56 |
| All Pedestrians | | 211 | 30.3 | LOS D | | | 0.70 | 0.70 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Enterprise 2017 EX PM]

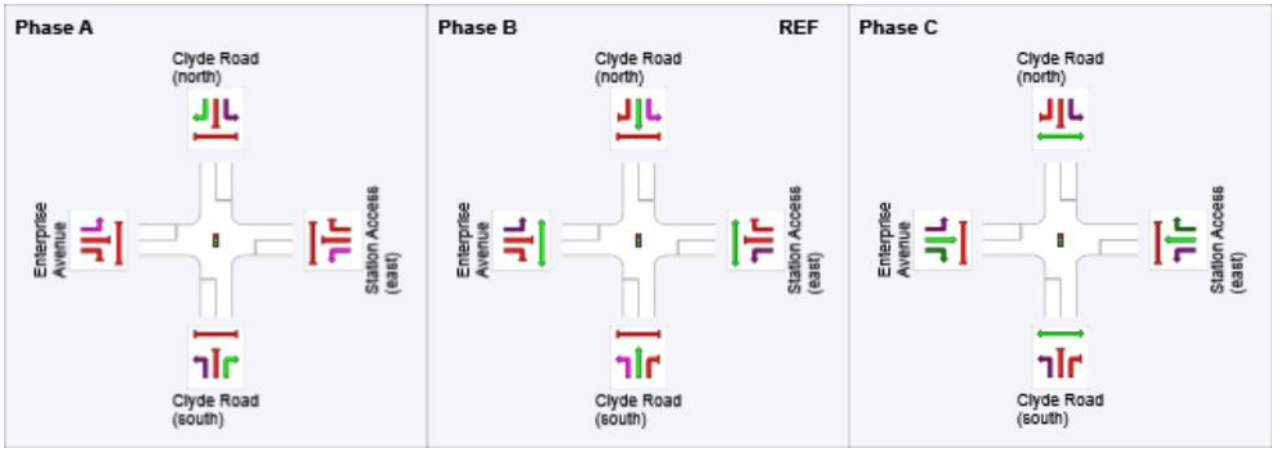
## Network: 1 [2017 EX PM]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Leading Right Turn**
**Reference Phase: Phase B**
**Input Sequence: A, B, C**
**Output Sequence: A, B, C**

**Phase Timing Results**

| Phase | A | B | C |
|---|---|---|---|
| Phase Change Time (sec) | 106 | 0 | 65 |
| Green Time (sec) | 8 | 59 | 35 |
| Yellow Time (sec) | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 |
| Phase Time (sec) | 14 | 65 | 41 |
| Phase Split | 12 % | 54 % | 34 % |




REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |
| Stopped Movement | Turn On Red |
| Other Movement Class Running | Other Movement Class Stopped |
| Mixed Running & Stopped Movement Classes | |
| Undetected Movement | Phase Transition Applied |

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# MOVEMENT SUMMARY

## Site: 1 [Clyde / Kangan 2017 EX AM]

## Network: 1 [2017 EX AM]

Clyde / Kangan
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 326 | 5.0 | 326 | 5.0 | 0.218 | 6.7 | LOS A | 2.4 | 17.8 | 0.20 | 0.61 | 52.5 |
| 2 | T1 | 1164 | 5.0 | 1164 | 5.0 | 0.748 | 27.4 | LOS C | 31.0 | 226.0 | 0.85 | 0.76 | 28.4 |
| 3 | R2 | 721 | 5.0 | 721 | 5.0 | 0.894 | 67.6 | LOS C | 24.1 | 175.7 | 1.00 | 0.98 | 26.4 |
| Approach | | 2212 | 5.0 | 2212 | 5.0 | 0.894 | 37.4 | LOS C | 31.0 | 226.0 | 0.80 | 0.81 | 30.3 |
| East: Kangan Drive (east) | | | | | | | | | | | | | |
| 4 | L2 | 337 | 5.0 | 337 | 5.0 | 0.319 | 14.0 | LOS A | 8.2 | 60.2 | 0.50 | 0.71 | 47.0 |
| 5 | T1 | 38 | 5.0 | 38 | 5.0 | 0.134 | 48.1 | LOS A | 1.9 | 14.2 | 0.90 | 0.67 | 33.7 |
| 6 | R2 | 208 | 5.0 | 208 | 5.0 | 0.877 | 71.1 | LOS C | 13.6 | 99.6 | 1.00 | 0.97 | 18.3 |
| Approach | | 583 | 5.0 | 583 | 5.0 | 0.877 | 36.6 | LOS C | 13.6 | 99.6 | 0.70 | 0.80 | 33.4 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 306 | 5.0 | 306 | 5.0 | 0.670 | 20.6 | LOS B | 16.7 | 122.0 | 0.66 | 0.79 | 41.9 |
| 8 | T1 | 654 | 5.0 | 654 | 5.0 | 0.670 | 21.9 | LOS B | 16.7 | 122.0 | 0.72 | 0.73 | 36.7 |
| 9 | R2 | 66 | 5.0 | 66 | 5.0 | 0.740 | 74.1 | LOS C | 4.2 | 30.9 | 1.00 | 0.80 | 21.7 |
| Approach | | 1026 | 5.0 | 1026 | 5.0 | 0.740 | 24.9 | LOS C | 16.7 | 122.0 | 0.72 | 0.75 | 36.4 |
| West: Sir Gustav Nossal Boulevard (west) | | | | | | | | | | | | | |
| 10 | L2 | 96 | 5.0 | 96 | 5.0 | 0.167 | 21.3 | LOS A | 3.3 | 24.4 | 0.64 | 0.69 | 36.3 |
| 11 | T1 | 16 | 5.0 | 16 | 5.0 | 0.167 | 15.7 | LOS A | 3.3 | 24.4 | 0.64 | 0.69 | 45.0 |
| 12 | R2 | 154 | 5.0 | 154 | 5.0 | 0.605 | 59.2 | LOS B | 8.7 | 63.5 | 0.99 | 0.81 | 28.6 |
| Approach | | 265 | 5.0 | 265 | 5.0 | 0.605 | 42.9 | LOS B | 8.7 | 63.5 | 0.84 | 0.76 | 31.1 |
| All Vehicles | | 4086 | 5.0 | 4086 | 5.0 | 0.894 | 34.5 | LOS C | 31.0 | 226.0 | 0.77 | 0.79 | 32.1 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P2 | East Full Crossing | 53 | 40.9 | LOS E | 0.1 | 0.1 | 0.83 | 0.83 |
| P3 | North Full Crossing | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P4 | West Full Crossing | 53 | 45.2 | LOS E | 0.2 | 0.2 | 0.87 | 0.87 |
| All Pedestrians | | 211 | 48.7 | LOS E | | | 0.90 | 0.90 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Kangan 2017 EX AM]

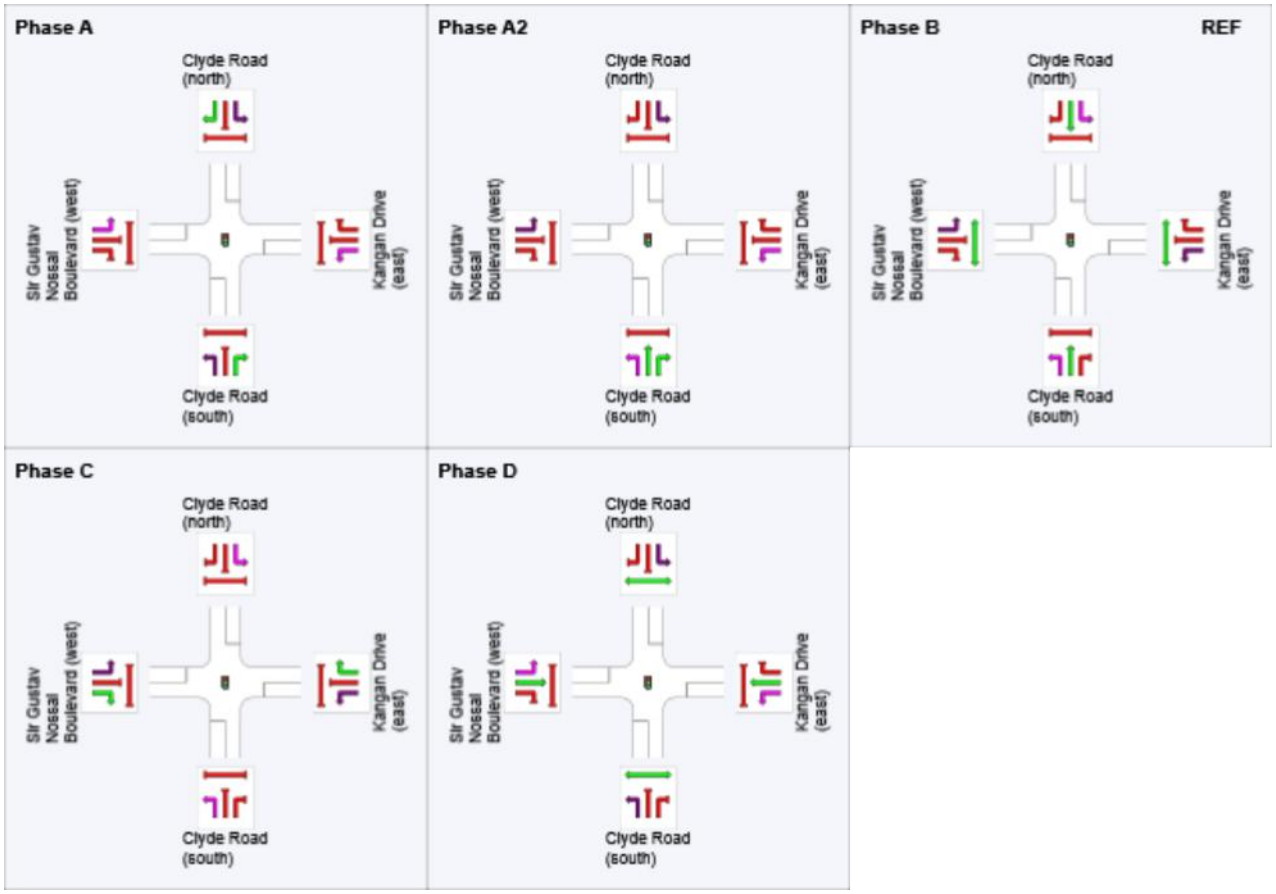
## Network: 1 [2017 EX AM]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Leading Right Turn**
**Reference Phase: Phase B**
**Input Sequence: A, A2, B, C, D**
**Output Sequence: A, A2, B, C, D**

**Phase Timing Results**

| Phase | A | A2 | B | C | D |
|---|---|---|---|---|---|
| Phase Change Time (sec) | 87 | 99 | 0 | 40 | 63 |
| Green Time (sec) | 6 | 15 | 34 | 17 | 18 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 12 | 21 | 40 | 23 | 24 |
| Phase Split | 10 % | 18 % | 33 % | 19 % | 20 % |




REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |
| Stopped Movement | Turn On Red |
| Other Movement Class Running | Other Movement Class Stopped |
| Mixed Running & Stopped Movement Classes | |
| Undetected Movement | Phase Transition Applied |

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# MOVEMENT SUMMARY

## Site: 1 [Clyde / Kangan 2017 EX PM]

## Network: 1 [2017 EX PM]

Clyde / Kangan
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 163 | 5.0 | 163 | 5.0 | 0.106 | 6.2 | LOS A | 0.8 | 5.9 | 0.15 | 0.59 | 52.9 |
| 2 | T1 | 923 | 5.0 | 923 | 5.0 | 0.546 | 24.8 | LOS A | 19.8 | 144.5 | 0.77 | 0.68 | 29.9 |
| 3 | R2 | 295 | 5.0 | 295 | 5.0 | 0.897 | 77.1 | LOS C | 10.0 | 72.7 | 1.00 | 0.99 | 24.6 |
| Approach | | 1381 | 5.0 | 1381 | 5.0 | 0.897 | 33.8 | LOS C | 19.8 | 144.5 | 0.75 | 0.74 | 30.1 |
| East: Kangan Drive (east) | | | | | | | | | | | | | |
| 4 | L2 | 496 | 5.0 | 496 | 5.0 | 0.551 | 17.6 | LOS A | 17.0 | 124.4 | 0.69 | 0.79 | 44.7 |
| 5 | T1 | 22 | 5.0 | 22 | 5.0 | 0.078 | 47.5 | LOS A | 1.1 | 8.2 | 0.89 | 0.64 | 33.9 |
| 6 | R2 | 221 | 5.0 | 221 | 5.0 | 0.906 | 75.3 | LOS D | 15.1 | 110.0 | 1.00 | 1.00 | 17.5 |
| Approach | | 739 | 5.0 | 739 | 5.0 | 0.906 | 35.7 | LOS D | 17.0 | 124.4 | 0.79 | 0.85 | 34.1 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 172 | 5.0 | 172 | 5.0 | 0.658 | 15.6 | LOS B | 13.3 | 97.0 | 0.49 | 0.58 | 46.5 |
| 8 | T1 | 954 | 5.0 | 954 | 5.0 | 0.658 | 17.6 | LOS B | 18.9 | 137.9 | 0.61 | 0.61 | 40.0 |
| 9 | R2 | 40 | 5.0 | 40 | 5.0 | 0.446 | 69.7 | LOS A | 2.4 | 17.8 | 1.00 | 0.73 | 22.5 |
| Approach | | 1165 | 5.0 | 1165 | 5.0 | 0.658 | 19.1 | LOS B | 18.9 | 137.9 | 0.60 | 0.61 | 39.7 |
| West: Sir Gustav Nossal Boulevard (west) | | | | | | | | | | | | | |
| 10 | L2 | 71 | 5.0 | 71 | 5.0 | 0.110 | 16.1 | LOS A | 1.9 | 13.6 | 0.56 | 0.66 | 40.4 |
| 11 | T1 | 11 | 5.0 | 11 | 5.0 | 0.110 | 10.4 | LOS A | 1.9 | 13.6 | 0.56 | 0.66 | 48.0 |
| 12 | R2 | 180 | 5.0 | 180 | 5.0 | 0.709 | 61.4 | LOS C | 10.6 | 77.1 | 1.00 | 0.85 | 28.1 |
| Approach | | 261 | 5.0 | 261 | 5.0 | 0.709 | 47.1 | LOS C | 10.6 | 77.1 | 0.86 | 0.79 | 30.3 |
| All Vehicles | | 3546 | 5.0 | 3546 | 5.0 | 0.906 | 30.4 | LOS D | 19.8 | 144.5 | 0.72 | 0.72 | 33.7 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.0 %
Number of Iterations: 3 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P1 | South Full Crossing | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P2 | East Full Crossing | 53 | 28.8 | LOS C | 0.1 | 0.1 | 0.69 | 0.69 |
| P3 | North Full Crossing | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P4 | West Full Crossing | 53 | 32.3 | LOS D | 0.1 | 0.1 | 0.73 | 0.73 |
| All Pedestrians | | 211 | 42.4 | LOS E | | | 0.83 | 0.83 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Kangan 2017 EX PM]

## Network: 1 [2017 EX PM]

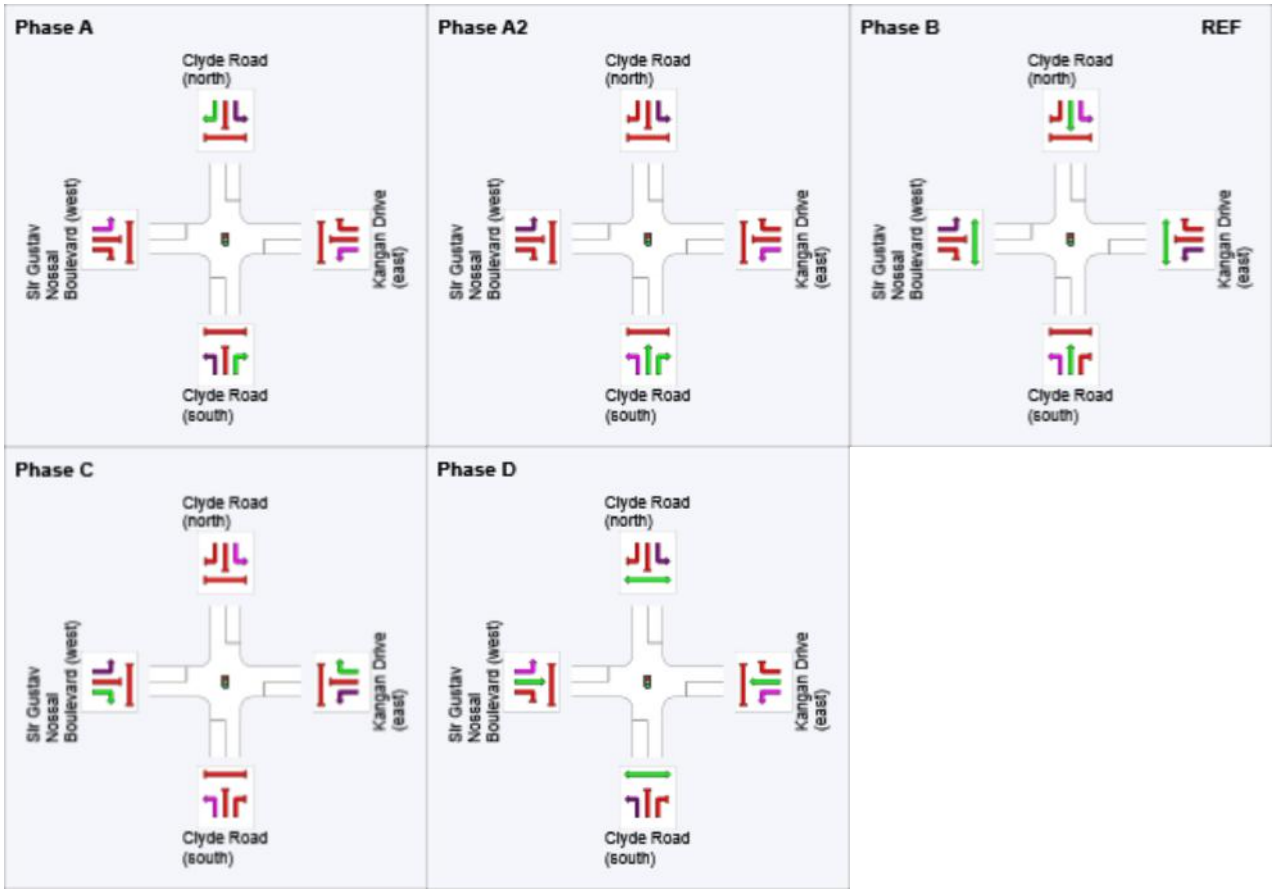
Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 120 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Leading Right Turn**
**Reference Phase: Phase B**
**Input Sequence: A, A2, B, C, D**
**Output Sequence: A, A2, B, C, D**

**Phase Timing Results**

| Phase | A | A2 | B | C | D |
|---|---|---|---|---|---|
| Phase Change Time (sec) | 103 | 115 | 0 | 56 | 79 |
| Green Time (sec) | 6 | *** | 50 | 17 | 18 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 12 | 5 | 56 | 23 | 24 |
| Phase Split | 10 % | 4 % | 47 % | 19 % | 20 % |

*** No green time has been calculated for this phase because the next phase starts during its intergreen time.
This occurs with overlap phasing where there is no single movement connecting this phase to the next, or
where the only such movement is a dummy movement with zero minimum green time specified.
If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.




REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |
| Stopped Movement | Turn On Red |
| Other Movement Class Running | Other Movement Class Stopped |
| Mixed Running & Stopped Movement Classes | |

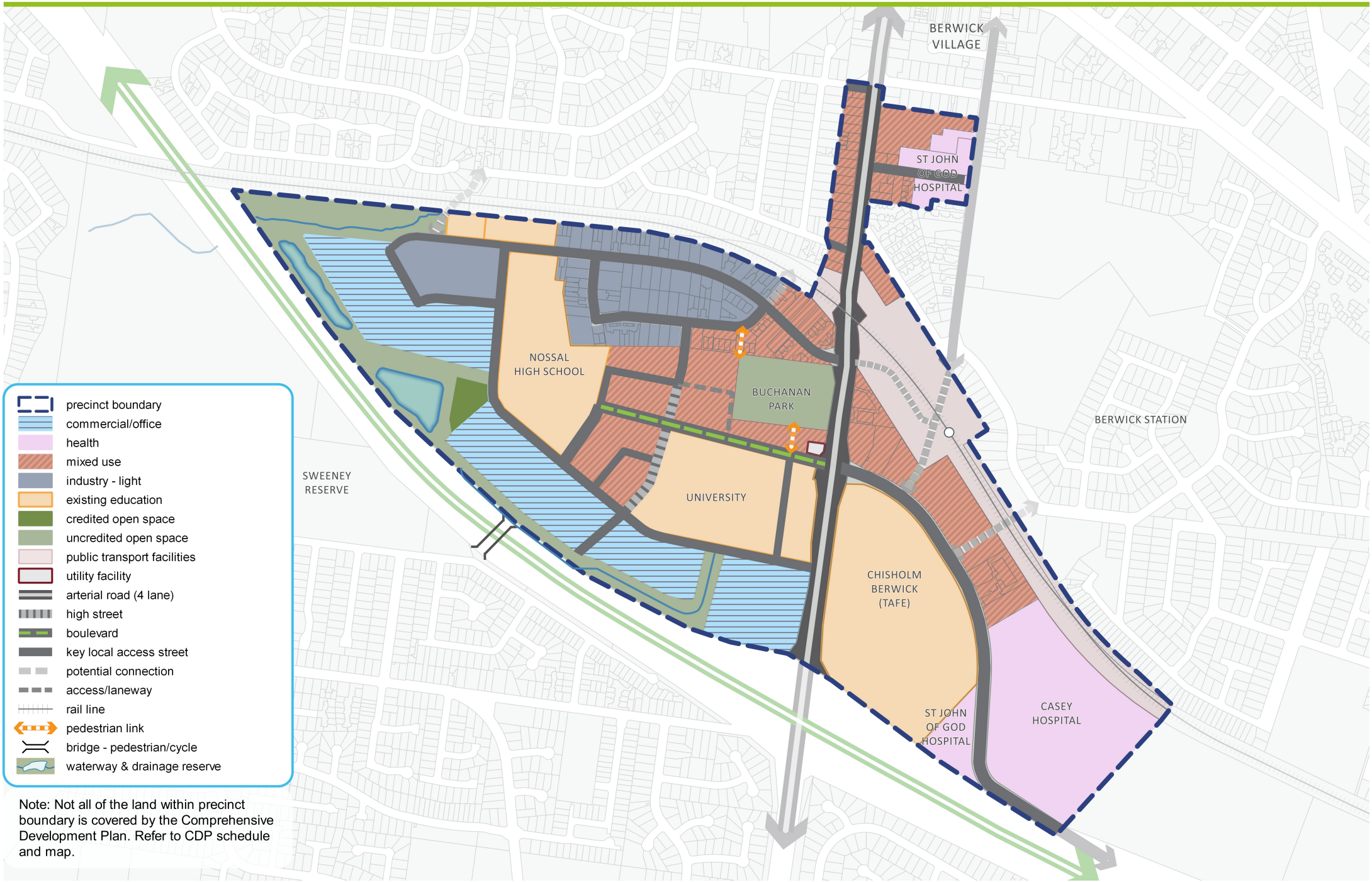
Berwick Health and Education Precinct

# APPENDIX B

## DRAFT URBAN STRUCTURE PLAN

# Plan 3 - Future Urban Structure
## Berwick Health and Education Precinct

0 100 200 300 400 500 m
1:10,000 @ A4




Note: Not all of the land within precinct boundary is covered by the Comprehensive Development Plan. Refer to CDP schedule and map.

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Berwick Health and Education Precinct

# APPENDIX C

## SIDRA INTERSECTION RESULTS – ULTIMATE CONDITIONS

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Enterprise Fu AM - Base - Signalised LT]

## Network: 1 [Fu AM - Base - No Slips - 125s - USING]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 125 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 272 | 5.0 | 272 | 5.0 | 0.284 | 13.6 | LOS A | 4.3 | 31.6 | 0.28 | 0.66 | 44.1 |
| 2 | T1 | 1677 | 5.0 | 1677 | 5.0 | 0.836 | 25.9 | LOS C | 31.4 | 229.3 | 0.78 | 0.72 | 30.5 |
| 3 | R2 | 58 | 5.0 | 58 | 5.0 | 0.096 | 38.0 | LOS A | 2.6 | 18.7 | 0.77 | 0.73 | 31.3 |
| Approach | | 2007 | 5.0 | 2007 | 5.0 | 0.836 | 24.6 | LOS C | 31.4 | 229.3 | 0.71 | 0.71 | 32.5 |
| East: Station Access (east) | | | | | | | | | | | | | |
| 4 | L2 | 37 | 5.0 | 37 | 5.0 | 0.047 | 29.1 | LOS A | 1.3 | 9.7 | 0.63 | 0.69 | 31.0 |
| 5 | T1 | 5 | 5.0 | 5 | 5.0 | 0.213 | 65.2 | LOS A | 1.2 | 9.1 | 0.99 | 0.70 | 28.2 |
| 6 | R2 | 15 | 5.0 | 15 | 5.0 | 0.213 | 70.9 | LOS A | 1.2 | 9.1 | 0.99 | 0.70 | 23.4 |
| Approach | | 57 | 5.0 | 57 | 5.0 | 0.213 | 43.3 | LOS A | 1.3 | 9.7 | 0.76 | 0.69 | 27.7 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 11 | 5.0 | 11 | 5.0 | 0.014 | 19.2 | LOS A | 0.3 | 2.0 | 0.62 | 0.65 | 40.8 |
| 8 | T1 | 1816 | 5.0 | 1816 | 5.0 | 0.899 | 53.7 | LOS C | 43.4 | 317.0 | 0.98 | 1.03 | 13.0 |
| 9 | R2 | 434 | 5.0 | 434 | 5.0 | 0.720 | 46.7 | LOS C | 23.5 | 171.3 | 0.95 | 0.86 | 29.0 |
| Approach | | 2261 | 5.0 | 2261 | 5.0 | 0.899 | 52.2 | LOS C | 43.4 | 317.0 | 0.98 | 1.00 | 17.0 |
| West: Enterprise Avenue | | | | | | | | | | | | | |
| 10 | L2 | 177 | 5.0 | 177 | 5.0 | 0.225 | 22.6 | LOS A | 5.6 | 40.6 | 0.69 | 0.74 | 38.5 |
| 11 | T1 | 10 | 5.0 | 10 | 5.0 | 0.293 | 58.3 | LOS A | 3.2 | 23.4 | 0.97 | 0.74 | 29.7 |
| 12 | R2 | 99 | 5.0 | 99 | 5.0 | 0.293 | 64.0 | LOS A | 3.2 | 23.4 | 0.97 | 0.75 | 19.9 |
| Approach | | 286 | 5.0 | 286 | 5.0 | 0.293 | 38.2 | LOS A | 5.6 | 40.6 | 0.79 | 0.74 | 30.4 |
| All Vehicles | | 4611 | 5.0 | 4611 | 5.0 | 0.899 | 39.2 | LOS C | 43.4 | 317.0 | 0.85 | 0.85 | 23.8 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 8.0 %
Number of Iterations: 10 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P12 | South Stage 2 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P2 | East Full Crossing | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P31 | North Stage 1 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P32 | North Stage 2 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P4 | West Full Crossing | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| All Pedestrians | | 300 | 56.8 | LOS E | | | 0.95 | 0.95 |

# PHASING SUMMARY

## Site: 1 [Clyde / Enterprise Fu AM - Base - Signalised LT]

## Network: 1 [Fu AM - Base - No Slips - 125s - USING]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 125 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Green Split Priority applies**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A2*, A1*, B, C, D**
**Output Sequence: A, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C | D |
|---|---|---|---|---|
| Phase Change Time (sec) | 0 | 45 | 95 | 113 |
| Green Time (sec) | 39 | 44 | 12 | 6 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 45 | 50 | 18 | 12 |
| Phase Split | 36 % | 40 % | 14 % | 10 % |

REF: Reference Phase
VAR: Variable Phase

| | | | |
|---|---|---|---|
| Normal Movement | | Permitted/Opposed | |
| Slip/Bypass-Lane Movement | | Opposed Slip/Bypass-Lane | |
| Stopped Movement | | Turn On Red | |
| Other Movement Class Running | | Other Movement Class Stopped | |
| Mixed Running & Stopped Movement Classes | | | |
| Undetected Movement | | Phase Transition Applied | |

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Enterprise Fu PM - Base - Signalised LT]

## Network: 1 [Fu PM - Base - No Slips - 150s - USING]

Clyde / Enterprise
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 105 | 5.0 | 105 | 5.0 | 0.076 | 9.1 | LOS A | 1.1 | 7.7 | 0.15 | 0.61 | 47.7 |
| 2 | T1 | 1872 | 5.0 | 1872 | 5.0 | 0.784 | 23.8 | LOS C | 32.2 | 235.2 | 0.70 | 0.63 | 31.8 |
| 3 | R2 | 70 | 5.0 | 70 | 5.0 | 0.302 | 71.5 | LOS A | 4.8 | 35.3 | 0.97 | 0.77 | 22.3 |
| Approach | | 2047 | 5.0 | 2047 | 5.0 | 0.784 | 24.7 | LOS C | 32.2 | 235.2 | 0.68 | 0.63 | 31.9 |
| East: Station Access (east) | | | | | | | | | | | | | |
| 4 | L2 | 138 | 5.0 | 138 | 5.0 | 0.357 | 61.3 | LOS A | 8.7 | 63.5 | 0.91 | 0.79 | 20.1 |
| 5 | T1 | 4 | 5.0 | 4 | 5.0 | 0.230 | 79.4 | LOS A | 1.4 | 9.9 | 1.00 | 0.70 | 25.4 |
| 6 | R2 | 14 | 5.0 | 14 | 5.0 | 0.230 | 85.1 | LOS A | 1.4 | 9.9 | 1.00 | 0.70 | 20.8 |
| Approach | | 156 | 5.0 | 156 | 5.0 | 0.357 | 63.9 | LOS A | 8.7 | 63.5 | 0.92 | 0.78 | 20.4 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 12 | 5.0 | 12 | 5.0 | 0.014 | 19.0 | LOS A | 0.3 | 2.4 | 0.57 | 0.64 | 40.9 |
| 8 | T1 | 1689 | 5.0 | 1689 | 5.0 | 0.713 | 38.0 | LOS C | 36.0 | 262.5 | 0.88 | 0.78 | 16.8 |
| 9 | R2 | 184 | 5.0 | 184 | 5.0 | 0.794 | 79.9 | LOS C | 13.9 | 101.7 | 1.00 | 0.88 | 21.4 |
| Approach | | 1885 | 5.0 | 1885 | 5.0 | 0.794 | 41.9 | LOS C | 36.0 | 262.5 | 0.89 | 0.79 | 17.9 |
| West: Enterprise Avenue | | | | | | | | | | | | | |
| 10 | L2 | 435 | 5.0 | 435 | 5.0 | 0.650 | 32.5 | LOS B | 20.2 | 147.7 | 0.85 | 0.82 | 33.7 |
| 11 | T1 | 20 | 5.0 | 20 | 5.0 | 0.286 | 46.6 | LOS A | 8.6 | 62.5 | 0.84 | 0.77 | 32.7 |
| 12 | R2 | 254 | 5.0 | 254 | 5.0 | 0.286 | 51.9 | LOS A | 8.6 | 62.5 | 0.83 | 0.76 | 22.7 |
| Approach | | 709 | 5.0 | 709 | 5.0 | 0.650 | 39.8 | LOS B | 20.2 | 147.7 | 0.84 | 0.80 | 29.7 |
| All Vehicles | | 4797 | 5.0 | 4797 | 5.0 | 0.794 | 35.0 | LOS C | 36.0 | 262.5 | 0.79 | 0.73 | 25.5 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 7 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P12 | South Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P2 | East Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 300 | 69.3 | LOS F | | | 0.96 | 0.96 |

# PHASING SUMMARY

## Site: 1 [Clyde / Enterprise Fu PM - Base - Signalised LT]

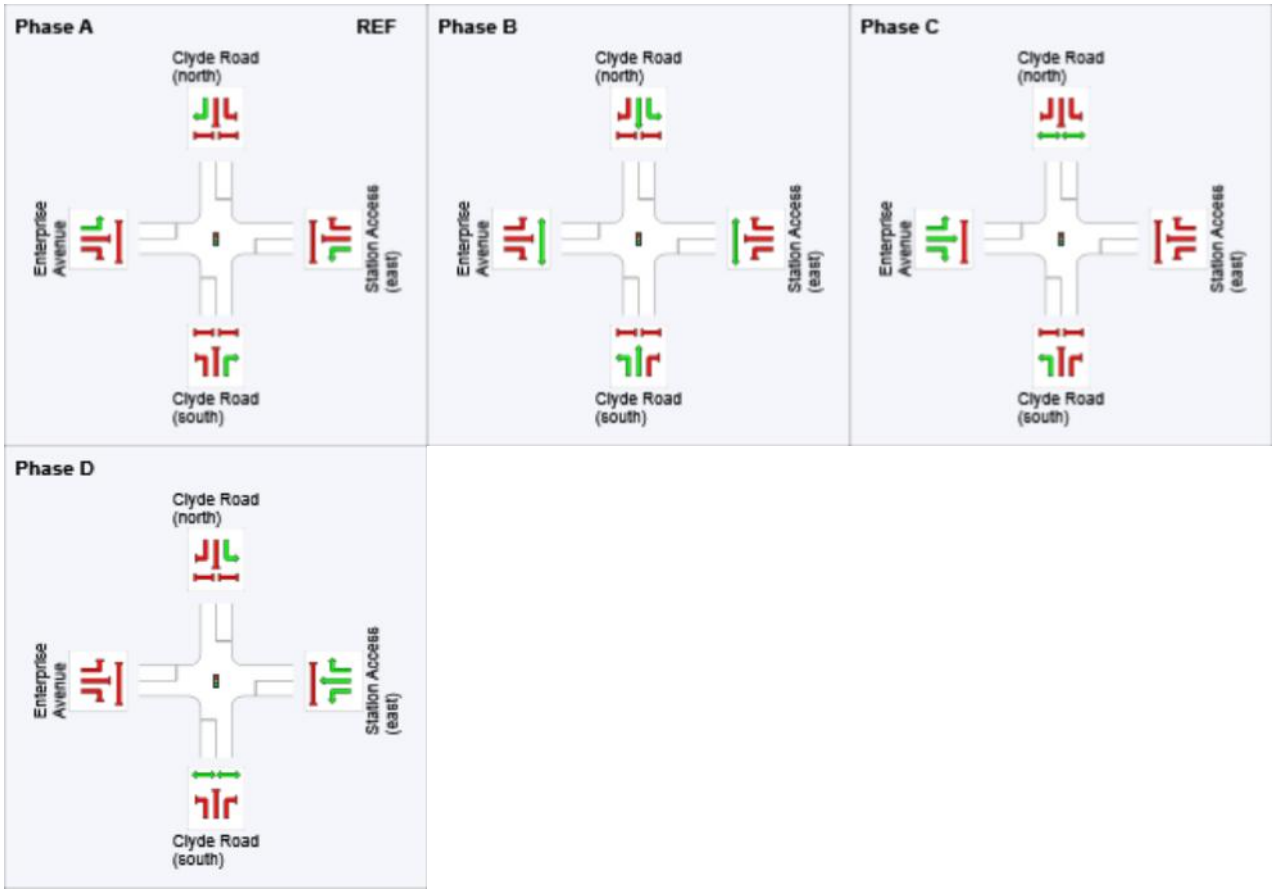
## Network: 1 [Fu PM - Base - No Slips - 150s - USING]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A2*, A1*, B, C, D**
**Output Sequence: A, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C | D |
|---|---|---|---|---|
| Phase Change Time (sec) | 0 | 24 | 92 | 138 |
| Green Time (sec) | 18 | 62 | 40 | 6 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 24 | 68 | 46 | 12 |
| Phase Split | 16 % | 45 % | 31 % | 8 % |




REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |
| Stopped Movement | Turn On Red |
| Other Movement Class Running | Other Movement Class Stopped |
| Mixed Running & Stopped Movement Classes | |
| Undetected Movement | Phase Transition Applied |

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Kangan Fu AM - Base - Signalised LT]

## Network: 1 [Fu AM - Base - No Slips - 125s - USING]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 125 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 227 | 5.0 | 227 | 5.0 | 0.272 | 26.9 | LOS A | 7.0 | 51.2 | 0.55 | 0.72 | 35.4 |
| 2 | T1 | 1584 | 5.0 | 1584 | 5.0 | 0.877 | 48.1 | LOS C | 37.3 | 272.3 | 0.96 | 0.96 | 11.9 |
| 3 | R2 | 487 | 5.0 | 487 | 5.0 | 0.630 | 66.7 | LOS B | 14.9 | 108.8 | 1.00 | 0.84 | 22.9 |
| Approach | | 2298 | 5.0 | 2298 | 5.0 | 0.877 | 50.0 | LOS C | 37.3 | 272.3 | 0.93 | 0.91 | 17.8 |
| East: Kangan Drive (east) | | | | | | | | | | | | | |
| 4 | L2 | 208 | 5.0 | 208 | 5.0 | 0.167 | 9.9 | LOS A | 3.5 | 25.2 | 0.34 | 0.65 | 45.5 |
| 5 | T1 | 582 | 5.0 | 582 | 5.0 | 0.889 | 56.9 | LOS C | 27.6 | 201.4 | 0.97 | 0.95 | 31.3 |
| 6 | R2 | 309 | 5.0 | 309 | 5.0 | 0.865 | 67.0 | LOS C | 20.8 | 152.2 | 1.00 | 0.97 | 19.2 |
| Approach | | 1099 | 5.0 | 1099 | 5.0 | 0.889 | 50.9 | LOS C | 27.6 | 201.4 | 0.86 | 0.90 | 29.0 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 273 | 5.0 | 273 | 5.0 | 0.252 | 11.2 | LOS A | 3.5 | 25.5 | 0.33 | 0.67 | 45.9 |
| 8 | T1 | 1391 | 5.0 | 1391 | 5.0 | 0.684 | 17.8 | LOS B | 17.0 | 124.4 | 0.62 | 0.55 | 25.8 |
| 9 | R2 | 340 | 5.0 | 340 | 5.0 | 0.880 | 76.0 | LOS C | 22.4 | 163.2 | 1.00 | 0.92 | 21.6 |
| Approach | | 2004 | 5.0 | 2004 | 5.0 | 0.880 | 26.7 | LOS C | 22.4 | 163.2 | 0.65 | 0.63 | 27.2 |
| West: Sir Gustav Nossal Boulevard (west) | | | | | | | | | | | | | |
| 10 | L2 | 143 | 5.0 | 143 | 5.0 | 0.299 | 27.9 | LOS A | 4.4 | 32.3 | 0.85 | 0.76 | 31.6 |
| 11 | T1 | 156 | 5.0 | 156 | 5.0 | 0.874 | 74.5 | LOS C | 5.9 | 42.9 | 1.00 | 0.97 | 27.2 |
| 12 | R2 | 95 | 5.0 | 95 | 5.0 | 0.874 | 80.5 | LOS C | 5.8 | 42.6 | 1.00 | 0.97 | 17.1 |
| Approach | | 394 | 5.0 | 394 | 5.0 | 0.874 | 59.0 | LOS C | 5.9 | 42.9 | 0.95 | 0.89 | 25.4 |
| All Vehicles | | 5795 | 5.0 | 5795 | 5.0 | 0.889 | 42.7 | LOS C | 37.3 | 272.3 | 0.82 | 0.81 | 23.7 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 8.0 %
Number of Iterations: 10 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P12 | South Stage 2 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P2 | East Full Crossing | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P31 | North Stage 1 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P32 | North Stage 2 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P4 | West Full Crossing | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| All Pedestrians | | 300 | 56.8 | LOS E | | | 0.95 | 0.95 |

# PHASING SUMMARY

## Site: 1 [Clyde / Kangan Fu AM - Base - Signalised LT]

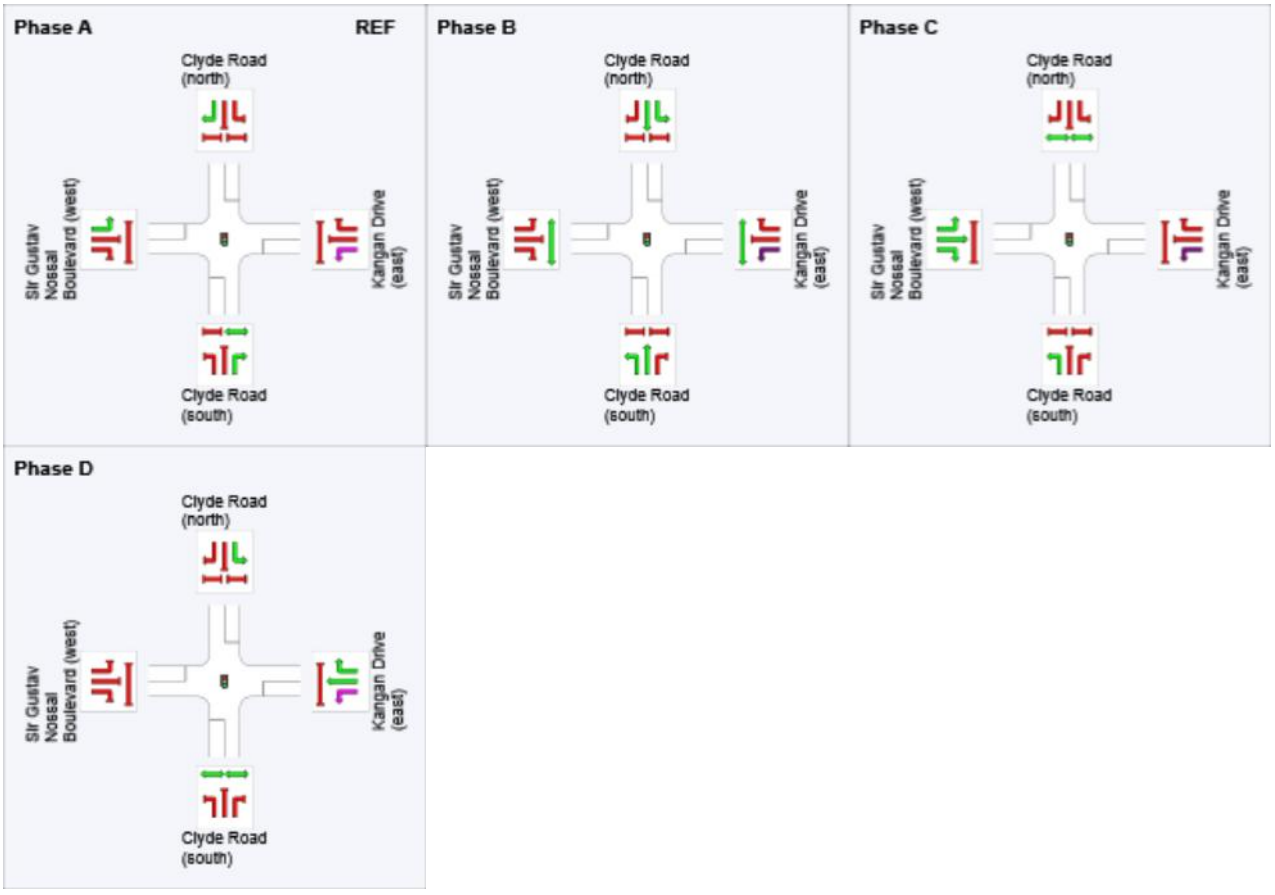
## Network: 1 [Fu AM - Base - No Slips - 125s - USING]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 125 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Green Split Priority applies**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C, D**
**Output Sequence: A, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C | D |
|---|---|---|---|---|
| Phase Change Time (sec) | 16 | 47 | 95 | 107 |
| Green Time (sec) | 25 | 42 | 6 | 28 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 31 | 48 | 12 | 34 |
| Phase Split | 25 % | 38 % | 10 % | 27 % |




REF: Reference Phase
VAR: Variable Phase

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Kangan Fu PM - Base - Signalised LT]

## Network: 1 [Fu PM - Base - No Slips - 150s - USING]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 104 | 5.0 | 104 | 5.0 | 0.085 | 15.9 | LOS A | 2.7 | 19.4 | 0.38 | 0.67 | 41.9 |
| 2 | T1 | 1360 | 5.0 | 1360 | 5.0 | 0.694 | 35.5 | LOS B | 30.6 | 223.2 | 0.82 | 0.72 | 15.0 |
| 3 | R2 | 308 | 5.0 | 308 | 5.0 | 0.704 | 84.3 | LOS C | 11.6 | 84.3 | 1.00 | 0.82 | 19.8 |
| Approach | | 1772 | 5.0 | 1772 | 5.0 | 0.704 | 42.8 | LOS C | 30.6 | 223.2 | 0.82 | 0.74 | 18.2 |
| East: Kangan Drive (east) | | | | | | | | | | | | | |
| 4 | L2 | 378 | 5.0 | 378 | 5.0 | 0.424 | 17.7 | LOS A | 13.6 | 99.0 | 0.57 | 0.74 | 38.4 |
| 5 | T1 | 153 | 5.0 | 153 | 5.0 | 0.753 | 67.8 | LOS C | 14.2 | 103.4 | 0.97 | 0.81 | 28.2 |
| 6 | R2 | 273 | 5.0 | 273 | 5.0 | 0.753 | 76.8 | LOS C | 14.2 | 103.4 | 1.00 | 0.87 | 17.7 |
| Approach | | 804 | 5.0 | 804 | 5.0 | 0.753 | 47.3 | LOS C | 14.2 | 103.4 | 0.79 | 0.80 | 26.4 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 291 | 5.0 | 291 | 5.0 | 0.301 | 14.2 | LOS A | 5.0 | 36.4 | 0.40 | 0.68 | 43.7 |
| 8 | T1 | 1496 | 5.0 | 1496 | 5.0 | 0.699 | 20.5 | LOS B | 23.0 | 167.6 | 0.62 | 0.55 | 23.7 |
| 9 | R2 | 156 | 5.0 | 156 | 5.0 | 0.713 | 84.5 | LOS C | 11.7 | 85.5 | 1.00 | 0.82 | 20.2 |
| Approach | | 1943 | 5.0 | 1943 | 5.0 | 0.713 | 24.6 | LOS C | 23.0 | 167.6 | 0.61 | 0.59 | 26.8 |
| West: Sir Gustav Nossal Boulevard (west) | | | | | | | | | | | | | |
| 10 | L2 | 345 | 5.0 | 345 | 5.0 | 0.654 | 31.5 | LOS B | 14.7 | 107.2 | 0.91 | 0.84 | 29.7 |
| 11 | T1 | 491 | 5.0 | 491 | 5.0 | 0.533 | 54.8 | LOS A | 15.8 | 115.1 | 0.93 | 0.79 | 31.9 |
| 12 | R2 | 230 | 5.0 | 230 | 5.0 | 0.525 | 60.4 | LOS A | 14.8 | 107.8 | 0.93 | 0.82 | 20.6 |
| Approach | | 1066 | 5.0 | 1066 | 5.0 | 0.654 | 48.5 | LOS B | 15.8 | 115.1 | 0.92 | 0.81 | 29.0 |
| All Vehicles | | 5585 | 5.0 | 5585 | 5.0 | 0.753 | 38.2 | LOS C | 30.6 | 223.2 | 0.77 | 0.71 | 24.8 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 7 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P12 | South Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P2 | East Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 300 | 69.3 | LOS F | | | 0.96 | 0.96 |

# PHASING SUMMARY

## Site: 1 [Clyde / Kangan Fu PM - Base - Signalised LT]

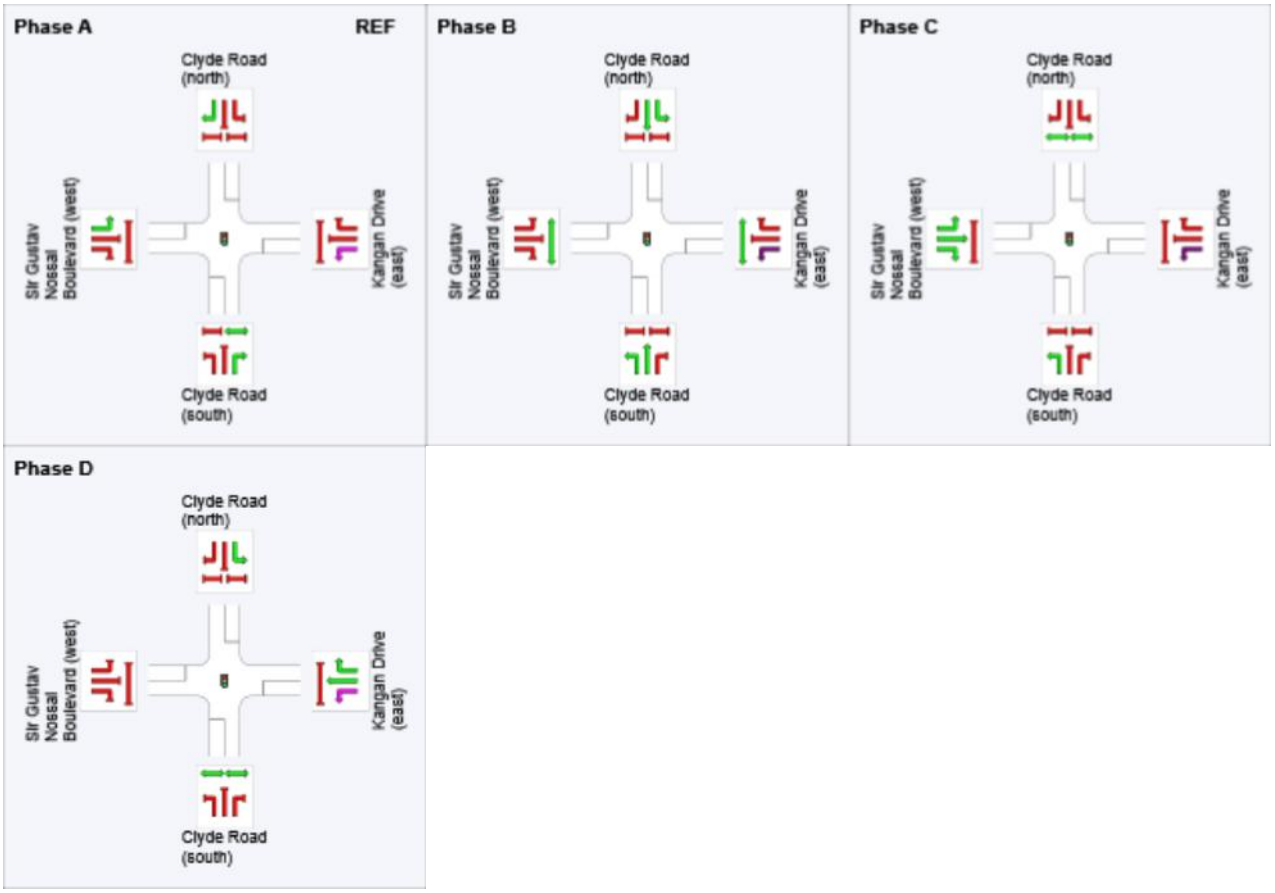
## Network: 1 [Fu PM - Base - No Slips - 150s - USING]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C, D**
**Output Sequence: A, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C | D |
|---|---|---|---|---|
| Phase Change Time (sec) | 0 | 23 | 84 | 124 |
| Green Time (sec) | 17 | 55 | 34 | 20 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 23 | 61 | 40 | 26 |
| Phase Split | 15 % | 41 % | 27 % | 17 % |




REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |
| Stopped Movement | Turn On Red |
| Other Movement Class Running | Other Movement Class Stopped |
| Mixed Running & Stopped Movement Classes | |
| Undetected Movement | Phase Transition Applied |

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Fu E-W Fu AM - Base]

## Network: 1 [Fu AM - Base - No Slips - 125s - USING]

Clyde / Fu E-W Fu AM
Signals - Fixed Time Coordinated  Cycle Time = 125 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total | HV | Arrival Flows Total | HV | Deg. Satn | Average Delay | Level of Service | 95% Back of Queue Vehicles | Distance | Prop. Queued | Effective Stop Rate | Average Speed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | veh/h | % | veh/h | % | v/c | sec | | veh | m | | per veh | km/h |
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 472 | 0.0 | 472 | 0.0 | 0.321 | 11.2 | LOS A | 8.3 | 57.8 | 0.37 | 0.70 | 46.6 |
| 2 | T1 | 2047 | 5.0 | 2047 | 5.0 | 0.880 | 34.8 | LOS C | 46.0 | 336.1 | 0.88 | 0.91 | 15.1 |
| 3 | R2 | 125 | 0.0 | 125 | 0.0 | 0.300 | 50.7 | LOS A | 6.5 | 45.2 | 0.89 | 0.78 | 26.6 |
| Approach | | 2644 | 3.9 | 2644 | 3.9 | 0.880 | 31.3 | LOS C | 46.0 | 336.1 | 0.79 | 0.87 | 22.2 |
| East: Fu E-W (east) | | | | | | | | | | | | | |
| 4 | L2 | 42 | 0.0 | 42 | 0.0 | 0.101 | 48.5 | LOS A | 2.1 | 14.4 | 0.84 | 0.73 | 27.1 |
| 6 | R2 | 54 | 0.0 | 54 | 0.0 | 0.793 | 78.7 | LOS C | 3.7 | 26.0 | 1.00 | 0.88 | 17.2 |
| Approach | | 96 | 0.0 | 96 | 0.0 | 0.793 | 65.5 | LOS C | 3.7 | 26.0 | 0.93 | 0.81 | 21.1 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 161 | 0.0 | 161 | 0.0 | 0.134 | 21.5 | LOS A | 6.1 | 42.5 | 0.67 | 0.75 | 38.5 |
| 8 | T1 | 787 | 5.0 | 787 | 5.0 | 0.215 | 17.5 | LOS A | 12.3 | 89.8 | 0.70 | 0.60 | 33.5 |
| 9 | R2 | 708 | 0.0 | 708 | 0.0 | 0.851 | 73.2 | LOS C | 22.7 | 159.2 | 1.00 | 0.90 | 21.6 |
| Approach | | 1656 | 2.4 | 1656 | 2.4 | 0.851 | 41.7 | LOS C | 22.7 | 159.2 | 0.83 | 0.74 | 26.0 |
| West: Fu E-W (west) | | | | | | | | | | | | | |
| 10 | L2 | 138 | 0.0 | 138 | 0.0 | 0.298 | 32.2 | LOS A | 6.2 | 43.1 | 0.79 | 0.81 | 29.6 |
| 12 | R2 | 92 | 0.0 | 92 | 0.0 | 0.479 | 72.3 | LOS A | 2.9 | 20.5 | 1.00 | 0.74 | 21.9 |
| Approach | | 230 | 0.0 | 230 | 0.0 | 0.479 | 48.2 | LOS A | 6.2 | 43.1 | 0.87 | 0.78 | 25.4 |
| All Vehicles | | 4626 | 3.1 | 4626 | 3.1 | 0.880 | 36.6 | LOS C | 46.0 | 336.1 | 0.81 | 0.82 | 24.0 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 8.0 %
Number of Iterations: 10 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow | Average Delay | Level of Service | Average Back of Queue Pedestrian | Distance | Prop. Queued | Effective Stop Rate |
|---|---|---|---|---|---|---|---|---|
| | | ped/h | sec | | ped | m | | per ped |
| P2 | East Full Crossing | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P31 | North Stage 1 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P32 | North Stage 2 | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| P4 | West Full Crossing | 50 | 56.8 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 |
| All Pedestrians | | 200 | 56.8 | LOS E | | | 0.95 | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Fu E-W Fu AM - Base]

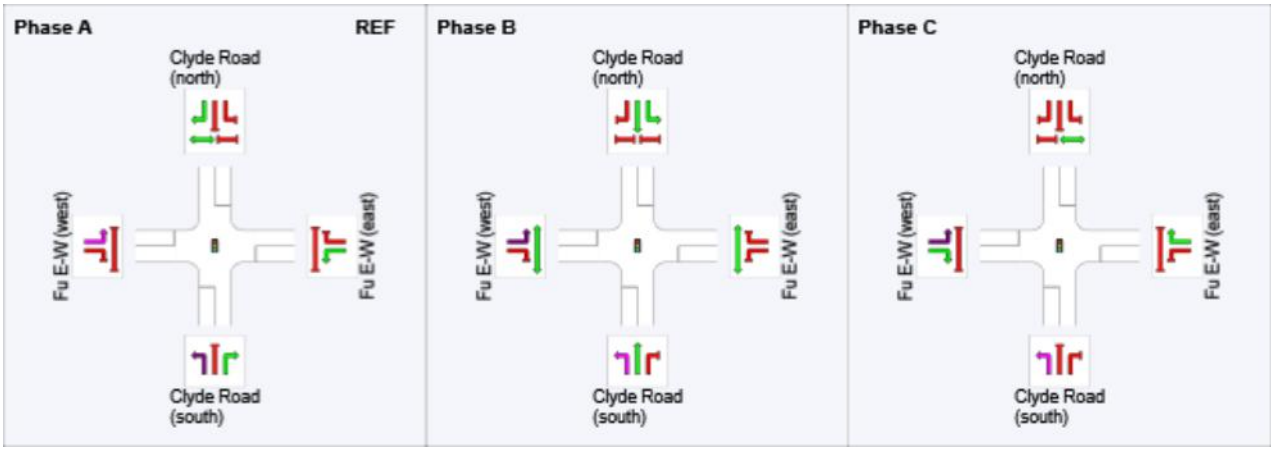
## Network: 1 [Fu AM - Base - No Slips - 125s - USING]

Clyde / Fu E-W Fu AM
Signals - Fixed Time Coordinated  Cycle Time = 125 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Green Split Priority applies**
**Sequence: Leading Right Turn - Copy**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C**
**Output Sequence: A, B, C**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C |
|---|---|---|---|
| Phase Change Time (sec) | 92 | 124 | 80 |
| Green Time (sec) | 26 | 75 | 6 |
| Yellow Time (sec) | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 |
| Phase Time (sec) | 32 | 81 | 12 |
| Phase Split | 26 % | 65 % | 10 % |




REF: Reference Phase
VAR: Variable Phase

| | | | |
|---|---|---|---|
| Normal Movement | | Permitted/Opposed | |
| Slip/Bypass-Lane Movement | | Opposed Slip/Bypass-Lane | |
| Stopped Movement | | Turn On Red | |
| Other Movement Class Running | | Other Movement Class Stopped | |
| Mixed Running & Stopped Movement Classes | | | |
| Undetected Movement | | Phase Transition Applied | |

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# MOVEMENT SUMMARY

## Site: 1 [Clyde / Fu E-W Fu PM - Base]

## Network: 1 [Fu PM - Base - No Slips - 150s - USING]

Clyde / Fu E-W Fu
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 79 | 0.0 | 79 | 0.0 | 0.044 | 6.1 | LOS A | 0.4 | 3.0 | 0.12 | 0.58 | 51.4 |
| 2 | T1 | 1200 | 5.0 | 1200 | 5.0 | 0.296 | 8.2 | LOS A | 11.1 | 80.7 | 0.39 | 0.35 | 35.3 |
| 3 | R2 | 20 | 0.0 | 20 | 0.0 | 0.150 | 78.6 | LOS A | 1.4 | 9.9 | 0.97 | 0.70 | 20.5 |
| Approach | | 1299 | 4.6 | 1299 | 4.6 | 0.296 | 9.1 | LOS A | 11.1 | 80.7 | 0.38 | 0.37 | 36.2 |
| East: Fu E-W (east) | | | | | | | | | | | | | |
| 4 | L2 | 27 | 0.0 | 27 | 0.0 | 0.203 | 79.1 | LOS A | 1.9 | 13.5 | 0.98 | 0.72 | 20.3 |
| 6 | R2 | 34 | 0.0 | 34 | 0.0 | 0.170 | 73.1 | LOS A | 2.3 | 16.2 | 0.95 | 0.73 | 18.1 |
| Approach | | 61 | 0.0 | 61 | 0.0 | 0.203 | 75.8 | LOS A | 2.3 | 16.2 | 0.96 | 0.72 | 19.2 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 25 | 0.0 | 25 | 0.0 | 0.018 | 8.9 | LOS A | 0.2 | 1.6 | 0.14 | 0.60 | 47.8 |
| 8 | T1 | 1960 | 5.0 | 1960 | 5.0 | 0.450 | 2.5 | LOS A | 9.8 | 71.7 | 0.12 | 0.11 | 54.0 |
| 9 | R2 | 119 | 0.0 | 119 | 0.0 | 0.446 | 84.7 | LOS A | 4.5 | 31.3 | 1.00 | 0.75 | 19.6 |
| Approach | | 2104 | 4.7 | 2104 | 4.7 | 0.450 | 7.2 | LOS A | 9.8 | 71.7 | 0.17 | 0.15 | 45.8 |
| West: Fu E-W (west) | | | | | | | | | | | | | |
| 10 | L2 | 538 | 0.0 | 538 | 0.0 | 0.828 | 29.9 | LOS C | 34.1 | 239.0 | 0.97 | 1.01 | 30.7 |
| 12 | R2 | 359 | 0.0 | 359 | 0.0 | 0.897 | 91.1 | LOS C | 14.8 | 103.5 | 1.00 | 0.99 | 18.8 |
| Approach | | 897 | 0.0 | 897 | 0.0 | 0.897 | 54.4 | LOS C | 34.1 | 239.0 | 0.98 | 1.00 | 23.7 |
| All Vehicles | | 4361 | 3.6 | 4361 | 3.6 | 0.897 | 18.4 | LOS C | 34.1 | 239.0 | 0.41 | 0.40 | 33.4 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 7 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P2 | East Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 200 | 69.3 | LOS F | | | 0.96 | 0.96 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Fu E-W Fu PM - Base]

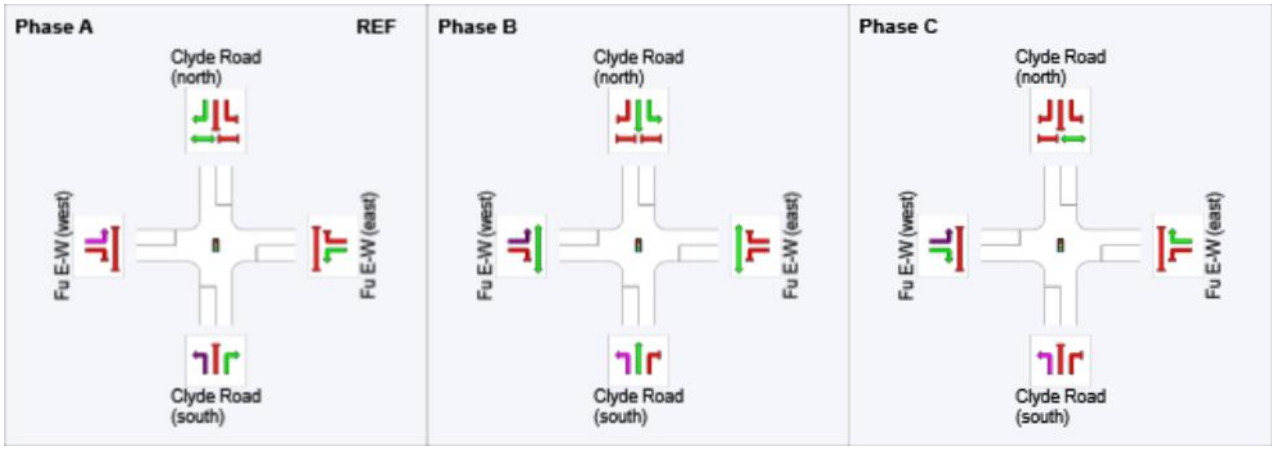
## Network: 1 [Fu PM - Base - No Slips - 150s - USING]

Clyde / Fu E-W Fu
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Leading Right Turn**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C**
**Output Sequence: A, B, C**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C |
|---|---|---|---|
| Phase Change Time (sec) | 0 | 16 | 129 |
| Green Time (sec) | 10 | 107 | 15 |
| Yellow Time (sec) | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 |
| Phase Time (sec) | 16 | 113 | 21 |
| Phase Split | 11 % | 75 % | 14 % |




REF: Reference Phase
VAR: Variable Phase

| | | | |
|---|---|---|---|
| Normal Movement | | Permitted/Opposed | |
| Slip/Bypass-Lane Movement | | Opposed Slip/Bypass-Lane | |
| Stopped Movement | | Turn On Red | |
| Other Movement Class Running | | Other Movement Class Stopped | |
| Mixed Running & Stopped Movement Classes | | | |
| Undetected Movement | | Phase Transition Applied | |

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# APPENDIX D

## SIDRA INTERSECTION RESULTS – ADDITIONAL CONNECTIONS

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Enterprise Fu AM - With Crossings - Signalised LT]

## Network: 1 [Fu AM - Base - No Slips - 130s - USING - WITH CROSSINGS]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 130 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 272 | 5.0 | 272 | 5.0 | 0.291 | 14.8 | LOS A | 4.9 | 35.7 | 0.31 | 0.66 | 43.2 |
| 2 | T1 | 1378 | 5.0 | 1378 | 5.0 | 0.697 | 21.0 | LOS B | 22.0 | 160.3 | 0.66 | 0.58 | 33.6 |
| 3 | R2 | 99 | 5.0 | 99 | 5.0 | 0.148 | 41.8 | LOS A | 5.2 | 38.0 | 0.89 | 0.78 | 29.9 |
| Approach | | 1749 | 5.0 | 1749 | 5.0 | 0.697 | 21.2 | LOS B | 22.0 | 160.3 | 0.62 | 0.60 | 35.0 |
| East: Station Access (east) | | | | | | | | | | | | | |
| 4 | L2 | 37 | 5.0 | 37 | 5.0 | 0.044 | 27.5 | LOS A | 1.3 | 9.6 | 0.60 | 0.69 | 31.8 |
| 5 | T1 | 5 | 5.0 | 5 | 5.0 | 0.222 | 68.1 | LOS A | 1.3 | 9.5 | 0.99 | 0.70 | 27.6 |
| 6 | R2 | 15 | 5.0 | 15 | 5.0 | 0.222 | 73.8 | LOS A | 1.3 | 9.5 | 0.99 | 0.70 | 22.8 |
| Approach | | 57 | 5.0 | 57 | 5.0 | 0.222 | 43.3 | LOS A | 1.3 | 9.6 | 0.74 | 0.69 | 27.7 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 11 | 5.0 | 11 | 5.0 | 0.015 | 21.3 | LOS A | 0.3 | 2.2 | 0.65 | 0.65 | 39.5 |
| 8 | T1 | 1720 | 5.0 | 1720 | 5.0 | 0.903 | 57.9 | LOS D | 43.0 | 314.0 | 0.99 | 1.04 | 12.2 |
| 9 | R2 | 408 | 5.0 | 408 | 5.0 | 0.639 | 45.2 | LOS B | 21.9 | 159.5 | 0.91 | 0.84 | 29.5 |
| Approach | | 2139 | 5.0 | 2139 | 5.0 | 0.903 | 55.3 | LOS D | 43.0 | 314.0 | 0.97 | 1.00 | 16.3 |
| West: Enterprise Avenue | | | | | | | | | | | | | |
| 10 | L2 | 149 | 5.0 | 149 | 5.0 | 0.182 | 22.2 | LOS A | 4.7 | 34.2 | 0.66 | 0.73 | 38.7 |
| 11 | T1 | 11 | 5.0 | 11 | 5.0 | 0.307 | 61.2 | LOS A | 3.4 | 24.7 | 0.97 | 0.75 | 29.0 |
| 12 | R2 | 99 | 5.0 | 99 | 5.0 | 0.307 | 66.8 | LOS A | 3.4 | 24.7 | 0.97 | 0.75 | 19.3 |
| Approach | | 259 | 5.0 | 259 | 5.0 | 0.307 | 40.9 | LOS A | 4.7 | 34.2 | 0.79 | 0.74 | 29.3 |
| All Vehicles | | 4204 | 5.0 | 4204 | 5.0 | 0.903 | 40.1 | LOS D | 43.0 | 314.0 | 0.81 | 0.82 | 23.5 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 17.7 %
Number of Iterations: 10 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P12 | South Stage 2 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P2 | East Full Crossing | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 300 | 59.3 | LOS E | | | 0.96 | 0.96 |

# PHASING SUMMARY

## Site: 1 [Clyde / Enterprise Fu AM - With Crossings - Signalised LT]

## Network: 1 [Fu AM - Base - No Slips - 130s - USING - WITH CROSSINGS]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 130 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Green Split Priority applies**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A2*, A1*, B, C, D**
**Output Sequence: A, A1*, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | A1 | B | C | D |
|---|---|---|---|---|---|
| Phase Change Time (sec) | 0 | 49 | 51 | 100 | 118 |
| Green Time (sec) | 43 | *** | 43 | 12 | 6 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 49 | 2 | 49 | 18 | 12 |
| Phase Split | 38 % | 2 % | 38 % | 14 % | 9 % |

*** No green time has been calculated for this phase because the next phase starts during its intergreen time.
This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified.
If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Enterprise Fu PM - With Crossings - Signalised LT]

## Network: 1 [Fu PM - Base - No Slips - 150s - USING - WITH CROSSINGS]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 105 | 5.0 | 105 | 5.0 | 0.076 | 9.1 | LOS A | 1.1 | 7.7 | 0.15 | 0.61 | 47.7 |
| 2 | T1 | 1872 | 5.0 | 1872 | 5.0 | 0.784 | 23.8 | LOS C | 32.2 | 235.2 | 0.70 | 0.63 | 31.8 |
| 3 | R2 | 70 | 5.0 | 70 | 5.0 | 0.302 | 71.5 | LOS A | 4.8 | 35.3 | 0.97 | 0.77 | 22.3 |
| Approach | | 2047 | 5.0 | 2047 | 5.0 | 0.784 | 24.7 | LOS C | 32.2 | 235.2 | 0.68 | 0.63 | 31.9 |
| East: Station Access (east) | | | | | | | | | | | | | |
| 4 | L2 | 138 | 5.0 | 138 | 5.0 | 0.357 | 61.3 | LOS A | 8.7 | 63.5 | 0.91 | 0.79 | 20.1 |
| 5 | T1 | 4 | 5.0 | 4 | 5.0 | 0.230 | 79.4 | LOS A | 1.4 | 9.9 | 1.00 | 0.70 | 25.4 |
| 6 | R2 | 14 | 5.0 | 14 | 5.0 | 0.230 | 85.1 | LOS A | 1.4 | 9.9 | 1.00 | 0.70 | 20.8 |
| Approach | | 156 | 5.0 | 156 | 5.0 | 0.357 | 63.9 | LOS A | 8.7 | 63.5 | 0.92 | 0.78 | 20.4 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 12 | 5.0 | 12 | 5.0 | 0.014 | 19.0 | LOS A | 0.3 | 2.4 | 0.57 | 0.64 | 40.9 |
| 8 | T1 | 1689 | 5.0 | 1689 | 5.0 | 0.713 | 38.0 | LOS C | 36.0 | 262.5 | 0.88 | 0.78 | 16.8 |
| 9 | R2 | 184 | 5.0 | 184 | 5.0 | 0.794 | 79.9 | LOS C | 13.9 | 101.7 | 1.00 | 0.88 | 21.4 |
| Approach | | 1885 | 5.0 | 1885 | 5.0 | 0.794 | 41.9 | LOS C | 36.0 | 262.5 | 0.89 | 0.79 | 17.9 |
| West: Enterprise Avenue | | | | | | | | | | | | | |
| 10 | L2 | 435 | 5.0 | 435 | 5.0 | 0.650 | 32.5 | LOS B | 20.2 | 147.7 | 0.85 | 0.82 | 33.7 |
| 11 | T1 | 20 | 5.0 | 20 | 5.0 | 0.286 | 46.6 | LOS A | 8.6 | 62.5 | 0.84 | 0.77 | 32.7 |
| 12 | R2 | 254 | 5.0 | 254 | 5.0 | 0.286 | 51.9 | LOS A | 8.6 | 62.5 | 0.83 | 0.76 | 22.7 |
| Approach | | 709 | 5.0 | 709 | 5.0 | 0.650 | 39.8 | LOS B | 20.2 | 147.7 | 0.84 | 0.80 | 29.7 |
| All Vehicles | | 4797 | 5.0 | 4797 | 5.0 | 0.794 | 35.0 | LOS C | 36.0 | 262.5 | 0.79 | 0.73 | 25.5 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 7 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P12 | South Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P2 | East Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 300 | 69.3 | LOS F | | | 0.96 | 0.96 |

# PHASING SUMMARY

## Site: 1 [Clyde / Enterprise Fu PM - With Crossings - Signalised LT]

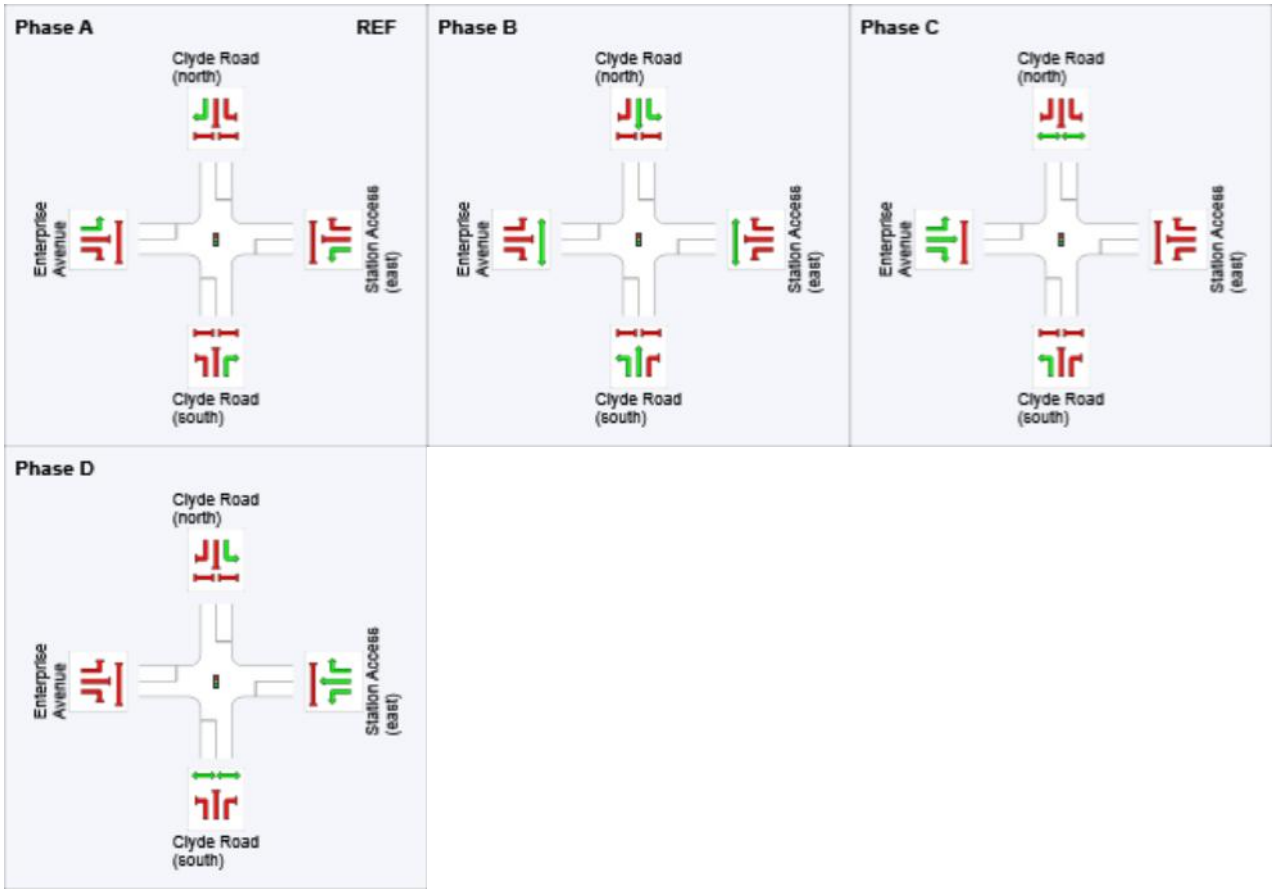
## Network: 1 [Fu PM - Base - No Slips - 150s - USING - WITH CROSSINGS]

Clyde / Enterprise
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A2*, A1*, B, C, D**
**Output Sequence: A, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C | D |
|---|---|---|---|---|
| Phase Change Time (sec) | 0 | 24 | 92 | 138 |
| Green Time (sec) | 18 | 62 | 40 | 6 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 24 | 68 | 46 | 12 |
| Phase Split | 16 % | 45 % | 31 % | 8 % |




REF: Reference Phase
VAR: Variable Phase

| | |
|---|---|
| Normal Movement | Permitted/Opposed |
| Slip/Bypass-Lane Movement | Opposed Slip/Bypass-Lane |
| Stopped Movement | Turn On Red |
| Other Movement Class Running | Other Movement Class Stopped |
| Mixed Running & Stopped Movement Classes | |
| Undetected Movement | Phase Transition Applied |

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Kangan Fu AM - With Crossings - Signalised LT]

## Network: 1 [Fu AM - Base - No Slips - 130s - USING - WITH CROSSINGS]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 130 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 227 | 5.0 | 227 | 5.0 | 0.288 | 30.5 | LOS A | 7.9 | 57.3 | 0.59 | 0.73 | 33.7 |
| 2 | T1 | 1423 | 5.0 | 1423 | 5.0 | 0.811 | 45.4 | LOS C | 30.5 | 223.0 | 0.95 | 0.87 | 12.5 |
| 3 | R2 | 664 | 5.0 | 664 | 5.0 | 0.771 | 71.6 | LOS C | 21.4 | 156.5 | 1.00 | 0.87 | 22.0 |
| Approach | | 2314 | 5.0 | 2314 | 5.0 | 0.811 | 51.4 | LOS C | 30.5 | 223.0 | 0.93 | 0.86 | 18.6 |
| East: Kangan Drive (east) | | | | | | | | | | | | | |
| 4 | L2 | 267 | 5.0 | 267 | 5.0 | 0.214 | 11.6 | LOS A | 5.5 | 39.8 | 0.39 | 0.67 | 43.8 |
| 5 | T1 | 582 | 5.0 | 582 | 5.0 | 0.876 | 56.8 | LOS C | 28.3 | 206.5 | 0.97 | 0.93 | 31.3 |
| 6 | R2 | 212 | 5.0 | 212 | 5.0 | 0.476 | 52.3 | LOS A | 11.7 | 85.1 | 0.92 | 0.81 | 22.6 |
| Approach | | 1061 | 5.0 | 1061 | 5.0 | 0.876 | 44.5 | LOS C | 28.3 | 206.5 | 0.81 | 0.84 | 31.2 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 224 | 5.0 | 224 | 5.0 | 0.215 | 14.3 | LOS A | 4.1 | 29.9 | 0.45 | 0.69 | 43.6 |
| 8 | T1 | 1344 | 5.0 | 1344 | 5.0 | 0.742 | 26.0 | LOS C | 21.9 | 159.9 | 0.77 | 0.67 | 20.4 |
| 9 | R2 | 340 | 5.0 | 340 | 5.0 | 0.789 | 72.3 | LOS C | 22.1 | 161.2 | 1.00 | 0.88 | 22.3 |
| Approach | | 1908 | 5.0 | 1908 | 5.0 | 0.789 | 32.9 | LOS C | 22.1 | 161.2 | 0.77 | 0.71 | 24.0 |
| West: Sir Gustav Nossal Boulevard (west) | | | | | | | | | | | | | |
| 10 | L2 | 143 | 5.0 | 143 | 5.0 | 0.267 | 26.5 | LOS A | 4.2 | 30.8 | 0.82 | 0.76 | 32.3 |
| 11 | T1 | 156 | 5.0 | 156 | 5.0 | 0.779 | 72.1 | LOS C | 5.8 | 42.7 | 1.00 | 0.87 | 27.6 |
| 12 | R2 | 95 | 5.0 | 95 | 5.0 | 0.779 | 78.0 | LOS C | 5.8 | 42.3 | 1.00 | 0.87 | 17.5 |
| Approach | | 394 | 5.0 | 394 | 5.0 | 0.779 | 57.0 | LOS C | 5.8 | 42.7 | 0.93 | 0.83 | 26.0 |
| All Vehicles | | 5677 | 5.0 | 5677 | 5.0 | 0.876 | 44.3 | LOS C | 30.5 | 223.0 | 0.85 | 0.80 | 23.6 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 17.7 %
Number of Iterations: 10 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P12 | South Stage 2 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P2 | East Full Crossing | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 300 | 59.3 | LOS E | | | 0.96 | 0.96 |

# PHASING SUMMARY

## Site: 1 [Clyde / Kangan Fu AM - With Crossings - Signalised LT]

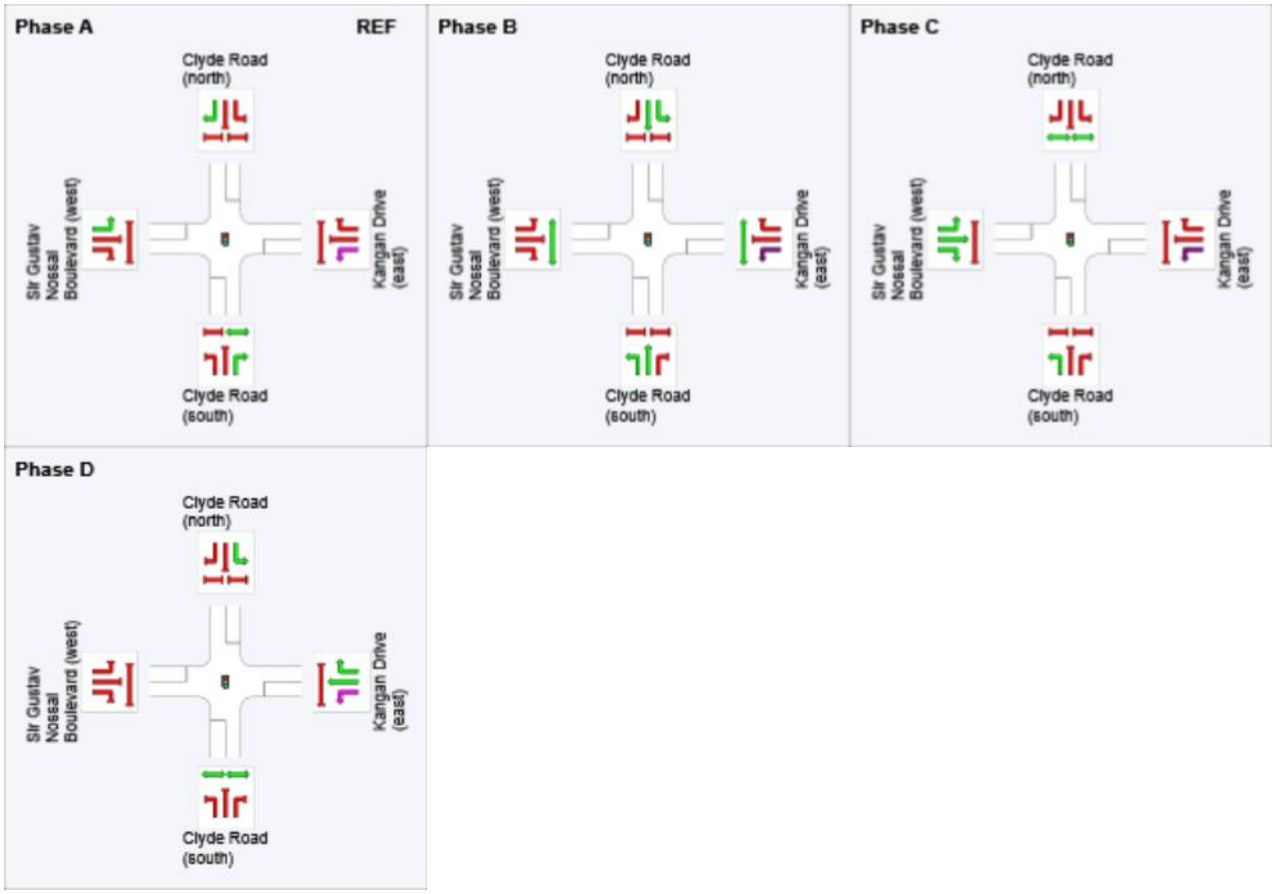
## Network: 1 [Fu AM - Base - No Slips - 130s - USING - WITH CROSSINGS]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 130 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Green Split Priority applies**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C, D**
**Output Sequence: A, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C | D |
|---|---|---|---|---|
| Phase Change Time (sec) | 15 | 50 | 96 | 109 |
| Green Time (sec) | 29 | 40 | 7 | 30 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 35 | 46 | 13 | 36 |
| Phase Split | 27 % | 35 % | 10 % | 28 % |




REF: Reference Phase
VAR: Variable Phase

Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Kangan Fu PM - With Crossings - Signalised LT]

## Network: 1 [Fu PM - Base - No Slips - 150s - USING - WITH CROSSINGS]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 104 | 5.0 | 104 | 5.0 | 0.085 | 15.9 | LOS A | 2.7 | 19.4 | 0.38 | 0.67 | 41.9 |
| 2 | T1 | 1360 | 5.0 | 1360 | 5.0 | 0.694 | 35.5 | LOS B | 30.6 | 223.2 | 0.82 | 0.72 | 15.0 |
| 3 | R2 | 308 | 5.0 | 308 | 5.0 | 0.704 | 84.3 | LOS C | 11.6 | 84.3 | 1.00 | 0.82 | 19.8 |
| Approach | | 1772 | 5.0 | 1772 | 5.0 | 0.704 | 42.8 | LOS C | 30.6 | 223.2 | 0.82 | 0.74 | 18.2 |
| East: Kangan Drive (east) | | | | | | | | | | | | | |
| 4 | L2 | 378 | 5.0 | 378 | 5.0 | 0.424 | 17.7 | LOS A | 13.6 | 99.0 | 0.57 | 0.74 | 38.4 |
| 5 | T1 | 153 | 5.0 | 153 | 5.0 | 0.753 | 67.8 | LOS C | 14.2 | 103.4 | 0.97 | 0.81 | 28.2 |
| 6 | R2 | 273 | 5.0 | 273 | 5.0 | 0.753 | 76.8 | LOS C | 14.2 | 103.4 | 1.00 | 0.87 | 17.7 |
| Approach | | 804 | 5.0 | 804 | 5.0 | 0.753 | 47.3 | LOS C | 14.2 | 103.4 | 0.79 | 0.80 | 26.4 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 291 | 5.0 | 291 | 5.0 | 0.301 | 14.2 | LOS A | 5.0 | 36.4 | 0.40 | 0.68 | 43.7 |
| 8 | T1 | 1496 | 5.0 | 1496 | 5.0 | 0.699 | 20.5 | LOS B | 23.0 | 167.6 | 0.62 | 0.55 | 23.7 |
| 9 | R2 | 156 | 5.0 | 156 | 5.0 | 0.713 | 84.5 | LOS C | 11.7 | 85.5 | 1.00 | 0.82 | 20.2 |
| Approach | | 1943 | 5.0 | 1943 | 5.0 | 0.713 | 24.6 | LOS C | 23.0 | 167.6 | 0.61 | 0.59 | 26.8 |
| West: Sir Gustav Nossal Boulevard (west) | | | | | | | | | | | | | |
| 10 | L2 | 345 | 5.0 | 345 | 5.0 | 0.654 | 31.5 | LOS B | 14.7 | 107.2 | 0.91 | 0.84 | 29.7 |
| 11 | T1 | 491 | 5.0 | 491 | 5.0 | 0.533 | 54.8 | LOS A | 15.8 | 115.1 | 0.93 | 0.79 | 31.9 |
| 12 | R2 | 230 | 5.0 | 230 | 5.0 | 0.525 | 60.4 | LOS A | 14.8 | 107.8 | 0.93 | 0.82 | 20.6 |
| Approach | | 1066 | 5.0 | 1066 | 5.0 | 0.654 | 48.5 | LOS B | 15.8 | 115.1 | 0.92 | 0.81 | 29.0 |
| All Vehicles | | 5585 | 5.0 | 5585 | 5.0 | 0.753 | 38.2 | LOS C | 30.6 | 223.2 | 0.77 | 0.71 | 24.8 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 7 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P11 | South Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P12 | South Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P2 | East Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 300 | 69.3 | LOS F | | | 0.96 | 0.96 |

# PHASING SUMMARY

## Site: 1 [Clyde / Kangan Fu PM - With Crossings - Signalised LT]

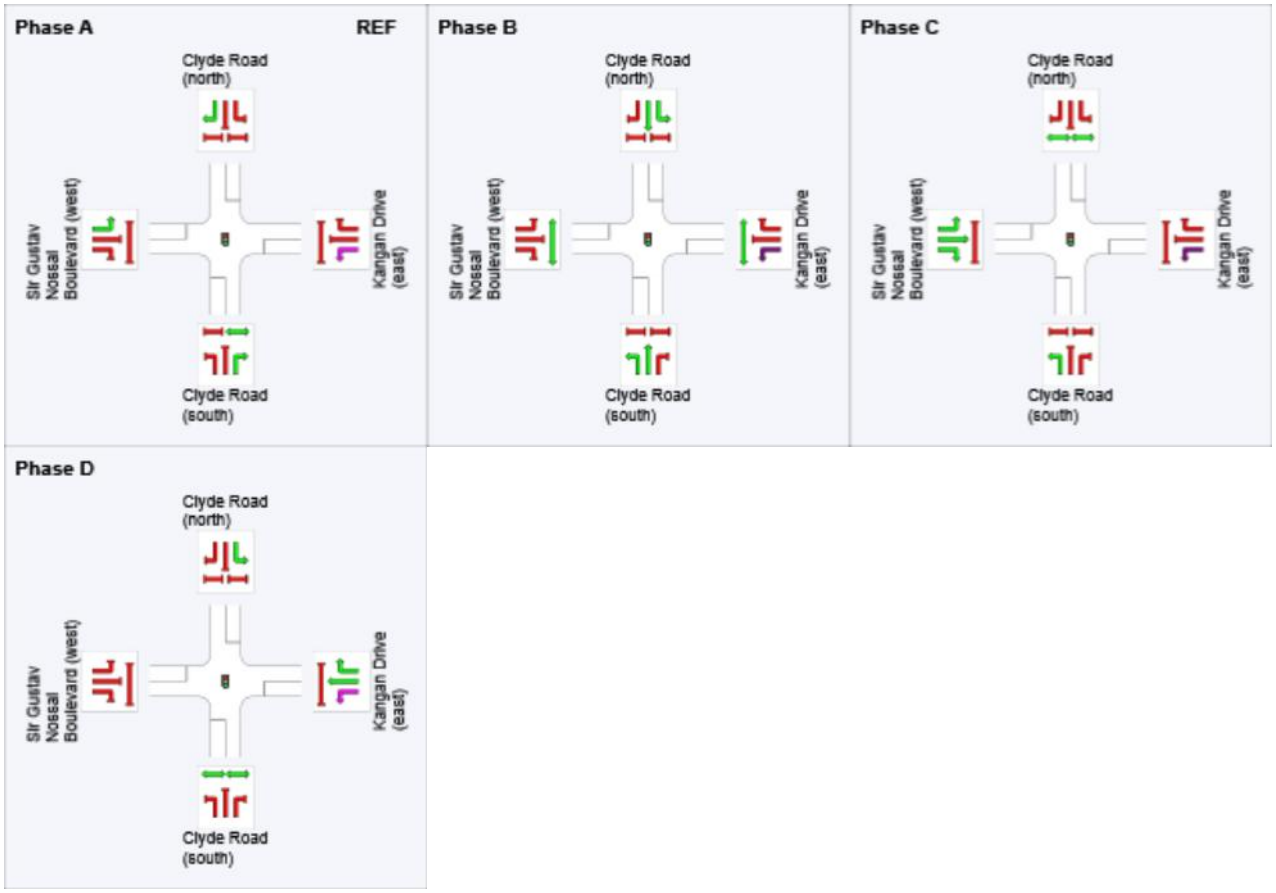
## Network: 1 [Fu PM - Base - No Slips - 150s - USING - WITH CROSSINGS]

Clyde / Kangan
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Split Phasing**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C, D**
**Output Sequence: A, B, C, D**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C | D |
|---|---|---|---|---|
| Phase Change Time (sec) | 0 | 23 | 84 | 124 |
| Green Time (sec) | 17 | 55 | 34 | 20 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 23 | 61 | 40 | 26 |
| Phase Split | 15 % | 41 % | 27 % | 17 % |




REF: Reference Phase
VAR: Variable Phase

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Fu E-W Fu AM - With Crossings]

## Network: 1 [Fu AM - Base - No Slips - 130s - USING - WITH CROSSINGS]

Clyde / Fu E-W Fu AM
Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 472 | 0.0 | 472 | 0.0 | 0.343 | 11.5 | LOS A | 11.1 | 77.6 | 0.44 | 0.70 | 46.3 |
| 2 | T1 | 2063 | 5.0 | 2063 | 5.0 | 0.890 | 41.8 | LOS C | 49.8 | 363.2 | 0.91 | 0.95 | 13.1 |
| 3 | R2 | 125 | 0.0 | 125 | 0.0 | 0.239 | 46.0 | LOS A | 6.2 | 43.5 | 0.83 | 0.77 | 28.0 |
| Approach | | 2660 | 3.9 | 2660 | 3.9 | 0.890 | 36.7 | LOS C | 49.8 | 363.2 | 0.82 | 0.89 | 20.0 |
| East: Fu E-W (east) | | | | | | | | | | | | | |
| 4 | L2 | 42 | 0.0 | 42 | 0.0 | 0.080 | 44.0 | LOS A | 2.0 | 13.9 | 0.79 | 0.72 | 28.5 |
| 6 | R2 | 54 | 0.0 | 54 | 0.0 | 0.722 | 78.9 | LOS C | 3.7 | 26.2 | 1.00 | 0.83 | 17.2 |
| Approach | | 96 | 0.0 | 96 | 0.0 | 0.722 | 63.7 | LOS C | 3.7 | 26.2 | 0.91 | 0.78 | 21.5 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 161 | 0.0 | 161 | 0.0 | 0.145 | 13.3 | LOS A | 2.3 | 16.0 | 0.24 | 0.64 | 44.1 |
| 8 | T1 | 799 | 5.0 | 799 | 5.0 | 0.236 | 9.2 | LOS A | 10.5 | 76.9 | 0.33 | 0.28 | 42.4 |
| 9 | R2 | 708 | 0.0 | 708 | 0.0 | 0.590 | 63.7 | LOS A | 22.2 | 155.3 | 1.00 | 0.86 | 23.5 |
| Approach | | 1668 | 2.4 | 1668 | 2.4 | 0.590 | 32.7 | LOS A | 22.2 | 155.3 | 0.60 | 0.56 | 29.5 |
| West: Fu E-W (west) | | | | | | | | | | | | | |
| 10 | L2 | 138 | 0.0 | 138 | 0.0 | 0.192 | 25.5 | LOS A | 5.4 | 37.5 | 0.67 | 0.74 | 33.1 |
| 12 | R2 | 92 | 0.0 | 92 | 0.0 | 0.498 | 75.2 | LOS A | 3.0 | 21.3 | 1.00 | 0.74 | 21.4 |
| Approach | | 230 | 0.0 | 230 | 0.0 | 0.498 | 45.4 | LOS A | 5.4 | 37.5 | 0.80 | 0.74 | 26.3 |
| All Vehicles | | 4654 | 3.1 | 4654 | 3.1 | 0.890 | 36.2 | LOS C | 49.8 | 363.2 | 0.75 | 0.76 | 24.1 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 17.7 %
Number of Iterations: 10 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P2 | East Full Crossing | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 59.3 | LOS E | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 200 | 59.3 | LOS E | | | 0.96 | 0.96 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Fu E-W Fu AM - With Crossings]

## Network: 1 [Fu AM - Base - No Slips - 130s - USING - WITH CROSSINGS]

Clyde / Fu E-W Fu AM
Signals - Fixed Time Coordinated  Cycle Time = 130 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Green Split Priority applies**
**Sequence: Leading Right Turn - Copy**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C**
**Output Sequence: A, A1*, B, C**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | A1 | B | C |
|---|---|---|---|---|
| Phase Change Time (sec) | 121 | 31 | 36 | 109 |
| Green Time (sec) | 34 | *** | 67 | 6 |
| Yellow Time (sec) | 4 | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 | 2 |
| Phase Time (sec) | 40 | 5 | 73 | 12 |
| Phase Split | 31 % | 4 % | 56 % | 9 % |

*** No green time has been calculated for this phase because the next phase starts during its intergreen time.
This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified.
If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

REF: Reference Phase
VAR: Variable Phase

Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane

# MOVEMENT SUMMARY

## Site: 1 [Clyde / Fu E-W Fu PM - With Crossings]

## Network: 1 [Fu PM - Base - No Slips - 150s - USING - WITH CROSSINGS]

Clyde / Fu E-W Fu
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Movement Performance - Vehicles**

| Mov ID | OD Mov | Demand Flows Total veh/h | HV % | Arrival Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate per veh | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Clyde Road (south) | | | | | | | | | | | | | |
| 1 | L2 | 79 | 0.0 | 79 | 0.0 | 0.044 | 6.1 | LOS A | 0.4 | 3.0 | 0.12 | 0.58 | 51.4 |
| 2 | T1 | 1200 | 5.0 | 1200 | 5.0 | 0.296 | 8.2 | LOS A | 11.1 | 80.7 | 0.39 | 0.35 | 35.3 |
| 3 | R2 | 20 | 0.0 | 20 | 0.0 | 0.150 | 78.6 | LOS A | 1.4 | 9.9 | 0.97 | 0.70 | 20.5 |
| Approach | | 1299 | 4.6 | 1299 | 4.6 | 0.296 | 9.1 | LOS A | 11.1 | 80.7 | 0.38 | 0.37 | 36.2 |
| East: Fu E-W (east) | | | | | | | | | | | | | |
| 4 | L2 | 27 | 0.0 | 27 | 0.0 | 0.203 | 79.1 | LOS A | 1.9 | 13.5 | 0.98 | 0.72 | 20.3 |
| 6 | R2 | 34 | 0.0 | 34 | 0.0 | 0.170 | 73.1 | LOS A | 2.3 | 16.2 | 0.95 | 0.73 | 18.1 |
| Approach | | 61 | 0.0 | 61 | 0.0 | 0.203 | 75.8 | LOS A | 2.3 | 16.2 | 0.96 | 0.72 | 19.2 |
| North: Clyde Road (north) | | | | | | | | | | | | | |
| 7 | L2 | 25 | 0.0 | 25 | 0.0 | 0.018 | 8.9 | LOS A | 0.2 | 1.6 | 0.14 | 0.60 | 47.8 |
| 8 | T1 | 1960 | 5.0 | 1960 | 5.0 | 0.450 | 2.5 | LOS A | 9.8 | 71.7 | 0.12 | 0.11 | 54.0 |
| 9 | R2 | 119 | 0.0 | 119 | 0.0 | 0.446 | 84.7 | LOS A | 4.5 | 31.3 | 1.00 | 0.75 | 19.6 |
| Approach | | 2104 | 4.7 | 2104 | 4.7 | 0.450 | 7.2 | LOS A | 9.8 | 71.7 | 0.17 | 0.15 | 45.8 |
| West: Fu E-W (west) | | | | | | | | | | | | | |
| 10 | L2 | 538 | 0.0 | 538 | 0.0 | 0.828 | 29.9 | LOS C | 34.1 | 239.0 | 0.97 | 1.01 | 30.7 |
| 12 | R2 | 359 | 0.0 | 359 | 0.0 | 0.897 | 91.1 | LOS C | 14.8 | 103.5 | 1.00 | 0.99 | 18.8 |
| Approach | | 897 | 0.0 | 897 | 0.0 | 0.897 | 54.4 | LOS C | 34.1 | 239.0 | 0.98 | 1.00 | 23.7 |
| All Vehicles | | 4361 | 3.6 | 4361 | 3.6 | 0.897 | 18.4 | LOS C | 34.1 | 239.0 | 0.41 | 0.40 | 33.4 |

Site Level of Service (LOS) Method: Degree of Saturation (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on degree of saturation per movement.
Intersection and Approach LOS values are based on worst degree of saturation for any vehicle movement.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 7 (maximum specified: 10)

**Movement Performance - Pedestrians**

| Mov ID | Description | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Distance m | Prop. Queued | Effective Stop Rate per ped |
|---|---|---|---|---|---|---|---|---|
| P2 | East Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P31 | North Stage 1 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P32 | North Stage 2 | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| P4 | West Full Crossing | 50 | 69.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 |
| All Pedestrians | | 200 | 69.3 | LOS F | | | 0.96 | 0.96 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

# PHASING SUMMARY

## Site: 1 [Clyde / Fu E-W Fu PM - With Crossings]

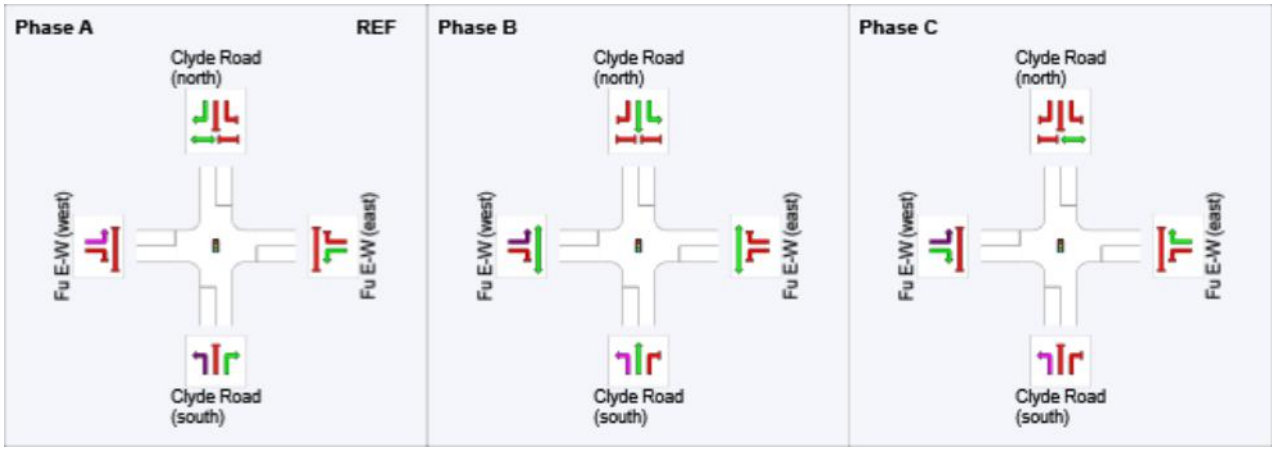
## Network: 1 [Fu PM - Base - No Slips - 150s - USING - WITH CROSSINGS]

Clyde / Fu E-W Fu
Signals - Fixed Time Coordinated  Cycle Time = 150 seconds (Network Cycle Time - User-Given)

**Phase Times determined by the program**
**Sequence: Leading Right Turn**
**Reference Phase: Phase A**
**Input Sequence: A, A1*, A2*, B, C**
**Output Sequence: A, B, C**
(* Variable Phase)

**Phase Timing Results**

| Phase | A | B | C |
|---|---|---|---|
| Phase Change Time (sec) | 0 | 16 | 129 |
| Green Time (sec) | 10 | 107 | 15 |
| Yellow Time (sec) | 4 | 4 | 4 |
| All-Red Time (sec) | 2 | 2 | 2 |
| Phase Time (sec) | 16 | 113 | 21 |
| Phase Split | 11 % | 75 % | 14 % |




REF: Reference Phase
VAR: Variable Phase

| | | | |
|---|---|---|---|
| | Normal Movement | | Permitted/Opposed |
| | Slip/Bypass-Lane Movement | | Opposed Slip/Bypass-Lane |
| | Stopped Movement | | Turn On Red |
| | Other Movement Class Running | | Other Movement Class Stopped |
| | Mixed Running & Stopped Movement Classes | | |
| | Undetected Movement | | Phase Transition Applied |

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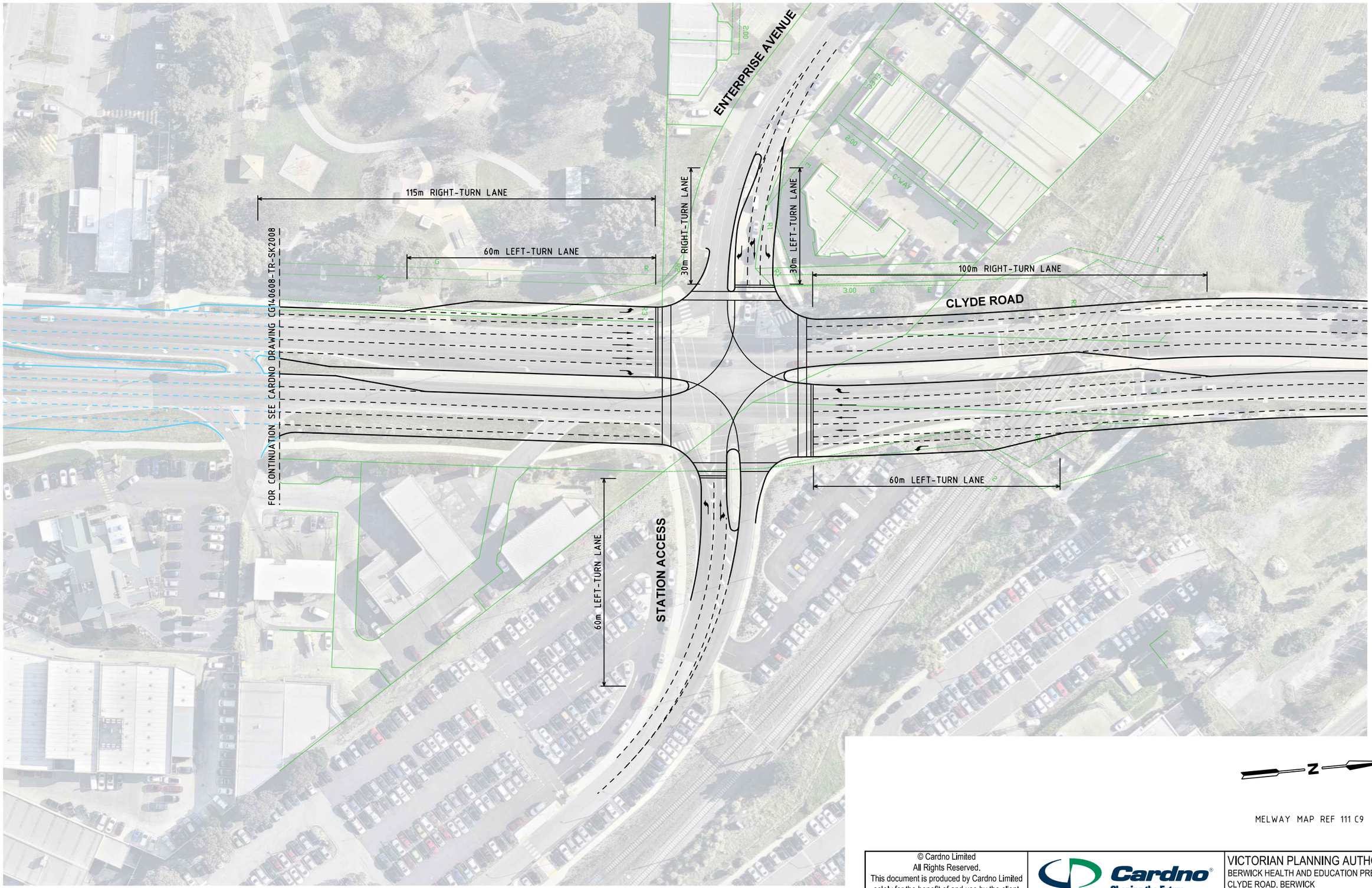
Berwick Health and Education Precinct

# APPENDIX E

## ULTIMATE INTERSECTION LAYOUT – CONCEPT PLANS

BY: User:corey.bowen
DATE PLOTTED: 20/04/2017 4:40:28 PM

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VICTORIAN PLANNING AUTHORITY
BERWICK HEALTH AND EDUCATION PRECINCT
CLYDE ROAD, BERWICK
CONCEPT LAYOUT PLAN

| Drawn/Check | Date | Scale | Size |
|---|---|---|---|
| COB / SGM | 19.04.2017 | 1:1000 | A3 |

| Drawing Number | Revision |
|---|---|
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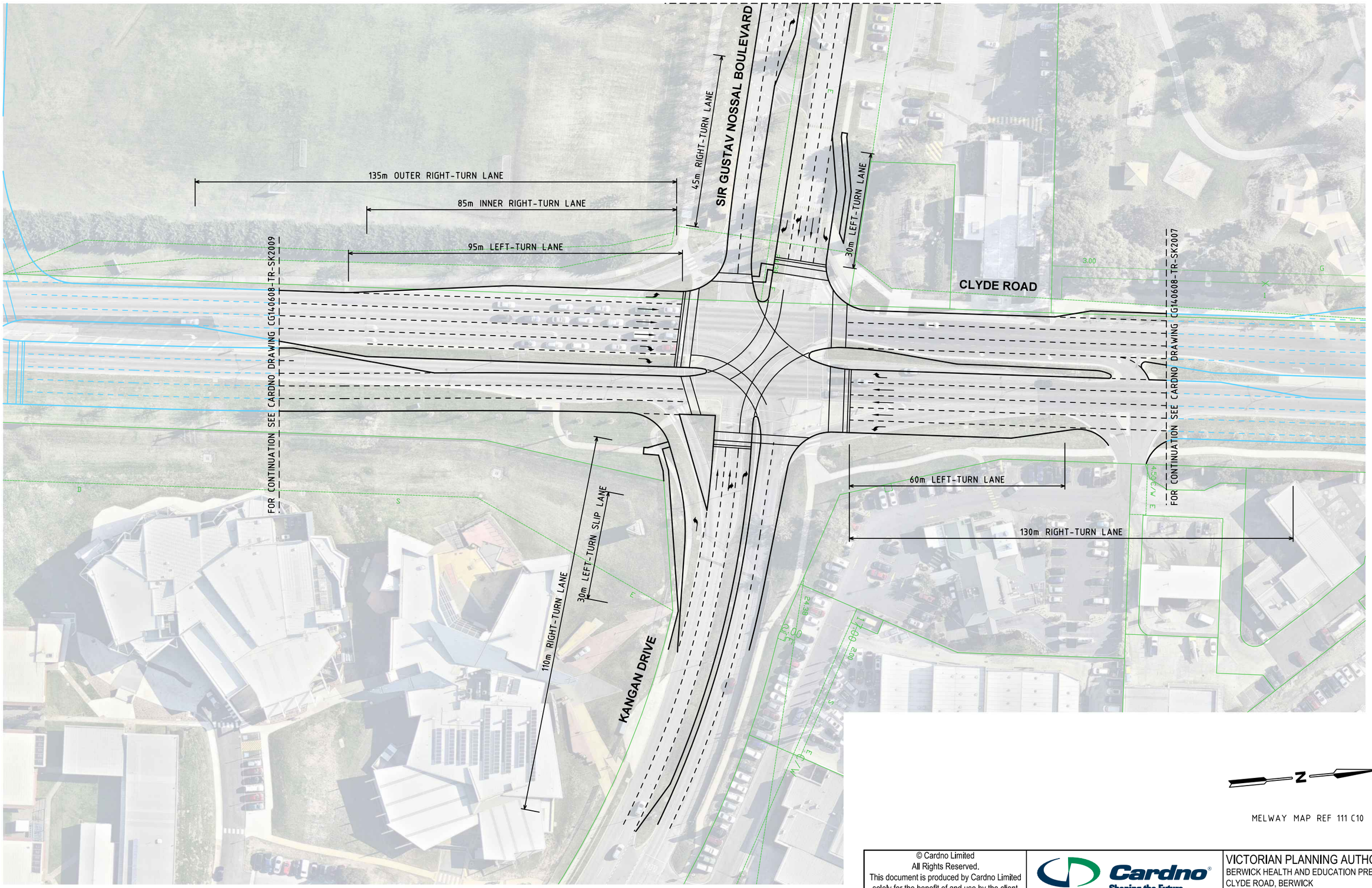


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| Drawing Number | Revision |
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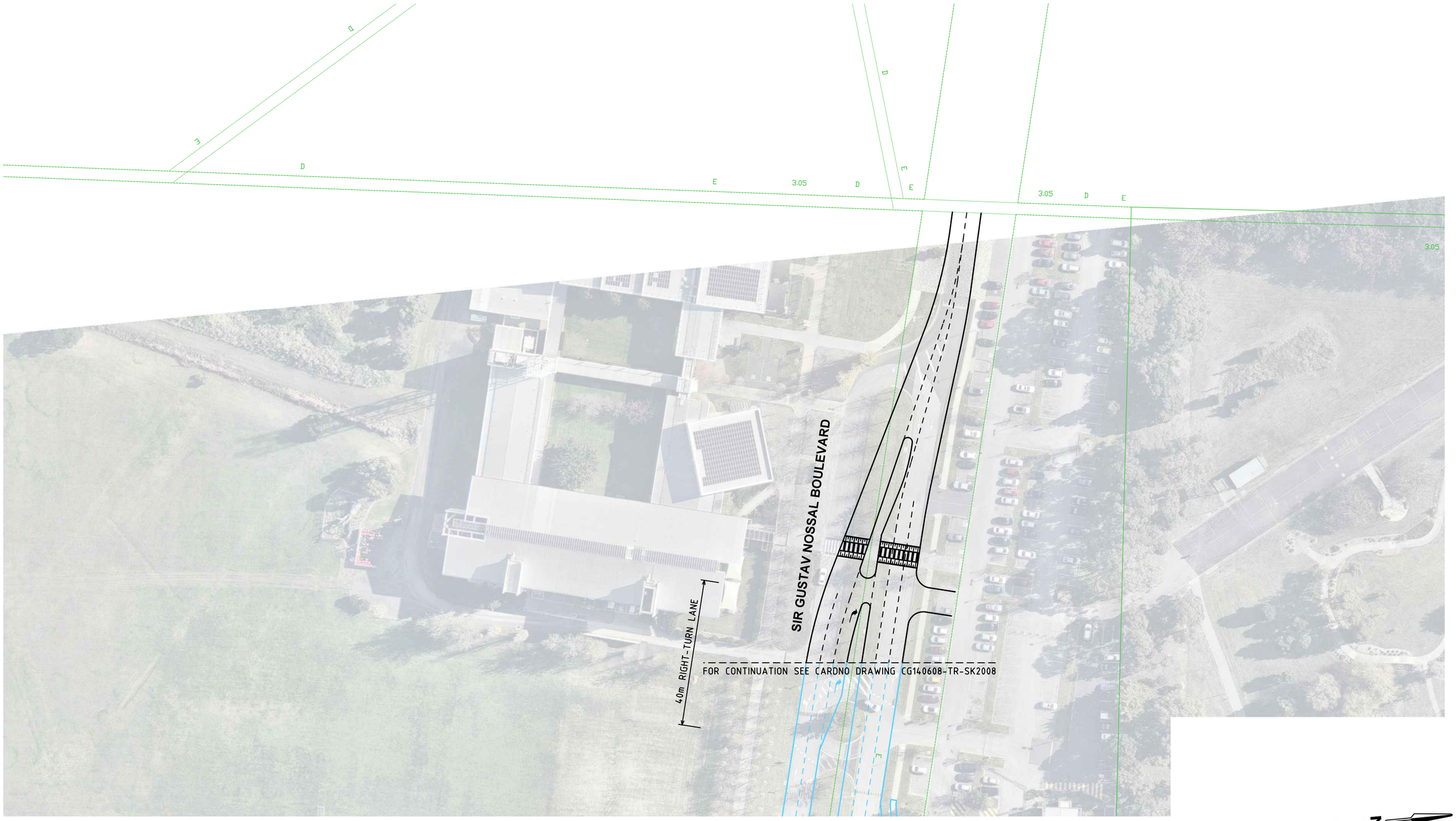
BY: User:corey.bowen

DATE PLOTTED: 20/04/2017 4:38:35 PM

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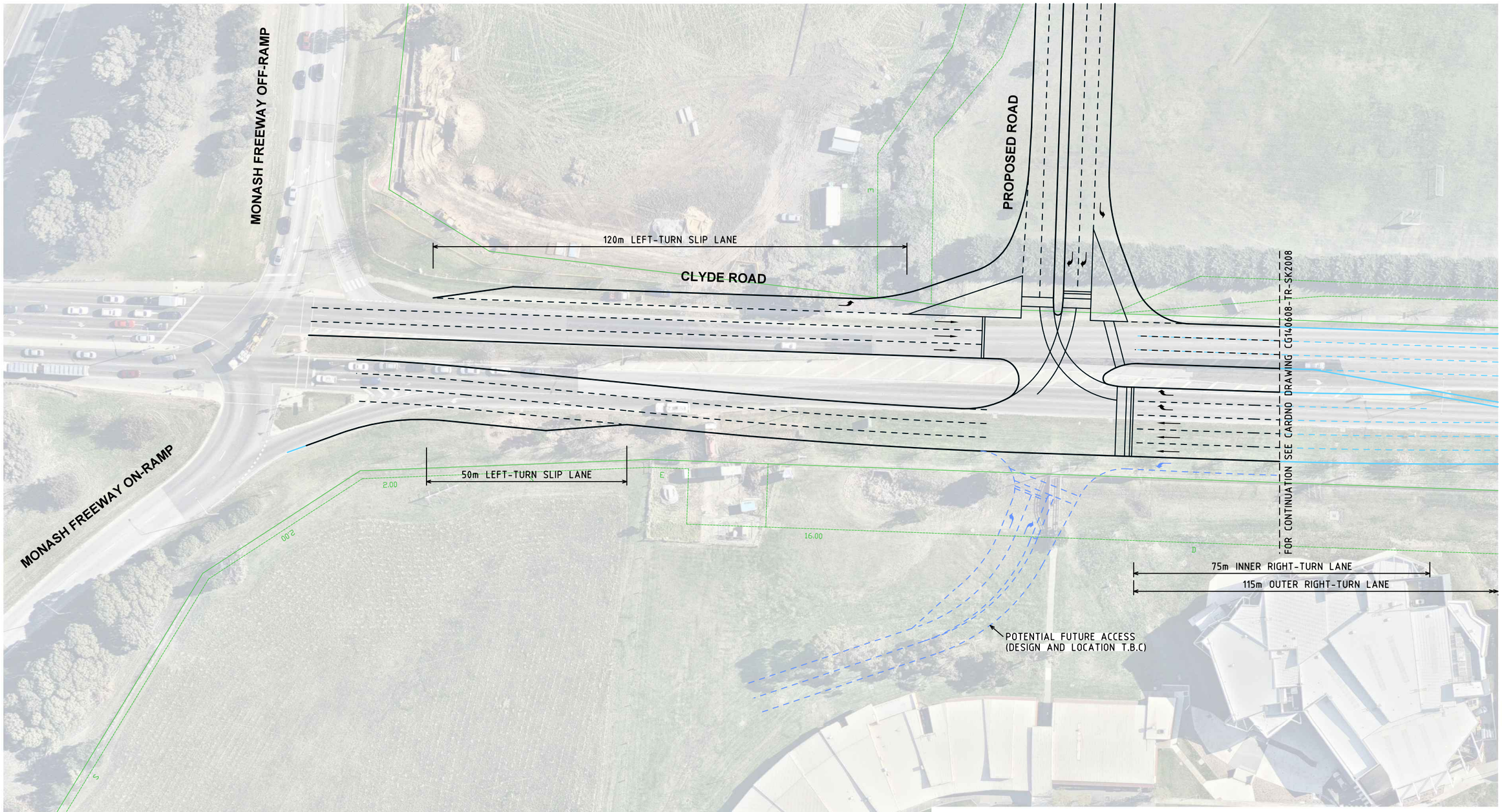


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